A

Mini Project

Report On

"Billing System"

Submitted in partial fulfillment of the

requirements for the Degree of

BACHELOR OF TECHNOLOGY (SEMESTER – V)

In

Computer Science and Engineering

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2022-23

Certificate

This is to certify that the Project report entitled "Billing System" is a bonafide work carried out by:

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UNDERTAKING

We hereby declare that the details furnished above are true and correct to the best of our knowledge and belief and we undertake to inform authorities about any changes therein, immediately. In case any of the above information is found to be false or untrue or misleading or misrepresenting, we are aware that we may be held liable for it.

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Date:

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ABSTRACT

In present days people are facing problem in shopping, this Supermarket Billing System project in c++ is a simple console application built without use of graphics. This project will help us to understand basically two things- use of java script and Mysql language.

This project is simple to understand, and the source code has been presented in an understandable manner. To make software fast in processing with the good user interface so that user can manage and change it, this should be used for long time without error and maintenance. This project is a traditional supermarket billing system with some added functionality. This system is built for fast data processing and bill generation for supermarket customers.

The billing system consists of css, html, javascript. The billing database is a vast collection of product name, price and other product specific data. A product when billed is searched from the database and its price is added to the bill based upon the product quantity. The system also contains discounted price while billing. The supermarket billing system is built to help supermarkets calculate and display bills and serve the customer in a faster and efficient manner.

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INTRODUCTION

1.1 General Introduction

Telecommunication companies need an effective and accurate billing system to be able to assure their revenue. Billing systems process the usage of network equipment that is used during the service usage into a single Call Detail Record (CDR). The billing process involves receiving billing records from various networks, determining the billing rates associated with the billing records, calculating the cost for each billing record, aggregating these records periodically to generate invoices, sending invoices to the customer, and collecting payments received from the customer.

Billing system is very complex starting from network elements that generate usage to the billing system to usage collection, mediation, rating, and invoicing. To simplify the process I will introduce a simple system usage scenario as shown in the following figure. The system user navigates through the company site and views company services, and he decides to order one of the available services. If he has no account, he signs up for a new account, else he signs in. Then the user asks to conduct an order with the selected service. The service may be prepaid where he has to pay to have credits to use the service, or it may be postpaid, where he has to pay if the service has installation or setup fees, and later on he will pay for his usage of each billing cycle.

A **billing system** is a complex software that creates and automates payments, invoices, revenue, and much more. It enables insightful analytics – review of recurring revenues, business data, and reports. In addition, the billing system is a sub-ledger for many enterprises where the incoming revenues can be viewed in detail. As a result, activation, controlling, rating, invoicing, <u>dunning</u>, and collections are all part of a good online billing system.

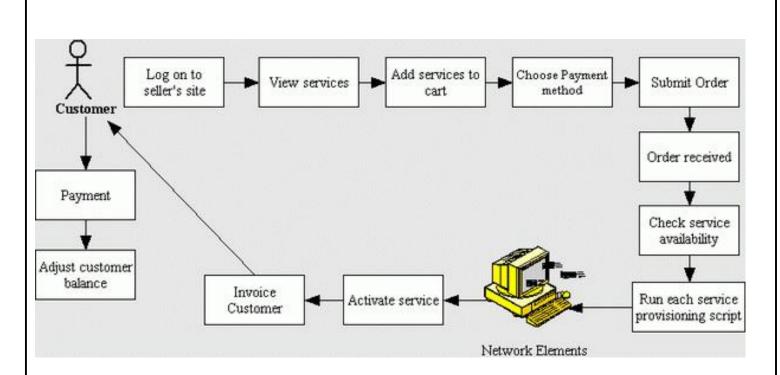


Fig 1.1 Architecture

The billing system is the most important function of the sales process in an organization. A lot of thought and effort goes into setting up a streamlined billing system. In recent times, billing system software has been prominent in helping businesses to improve efficiency in their business process.

