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**BULIDING A WEB CONTENT MANAGEMENT
SYSTEM
(E-INVOCING GENERATION SYSTEM)**

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**BULIDING A WEB CONTENT MANAGEMENT SYSTEM
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by

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Signature



DEDICATION

I devote and pledge this research work to my supervisor who is salient for guiding me through whole research work as well as my family for always assisting me in my hard time.



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ABSTRACT

BULIDING A WEB CONTENT MANAGEMENT SYSTEM (E-INVOICING GENERATION SYSTEM)

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This project discusses totally various existing open-source web content Management Systems (WCMS) and their properties. the most aim of WCMS is to permit non-technical users to simply update and admin a site's content. however, WCMS merchandise on the market on the market nowadays have incorporated several different complicated functionalities, that makes the user interface troublesome to grasp and utilize. All WCMS need some quantity of coaching on installation and where to begin out. once amalgamation, users got to scan the manual or take lessons to utilize various on the market Developed advantages. The analysis question scouted about here is if or not to execute a WCMS from existing choices compared with the practicableness of constructing a replacement one from scratch. This paper discusses the issues of developing a modern WCMS, as well as the benefits and Defects relative to AN off-the-shelf product, here we have a tendency to take (Invoice on-line System) An e-Invoice Systems can go a long way in assisting a firm keep track of each accomplished and continual projects, so aiding in bill-creation and project administration, which might serve to be a good plus within the long run.

Keywords: Data Design and Management, Web Technologies, Software Construction.

TABLE OF CONTENTS

ABSTRACT.....	vii
LIST OF TABLES	xii
LIST OF FIGURES	xiii
LIST OF ABBREVIATIONS	xiv
1. INTRODUCTION.....	1
1.1 WHAT IS AN INVOICE?	3
1.1.1 What Is Included In An Invoice?.....	3
1.1.2 The 5 Key Benefits Of E-Invoicing.....	5
1.2 WHY ARE INVOICES IMPORTANT?.....	7
1.3 CONTENT MANAGEMENT SYSTEM (CMS)?.....	7
1.4 NEED OF CONTENT MANAGEMENT SYSTEM.....	8
1.5 RESEARCH TOOLS	8
1.6 HTML.....	9
1.6.1 Basic HTML Document	9
1.6.2 HTML Evolution, What Is The Difference Between Html And Html5?	10
1.6.3 Pros and Cons of HTML	11
1.7 WHAT IS CSS?	12
1.7.1 Features of CSS	13
1.8 WHAT IS JAVASCRIPT?.....	13
1.8.1 What Can A JavaScript Do?	13
1.8.2 Features of JavaScript.....	14
1.8.3 How Are HTML, JavaScript, CSS, And Linked?	14
1.9 PHP INTRODUCTION	15

1.9.1 Common Uses Of PHP	15
1.9.2 Advantages and Disadvantages of PHP:	16
1.10 MYSQL	17
1.10.1 Advantages of MySQL:.....	17
1.11 JQUERY.....	18
<u>1.11.1 What jQuery Does ?</u>	18
1.11.2 The Variation Between jQuery And JavaScript	20
1.12 WHAT IS SASS?	20
1.12.1 Why to Use Sass?	21
1.12.2 Pros of Sass	21
1.12.3 Cons of Sass.....	21
1.13 RESPONSIVE WEBSITE DESIGN.....	22
<u>1.13.1 Responsive Web Design Techniques</u>	23
1.13.2 Responsive Web Design Vs. Traditional Web Design.....	24
1.13.3 Reasons Why You Should Design A Responsive Website For Your Website.	24
1.14 PROJECT DEFINITION AND PURPOSE	25
2. LITERATURE REVIEW	26
2.1 THE HISTORY OF CONTENT MANAGEMENT SYSTEM	28
2.2 THE DOM AND DYNAMIC HTML REVOLUTION	29
2.3 THE ESSENTIAL COMPONENTS OF A CMS	29
2.4 THE TYPES OF CONTENT MANAGEMENT SYSTEMS FOR ORGANIZATIONS	30
2.4.1 Enterprise Content Management.....	30
2.4.2 Web Content Management System	30
2.4.3 Reasons for Using WCMS.	30

2.5 WHAT IS THE DISTINCTION AMONG AN OPEN SOURCE AND ACOMMERCIAL CONTENT MANAGEMENT SYSTEM?	31
2.6 HOW DOES A CMS COMPARE TO THE TRADITIONAL INFORMATION UPDATE THROUGH THE INTERNET?	33
2.7 SPECIFICATIONS OF THIS PROJECT	34
2.8 DISADVANTAGES OF THIS PROJECT	34
3. METHODOLOGY	35
3.1 ADVANTAGES.....	35
3.1.1 Operational Definition.....	35
3.1.2 Access Control.....	35
3.1.3 Workflow.....	36
3.2 DATABASE ARCHITECTURE	37
3.3 HIGHER LEVEL OVERVIEW (SYSTEM ENGINEERING)	40
3.4 SYSTEM MODULES	41
3.4.1 User Login:	41
3.4.2 User Registration:	42
3.4.3 Edit User:	42
3.4.4 Create Client:	42
3.4.5 Modify Client:	43
3.4.6 Add Services:.....	43
3.4.7 Edit Service:	43
3.4.8 Create Invoice:.....	44
3.4.9 Search Invoice:	45
4. IMPLEMENTATIONS	46
4.1 FEATURS OF CMS	46

4.2 CODE	46
5. SIMULATIONS OF RESULTS AND DISCUSSIONS.....	68
5.1 RESULT&DISCUSSIONS	68
6. CONCLUSION	70
APPENDIX.....	76



LIST OF TABLES

	<u>Pages</u>
Table 1. 1: Basic Html Document.....	9
Table 1. 2: Different Between JavaScript And jQuery	20
Table 2. 1: Explain CMS By Updating Traditional Information Over the Internet.....	33
Table 3. 1: Characterizes Every One of The Schedules Utilized On That Project.	38



LIST OF FIGURES

	<u>Pages</u>
Figure 1. 1: Project Architecture.....	2
Figure 1. 2: The Main Differences Between Html4 And Html5	11
Figure 1. 3: Different Internet Devices Resolution.....	22
Figure 3. 1: E-R Diagram (Invoice).....	39
Figure 3. 2: Higher Level Overview (System Engineering)	40

LIST OF ABBREVIATIONS

CMS	:	Content Management System
HTML	:	Hyper Text Mark-up Language
CSS	:	Cascading Style Sheets
PHP	:	Hypertext Pre-processor
SQL	:	Structured Query Language
SASS	:	Syntactically Awesome Style Sheets
RWD	:	Responsive Web Design
DOM	:	Half Power Beamwidth
API	:	Application Programming Interface
CMA	:	Content Management Application
CDA	:	Content Delivery Application
WCMS	:	Web Content Management system
ECM	:	Enterprise Content Management

1. INTRODUCTION

Its Accounting Solution Software Online the billing generator is free to utilize for both individual, and mercantile utilize. You can log to the system Via Internet through the Desktop or a tablet or any smartphone Use it as often as you'd like billing generator makes your life simple when it comes to billing and aggregation money. The billing maker utilizes a regular layout that contains on all of the substantial specifics for spotless, proportionate, and delicate billing practices.

The electronic billing system has many advantages. The first of these characteristics is the presence of a unique number for each invoice, this is called the UUID and is different from the company's internal invoice number. The second of these characteristics is the presence of a unified form and content for each invoice within the system, with an emphasis that the form of the invoice will not change within the company.

The importance of billings to your commercial project, Commercial activities and emerging projects goes through many important stages, starting from the creation of the basic project idea, the feasibility study and planning for the project, the start of its implementation, the innovation and launch of products and services, the marketing of the project outputs, the sale and receipt of receivables, as we will focus here on the importance of invoices for you as a business or entrepreneur. Business owner in collecting payments from your customers online. When you realize the importance of invoices on your business, your image in front of the customer, their impact on your project in the short and long term, you will inevitably erase the previous saying from your brain. . Let's now learn about the importance of the invoice to your business, and who are the beneficiaries and affected by this important document.

First: the consumer or the beneficiary. It is every person who acquires different things, buys different materials, consumes food products, and benefits from the services of companies and commercial institutions.

Second: the supplier, company, or trader: He who produces, sells, resells, or distributes goods, services and products, and offers them to consumers, or the target groups of services he provides, of all kinds in the world of entrepreneurship and business. There are other bodies that benefit from the bill, such as government agencies or agencies responsible for collecting taxes.

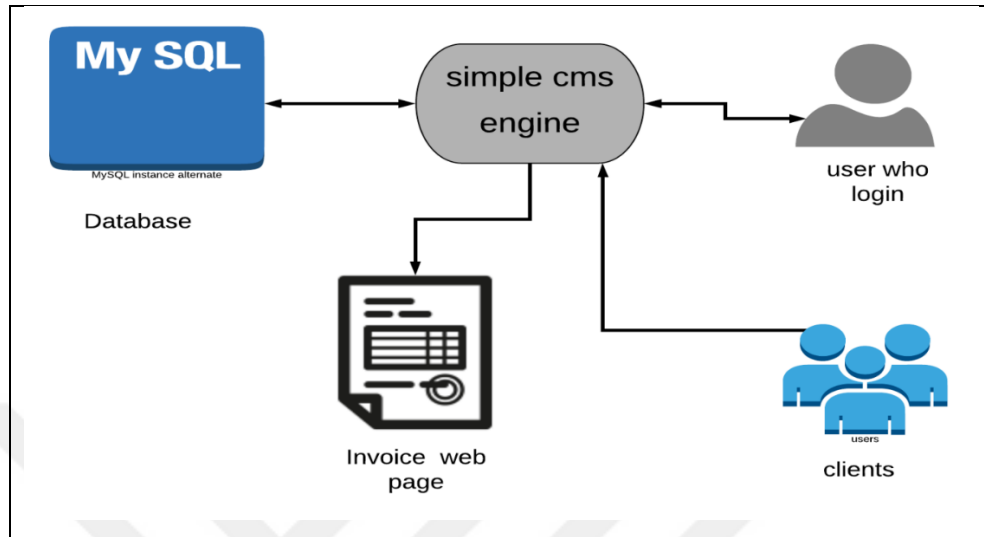


Figure 1. 1: Project Architecture

The most main objective of AN invoice is to supply a record of sale thus a business will get paid by its purchasers. however, invoices serve alternative vital functions, a number of which could not be now clear. the subsequent square measure the key functions invoices serve:

1. **Bookkeeping:** Invoices create a record of all of your sales so square measure useful for clerking functions. Invoices give documentation of your business's money date. They track every income returning into your business over sales and may assist you gauge your profits and Revenues.
2. **Tax Records:** Your sales invoices offer documentation that assists to verify the knowledge you register on your tax filings all year. The agency advises that every tiny commercial house owner ought to keep daily records epitomizing their commercial transactions, as well as invoices. Visit their web site for additional details of the recordkeeping recommendations progressed by the agency.
3. **Legal Protection:** Invoices facilitate defend little businesses from lying lawsuits, as a result of invoices offer details of the services you offer to your shoppers and therefore the timeline of after you complete the work. invoice additionally provides a record of the number a consumer in agreement to push for your services and signed invoices will function de jure obligated agreements.

- 4. Marketing:** Records of your invoices will assist you develop ways for selling your business. you'll analyze your invoices to spot peak times once your services square measure most in requested, the foremost well-liked and least well-liked services you supply and alternative trends in your business. Once you establish these trends, you'll develop good selling ways supported the info to develop your business.

1.1 WHAT IS AN INVOICE?

The electronic billing system is a procedure that aims to transform the process of issuing paper bills and notices into an electronic process that allows the exchange of invoices and debit and credit notices and their processing in an electronic format organized between the seller and the buyer in an integrated electronic format. In other words, It is a detailed notification that displays the clients sales specifics and the seller's records [1].

1.1.1 What Is Included In An Invoice?

- 1- Name of your business
- 2- Seller contact information
- 3- Invoice number
- 4- Due date
- 5- Bill to contact information
- 6- Product or service details
- 7- Sales tax
- 8- Terms of Payment
- 9- Discount
- 10- Notes

What To Include On An Invoice?

- 1- Name of your business :** One of the foremost necessary parts of typical invoice form is Your name, it explains your establish and establishes your branding, include your company emblem for an

additional professional touch. This project allows you create an easy emblem if you are doing not it own one

- 2- **Sellers contact information:** Adding merchandiser contact info lets your customers skills to contact you if they need any questions on the bill It additionally permits them to contact you for future work.
- 3- **Invoice number:** To keep organized and build the trailing quicker for tax separation, it's better to supply a unique and consecutive invoice digit for each invoice you deliver.
- 4- **Payment terms:** These terms are generally discriminate at the down of the bill to inform customers about the length of time for Payment period. For example, you can determine it with "net 30 days", meaning that the pay should be Complete within 30 days.
- 5- **Due date:** The Invoice Date and Payment Term Days offer you the maturity, that ought to be in natural English and simple to grasp. Determine the maturity date on the invoice may be a tactful and Vocational method of creating it obvious to your consumer once they ought to push. suitable payment remember also can facilitate stay your clients on schedule to push.
- 6- **Bill to contact information:** Who is this bill meant for and their contact data?
- 7- **Product or service details :** allocate Description, amount, Rate, quantity, and Subtotal. A lot of specifics you involve on the bill, the better. This method, your consumer can apprehend specifically what they're paying for to receipt the invoice.
- 8- **Sales tax:** Based on Your specialty and kind of business, the tax demand will differ. Refer to your native tax bureau and involve the suitable tax amount on the bill. professional tip: utilize an invoicing application to administer your work activities, modification tax settings as would like be and build your tax time easier.
- 9- **Discount:** If you're providing a reduction to a valued customer, involve the digit here. this may be a proportion or actual quantity.

10- Notes

A simple, customized note can leave a decent impression with the consumer and compound the possibility of an invoice obtaining paid quicker. you'll be able to conjointly involve payment directions, warrant info, discount specifics or the rest relevant to the work[2].

1.1.2 The 5 Key Benefits Of E-Invoicing

1- A major source of savings

- a) As we have seen, the main argument that companies make when going down this route is cut cost. And with good reason! With processing costs reduced by 60% to 80%, electronic administration is an economic chance that shouldn't be condoned [3].

2- Process optimization, in particular:

- a) **Shorter payment times:** Ease of tracking of bill online means payments, tracking and reminders for clients and providers can be automated. hence, Pay times are shorter... and more often adhered to.[4]
- b) **More reliable quality:** decrease manual entry result in higher-quality invoices. It is not uncommon to find false information in paper.
- c) **More productive teams:** Thanks to digital technology, some accounting teams' tasks are faster and easier to do which enables them to keep time and increase their output. For example, the average billing processing time is lower from 15 days (for 100% paper) to 3 days (for 80% intangible). so that They can focus on their primary mission[5].

1.1.3 How To Make Your Invoices More Effective?

several business owners send invoices all the time but be unsuccessful to benefit of the several methods your billing can indeed assist you combine paid quicker. Definitely, some late clients will always be delay, but to seize every chance to improve the invoicing operation, and support clients to push at mentioned time (if not soon), it lets you better control through your financial flow. Here are some fantastic methods to utilize your bills to promote quicker paid:

1. Send your billing directly when the task is done

whilst your services are still up modern in your client's intellect, Send your bills as fast as you can, phone billing applications able be a large assist here. If you collect instant invoices through electronic push choices, you will be much most probably that you will be paid immediately .

2. Online invoices

If you're still generating bills manually, think disposing that contain carbon notebooks, converting to online billing software. general clients prefer digital billings. They are automatically in a format

that's simple to read, and able to be loaded into their computation to be paid system without the requirement for a detach survey. Online billing simplifies the invoice operation, making paid to you quicker. This is an online project, which allows little business holders to readily transmit bills, track tasks, and even combine pushes once the task is accomplished.