A billing system includes procedures and processes that help create bills and invoices for customers. Nowadays, billing systems include software that allows transmitting bills and invoices to the customers offline and online. Businesses need to have billing system software for the following reasons:

- To keep track of sales and payments received
- To manage cash effectively
- To prevent errors in the compilation of bills and invoices
- Optimisation of business processes

Why should small businesses use billing systems?

- Instant Invoices: Bills and invoices are created faster than manual bills due to readily available formats and past customer data. One can also customise bills based on requirements with minimal effort. This helps save time and the cost of billing.
- Security: Once the software is deployed, access controls can be placed to prevent misuse or wrong issue of invoices. This also ensures transparency in the billing system.
- Paperwork reduction: Due to the automation of the process, billing systems make it easy to keep records of items. This helps immensely in accounting and reports preparation by preventing errors and omissions.
- Easy payments: The payment process is made easy with the help of online invoices. Billing systems also help maintain a record of all payments received

1.2 Problem Statement

Modern billing software can solve many problem to manage retail efficiently. Retailers and quick service restaurant (QSR) owners need to take lots of features into consideration in order to make sure that the business runs smoothly. It is not only the everyday sales, but also the customer retention, sales and stock tracking, accounts and receivables, which needs proper management. And being in charge of all of these things is definitely not easy, more so, when you are required to take care of all of these things single handedly. An automated and intuitive billing solution makes things easier in such a situation.

Problems Faced by the Existing System

Information is stored in written form in registers and some MS-Excel . This has many disadvantages. Checking a record in a register takes more time.

- · Registers require more space.
- There is no space for proper management stocks in the store.
- Retrieving information from registers is more difficult and error prone.
- It is difficult to find and modify exisitng records.
- · Current system being manuall is more error prone.

1.3 Objective of Present work

The main objective of the Online Billing System is **to manage the details of Bills,Payment,Customer,Payment Mode,Delivery**. It manages all the information about Bills, Cash, Delivery, Bills. The project is totally built at administrative end and thus only the administrator is guaranteed the access.

A billing system includes procedures and processes that **help create bills and invoices for customers**. Nowadays, billing systems include software that allows transmitting bills and invoices to the customers offline and online.

The scope of billing software solution services ranges from simple invoice production to comprehensive business management.

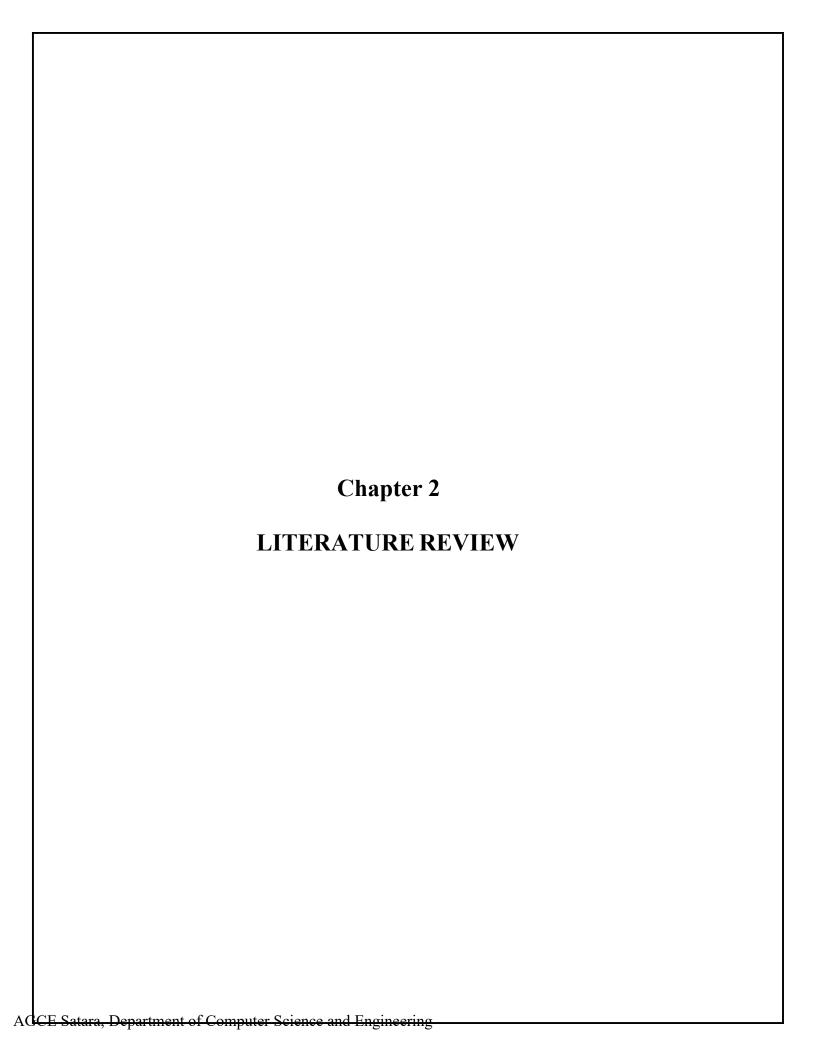
Customisable: Billing and invoicing requirements vary in each business. Invoices in the billing systems must be customisable so businesses can include all required details and change the invoices regularly.