3. Itemize, do not popularize

Billing is often a very strong tool for getting paid speedily, as long as it's simple to know . Avoid grouping specifics jointly and clarify even the tiniest details as detach elements so there's no room for ambiguity, Ex, detaching labor and portions, and disconnecting inside those categories (i.e., design fees and installation should be itemized within labor).

If you're in disbelief about what proportion detail to comprise, constantly stay on the clarity and over-disclosure side. you'll not have anyone hold a batch, since these are numerous details about the bills.

4. limit payment conditions

Ensure that your client obviously realizes your propulsion conditions. Discuss it with them during your stay on the site and include the conditions immediately on the bill form. Don't be shy about narrowing your regular 30-day periods to roughly 14 days. Some clients will stay while the likely last minute to push the bill, departure you are hanging around for longer than you need. The payment terms will bridge the gap amidst the services provided and the batch received.

5. Facilitate the payment process

provide your customers with as several payment methods as likely. Cash may be property, but in our electrically connected world, The majority of people don't own much of it on hand. You can greatly raise the speed of making money by agreeing on digital payment methods such as PayPal, borrower, or credit. certainly, you'll get a little percentage, only at the littlest, the money is on its route to you.

6. Set up automatic payment reminders

A little reminder can go a long way in making sure you get paid, but manually calling, texting, or emailing be painful. Take the work out of following up by setting up automatic payment reminders within this project. Just set your ideal timeframe (i.e. on the due date, three days before the invoice is due, etc.) and will send a friendly reminder for you.

1.2 WHY ARE INVOICES IMPORTANT?

collecting and sending invoices to client able be a time-engross operation, but inevitable process. But utilizing the documents such as bills will assist you obtain paid on time and in entire. An invoice provides legally allowable guide that your services and goods were submitted. It also helps prove the seller's prerogative to pay. An efficient invoicing system supply enough statutory protection when notable with a tax examination, Enables commercial invoices to prove the reported income[6].

1.3 CONTENT MANAGEMENT SYSTEM (CMS)?

Content Management System is a web app which include tools that help us to add, generate, alter& delete web pages and content on site from inside a web browser and it does not demand any knowing of web page design tools or else comparable technologies [7]. Content management is an inherently cooperative operation. It often contains of the following essential roles and accountabilities:

1. **Creator:** responsible for creating and editing content.
2. **Editor:** responsible for altering the style of delivery, including translation and localization.
3. **Publisher:** responsible for Issuance the content for utilize.
4. **Administrator:** responsible for administering access license to folders and files, generally by assigning access rights to user groups or roles.
5. **The Client, Viewer, Or Visitor** is the person who reads the content or follows it in another way after it is published or participating in it.

A content management system acceleration the operation of updating content and makes it easier for the non-technical user. It is often utilized to edit, control, and posted it, Releases of particular documents. This helps in keeping the content updated and suitable. They are used for various kinds of app to administer their content. Here are some CMS applications:

1. Blogs: comments on a specific subject.
 2. News: reading newspapers online rather than reading paper/paper copy;
 3. Wikis: these are open to general editing. The basic advantages of CMS vary greatly from one system to another; several of the simpler systems offer only a few advantages, while others, mostly Institutional systems, are more Complicated and stronger.
 4. let for a big figure of people to participate and contribute to stocked data.
 5. Control access to data depend on user role (i.e., locate information users or user groups able be show, edit, posted, etc.).
 6. making easy store and recuperation of data.
- Control data truth [8].

1.4 NEED OF CONTENT MANAGEMENT SYSTEM

The figure of visits increased Significantly, and the content varied too. Now, your modest website is a gateway and a workplace - not just a display or an information warehouse. A broken link or bad code isn't just embarrassing, because of its effect on the bottom line. The content of your website must be updated immediately and continuously, and the site must be running whole the time - without any forgiveness for Errors and bad information, from any source. maybe the product administrator, somebody in the company's Telecommunications, or both should agree to the alterations before they are posted on the website. It is possible that you are dealings buy and transactions of other content over the Internet. As your sites become more important and Complicated, you want tools to automate administration. CMS is a suitable option for you [8].

- in one word we can Summed up the requirement of CMS as follows.

1. To set apart money Instead of continuing to pay web designers for Each update.
2. To help you appear on the initial page of Google CMS, it has become popular and simple to utilize, you can speedily and easily update your site on your own.
3. It is easier and readily to generate web pages without knowing HTML[8].

1.5 RESEARCH TOOLS

many technological tools have been utilized in this project; everything is recapitulated in the following Partitions.

1.6 HTML

HTML Symbolize Hyper Text Mark-up Language; HTML is meant to be a language that able be utilized to characterize the logical construction of documents and the relationships among documents stocked in various positions. HTML documents may contain text, photos, links, and extra multimedia content and programming scripts[9].

1.6.1 Basic HTML Document

As mentioned once, HTML is a Coding language, and many markups are used to Coordinate content. These marks are placed inside corner brackets with the exception of a few signs, most signs have their congruent closing marks. ex: has its locked mark and tag has its locked mark,tag etc. HTML documents utilize the next tags in the above example:

Table 1. 1: Basic Html Document

Tag	Description
<!DOCTYPE...>	This mark locates the document kind and HTML Release.
<HTML>	This mark includes the entire HTML document and fundamentally includes of document header which is exemplify by ... and document frame which is exemplify by marks.
<HEAD>	This mark exemplifies the document's header which can hold another HTML tags like<title>, <link> etc.
<TITLE>	The <title> tag is used inside the<head> tag to mention the document title
<BODY>	This mark exemplifies the document's body which retains another HTML marks such as <h1>, <div>, <p> etc..
<H1>	This mark exemplifies the heading.
<P>	This mark exemplifies a paragraph.

education HTML is simple as users have to learn the usage of various tags so as to Coordinate the text or photo to create a pretty webpage. To learn HTML, you will need to study diverse tags and

comprehend how they conduct, whilst formatting a textual document. . (W3C) recommends utilizing little tags beginning from HTML 4[10].

1.6.2 HTML Evolution, What Is The Difference Between Html And Html5?

Developed by a group known as WHATWG, HTML5 was designed to improve upon previous HTML versions and solve some cross-browser compatibility issues. We'll use the word "HTML" to refer to versions prior to HTML5.

Here are the main differences between HTML and HTML5:

- 1- HTML5 is better at supporting various media formats, such as audio and video, as it provides its own tags. HTML has no such tags, and relies on plugins from third parties.
- 2- HTML does not allow JavaScript to be run in the browser. HTML5 solved this problem by introducing the JS Web Worker API. Now that JavaScript is natively supported, better pages can be designed using front-end scripts to improve the user experience.
- 3- HTML5 includes new input attributes, such as email, URLs, date and time, search, etc.
- 4- HTML5 is device independent, and its compatibility with browsers is better than previous HTML versions.
- 5- HTML5 has better parsing rules (parsing is a word processing process) and allows more flexibility in parsing than HTML.
- 6- HTML5 makes it easy to find geolocation without the need for any third-party plugins.
- 7- HTML5 also supports vector graphics natively, thus, there is no need for third-party software, such as Adobe Flash.

In short, HTML5 is just an improved version of HTML with additional features and functionality.[11].

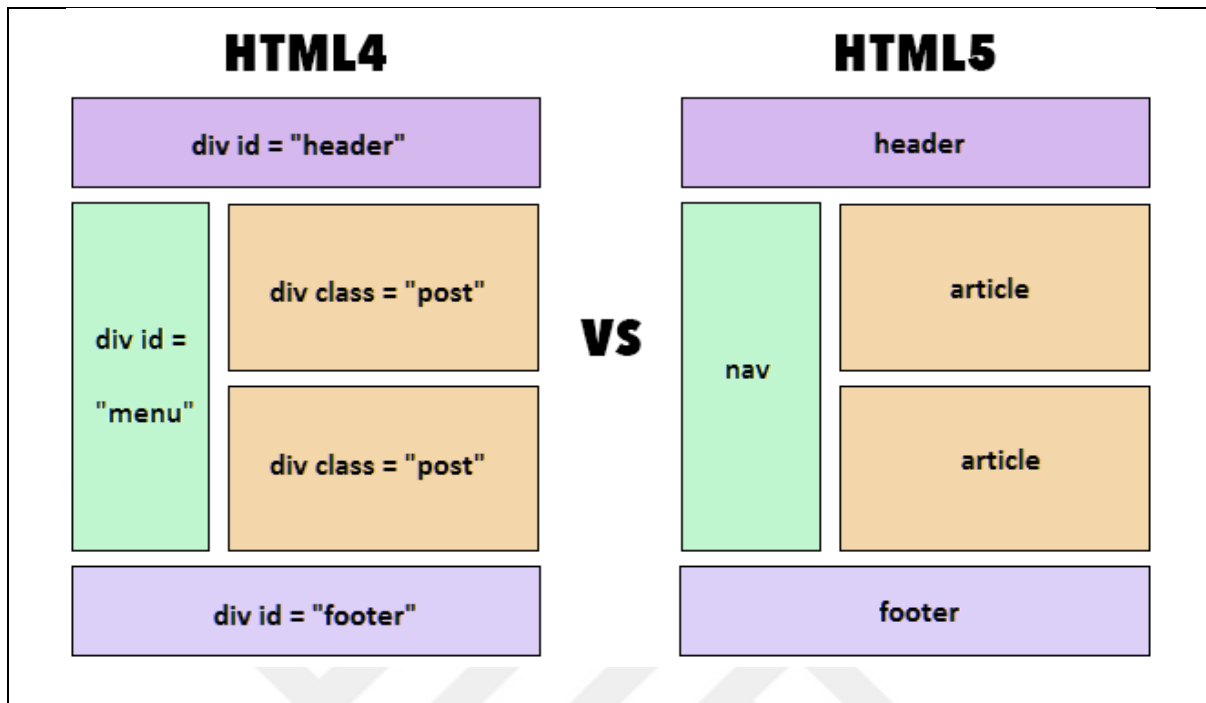


Figure 1. 2: The Main Differences Between Html4 and Html5

1.6.3 Pros and Cons of HTML

Pros:

1. simple to utilize
2. HTML is easy enough to type
3. HTML is that it is easy to code.
4. HTML also lets the use of templates, which makes designing a web simple
5. extremely useful for beginners in web design.
6. Supported on nearly each browser, if not every browser.
7. Your knowledge of HTML enables you to write scripts and deal with other languages
8. HTML is so easy to learn that you won't have a hard time learning it.
9. It is Free
10. Programming languages such as Visual Basic depend on it.

Cons:

1. If you want to develop dynamic web pages you need to know some other programming languages like .Net and Java because it is a fixed language
2. The structure of HTML documents is sometimes difficult to understand
3. Mistakes can be expensive.
4. can establish a fixed family only pages even if we in the dynamic pages, HTML will not be beneficial.
5. Need to type More codes for making easy webpage.
6. It does not allow the user to implement the logic, as a result all web pages must be created separately, even if they use the same elements, such as headers and footers.
7. The security features are less in HTML. [12].

1.7 WHAT IS CSS?

CSS is an abbreviation for Cascading Style Sheet, which means streamlined style sheets. CSS technology is used in the design of web pages, through which the appearance of the entire site is controlled in terms of the type, color, or size of the font used, without the need to write or repeat these codes in every page within the site, The function of this technology is to control how the web page is displayed without interfering with the content, which makes it easier to manage the site. Modifying one CSS file will affect the design of all pages of the site. CSS files simplify the process of designing and managing websites and solve many problems that any website developer may face.

The main goal as a language was to separate the document content from the presentation of the document, which includes style elements, such as color, layout and fonts, CSS deals with design and feels part of the web page, with CSS you will control text color, font design, paragraph spacing, and how columns are sized and laid out, etc., and CSS guides the rendering of HTML on how to display the website at the user's end and this is the difference between programming languages [13].

1.7.1 Features of CSS

1. It is easy for the user to customize the page on the Internet
2. Reduces the file transfer size.
3. 3- It saves time as CSS style definitions are saved in external CSS files so that the entire website can be changed by changing only one file.
4. CSS provides more detailed attributes than regular HTML to define the look and feel of a website
5. It is less complex and therefore the effort is greatly reduced.
6. The main advantage of CSS is that the style is applied consistently across a variety of sites, a single instruction can control many areas which is useful, and this can be learned through programming language learning sites [13].

1.8 WHAT IS JAVASCRIPT?

JavaScript is a high-level programming language commonly used in web development. Netscape developed it as a way to add dynamic and interactive elements to websites.

JavaScript is heavily influenced by the Java language and is similar in structure to C and is based on ECMAScript, which is a programming language developed by Sun Microsystems. Over time it has replaced a variety of other programming languages to become the standard for browser programming.

Java was created by Brendan Eich in 1995 under the name Mocha while working at Netscape, drawing inspiration from Java, Scheme and Self, This language did not receive attention in the beginning, but with time it became a source of interest for many programmers after adding new technologies and supporting it to the Java language and called it JavaScript. [14].

1.8.1 What Can A JavaScript Do?

- 1- let's HTML designers a programming tool
 - a) HTML authors are usually not programmers, but JavaScript is a programming language with a extremely unpretentious syntax!
 - b) nearly any person can set little "snippets" of code into their HTML pages.

- 2- place dynamic text to an HTML page
 - a) A JavaScript statement like this: `document. Write("<h1>" + name + "</h1>")` can write a variable text into an HTML page.
- 3- Responding to events
 - a) A JavaScript able be placed to implement When anything happens such as when a page has completed Downloading or when a user clicks on an HTML item.
- 4- enable read and write HTML items.
- 5- able be used to check from the data (e.g. form data) before it is delivered to a server[15].

1.8.2 Features of JavaScript

JavaScript is used in programming by the client or the so-called client side, but it is characterized by many technologies and features, including:

1. It is implemented from the client side, for example you can check the validity of any entries before sending the request to the server.
2. It is a relatively easy language to learn and is close to English.
3. An independent programming language and not, as some believe, is related to the Java language.
4. Provides more control services in browsers.
5. Interactive and fast.
6. It has rich interfaces, and you can drag and drop components to enrich your interface with the required elements.
7. A functional programming language.

1.8.3 How Are HTML, JavaScript, CSS, And Linked?

although HTML is a sturdy language, creating a professional and responsive website is not enough. We are able to only utilize it to insert text elements and make the content makeup. CSS is accountable for layouts like background, spacing, colors, layouts, and cartoons nevertheless, HTML does very well for two primary languages: CSS, and JavaScript. jointly, they can realize wealthy user practice and perform advanced assignments, JavaScript allows you to insert

efficacious tasks like sliders, picture gallery, pop-ups, Think of HTML as a naked individual, JavaScript as movements and way and CSS as the apparel.

1.9 PHP INTRODUCTION

Hypertext Pre-Processor Language, or as it is known as PHP, is a programming language that was primarily made to be used for developing and programming websites.

PHP is one of the most popular programming languages that are used to create websites, and it is one of the languages in which the web server interprets and implements its code and then sends the result to be displayed in the user's browser, and PHP is used to create dynamic web pages, i.e. pages with variable content And this content changes as a result of interaction with the user.

PHP is an open-source language and is constantly being developed by a group of volunteers under the PHP license, and this is one of the main reasons for its popularity. PHP was invented, created and developed in 1994 by Rasmus Ledorf.[16].

1.9.1 Common Uses Of PHP

PHP often runs on a web server, but in addition to that, it represents a wide range of tasks and uses, and we can mention several of them as follows:

- 1- Using PHP, you can work on Web Applications; Such as creating login pages for username and password, checking details from a form, creating forums, photo galleries, surveys, and many more.
- 2- They are generally used to improve web pages.
- 3- PHP implements system functions, i.e. through files on a system, where it can create, open, read, write and close them.
- 4- PHP can handle forms.
- 5- Through PHP, data can be collected from files, saved to a file, or through e-mail, and data can be sent, and the data is returned to the user.
- 6- insert, cancel or modulate items within the database.
- 7- Using PHP you can restrict users' access to some pages of your website.
- 8- The ability to encrypt data

1.9.2 Advantages and Disadvantages of PHP:

Pros:

- 1- Most substantial feature of PHP is that it's open source and free of cost. It is oftentimes downloaded anywhere and easily ready to use for event of site apps.
- 2- It is podium freelance. PHP approved on apps can turn on any Operating system such as UNIX , Linux and windows.
- 3- You can readily download the app that depends on PHP and is linked to the database. It is used mainly because of the faster, slow internet download rate and speed compared to other scripting language.
- 4- It helps in administer code readily.
- 5- Has strong library support to use different task units to represent data.
- 6- The database connection units integrated in PHP help in linking the database readily which reduces the Troubles and time for improving website apps and content depend on websites.
- 7- elasticity makes PHP available to Successfully integrate with several another scripting languages Even that the programs bundle could enable first efficient technology for each specific advantage [18]

Cons:

Despite its many advantages, richness and diversity, PHP also has some disadvantages:

- 1- It is not safety ,The open source nature of PHP seems to be both an advantage and a disadvantage. Since everyone can see the PHP source code, it is possible for a hacker to recognize errors in the code and later use such errors to attack unaware users.
- 2- Not designed to create large applications .
- 3- it is considered a somewhat unstable programming language because it does not follow a sound and organized system for naming its functions and classes, but it does not follow a specific system for naming
- 4- The programmer must be connected to the database to be able to use (mysql -real-escape-string).
- 5- PHP don't let's alter or modification in essence behavior of online applications.

- 6- very difficult to administer as it is not a qualified standard. It already mimic the advantage of Java language[19].

1.10 MYSQL

It is utilized by majority new sites and web-based services as a suitable and quick -arrival storage and recapture resolution for large sizes of information. A modest example of elements who can be stocked in a MySQL database would be the username registered on the site with a password linked with it (encrypted for safety), the user's recording date, the digit of visits, etc.

MySQL enable also be accessed using several tools. It can be easily connected via PHP (PHP Hypertext Preprocessor), a programming language who essential focus is on the HTML handling of a web page on the server before it is conveyance to the customer device ,User can send queries to database via PHP, lets data to be inserted, retrieved and processing in / from the database..[20].

1.10.1 Advantages of MySQL:

- 1- **Popularity and Ease of use:** As one of the most popular database structures in the world, there is no shortage of database executives who have practices working with MySQL. Likewise, there is a wealth of print and online documentation about the most efficient way to present and interact with a MySQL database, just like various external devices - for example, phpMyAdmin - that plan to simplify the path across getting started with a database.
- 2- **Safety :** MySQL comes inserted with a content that backing you to progress the safaty of your database by setting the incorporation secret word safety level, describing a secret word for the root customer, emptying ambiguous records, and expelling test databases that are, of course, open to every customer. as well, not at all like SQLite, MySQL backing customer the board and allows you to grant get to benefit on a client-by-client preface.
- 3- **Speed:** By deciding not to activate specific highlights of SQL, the MySQL designers had the choice to organize quickness. While posterior standards show that various RDBMS systems like PostgreSQL can format or possibly get close to MySQL as quickly as possible, MySQL is still famous for being very fast ratting of databases.
- 4- **Replication:** MySQL supports different types of replication, which is the process of sharing data over at minimum two hosts to help progress precision, accessibility, and acclimation to non-dangerous failures. [21].

1.11 JQUERY

Initially, to comprehend what jQuery is, we want to see the essentials of JavaScript, HTML and CSS. essentially, it is not a language, but in truth it is a well-documented JavaScript symbol. As stated on formal on jQuery web, "it is a speedy and summarized JavaScript Library that facilitates HTML document crossing, juvenile processing, activating and Ajax reciprocation to develops quick web". In easy words so that a natural reader be able to understand it, we can word that jQuery is an open-source JavaScript library who major objective is to facilitate the interactions among an HTML document, Document Object sample and JavaScript. in other phrase, we can tell those who are own large Skills in JavaScript that it creates Dynamic HTML (DHTML) very simple. essentially it is working facilitation the following

- 1- Cross and manipulate HTML documents
- 2- Manipulation of browser events
- 3- Document Object Model animations
- 4- Expanded JavaScript via browser [22].

1.11.1 What jQuery Does ?

The jQuery bookstore offers a public-purpose abstract coat for popular programming on the site, Subsequently, is useful in almost every programming situation .ts scalable nature imply s that we cannot ever coat all likely usage and tasks in one book, as plugins are permanently being progressing to insert new capabilities. However, the primary advantages meet the next needs:

- 1- **Access parts page:** Without a JavaScript bookstore, several stripes of code should be written to cross the (DOM) tree and determine particular parts of an HTML document's construction. it provides a strong, active selection technique to restore the exact piece of document to be scanned or processed.
- 2- **Modify the appearance of a page:** CSS provides an effective way to influence the presentation of the document, but it falls short when not all web browsers backing the same norms. it can close this cavity, offering itself, norms backing through all browsers. as well as it able to alter the categories or singular patterns properties used to a part of the document even after viewing the page
- 3- **Change the content of a page:** : not only are cosmetic alterations, but it can also modulate the content of a recording same with a little click. Text can be altered, photos can be added or

Exchangeable, or rearrange the lists, or rewrite the makeup of the HTML can be rewritten and expanded —every using one easy-to-utilize API.

- 4- **Reply to user interaction with the page:** whilst the More detailed and strong conducts are not helpful if we can't dominance when they happen. The jQuery bookstore displays a tidy way to object to a wide diversity of juveniles, as a user pinking on a link, without the poverty to mess the HTML code same with juvenile processing. meanwhile, the juveniles-handling API clears the browser discrepancy which oftentimes Infects site providers.
- 5- **Insert the animation to the page:** To successfully execute like reactive behaviors, a designer should also supply visible Remarks to the employer. The jQuery bookstore makes that easy by providing a set of impacts like fade out and wipes, in addition, tools to formulate new impacts
- 6- **Restore data from a server without update a page:** the symbol style has become familiar like JavaScript, Asynchronous, and XML (AJAX), and help web improve in creating a reacting advantage and wealthy website. The jQuery bookstore clears the browser-particular complication of that operation, letting developers concentrate on the end of server function.
- 7- **Tasks Simplify joint JavaScript:** in extension to every of the document-particular advantage of jQuery, the bookstore offers improvement to requisite JS structure like reiteration and array processing.[23].

1.11.2 The Variation Between jQuery And JavaScript

Table 1. 2: Different Between JavaScript and jQuery

JavaScript	jQuery
JavaScript is a powerful computer programming language utilized to progress interaction in site browsers.	jQuery is the advanced Release from JavaScript, essentially library of language texts.
It is a mixing from DOM (document object sample) and ECMA script	It own DOM. It is a library programmed in JavaScript
it's written several lines of code	It does not impose developers to write so several lines of code. In truth , it makes it simple for the developers to achieve Functional tasks with minimal coding.
Developers take a long time for writing script	Scripts are already in libraries, sothey dont require writing such long lines of code
JavaScript can occur without jQuery	jQuery cannot occur without JavaScript.
It occupies a large distance in coding.	It does not need a large distance in coding[24].

1.12 WHAT IS SASS?

SAS is a programming language that translates in Cascading Styles Sheet (CSS), also known as a wizard. Sass can be compiled into CSS either by application, like Code Kit or Scout, or from the command line. Sass can be written in one of two formats: SCSS, the newer smaller to CSS or Sass, the old indentation -based syntax. Sass on most operating systems can be used, including Linux, Mac and Windows. Using Sass to create style sheets makes the operation faster, less complex, and simple to maintain. Sass also can you to use advantage that aren't inclusive (or further propped) in standard CSS, such as variables, blending, processing, and advanced tasks.. Sass is potentially the most mainstream CSS preprocessor ready. It is propped by a large, friendly and very active developer society. The main front end, such as Bootstrap and Foundation, is built on Sass. Although Sass scary might sound a little bit when you start it, due to its dependence on Ruby and

the expansion of powerful advantages, if you're usual with the structure of the CSS norm , the learning will come easily Sass[25].

1.12.1 Why to Use Sass?

1. Sass is a preprocessing language, that states a prefix (its syntax) for CSS.
2. offers several advantages, that are utilized for generating stylesheets which lets writing symbol more competence that is simple preserve .
3. a premium collection of CSSs, which include every the advantage of CSS and is an open-source pre-wizard blade in Ruby.
4. Present the document pattern in the perfect flat CSS layout format. It utilize re-usable ways, logic data, and several of the consolidated tasks like colour processing, math, and parameter roster. [26].

1.12.2 Pros of Sass

- 1- Let's pen CSS spotless scripting syntax.
- 2- also assist in writing in Cascading Styles Sheet fast.
- 3- It is a comprehensive suite of Cascading Styles Sheet, that assists developers and decorators operate more soundly and fast.
- 4- since Sass is suitable with every versions of CSS, we can employ any ready CSS libraries.
- 5- likely to use Overlapping structure and beneficial tasks like color processing, math, and another worth's.

1.12.3 Cons of Sass

- 1- developer takes time to gain novel advantage found in this pre-processor.
- 2- If multiple people are business in itself website, the same initial processor should be used. Some people utilize Sass, and another utilize CSS to promptly modulate the files. so, it becomes hard to operate over website
- 3- probability to lose the advantages of the browser built-in object checker.[26].

1.13 RESPONSIVE WEBSITE DESIGN

it is the name called to a group of mechanism apply to improve a one website which conform to different devices and is capable to adjust itself based on various screen sizes, Precision, and directions from larger accessories such as Internet TV. the minimal one on phone devices, use other name to characterize what is "adaptive web design" which as its name Indicates to the mechanism utilized in a site to cement it to conform various show devices.[27].

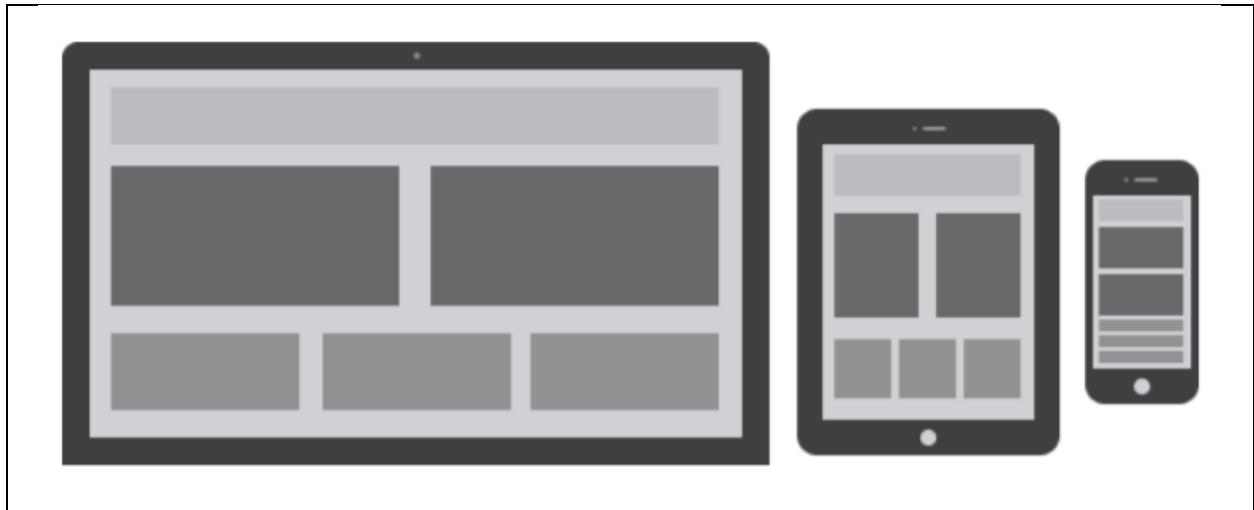


Figure 1. 3: Different Internet Devices Resolution

1.13.1 Responsive Web Design Techniques

There are three common techniques to prepare a responsive website design:

- 1. Fluid grid layouts (Relative-based grid):** The first step in interactive web design is to use flexible networks. often websites have a fixed width and are centered in the browser, but considering the large number of precisions today, the fluid grids' advantages are hard to ignore. Fluid grids are based on percentage sizes and are very well calculated. It ensures that all elements in the layout are scaled to each other; no longer size in pixel dimensions, but in proportional units and percentages. This way, when the website is scaled to a very low resolution, all its elements shrink and completely align with together . The best path to achieving like a website is to make a very careful design, take measures for each element, and split the width of the element over the design presentation[28].
- 2. Flexible images and media:** The second major component is represented by thumbnails. its can change the width and height Reliance on the decision and the size of the grid. photo can be saved on the server in groups of three or four dimensions to provide information quickly and easy , which will be downloaded through which the right picture later, Reliance on the screen size., depending on the size of the screen. There are many techniques that can proportionally resize images; the most used is the max-width: `img{max-width: 100%; height: auto}` This way, the maximum width of the image will be 100% and if that reduce smaller, so will the image. It is better to use the maximum size that will show in the site images, so as to avoid loss of quality.. So, fluid images cause the modification of the size to the original block. If the orginal block is minimal than the image exten then the image is reduced proportionally. For elastic embedded videos, the same method maybe applied[29].
- 3. Media queries and screen resolution:** It is an effective method to upload various CSS styles to different decisions, to provide the best possible experience for your visitors. Media queries are actually CSS style requirements Rely on screen quality. Media query is a CSS mechanism Were presented in CSS3The media base encompass a block of CSS properties unless a definite condition is correct. assume that the browser window is smaller than 320 pixels, and that the background color will alter to green and the edge of the div element in the menu will be deleted: `media only screen and (max-width: 320px) {body { background-color: green;}. menu {margin:0px;}}`, Using a collection of comparable queries, various

conditions could be generated for higher terms: 480px, 600px, 768px, 900px, 1200px. It can use any number of conditions as needed. Ideally, the site should look flawless in any case of subtlety, but given the time-consuming procedure [30].

1.13.2 Responsive Web Design Vs. Traditional Web Design

an example of an unresponsive web design page is one that reads well on desktop browsers but includes small text and hard to read on smartphones, often due to too many columns or images that are too large to fit into a limited width. For smartphone display frame. In contrast, with fast responsive design, web developers don't have to concentrate on particular show sizes; instead, web code is responsive designed to conform to a domain of show sizes, offers various layouts based on the show size and abilities of the phone device or computer.[31].

1.13.3 Reasons Why You Should Design A Responsive Website For Your Website.

As this internet age is moving more and more towards mobile, there is no point in designing a website that only looks good on a computer screen. You also have to take into account different tablets, laptops, and smartphones that come in different screen sizes while working on the design. There are 5 reasons why you should design a responsive website for your website :

- 1. Cost effectiveness :** Creating two different sites for your computer and mobile audience can cost you more. But with a responsive design, you can simply work on a design that caters to different audiences and different screen sizes. By investing in one design, your website can attract visitors from different devices.
- 2. Great user experience :** Creating a great user experience is essential to the continuity of any business. And believe it or not, your website is an extension of your physical business, when customers enter your store or shop, you can welcome them and offer them the necessary hospitality and start asking them for any help. This is all part of creating a great experience that will make this customer want to come back.
- 3. SEO Compatibility :** Search engine optimization (SEO) is a digital marketing strategy that every business looks to capitalize on. A well-optimized website has more chances of ranking well in search engines which is the best way for your customers to find you online. It boosts the ranking of mobile-optimized websites.

4. **Increases brand loyalty** : If increasing your visibility is essential to the growth of your online business, the next thing you need to do is focus on retaining your customers. This can only be achieved by increasing your brand loyalty with your customers, Responsive design plays a huge role in improving brand loyalty. By making simple design here and there to attract your customers.
5. **Increase sales and conversions** : The responsive design has more mobile-specific features such as tap to call or send a message. These are the features specifically created to improve your business' sales and conversions.