Data backup: Billing systems can create master data of parties and amounts. It also creates a backup either offline or online. Systems also provide easy data extraction for tax return filing and any other usage.

Compliance with GST: Most businesses have to follow GST filing and related compliances periodically. Billing systems include features that can aid the business' compliance with GST.

Reporting mechanism: Billing systems help generate reports on various matters. This can save time and cost of preparing reports and better analysis.

Payment features: Billing systems nowadays also include links and barcodes for facilitating online payments easily. This also provides for easy reconciliation of payments received.



LITERATURE REVIEW

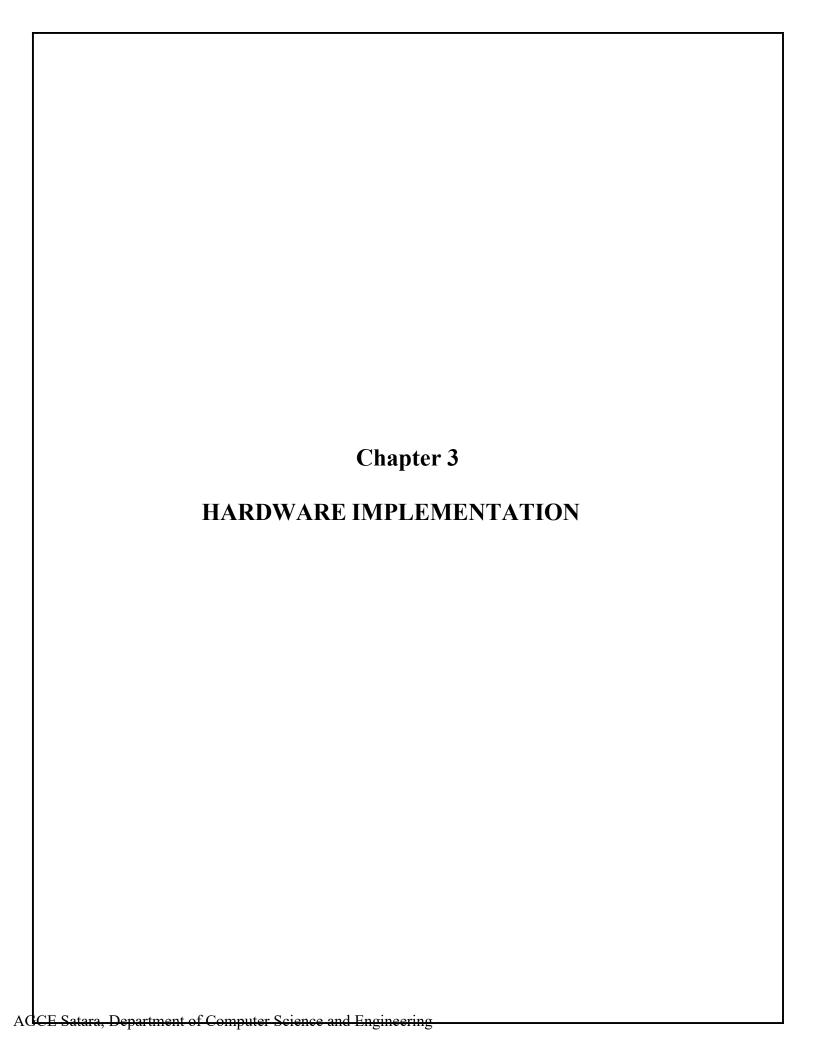
1.1 Literature Review

Sr. No	Author	Methodology	Year	Abstract
1.	Manzini Takavingofa, Great Zimbabwe University, "Manzlee Retail Management System", May 2006	Characterization of billing system	2006	Paperless billing is a process that businesses can use to get paid quickly and securely without dealing with the hassles of paper bills and check payments. Paperless bills allow bill delivery and payment to take place completely online, which improves efficiency while reducing costs. system.