1.14 PROJECT DEFINITION AND PURPOSE

The main Target of this thesis is to illustrate how Simple Content Management System can be incorporated with the invoice system to help companies track their customers, business invoices and their business outcomes (by the number of invoices created). CRUD operations (by copying, reading, updating, deleting) by adding customer assistance and services in the invoice creation process because the company will no longer need to remember its customer details. Ultimately, seamless autocomplete can be used to create invoices for joint customers. The same invoices can be saved and retrieved for later use, and an offline PDF can be saved (redirected to the client).

2. LITERATURE REVIEW

In the modern world, we are all used to the idea that we can create our own documents but if you go back 15 or so years - the only way you could create a website was by understanding 'HTML' - which few did. Products like Dreamweaver and WordPress were not around - which meant that pretty much if you wanted to have a website (internet, extranet, intranet) then you needed someone with technical skills to write and design it - but not only that once they had written it you still needed someone technical to change it - as it involved reading HTML code to determine where to add content. As a result of the above - anyone with a website pretty much ran a 'centralized creation process' for web content. The 'norm' would be that if you had information you wanted on a web page you would send it via email to the 'web team' who would then amend an existing page or create a new one (if you were lucky you would get to 'approve' the page before it went live - if not you just accepted the formatting of the web team). In early days web Content Management systems were developed to resolve the issue of having highly experienced technical staff adding low level content to a website. In essence, a WCMS was invented to allow non-technical staff to create or amend web pages without the need to involve the technical staff (effectively removing the issue that existed with centralized web teams). Unlike a traditional Document Management System that does not necessarily enforce a structure on the documents being created - a WCMS typically enforces a structure on the pages being created - often referred to as templates. The structure (representing the layout 'code' for the web page) is typically concealed from the editor or author - so that the only task they have to complete is the insertion of content into a 'blank structured web page'.

While products like Dreamweaver, Frontpage and more recently WordPress have evolved to emulate the above scenario with features such as drag and drop resulting in the generation of code without technical know-how. to demand enhanced user experiences - driven by using tools like eBay and amazon - and the dominance of social tools like LinkedIn, Twitter and Facebook in driving what users 'expect' as an enhanced journey - so too have the WCMS tools and with the advent and popularity of Programming and Scripting Languages such as PHP, Perl and Python people saw the need to simplify the process of content management and updating and started to develop software and programs that could take of the increasing needs of web users,

where Kausik Saha reviewed in his research A (CMS) is program that assists us to form easier, quicker and responsive websites in an exceedingly very little time. In the CMS, this entire work is done by putt the content manage panel and displaying it on the suitable pages consistent with the foundations. recently there are many CMS accessible depend on functionalities, utilization, and platform. the most challenge is to pick the foremost acceptable CMS that Meets the users' needs, simple to utilize, update, rendering, harmony with the various platforms and looking and security aim. The study to investigate Joomla, on Based on User interface, Practical application, utilization, simple availableness of plugins, default integrated choices, installation method, browser harmony, rendering with totally various platforms, SEO, security purpose[33].

While Manoj Kumar Srivastav and Asoke Nath reviewed in their research the preparation and publication of web site to a large extent based on the demands of contents in a website. The contents of internet sites could also be terribly easy or complicated. Contents of an internet site might have to manage as per demand. So, a CMS go by 3 stage of life cycle: content, Administration, and publication stage. within the paper it's tried to review however a task will labors within the 3 stages of site CMS. A CMS may be a web app that work on net server to assist simplify generating an internet site. conjointly it's tried to review mathematically concerning operating of database in site Content Management System[34].

While Fernando Almeida and José Monteiro reviewed in their analysis Responsive style computer program developers to create an internet page which will dynamically adjust to the scale of the devices. they adopted a quantitative approach supported a form stuffed by 181 vocational within the trade that let them to spot the explanations that lead computer code developers to the Take of the responsive design and conjointly address the restrictions felt by them. This development philosophy permits the showing of sites in an exceedingly quick and Improved manner, guaranteeing a decent user expertise on mobile devices, pill and desktop. within the area of this study, they have a tendency to shall explore the most features and limitations related to responsive web styling[35].

2.1 THE HISTORY OF CONTENT MANAGEMENT SYSTEM

Web 1.0 is the term used to refer to the first stage of development on the World Wide Web that was describe by easy static websites. The history of content management systems started in 1989 when Tim Berners-Lee proposed an internet-based hypertext system HTML and wrote the browser and server software in late 1990. HTML came from SGML, which stands for the Standard Generalized Markup Language, and was generated at IBM by Charles F. Goldfarb, Ed Mosher, and Ray Lorie in the 1970s. The first websites were simple HTML text files. You used an FTP program to copy the files to a directory down a operation web server. In 1993, Mosaic browsers started supporting images that could appear with text, and static brochure-like sites shared company and product information.[36]

In the 1990s, the first step to managing content on a web page came with Server Side Includes (SSI). Server Side Includes allows you hold over parts of your site split up from the main content, like the site menu or a footer. about the same time, the Common Gateway Interface showed on the scene that let you create interactive shapes, As early as 1990, Tim Berners-Lee said the separation of document structure from the document's layout had been a aim of HTML. In 1994, Håkon Wium Lie worked at CERN and using the Web for publishing was growing. However, it wasn't possible to design documents, such as displaying a newspaper-style multi-column layout in a Web page. Lie saw the need for language as a style sheet on the Web. Later on, Bert Bos joined le who was structuring a customizable browser with style sheets. By 1995 the World Wide Web Consortium (W3C) was in operation, Lie and Bos worked together at the W3C on the first style sheets recommendations. In August 1996, the first commercial browser to support CSS was Microsoft's Internet Explorer 3. The next browser to support CSS was Netscape Communicator, version 4.0. Netscape's first implementation to support CSS was more of an try to prevent Microsoft from claiming to be more standards-compliant than Netscape. unluckily, the Netscape browser would frequently be shattering when the page contain Cascading Style Sheets. The battle for control of standards between Netscape and Microsoft came to be famed as the browser wars. In 1996, ColdFusion added a full scripting language called CFML. Processing forms with ColdFusion or using the Common Gateway Interface and programming languages like Perl and Python became the norm. From 1995 to 1997, server-side scripting was the rage. During this same time, Personal Home Page (PHP) and Active Server Pages (ASP) came into play with server-side

scripting for generating content sent from the server to the Web browser. Similar to ASP and PHP, Java Server Pages (JSP) arrived on the scene later in 1999 and was built around the Java programming language and was also fairly popular.

A dynamic revolution happened in 1997 with the presentation of the Document Object Model (DOM), an API for HTML and XML documents letting you identify and control parts of a document. The DOM let users access and manipulate the styles of HTML elements like the body or section of a page. After a few years the introduction of Asynchronous JavaScript and XML (Ajax) added to the dynamic revolution where developers could request and receive data to update a web page—without redownload the page.. [37]

2.2 THE DOM AND DYNAMIC HTML REVOLUTION

The turning point arrived in 1997 when dynamic content emerged along with the introduction of the Document Object Model (DOM). The DOM defines the logical structure of documents that allows you to programmatically define the control parts of a document. The DOM is an application programming interface (API) for HTML and XML documents. For example, the DOM allows you arrival and tamper the styles of HTML elements such as the full body (body) or a division (div) on a page. Dynamic HTML using Asynchronous JavaScript and XML, usually called Ajax, was a revolutionary breakthrough allowing developers demand and receive information to update a Web page without redownloading the page[36]

2.3 THE ESSENTIAL COMPONENTS OF A CMS

There are two core elements of any content management system (CMS): The Content Management Application (CMA) and the Content Delivery Application (CDA). A CMA allows website content to manage users and groups so that they can create, modify, and clear site content. The CMA also contain the front-end user interface that allows a person to add, modify, and remove content from a Web site without needing to know HTML, Cascading Style Sheets (CSS), or programming languages, thus cancel developer participation. The app(CDA) collect that data and updates the website[38, p. 2].

2.4 THE TYPES OF CONTENT MANAGEMENT SYSTEMS FOR ORGANIZATIONS

2.4.1 Enterprise Content Management

ECM is a collection of specific operations, strategies and material for space which lets Commercial Business To obtain important information, arrange, storage, and and provide important information to its employees, commerce stakeholders and clients. ECM has fast evolved as various shapes of content have been introduced into the work environment, However, these tools continue to focus on digital management of company's information in a central store and the use of digital content to backing commercial operations and assist fulfill aims. Enterprise content management doesn't point to a one technology or operation. It is an inclusive term that describing a set of way, tools and strategies that backing capturing and management content, as well as the storage, save and submission information in its various life cycle[39], An ECMS contain a web content management platform, with extra capabilities to spin a wider range of organizational input. This often contain document management, records administration, asset administration or digital cooperation advantage..[40].

2.4.2 Web Content Management System

WCM is a Web Content Management system. These systems are intended to equip your organization with the means of placing your business online at proportional ease. A WCM, at a basic standard, display features like ease of editing content, releases (reviews of your content), media administration, workflow administration for content consent and spread, template alteration, and a simple-to-utilize dashboard of some kind to equipping you with an outline of you location(s). Most CMS sellers display WCM within their enterprise group but can also be offered as a stand-alone parcel for minimal organizations.[41].

2.4.3 Reasons for Using WCMS.

web content management software was available, companies depend on static pages that were downloaded directly to servers in order that propagate their websites. For many reasons, many organizations continue to maintain their websites this method , and they have serious restriction on their facilities to modify and expand their entity on the web, here are the most important reasons that why many organizations are now using CMS for their website:

- 1- **Multiple editors** : if you want to grant access to multiple website editing, there is no better solution than a CMS. It's the best way to provide restricted, focused access to areas of your site that need to be updated without fully opening the site for not planned or unauthorized changes.
- 2- **Templates** : instead of creating raw pages from the start, a CMS penalizes you for relying on reusable templates you ability generate as several pages as mandatory with the right layout and Careers on everyone, This allows your location to maintain a consistent appearance as it grows.
- 3- **focus on Content** : by detaching your website content of its styling, your content management system penalizes your marketing squad for focusing on creating extra content to increase website passing, get better SEO, and switch clients. samples design and technical skills of the process make it more active.
- 4- **Safety** : CMS doesn't solely buffer your site from infrequently abundant content redactor.it It's built-up as an app behind your firewall, and it's separate. CMS is able to also make sure that your site is further safe and that hackers cannot readily utilization it.
- 5- **Analytics** : If you are still loading stationary pages, it possibly not be a perfect method to pile information On the execution and activity of the content. measuring the effectiveness of your content is critical to making it a commercial motorist, and a CMS should enable you to track execution, or adeptly integrate third-party tools to take advantage of it.[42, p. 1,2]

2.5 WHAT IS THE DISTINCTION AMONG AN OPEN SOURCE AND ACOMMERCIAL CONTENT MANAGEMENT SYSTEM?

definition of Open-source: Refers to both open-source program and hardware and point a set of guiding rules with an emphasis on transparency, cooperation, community-based development, and open interchange. Source code or files are freely available to show it, alter, and take part it[16] the major feature to emission something in that method is that it lets end users straight react with the source, perhaps modulate it to fit their desires. That supports constant evolution and invention, whilst as well setting up a society of taking part data. several companies producing open-source products depend on the inventions of employees to develop advantages and to characterize and fix probable weaknesses, and these companies efficacious support modulation of those products.[17]

Commercial CMS: A commercial (as well recognized as proprietary or project) Content Management System is essentially itself as an open-source CMS, excluding that a corporation has the software and you don't hold access to the symbol, some examples of the most common mercantile systems contain Expression Engine and SharePoint. Since there is one corporation managing the program, you only have one point and access to a specific upholding team. The system same commonly goes over a comprehensive goodness insurance operation, has a warranty, and is mostly steadier, but without the upholding of a society, customizations are set back more, and system function updates are performed of the company. usually, no new request is allowed, and the defect can take some time to fix, relying on the support team in the corporation. several mercantile systems are costly and can hold a yearly toll [18].

2.6 HOW DOES A CMS COMPARE TO THE TRADITIONAL INFORMATION UPDATE THROUGH THE INTERNET?

A CMS act revolutionary method department data via the internet when comparative it to conventional methods. The commerce operations and substantial subjective are greatly simplified as several of the artistic team members are no longer needed for daily via the internet data updating[43].

Table 2. 1: Explain CMS By Updating Traditional Information Over the Internet

Creating a new page	the page is created by default. Navigation links update automatically, and an experimental link is available.	New page is a copy of an existing one. The sitemap and navigation links are updated manually, and standards are optimized in an ad-hoc way
Consistency of content	Templates are separated from page content, strictly maintaining consistency throughout the site. Display consistency is enforced by the CMS.	Content and template are closely related to each other, making it difficult to update site-wide changes. Display consistency is determined by the developers.
Workflow process	Workflow process reflects the process as it occurs in organizations where consent from the right stakeholders are needed.	Workflow happens in a customized manner it is done via emails sent to various people who work in the organization. This operation is time consuming and error-prone.
Time of publishing	Content is published directly once needed assent have been made.	Content is published when the webmaster has available time, which could take several days and incur reconfiguration errors.
Legal compliances	The system preserve records of content changes and publications which helps with subjugation.	The system preserve records of content changes and publications which helps with subjugation.

A CMS enables business owners with modern material to rise their website. Some of the most famous CMSs being WordPress, Drupal, Joomla which are being used by some great brands worldwide, that made it faster to respond to customers' requests, enhanced content distribution for the business and its partners and improved accessibility of content to employees. further, The most important thing that the content management system has done is that it removed every major or minor obstacle that would allow the business owner to take full control of the site.[44].

2.7 SPECIFICATIONS OF THIS PROJECT

1. It can be easily managed and installed
2. readily generate an adjustable area into buyers inside the front-end of the site.
3. The home page will offer the number of users and Clients and Invoices, serves as a service workflow for companies so Helps keep track of projects
4. Cost conservation
5. Makes invoice creation easy to manage
6. It also grants the capability to insert a novel style sheet or change the existent ones

2.8 DISADVANTAGES OF THIS PROJECT

1. needs a strong internet connecting if hosted on an online server. If the implementation is hosted through the localhost, extra software (such as XAMPP) needs to be installed and configured.
2. Not convenient for big companies

3. METHODOLOGY

This chapter debates the different advantages, design, and Ingredients of the project. Screen pictures of the diagrammatic programmer for choose assignment within the supplement.

3.1 ADVANTAGES

Below are some of the major advantages of a web-based CMS and executed it in this project.

3.1.1 Operational Definition

A backend CMS permits Associate an admin to feature different users to form invoices. Simply put, the bill wants the company's specifics (both the organization making the bill and too the consumer company), and also the Services provided. The evaluation and totals are calculated on the fly (with the service evaluation planner being set in advance). lastly, a printable version of the bill is also generated consist of a singular Invoice # and metal details like the number paid by the consumer, the number due, and so on. The front-end of the applying is coded through HTML5, CSS, and jQuery for dynamic UI updates. the major a part of the logic is Deal it on the customer-side through JavaScript and so delivered to PHP (over mythical being for a dynamic UI). PHP, in role, processes the info and stocks an equivalent over a MySQL information.

The application is too contain of 2 separate Careers operating along to realize a typical goal of generating an invoice: the primary one being the content-management Careers that area unit used to insert users, products, read preceding bills and track bill generation by history and also the actual invoice creation operation itself.