2.	Muzhir Shaban Al-Ani Collage of Computer ScienceAnbar UiversityAnbar, Iraq		2014	ImageNet aims to populate the majority of the 80,000 synsets of WordNet with an average of 500-1000 clean and full resolution images. This will result in tens of millions of annotated images organized by the semantic hierarchy of WordNet. This paper offers a detailed analysis of ImageNet in its current state:

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•	Albert Levi, Cetin	Internet TV Billing	2009	In their paperthe authors
3.	Kaya Koc (2009)			proposed a new Internet e-
				paymentprotocol, namely
				CONSEPP (Convenient and
				SecureE-Payment Protocol)
				based on the accoun
				authoritymodel of ANS
				(American National Standards
				Institute) X9.59 standard
				CONSEPP is thespecialized
				version of X9.59 for Interne
				transactions(X9.59 is multi-
				purpose). In CONSEPP the
				authorspropose a lightweigh
				method to avoid the need
				formerchant certificates.
1.	NN Murthy, et	E-commerce online	2000	the technologies fore-commerce
••	al.(2000)			The authors also presen
	41.(2000)			TWINS (TwinCitie
				Information Network Service
				test-bedapplication being
				developed as part of thi
				project.TWINS, operational a
				twin cities of Hyderabad
				Secunderabad, facilitate
				payment of various utilitybil
				payment (like water, electricity
				etc.) through asingle windov
				system. Payment of wate
				billsthrough Internet using E
				Cheque (Electronic Cheque)wil
				be operational soon.