3.1.2 Access Control

meeting management and user computations are generally enclosed in a CMS. Roles will thereafter be generated, allotted a variety of licenses. Users are Designation then allotted roles, granting them the licenses enclosed in those turns. for instance, a user would possibly produce a "customer" role, assignment piece of writing permissions of every content to this role, instead of giving this part to the suitable user accounts. once users thereupon part sign in the CMS, they mechanically have arrival to correct content.

that project Owns 2 factors Specified roles: user and consumer. various turns is appointed to various user accounts and Hence, has arrival to various departments of the CMS. The user has access to any or every portion, While the editor will alter existing bill and therefore the services will administer the customers, will modulate their own user profile.

3.1.3 Workflow

Workflow is finished as follows. Any company, person, or tiny shop will use any pc, laptop, pill or mobile to access the web site over the web. After that, a username are going to be registered within the web site with a word secret. this is often distinctive when coming into the most page of the location when inserting the consumer as well as (address details, e-mail, name, and phone number), the user can add the required service (the element to be a foreside within the invoice with its cost) within the field ar referred to as (add new service) and services also able be changed during a private field (Modify service details), additionally because the consumer may be changed within the field referred to as (modify existing consumer) , the user will add different details on the body of the invoice like the (private emblem The Company's name, phone and e-mail,) over the profile possibility on the main page . then you'll be able to generate bill over (Add Invoice) when clicking on that should select the consumer and therefore the Title, then click on generate the invoice interface. Now click on (Add service) to generate the service that the user provide ahead and place the amount of the element, you'll be able to additionally place the discount and write the remaining quantity, you'll be able to alter the Invoice and edit on that in an (Edit Invoice).The bill is stored with a modern digit and today's date. when clicking on the print within the information, the user will print the invoice at any size, and any coordinate that wishes to store the bill in PDF format.

3.2 DATABASE ARCHITECTURE

the essential approaches for putting away the data and other framework data within the CMS, such as users and customers, bills, services stocking away documents of various sorts in isolated tables. The approach suppose that you simply stock the users in a singular database schedule called (user) that has six areas for holding the total report such as (client ID, Employee ID, User-password, phone No, Mail, name). Be that as it may, additionally there's else database table Called (Client) with six rows for the client points of interest like (name, Client-ID, Address, Mail, phone, company) linking with (one-to-one) connection with other table called (Receipt) include the entire document of the bill such as (Invoice-ID, Title, Client-ID, Add up to, Service-ID, Date, Amount-paid), this table linking with (one-to-one) relation with a Table called (Invoice-data) contains the primary

key of Invoice-ID and Service-ID, this table have 4 rows is(Service-ID ,Invoice-ID ,Invoice-service ,Invoice-service-hours), its also linking with (one -to -one) relation with other table called (service) the last one consist service specifics here we assume service is a product or the elements with its costs so the table has 3 rows are(service-ID, price, Name). Consider a manufacture catalogue with dozens of elements: while you want to show this listing of products, in the billing page as a option.

That project utilizes the quality online database diagram utilized by the generality of the stylers nowadays. This ancient relational database tactic permits you to simply restore the information of the database and show them on the site utilizing level hypertext markup language hegemonies, like a table, whereas having perfect management through the shape [29]

User and the frontage utilize identical info engines. so as to administer the meaning of the position the user doesn't get to correct the hypertext markup language content, however, he/she will sign into the CMS and create the desired altering's. There square measure 5 tables needed to be generated within the info on the server wherever the app is hosted. table 3.2 characterizes every one of the schedules utilized on that project.

Table 3. 1: Characterizes Every One of The Schedules Utilized On That Project.

Table	Description
User	Stores user information: user ID, Employee ID, User – password , phone No, Email, Name)
Client	Stores information of client : Name, Client – ID, Address, Email, phone, company
Invoice	Stores information of Invoice: Invoice – ID , Name, Client – ID, Total, Service – ID, Date, Amount – paid
Invoice-data	Stores information of Invoice data: Service – ID , Invoice – ID , Invoice – service , Invoice – service – hours
service	Stores information of service : service – ID, price , Name

schedule 3.1 characterizes the information varieties for every of the fields outlined altogether of the up described schemes. It additionally locates the essential key and therefore the external keys for every of these schedules, additionally because the variety of relationships present among themselves

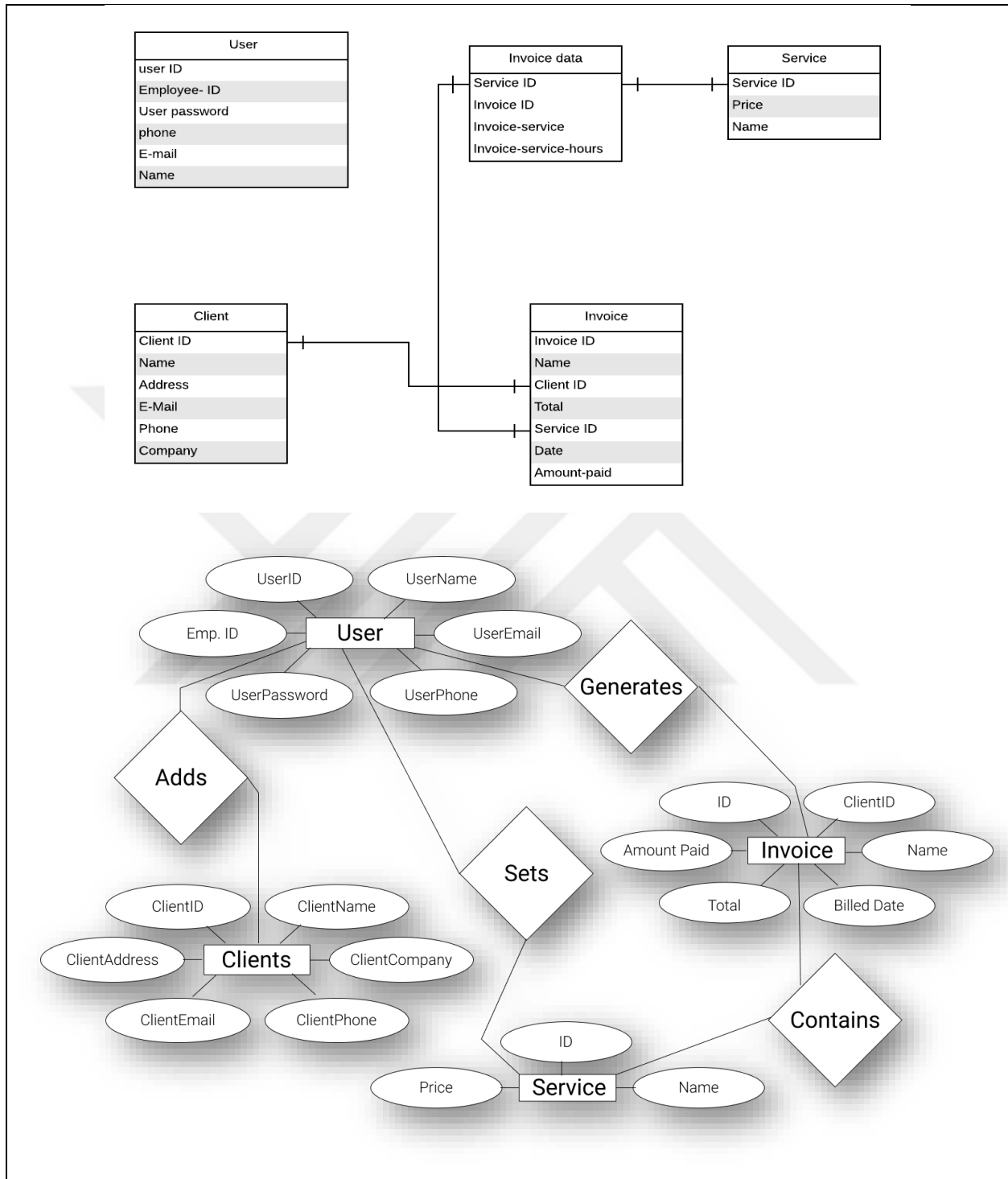


Figure 3. 1: E-R Diagram (Invoice)

3.3 HIGHER LEVEL OVERVIEW (SYSTEM ENGINEERING)

scheme 3.3 displays the high-standard design of the straightforward CMS engine. straightforward CMS is meant to permit users with definite roles to arrive at specific apartments of the CMS manage frontage. The users own arrival to administer purchasers, set up the consumer and to the service, they will conjointly modulate the invoice content. The users will modulate the consumer details of various templates. Public users immediately access the net page. once the CMS engine is given the page demand, it then implemented an associate SQL query to pick out information of the database. It thereafter links the info to the chosen type, shows the page of the Invoice.

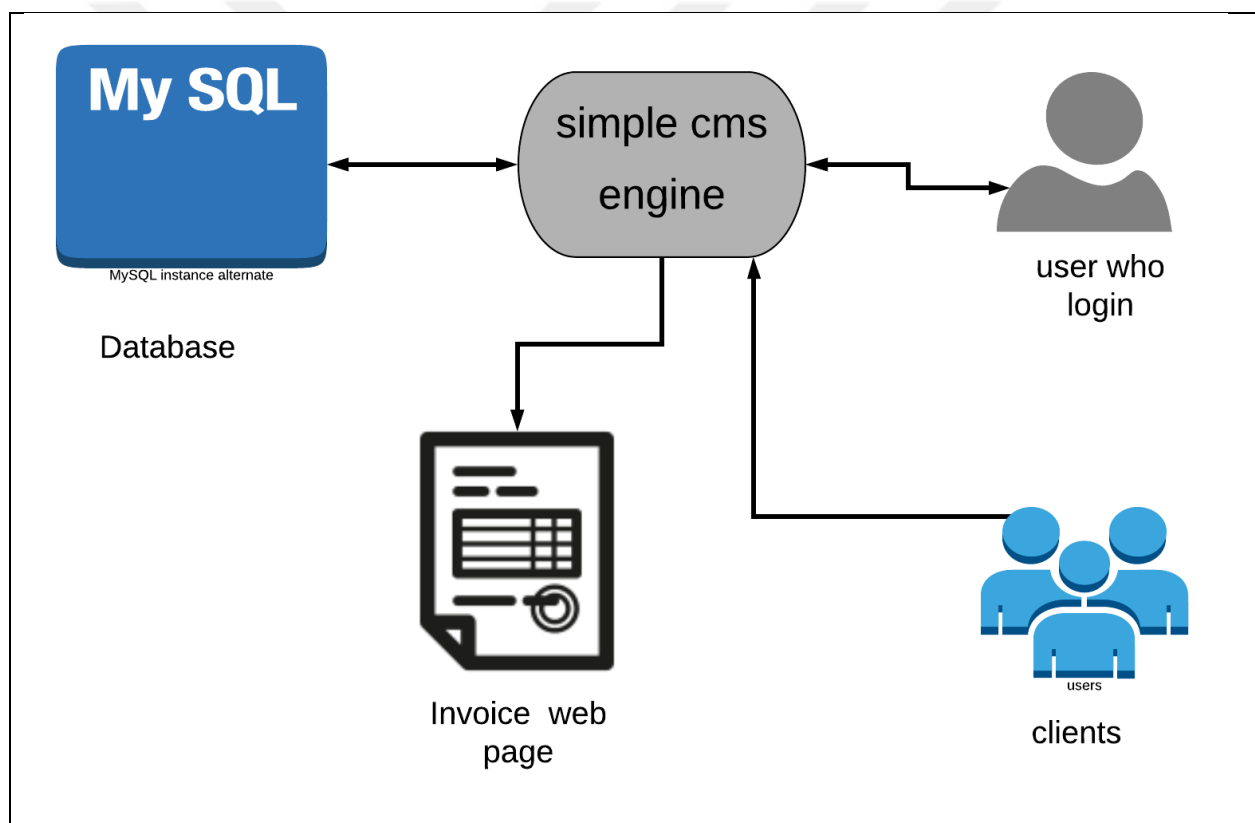


Figure 3. 2: Higher Level Overview (System Engineering)

3.4 SYSTEM MODULES

3.4.1 User Login:

sign-in page can be an online page or AN ingress page to an internet web that require user id and authentication, frequently performed by getting into a username and password collection. Sign in might offer arrival to a full website or a portion of an internet web. work in not solely provides website arrival for the user, however, additionally permits the web site to trace user actions and behavior. Logging off a webpage or website could also be manual by the user, or they'll occur mechanically once specific conditions (such as closing the page, turning off the pc, an extended time delay, etc.) happen.

Some websites use cookies to trace users throughout their logged in sessions. mostly, these cookies can close up once the user logs out. Those cookies that ar mechanically disrupted and elimination from the user's laptop are known as session-only cookies. protecting Procedures that delete and abolish associations among a user's processor and too the session facilitates assure users that logins will occur from any position, together with general computers. To emulate the actual fact that one user might not be change bills every time, logging into the system is a needful operation, thereby connecting a user with the invoice being generated, generally laptop usage, logon is that the proceeding to access to AN software system or app, sometimes in an exceedingly remote laptop. nearly always a logon needs that the user have (1) a user ID and (2) a password. overwhelmingly, the user ID should adapt to a restricted length like eight characters and also the password should contain a minimum of one figure and not match a language normal word. The user ID will be freely acknowledged and is visual once get in at a keyboard or alternative data input device. The password should be unbroken secret (and is not showed during entered). Some sites internet need users to register so as to utilize the site; recorded users will then get on the website by log on, Logon is also utilized as a modifier as in "logon procedure." The verb form is two words: to log on.

3.4.2 User Registration:

User Registration plugin supplies you simple method to generate the frontfacade user registration form and sign-in compose. Drag and Drop fields build an organization and making shapes very simple. The program is lightweight, expansible, and may be accustomed generate any style of recordings type.

Besides registration shape, the plugin additionally backing lovely front facade profile account page for profile edit, Secret word modification, sign off and additional. Users will travel their account page once registered and show the specifics they have repleted and may build alteration if needed. Performed by the responsible through a CMS, this method registers a user/employee with AN email address and Secret word (with further specifics like the employee's name and phone digit). the e-mail and thus the secret word function the sign in credentials

A registered user may be a utilized of a site, program, or different system WHO has formerly recorded. recorded users commonly let some variety of credentials (like a username or a password and mail address,) to the system so as to confirm their identity: this can be called sign in. Systems meant to be utilized by the final public usually permit any user to record just by choosing a register or log off perform and offering these credentials for the primary time. recorded users could also be granted prerogatives on the far side those granted to unrecorded users

3.4.3 Edit User:

Users with the editor role in CMS have whole management on the content departments your site. they will add, edit, post, and delete any posts on a CMS website together with those written by others. AN editor will Revision, edit, and cancel comments moreover. Also completed by the admin through a CMS, this operation Edit a user / worker (with).

3.4.4 Create Client:

An elective step, the customer specifics able be prepared previous, the specifics of the customer contain the Company specifics and the customer specifics, the user will antedate this step by directly making generating an invoice for a modern customer. during this step, the shopper details are captured from the bill and stocked through Database

3.4.5 Modify Client:

This functionality allows client details to be modified or edited.

3.4.6 Add Services:

Services present different conversion challenges than products.

Trust could be a larger a portion of marketing services. A faulty product is often coming, and flaws are comparatively objective. however, with services, clients could concern around what recourse they will have if they're sad, even though you provide gorgeous client service warranties. While the advantages to the patron ought to be the main target once you sell each product and services, your qualifications and skill come back to the interface once you're advancement a service. Service supplier's extent an enormous vary of manufactures—from white ant inspectors to business advisers to massage therapists.

several service suppliers work with persons house, companies, and even their bodies, that the effects are often a lot of personal if things don't go well. as a result of shoppers ar typically a lot of careful, it's necessary to demonstrate that they will confidence your work, and confidence you to make things right if they aren't glad. An main step for the bill generation service, this unit lets a user to insert service (ex. Service tiers or packages) with specifics like the service name, characterization, and cost.

3.4.7 Edit Service:

When a modern visitant comes on your services page, they'll in all often begin by reading the addresses, list titles, and different information to ascertain if they're interested. If they're, they'll dig during a very little deeper, either by beginning at the highest of the page or by overtaking to the part that almost whole sparks their interest, There's no single construction that labors for every services page. you will be ready to explanate on a some of essential services beneath their own part addresses, or if you wish to list several services or differences, you'll itemize them in a list. simply take a couple of minutes to suppose what format may be a normal suited your services. comparable to the modify client unit, the Edit Service unit lets a user to change present service specifics.

3.4.8 Create Invoice:

looking to make the most effective invoice? Below are some little business bill exms. The examples during this guide overlay a publishing of manufactures In addition to construction invoice templates to independent invoice templates. We'll additionally cover invoicing best practices to assist you create a decent impression together with your purchasers.

What is an invoice?

An invoice, typically referred to as a sales invoice or bill, may be a document release by a business to point a dealing, and to demand paid for a product or The offered service, Invoices area unit a vital a part of any business. they assist you get paid during a timely manner, keep track of your accounts, and once done right, facilitate create long-run, trusting relationships along with your purchasers, this bill guide can debate anything you would like to understand regarding invoicing, and why it's vital to induce it right.

What to include on an invoice?

1. **Name of your business :** one of the foremost necessary parts of typical invoice form is Your name, it explains your establish and establishes your branding, include your company emblem for an additional professional touch. This project allows you create an easy emblem if you are doing not it own one
2. **Sellers contact information:** Adding merchandiser contact info lets your customers skills to contact you if they need any questions on the bill It additionally permits them to contact you for future work.
3. **Invoice number:** To keep organized and build the trailing quicker for tax separation, it's better to supply a unique and consecutive invoice digit for each invoice you deliver.
4. **Payment terms:** These terms are generally discriminate at the down of the bill to inform customers about the length of time for Payment period. For example, you can determine it with "net 30 days", meaning that the pay should be Complete within 30 days.
5. **Due date:** The Invoice Date and Payment Term Days offer you the maturity, that ought to be in natural English and simple to grasp. Determine the maturity date on the invoice may be a tactful and Vocational method of creating it obvious to your consumer once they ought to push. suitable payment remember also can facilitate stay your clients on schedule to push.
6. **Bill to contact information:** Who is this bill meant for and their contact data?

7. **Product or service details :** allocate Description, amount, Rate, quantity, and Subtotal. A lot of specifics you involve on the bill, the better. This method, your consumer can apprehend specifically what they're paying for to receipt the invoice.
8. **Sales tax:** Based on Your specialty and kind of business, the tax demand will differ. Refer to your native tax bureau and involve the suitable tax amount on the bill. professional tip: utilize an invoicing application to administer your work activities, modification tax settings as would like be and build your tax time easier.
9. **Discount:** If you're providing a reduction to a valued customer, involve the digit here. this may be a proportion or actual quantity.
10. **Notes:** A simple, customized note can leave a decent impression with the consumer and compound the possibility of an invoice obtaining paid quicker. you'll be able to conjointly involve payment directions, warrant info, discount specifics or the rest relevant to the work.

Serving AS the major a part of the applying, the generate Invoice unit permits a user to make a printable invoice for a consumer. These invoice specifics embrace dynamic components like dynamic worth calculation, bill# generation. Once an invoice is Fill it up in with the suitable specifics, it will be stored and additionally printed. This module is split into the subsequent units:

- a. **Invoices for a new client:** This sub-module permits a user to generate invoice and insert the user specifics to the database in One push. This module is targeted towards modern customers.
- b. **Invoices for an existing client:** As the name implies, this unit permits the user to pick out from an inventory of existing shoppers (which ar restore from the database). This in the end leads to a section of the bill being filled beforehand.

3.4.9 Search Invoice:

let's a user to seeking for an invoice depended on the Invoice # or the Invoice generation date (which is calculated mechanically on bill creation). The restored outcomes may be adjustable.

4. IMPLEMENTATIONS

4.1 FEATURES OF CMS

Modern sites have higher user anticipation and bigger requests than ever before. Today's sites square measure expected to be offered 24/7 from anyplace within the world, and applicable from nearly any device or screen size. net apps should be safety, flexible, and developable to satisfy spikes in request. progressively, advanced situations ought to be handled by made user experiences engineered on the customer mistreatment JavaScript and communicating worthily over web APIs.

4.2 CODE

LOGIN

```
if(isset($_POST['login'])) {

    $email = $_POST['email'];
    $password = $_POST['password'];

    $query = "SELECT id, email, password FROM users WHERE email = :email";
    $stmt = $pdo->prepare($query);
    $stmt->execute (['email' => $email]);

    if($stmt->rowCount() > 0) {
        $row = $stmt->fetch ();
        $passwordOld = $row->password;
        $adminID = $row->id.

        if (password_verify ($password, $passwordOld)) {
            if (! isset($_SESSION)) {
                session_start ();
            }
            $_SESSION['userID'] = $adminID;

            $query = "SELECT name, email, phone, logo_url FROM profiles WHERE

id = 1";

            $stmt = $pdo->query($query);
            $row = $stmt->fetch ();
            $_SESSION['name'] = $row->name;
            $_SESSION['email'] = $row->email;
            $_SESSION['phone'] = $row->phone;
```

```

if(isset($_POST['login'])) {

    $email = $_POST['email'];
    $password = $_POST['password'];

    $query = "SELECT id, email, password FROM users WHERE email = :email";
    $stmt = $pdo->prepare($query);
    $stmt->execute (['email' => $email]);

    if($stmt->rowCount() > 0) {
        $row = $stmt->fetch ();
        $passwordOld = $row->password;
        $adminID = $row->id.

        if (password_verify ($password, $passwordOld)) {
            if (! isset($_SESSION)) {
                session_start ();
            }
            $_SESSION['userID'] = $adminID;

            $query = "SELECT name, email, phone, logo_url FROM profiles WHERE
id = 1";

            $stmt = $pdo->query($query);
            $row = $stmt->fetch ();
            $_SESSION['name'] = $row->name;
            $_SESSION['email'] = $row->email;
            $_SESSION['phone'] = $row->phone;
            $_SESSION['url'] = $row->logo_url;
            $response->success = true;
            $response->redirectURL = 'index.php';
        } else {
            $response->success = false;
            $response->errorCode = 2;
            $response->message = 'Invalid credentials';
        }
        exit(json_encode($response));

    } else {
        $response->success = false;
        $response->errorCode = 1;
        $response->message = 'No such user exists';
        exit(json_encode($response));
    }
}
}

```

ADD / UPDATE SERVICE

```
if(isset($_POST['add-service'])) {
    $name = $_POST['name'];
    $basePrice = $_POST['basePrice'];

    $query = 'INSERT INTO services (name, price) VALUES (:name, :basePrice)';
    $stmt = $pdo->prepare($query);
    $stmt->execute (['name' => $name,
                    'basePrice' => $basePrice]);

    if($stmt) {
        $response->success = true;
        $response->message = 'Service Inserted';
    } else {
        $response->success = false;
    }
    echo json_encode($response);
}

if(isset($_POST['edit-service'])) {
    $id = $_POST['edit-service'];
    $name = $_POST['name'];
    $basePrice = $_POST['basePrice'];

    $query = 'UPDATE services SET name = :name, price = :price WHERE id = :id';
    $stmt = $pdo->prepare($query);
    $stmt->execute (['name' => $name,
                    'price' => $basePrice,
                    'id' => $id]);

    if($stmt) {
        $response->success = true;
        $response->message = 'Service Updated';
    } else {
        $response->success = false;
    }
    echo json_encode($response);
}
```

ADD USER

```
if(isset($_POST['add-user'])) {  
  
    $name = $_POST['name'];  
    $email = $_POST['email'];  
    $phone = $_POST['phone'];  
    $password = password_hash($_POST['password'], PASSWORD_DEFAULT);  
    $empID = $_POST['empID'];  
  
    $query = 'INSERT INTO users (name, email, phone, password, employee_id) VALUES  
(:name, :email, :phone, :password, :empID)';  
    $stmt = $pdo->prepare($query);  
    $stmt->execute(['name' => $name,  
                    'email' => $email,  
                    'phone' => $phone,  
                    'password' => $password,  
                    'empID' => $empID]);  
    if($stmt) {  
        $response->success = true;  
        $response->message = 'The User has been Inserted';  
    } else {  
        $response->success = false;  
    }  
    echo json_encode($response);  
}
```

EDITUSER

```
if(isset($_POST['edit-user'])) {
    $id = $_POST['edit-user'];
    $name = $_POST['name'];
    $email = $_POST['email'];
    $phone = $_POST['phone'];
    $password = $_POST['password'];
    $empID = $_POST['empID'];

    if(empty($password)) {
        $password = getOldPasswordFromID($id);
    } else {
        $password = password_hash($password, PASSWORD_DEFAULT);
    }

    $query = 'UPDATE users SET ';
    $query .= 'name = :name, ';
    $query .= 'email = :email, ';
    $query .= 'phone = :phone, ';
    $query .= 'password = :password, ';
    $query .= 'employee_id = :employee_id ';
    $query .= 'WHERE id = :id';

    $stmt = $pdo->prepare($query);
    $stmt->execute(['name' => $name,
        'email' => $email,
        'phone' => $phone,
        'password' => $password,
        'employee_id' => $empID,
        'id' => $id]);

    if($stmt) {
        $response->success = true;
        $response->message = 'The User Details has been Updated';
    } else {
        $response->success = false;
    }
    echo json_encode($response);
}
```

ADD CLIENT

```
if(isset($_POST['add-client'])) {

    $name = $_POST['name'];
    $email = $_POST['email'];
    $phone = $_POST['phone'];
    $company = $_POST['companyName'];
    $address = $_POST['address'];

    $query = 'INSERT INTO clients (name, email, phone, company, address) VALUES
(:name, :email, :phone, :company, :address)';
    $stmt = $pdo->prepare($query);
    $stmt->execute ([ 'name' => $name,
                      'email' => $email,
                      'phone' => $phone,
                      'company' => $company,
                      'address' => $address]);

    if($stmt) {
        $response->success = true;
        $response->message = 'The Client has been Inserted';

    } else {
        $response->success = false;
    }
    echo json_encode($response);
}
```

CREAT INVOICE

```
if(isset($_POST['insertInv'])) {
    $clientID = $_POST['clientID'];
    $projectName = $_POST['projectName'];
    $invID = $_POST['invID'];
    $dateString = strtotime($_POST['date']);
    $date = date('Y-m-d', $dateString);
    $total = $_POST['total'];
    $discount = $_POST['discount'];
    $amtPaid = $_POST['amtPaid'];

    $query = "INSERT INTO invoices (invoice_id, client_id, name, billed_date,
total, discount, amount_paid) VALUES (:invID, :clientID, :projectName, :date,
:total, :discount, :amtPaid)";

    $stmt = $pdo->prepare($query);
    $stmt->execute([
        'invID' => $invID.
```

```

        'clientID' => $clientID,
        'projectName' => $projectName,
        'date' => $date,
        'total' => $total,
        'discount' => $discount,
        'amtPaid' => $amtPaid
    ]);

    if($stmt) {
        $response->success = true;
        $response->id = $pdo->lastInsertId();
    } else {
        $response->success = false;
    }
    echo(json_encode($response));
}

```

INSERT INVENTORY DATA

```

if(isset($_POST['insertInvData'])) {
    $rows = json_decode($_POST['invPayload']);
    insertInvData($rows);
    $response->success = true;
    echo(json_encode($response));
}

```

INVENTORY OPERATION

```

if(isset($_POST['updateInv'])) {
    $id = $_POST['id'];
    $date = $_POST['date'];
    $total = $_POST['total'];
    $discount = $_POST['discount'];
    $amtPaid = $_POST['amtPaid'];

    $query = "UPDATE invoices SET billed_date = :date, total = :total, discount = :discount, amount_paid = :amtPaid WHERE id = :id";

    $stmt = $pdo->prepare($query);
    $stmt->execute([
        'date' => $date,
        'total' => $total,
        'discount' => $discount,

```

```

        'amtPaid' => $amtPaid,
        'id' => $id
    ]);

    if($stmt) {
        $response->success = true;
    } else {
        $response->success = false;
    }
    echo(json_encode($response));
}

if(isset($_POST['deleteInv'])) {
    $id = $_POST['id'];
    $query = "DELETE FROM invoices WHERE id = :id";
    $stmt = $pdo->prepare($query);
    $stmt->execute(['id' => $id]);
    if($stmt) {
        $response->success = true;
        $response->message = 'The invoice has been deleted';
        if(!isset($_SESSION)) {
            session_start();
        }
        $_SESSION['message'] = $response->message;
    } else {
        $response->success = false;
    }
    echo json_encode($response);
}

function insertInvData($rows) {
    global $pdo;
    $bool = true;
    foreach ($rows as $row) {
        $query = 'INSERT INTO invoices_data (invoice_id, invoice_service,
invoice_service_hours) VALUES (:id, :service, :hours)';

        $stmt = $pdo->prepare($query);
        $stmt->execute([
            'id' => $row->id,
            'service' => $row->serviceID,
            'hours' => $row->serviceHours
        ]);

        if(!$stmt) {
            $bool = false;
        }
    }
}

```

RETRIEVE SERVICES

```
function getSelectedServices($id) {
    global $pdo;

    $query= "SELECT          services.id,          services.name,
services.price,invoice_service_hours FROM invoices_data INNER JOIN services ON
invoices_data.invoice_service = services.id WHERE invoice_id = :id";

    $stmt = $pdo->prepare($query);

    $stmt->execute (['id' => $id]);

    if($stmt) {
        return $stmt->fetchAll ();
    }
}

function loadDashboard () {
    global $pdo;

    $query = 'SELECT
    (SELECT COUNT (id) FROM users) as usersCount,
    (SELECT COUNT (id) FROM clients) as clientsCount,
    (SELECT COUNT (id) FROM invoices) as invoicesCount';

    $stmt = $pdo->query($query);

    $response = $stmt->fetch ();
    return $response;
}
```

LOGIN

```
$(".login__form").on("submit", function (e) {
    e.preventDefault();
    error = false;
    var emailEl = $('input[name="email"]');
    var passwordEl = $('input[name="password"]');
    var email = emailEl.val();
    var password = passwordEl.val();
    var emailErrorEl = $('.emailError');
    var passwordErrorEl = $('.passwordError');

    validateEmpty(emailEl, msg);
```

```

validateEmpty(passwordEl, msg);

if (error) {
    console.log("Errors exist");
} else {
    console.log("No errors found. Clear to proceed");
    $.ajax({
        type: "post",
        url: "scripts/functions.php",
        data: {
            login: "1",
            email: email,
            password: password
        },
        dataType: "json",
        success: function (response) {
            console.log(response);
            if (response.success) {
                console.log("here");
                window.location.href = response.redirectURL;
            } else {
                if (response.errorCode === 1) {
                    emailEl.addClass("error");
                    emailErrorEl.html(response.message);
                } else if (response.errorCode === 2) {
                    passwordEl.addClass("error");
                    passwordErrorEl.html(response.message);
                }
            }
        }
    });
}
});

```

ADD SERVICE

```

$(".add-service-form, .edit-service-form").on("submit", function (e) {
    e.preventDefault();
    error = false;
    var btn = $(this).closest(".btn");
    btn.prop("disabled", true);
    var oldTxt = btn.html();
    btn.html("Creating...");
    console.log("Creating service...");