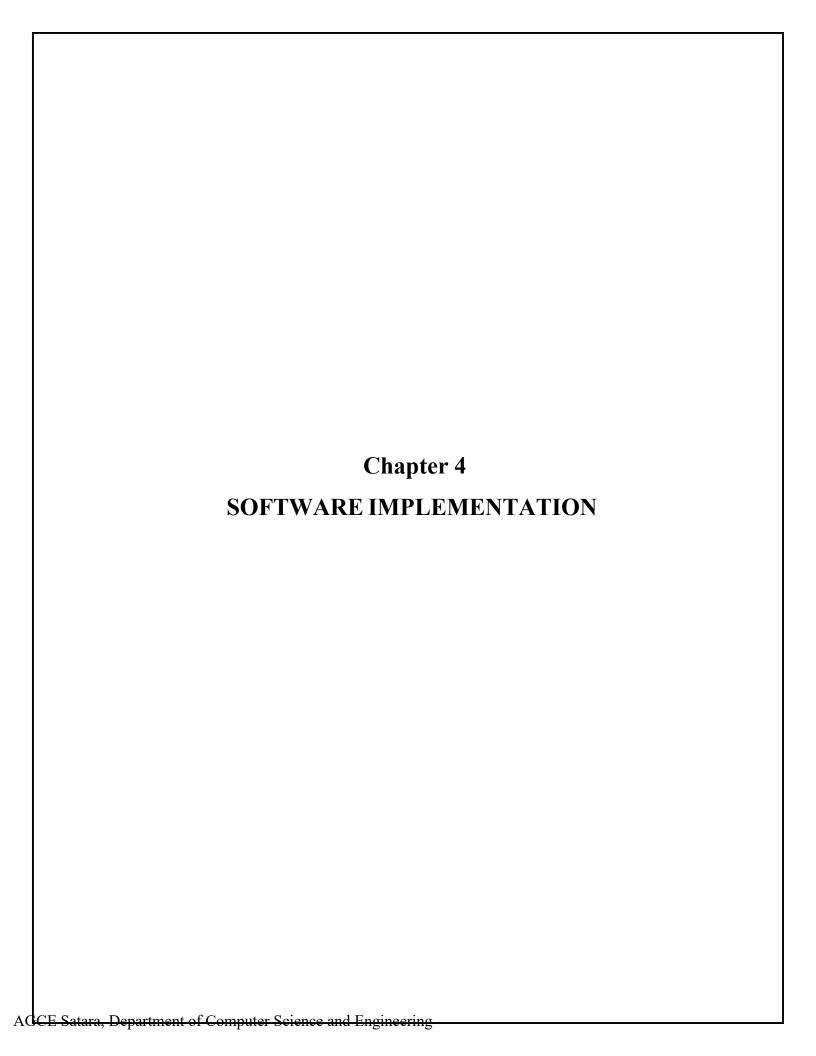
5.	P.S. Barreto,et al . (2005)	A Study of BillingSchemes in an Experimental Next Generation Network	2005	In their paper, the authorspresented a discussion concerning the performance offour network scenarios for billing purposes. Using theresults of packet losses in an experimental platformsimulating a NGN (Next Generation Network) environment, the authors evaluate on each scenariothe impact in the billing process with different traffic flows comparing the total revenue calculus.
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HARDWARE IMPLEMENTATION

3.1 Hardware Used

- DEVICE :- Dell latitude E5470
- RAM:- 8 GB
- STORAGE :- 256 GB SSD
- OS :- WINDOWS 10



SOFTWARE IMPLEMENTATION

4.1 System Architecture

First, let us review the notion in brief. So, a billing system is a software stack of subsystems and components that creates bills and invoices for different consumers. It works out what someone owes you, who they are, and how you can contact them. A billing system is also able to track the payment receipts against the invoices issued.

Let us take a simple electricity bill, for example. Imagine you are an electricity supplier. So, to generate a bill, you will need solutions for features like:

- consumption measurement;
- calculating the cost (consumption × current rate);
- applying taxes, fees, additional service charges, etc. to the calculated amount;
- creating bills;
- sending the bills to your customers;
- applying payment data to your customers' accounts when they pay the bills;
- an accounts receivable system for further adjustments.

.

Proposed System

Main objectives of the project are:

- To integrate the various general store information at one place.
- To reduce the paperwork involved to be the minimum.
- To generate invoice for every customer date wise. To generate bill date to date wise.

System Design:-

Analysis collects a great deal of unstructured data through interviews, questionnaires, on-site observations, and procedural manuals and like. It is required to organize and convert the data through system flowcharts, data flow diagrams, structured English, decision tables and the like which support future development of the system.

The Data flow diagrams and various processing logic techniques show how, where, and when data are used or changed in an information system, but these techniques do not show the definition, structure and relationships within the data.

It is a way to focus on functions rather than the physical implementation. This is analogous to the architect's blueprint as a starting point for system design. The design is a solution, a "how to" approach, compared to analysis, a "what is" orientation.

System design is a highly creative process. This system design process is also referred as data modeling. The most common formatted used the E-R notation explains the characteristics and structure of data independent of how the data may be stored in computer memories.