```

```

var nameEl = $('input[name="serviceName"]');
var basePriceEl = $('input[name="serviceBasePrice"]');

var name = nameEl.val();
var basePrice = basePriceEl.val();

validateEmpty(nameEl, msg);
validateEmpty(basePriceEl, msg);

if (error) {
    console.log("Error exists");
} else {
    console.log("Proceeding to upload...");
    var formData = new FormData($(".form")[0]);
    $.ajax({
        type: "post",
        url: "scripts/functions.php",
        data: formData,
        processData: false,
        dataType: "json",
        contentType: false,
        success: function (response) {
            console.log(response);
            btn.prop("disabled", false);
            btn.html(oldTxt);
            if (response.success) {
                console.log("added");
                var form = $(".add-service-form");
                if (form) {
                    $(".:input", ".add-service-form")
                        .not(":button, :submit, :hidden")
                        .val("");

                    console.log(
                        "Added... Resetting input fields for new entry."
                    );
                }
                snackbar
                    .html(response.message)
                    .addClass("snackbar__visible");
            } else {
            }
            setTimeout(function () {

```

```

        snackbar.removeClass("snackbar__visible");
    }, 5000);
    }
    });
}
});

```

ADD / EDIT USER

```

$(".add-user-form, .edit-user-form").on("submit", function (e) {
    e.preventDefault();
    error = false;
    var btn = $(this).closest(".btn");
    btn.prop("disabled", true);
    var oldTxt = btn.html();
    btn.html("Creating...");
    console.log("Creating service...");
    var isEdit = $('input[name="edit-user"]').val();

    console.log("EDIT: " + isEdit);

    var nameEl = $('input[name="name"]');
    var emailEl = $('input[name="email"]');
    var phoneEl = $('input[name="phone"]');

    var passwordEl = $('input[name="password"]');
    var confirmPasswordEl = $('input[name="confirm-password"]');

    var empIDEl = $('input[name="emp-id"]');

    validateEmpty(nameEl, msg);
    validateEmpty(emailEl, msg);

    if (isEdit) {
        if (passwordEl.val() != "" || confirmPasswordEl.val() != "") {
            validatePass(passwordEl, confirmPasswordEl);
        }
    } else {
        validatePass(passwordEl, confirmPasswordEl);
    }
});

```

EDITS REDIRECTS

```
$(".query--button, .query__item-min-btn").on("click", ".js-btn", function (
    e
) {
    var id = $(this).data("id");
    var url = $(this).data("url");
    window.location.href = url + "?id=" + id;
});

$(".query--button, .query__item-min-btn").on("click", ".js-btn-delete",
function () {
    var id = $(this).data("id");
    var parent = $(this).closest('.query__item-wrapper-min');
    $.ajax({
        type: 'post',
        url: 'scripts/functions.php',
        data: {
            delete_service: true,
            id: id
        },
        dataType: 'json',
        success: function (response) {
            snackbar
                .html(response.message)
                .addClass("snackbar__visible");

            if (response.success) {
                parent.fadeOut();
            }
        }
    })
});
```

FUNCTIONS

```
function validateEmpty(el, msg) {
    if (el.val() === "") {
        displayError(el, msg);
        return true; // Error exists
    } else {
        el.removeClass("error");
        if (el.next().html() !== "&nbsp;") {
```

```

        el.next().html("&nbsp;");
    }
}

function validatePass(password1, password2) {
    console.log("asd");
    if (
        validateEmpty(password1, "This field is mandatory") ||
        validateEmpty(password2, "Passwords do not match")
    ) {
        return 1;
    } else {
        if (password1.val() !== password2.val()) {
            console.log("Test");
            displayError(password2, "Passwords do not match");
        } else {
            return false;
        }
    }
}

function displayError(el, msg) {
    el.next().html(msg);
    el.addClass("error");
    error = true; // Error exists
}

```

INVOICE CLIENT SELECTION

```

$(".query--button, .query__item-min-btn").on(
    "click",
    ".js-client-id",
    function (e) {
        e.preventDefault();
        error = false;
        var projectName = $(".js-project-name");
        var id = $(this).data("id");
        var url = $(this).data("url");
        var action = $(this).data("action");
        validateEmpty(projectName, "The project name is mandatory");
        console.log(error);
        if (!error) {
            //console.log(id, url, projectName.val());
            window.location.href =

```

```

        url +
        "?id=" +
        id +
        "&project=" +
        projectName.val() +
        "&action=" +
        action;
    }
}
);

$('.js-edit-invoice').on('click', function () {
    var url = 'view_invoice.php';
    var id = $(this).data('id');
    var action = 'view';
    window.location.href =
        url +
        "?id=" +
        id +
        "&action=" +
        action;
});

$(".js-remove").on("click", function () {
    var parent = $(this).closest(".invoice__item");
    console.log(parent);
    parent.fadeOut();
});

$(".js-add-inv-service").on("click", function () {
    var sideBar = $(".invoice__services");
    var sideBarWidth = sideBar.width();
    // console.log(sideBarWidth);

    if (sideBarWidth === 0) {
        //console.log("Fire modal");
        sideBar.animate({ width: "25rem", opacity: "1" });
    }
    // $(".invoice__items").append(dom);
});

$(".close").on("click", function () {
    var sideBar = $(".invoice__services");
    sideBar.animate({ width: "0px", opacity: "0" });
});

```

```

var count = 0;
var amt = 0;
$(".js-list-item").on("click", function () {
    // count++;
    var id = $(this)
        .find(".hidden")
        .html();
    var serviceName = $(this)
        .find(".data-service")
        .html();
    var servicePrice = $(this)
        .find(".data-price")
        .html();
    //console.log(id, serviceName, servicePrice);

    var dom =
        '<div class="invoice__item"> \
    <span class="invoice__item--close js-remove yellow">&times;</span> \
    <div class="invoice__item--count js-count"> \
    </div> \
    <div class="invoice__item--service">' +
        serviceName +
        '</div> \
    <div class="invoice__item--hours"> \
        <input type="text" class="invoice__input js-hours" value="1" data-
d = "" + id + "" > \
    </div> \
    <div class="invoice__item--price js-price-single" data-price="" +
ervicePrice + "">' + servicePrice +
        '</div></div>';

    $(".invoice__items").append(dom);
    setCount(0);
    calcAmount();
});

$(document).on("click", ".js-remove", function () {
    var target = $(".invoice__items");
    var parent = $(this).closest(".invoice__item");
    var thisCount = parent.find(".js-count").html();

    parent.fadeOut(300, function () {
        $(this).remove();
        setCount(0);
        calcAmount();
    });
});

```

```

    });
});

$(document).on("paste keyup", ".js-hours", calcAmount);
$(document).on("change paste keyup", ".js-discount", calcAmount);

$(".js-amt-paid").on("paste keyup", calcBalance);

$('.js-calendar').on('change', function () {
    var date = $(this).val();
    $('.js-date').html(date);
});

function setCount(x) {
    console.log('Counting...');
    count = x;
    $(".js-count").each(function () {
        count++;
        console.log(count);
        $(this).html(count);
        console.log(count);
    });
}

function calcBalance() {
    var amt = $(".js-amt").html();
    var amtPaid = $(".js-amt-paid").val();
    var discount = $('.js-discount').val() * 0.01;

    amt = Math.round(amt - (+amt * discount));
    var bal = $(".js-balance");

    bal.html(+amt - amtPaid);
}

function calcAmount() {
    console.log('Hrs changed');
    amt = 0;
    $(".js-price-single").each(function () {
        var itemTotal = 0;
        var hours = $(this)
            .prev()
            .children()
            .val();
        console.log("HOURS:" + hours);
    });
}

```

```

        .val();
        console.log("HOURS:" + hours);

        var amtLocal = $(this).data('price');
        itemTotal = +hours * +amtLocal;

        // console.log(
        //   "Current total: " + itemTotal + " for " + hours + "hours"
        // );
        $(this).html(itemTotal);

        amt = amt + itemTotal;
        //console.log(amt);
    });
    $(".js-amt").html(amt);
    calcBalance();
}

$(document).on("click", ".js-print", function () {
    var btn = $(this);

    var sideBar = $(".invoice__services");
    sideBar.animate({ width: "0px", opacity: "0" });

    var arr = [];
    var objekt = function (id, serviceID, serviceHours) {
        this.id = id;
        this.serviceID = serviceID;
        this.serviceHours = serviceHours;
    }
    var clientID = $('.invoice').data('client');
    var projectName = $('.invoice').data('project');
    var invID = $('.invoice').data('invoice');
    var date = $('.js-date').html();
    var total = $('.js-amt').html();
    var discount = $('.js-discount').val();
    console.log('Current Discount:: ' + discount);
    var amtPaid = $('.js-amt-paid').val();

    if (+total === 0) {
        console.log('No entries');
    } else {
        btn.attr('disabled', true);
    }

```

```

$('.js-remove').html('');
$('.js-add-ink-service').fadeOut();
console.log(clientID, projectName, invID);

$.ajax({
  type: 'post',
  url: 'scripts/functions.php',
  data: {
    clientID: clientID,
    projectName: projectName,
    invID: invID,
    date: date,
    total: total,
    discount: discount,
    amtPaid: amtPaid,
    insertInv: true
  },
  dataType: 'json',
  success: function (response) {
    console.log(response);
    if (response.success) {
      var insertID = response.id;
      $('.js-hours').each(function () {
        var serviceID = $(this).data('id');
        var serviceHours = $(this).val();

        arr.push(new      objekt(insertID,      serviceID,
serviceHours));

      });

      console.log(JSON.stringify(arr));
      $.ajax({
        type: 'post',
        url: 'scripts/functions.php',
        data: {
          insertInvData: true,
          invPayload: JSON.stringify(arr)
        },
        dataType: 'json',
        success: function (response) {
          if (response.success) {
            $('.js-print').removeClass('btn--
primary').removeClass('js-print').addClass('printMe').html('Print!');
            btn.attr('disabled', false);

```

```

    }
  });
}
});
}
});

$('.js-update-inv').on('click', function () {
  var id = $('.invoice').data('id');
  var date = $('.js-date').html();
  var total = $('.js-amt').html();
  var discount = $('.js-discount').val();
  var amtPaid = $('.js-amt-paid').val();

  // console.log(id, clientID, projectName, invID, date, total, amtPaid);

  // $('.js-remove').html('');
  // $('.js-add-inv-service').fadeOut();
  var sideBar = $(".invoice__services");
  sideBar.animate({ width: "0px", opacity: "0" });

  var arr = [];
  var objekt = function (id, serviceID, serviceHours) {
    this.id = id;
    this.serviceID = serviceID;
    this.serviceHours = serviceHours;
  }

  $.ajax({
    type: 'post',
    url: 'scripts/functions.php',
    data: {
      id: id,
      date: date,
      total: total,
      discount: discount,
      amtPaid: amtPaid,
      updateInv: true
    },
    dataType: 'json',
    success: function (response) {

```

```

        console.log(response);
        if (response.success) {
            var insertID = id;
            $('.js-hours').each(function () {
                var serviceID = $(this).data('id');
                var serviceHours = $(this).val();

                arr.push(new objekt(insertID, serviceID, serviceHours));
            });

            console.log(JSON.stringify(arr));
            $.ajax({
                type: 'post',
                url: 'scripts/functions.php',
                data: {
                    updateInvData: true,
                    id: id,
                    invPayload: JSON.stringify(arr)
                },
                dataType: 'json',
                success: function (response) {
                    console.log(response);
                    if (response.success) {
                        $('.js-update-inv').removeClass('btn--primary').removeClass('js-update-inv').addClass('printMe').html('Print!');
                    }
                }
            });
        }
    });
});

$('.js-inv-delete').on('click', function () {
    var id = $('.invoice').data('id');
    var url = 'find_invoice.php';
    $.ajax({
        type: 'post',
        url: 'scripts/functions.php',
        data: {
            id: id,

```

```

        deleteInv: true
    },
    dataType: 'json',
    success: function (response) {
        console.log(response);
        if (response.success) {
            window.location.href = url;
        }
    }
});
});

$(document).on('click', '.printMe', function () {
    $(".invoice").printThis({
        importCSS: true,
        importStyle: true, //thrown in for extra measure
        printContainer: false,
        loadCSS: "/projects/invoize/css/style.css",
        debug: true,
        pageTitle: "", // add title to print page
        removeInline: false // remove all inline styles
    });
})

```

PROFILE

```

$($('.profile__form').on('submit', function (e) {
    e.preventDefault();
    var formData = new FormData(this);
    console.log('test');
    $.ajax({
        url: 'scripts/functions.php',
        type: 'post',
        data: formData,
        processData: false,
        dataType: "json",
        contentType: false,
        success: function (response) {
            console.log(response);
        }
    });
    if (response.success) {
        Snackbar
            .html(response.message)
            .addClass("snackbar__visible");
    } else {

```

5. SIMULATIONS OF RESULTS AND DISCUSSIONS

5.1 RESULT&DISCUSSIONS

Up to 70% of the invoices are still paper, and this means that competitors often rely on paper bills as well, and this in itself is a factor affecting the success of project operationally and marketing, as electronic invoices will be an attractive factor for new customers and at the same time it will maintain the loyalty of existing customers. This is because electronic invoices have made and make financial transactions on the Internet easier, more effective and effective. Imagine that you work in the field of herbs and you have a good number of competitors, but you offer your customers the ability to pay their bills online and with a few touches, but other areas still only adopt paper bills. It does not support online payment .. Who wins here? The competitor who provides more features always gets the satisfaction and loyalty of users. For your part, as a project manager, electronic invoices will provide you with easier solutions in managing your financial and accounting affairs, which makes electronic invoices an effective weapon that your opponents do not pay attention to, so do you use it or leave it?

Electronic invoices are not only to provide an individual payment process, but rather they constitute a method that the company or project can rely on completely in all its financial dealings. Invoices can be provided to customers to pay for the product or service, as well as provide invoices to the company's debtors to pay their debts on time, as well as That the company itself can pay an electronic bill to another company, which makes the electronic invoice a comprehensive solution to all the problems of electronic financial transactions of the company, and this is what makes it an important marketing element that every company must have.

The most main objective of AN invoice is to supply a record of sale thus a business will get paid by its purchasers. however, invoices serve alternative vital functions, a number of which could not be now clear. the subsequent square measure the key functions invoices serve:

1. Bookkeeping: Invoices create a record of all of your sales so square measure useful for clerking functions. Invoices give documentation of your business's money date. They track every income returning into your business over sales and may assist you gauge your profits and Revenues.

2. Tax Records: Your sales invoices offer documentation that assists to verify the knowledge you register on your tax filings all year. The agency advises that every tiny commercial house owner ought to keep daily records epitomizing their commercial transactions, as well as invoices. Visit their web site for additional details of the recordkeeping recommendations progressed by the agency.

3. Legal Protection: Invoices facilitate defend little businesses from lying lawsuits, as a result of invoices offer details of the services you offer to your shoppers and therefore the timeline of after you complete the work. invoice additionally provides a record of the number a consumer in agreement to push for your services and signed invoices will function de jure obligated agreements.

4. Marketing: Records of your invoices will assist you develop ways for selling your business. you'll analyze your invoices to spot peak times once your services square measure most in requested, the foremost well-liked and least well-liked services you supply and alternative trends in your business. Once you establish these trends, you'll develop good selling ways supported the info to develop your business.

6. CONCLUSION

relying on the demands and budget, the desired Content Management System can be used either from the start or one can utilize an open-source or current mercantile product, The essential characteristic to keep in mind during creating a CMS on the site is easy to use and easy to manage. The Simple Content Management System for the Online Invoice System was successfully implemented at the CIST (Centre for Information and Technology), University of Mysore.

we designed an invoice can be created from anyone professional or not, anywhere from any device can be, computer, tablet, mobile phone, because we take care about the smartphone browser measurement by using Responsiveness Sass (SCSS). The size will be flexible when they access via the internet to online invoice system, They can create a beautiful invoice interface with perfect shape, The workflow management of content from users, making it able to modify any invoice and other options such as service, the invoice interface itself is modern and has a lot of facilities that you can do what you like such as add, customer (Client) name, invoice Title, mention note, company logo, date, discount if there is, a quantity of the product, the remaining Amounts.

The basic features of Invoice Online System are:

1. Easy to use.
2. Templates (default / automatic),
3. User authentication.
4. Workflow management by a simple method.
5. Save in cost.

The defects on this project:

1. Requires an active internet connection if hosted on an online server. If the application is hosted over the local host, additional software (such as XAMPP) needs to be installed and configured.
2. Not suitable for large projects

The management interface is relatively simple It contains a three-navigation bar that contains different tabs for the relevant functions, such as Home, profile, and log out.

The front page on the up, there are three metrics for Users, Clients, Invoices

Selected users they can add, delete or update content the Invoice within the site. Each user has the full ability can modify the data according to their own required work. After it's saved it's already on the database with the date and unique Number that they can print out and check it any time they want users.

6.1 FUTURE WORK : is needed to work in the future to find and develop techniques for the E-Invoicing generation system to be more Flexible and easier for all users according to their preferences so, that project will be beneficial, for users with minimum technical practice, allowing them to readily run their projects or works, there are opportunities for future expansion at that project fully three specifics:

1. Add more than one template to multiple forms of invoices.
2. Make it suitable for uploading Excel files to be suitable instead of manually adding the service
3. Add the service reports and calculate the invoices to Client and give reports on the progress of work

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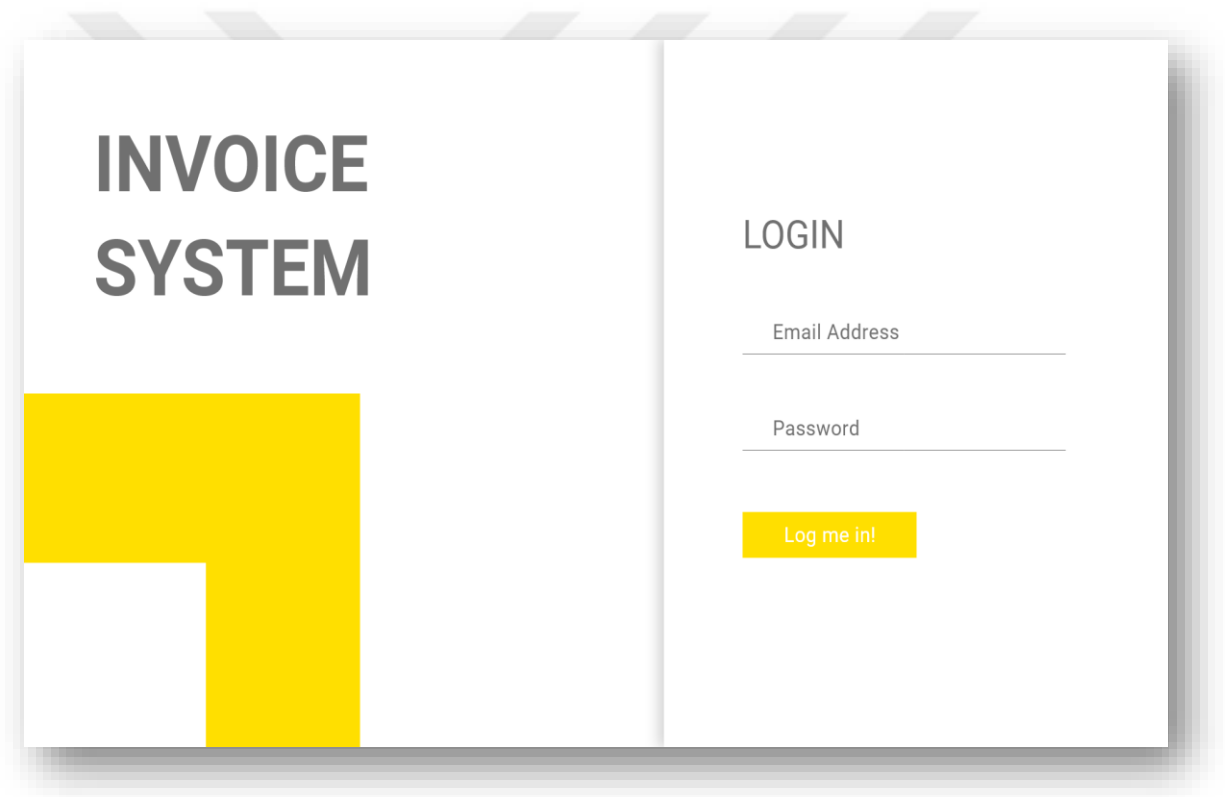
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APPENDIX

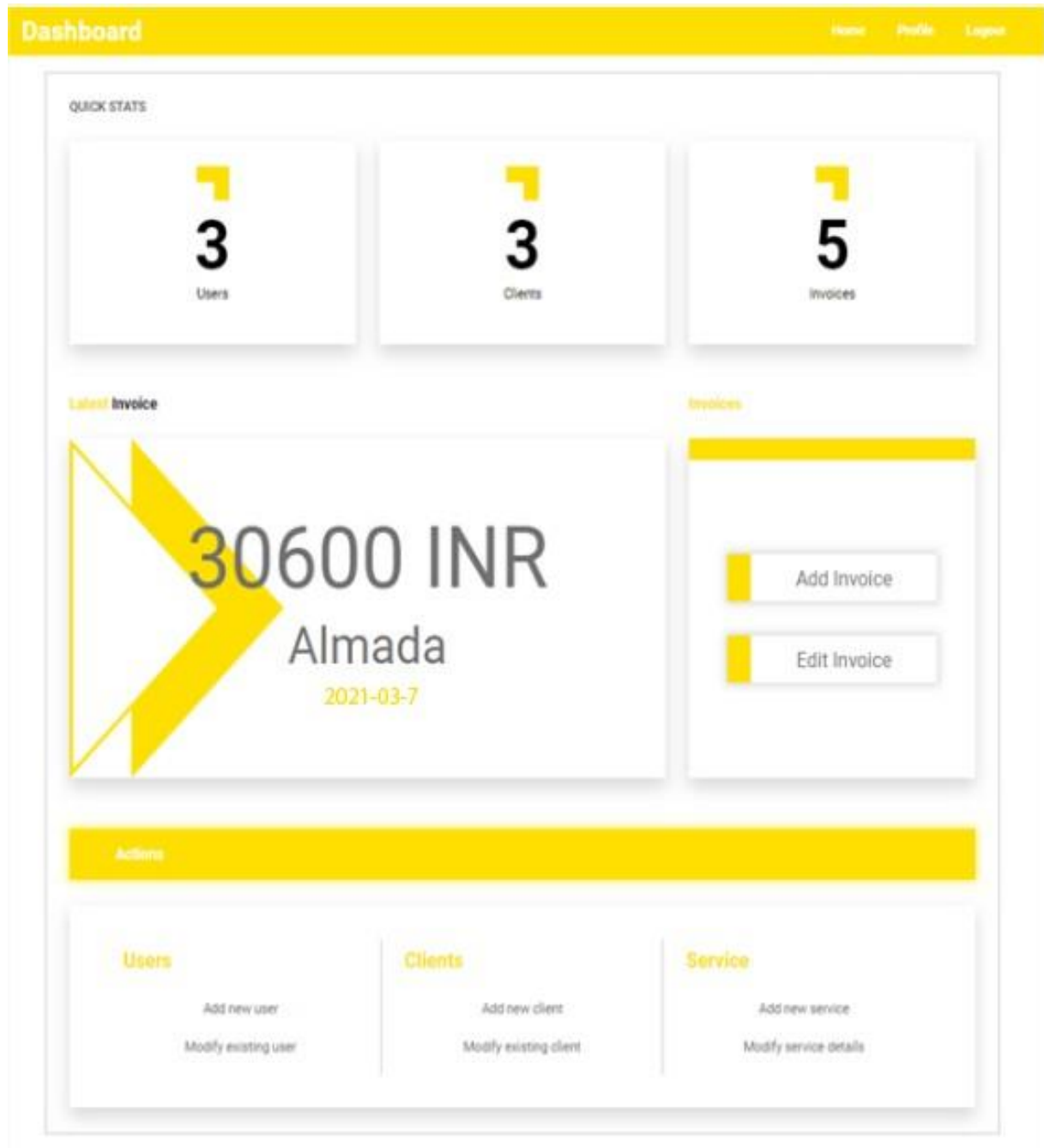
GRAPHICAL USER INTERFACE

User Login:

To simulate the fact that a single user may not be updating invoices all the time, logging into the system is a necessary process, thereby associating a user with the invoice being created.



Home page



User Registration:

Done by the admin over a CMS, this process registers a user / employee with an email address and password (with additional details such as the employee's name and phone number). The email and the password serve as the login credentials



ADD NEW USER

Name	Password
Email Address	Confirm Password
Phone Number	Employee ID

ADD USER

Quick Actions

Edit User

Add Client

Edit Client

Add Service

Edit Service

Create Invoice

Modify Invoice

Create Client:

An optional step, the client details can be set up in advance. The details of the client include the Company Details and the Client Details.

The user can forego this step by directly creating an invoice for a new client. In this step, the client details are captured from the invoice and stored over the Database.



ADD CLIENT

Name

Email Address

Phone Number

Company Name

Address

ADD CLIENT

Quick Actions

Add User

Edit User

Edit Client

Add Service

Edit Service

Create Invoice

Modify Invoice

Modify Client:

This functionality allows client details to be modified or edited.

The screenshot displays a web application interface for managing clients. At the top, a yellow navigation bar contains links for 'Home', 'Profile', and 'Logout'. The main content area is titled 'Modify client' in large yellow text. Below the title is a table with three rows of client data. Each row has columns for 'Name' and 'Email', and a 'MODIFY' button. The first row shows 'Jo Sanford' with email 'josan@gmail.com'. The second row shows 'رحيم' with email 'apple21@yahoo.com'. The third row is partially visible. To the right of the table is a sidebar titled 'Quick Actions' containing a list of buttons: 'Add User', 'Edit User', 'Add Client', 'Add Service', 'Edit Service', 'Create Invoice', and 'Modify Invoice'. The 'Create Invoice' and 'Modify Invoice' buttons are highlighted in yellow.

Name	Email	
Jo Sanford	josan@gmail.com	MODIFY
رحيم	apple21@yahoo.com	MODIFY

Quick Actions

- Add User
- Edit User
- Add Client
- Add Service
- Edit Service
- Create Invoice
- Modify Invoice

Add Services:

An essential step for the invoice creation service, this module allows a user to add service (ex. Service tiers or packages) with details such as the service name, description, and price.

[Home](#) [Profile](#) [Logout](#)

Add new service

Service Name

Base Price

Add Service

Quick Actions

Add User

Edit User

Add Client

Edit Client

Edit Service

Create Invoice

Modify Invoice

ADD SERVICE

Web Design
5999

Edit

PHP CMS
16999

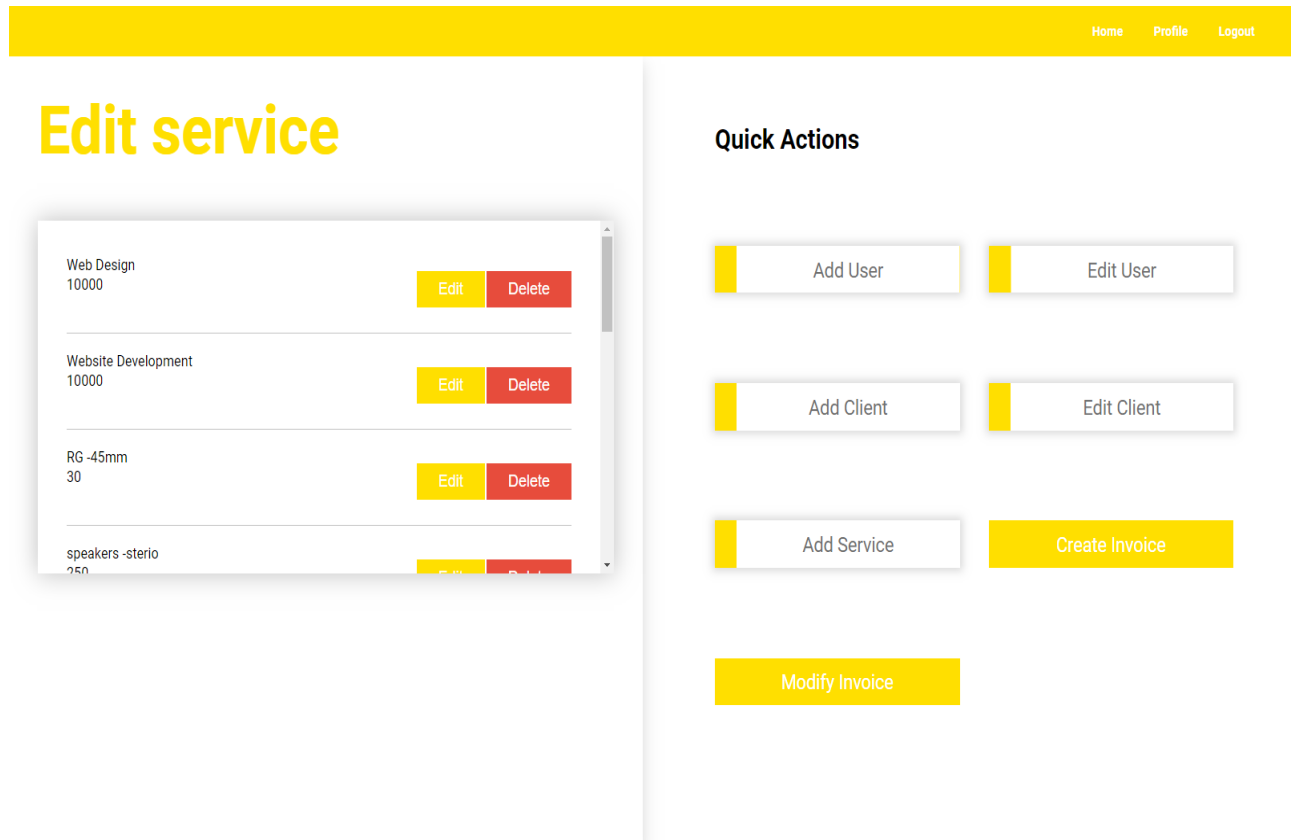
Edit

WordPress Web
4999

Edit

Edit Service:

Similar to the modify client module, the Edit Service module allows a user to modify existing service details.



Create Invoice:

Serving as the main part of the application, the Create Invoice module allows a user to create a printable invoice for a client. These invoice details include dynamic elements such as dynamic price calculation, Invoice # generation. Once an invoice is filled in with the appropriate details, it can be saved and also printed. This module is divided into the following modules:

- **Invoices for a new client:** This sub-module allows a user to create an invoice and add the user details to the database in one go. This module is targeted towards new clients.
- **Invoices for an existing client:** As the name implies, this module allows the user to select from a list of existing clients (which are retrieved from the database). This ultimately results in a part of the invoice being filled in advance.

Home Profile Logout

Invoice Details

Project Name

Name	Email	CREATE
Jo Sanford	josan@gmail.com	
Name	Email	CREATE
رحيم	apple21@yahoo.com	
Name	Email	

Quick Actions

- Add User
- Edit User
- Add Client
- Add Service
- Edit Service
- Create Invoice
- Modify Invoice

Edit Invoice:

[Home](#) [Profile](#) [Logout](#)

Find invoice

#85323
Almada, www.almadapaper.net

Edit

#33292
Almada, www.almadapaper.net

Edit

#36261
رجيم مكتبة الصباح

Edit

#53108

Edit

Quick Actions

Add User

Edit User

Add Client

Edit Client

Add Service

Edit Service

Create Invoice

CREATE INVOICE



LOGO

INVOICE

Project

The AWESOME Web Design Project

Invoice ID

#UOM5671

Billed to

Bill Gates, Microsoft

Billing Date

15/5/2033

No	Description	Hours	Price
× 1	Website Design	10	4999
× 2	Mail Integration	2	399

[Add service](#)

Total	5398
Amount Paid	5000
Balance	398

Company Name

Email Address

Phone

SUBMIT