The process of system design can be divided into three stages. They are:

Structure design

Database design

Interface design

As we know that system design is a solution to "How to approach to the creation of new system". It provides the understudying and procedural details necessary for implementing the system. The steps involved during system design were as follow: -

1. LOGICAL AND PHYSICAL DESIGN

The current physical system was thoroughly reviewed from point of view how the data flows, what are its file contents, its volumes and frequency etc.

After this input, output specifications security & control specification were prepared. It was also decided that how physical information will flow through the system and a physical design walkthrough.

2. OUTPUT DESIGN

Program output is most important and direct source of information to the user. Efficient intelligible output design improves the system's relationship with the user and help in decision making. A major form of output is a hardcopy from printer. The format of outputs is designed in such a way that it is simple to read and interpret In the present output we have clearly labeled title it contains date and time and all the fields are clearly mentioned (labeled).

3. INPUT DESIGN

Input design is the process of converted user originated inputs to a computer based format in accurate input data are the most cause of errors in data processing. So, the input should be well design and error free. Input data is collected and organized into groups of similar data once identified appropriate input media is selected for processing.

4. SCREEN DESIGN

The screen design for inputting the inputs were also panned as the format of inputs.

Interface Design

User interface design creates an effective communication medium between a human and a computer. Following asset of interface design principles, design identifies objects and action and then creates a screen layout that forms the basis for a user interface prototype. Interface design of General Store Billing System is based on the following three principles.

4.1 DATA FLOW DIAGRAM

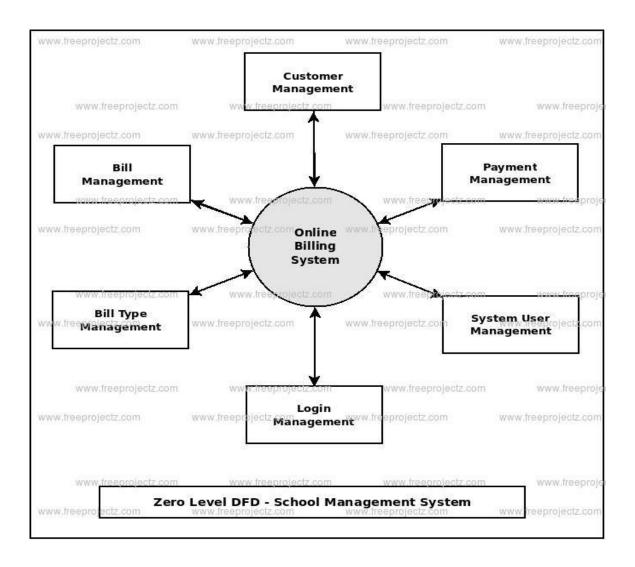


Fig 4.1 Data Flow Diagram

4.2 Flowchart

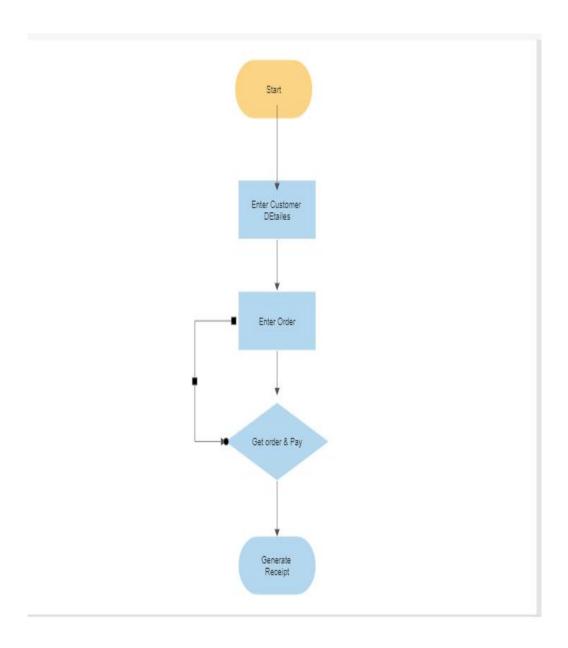


Fig 4.2: Flowchart

Flowchart is a graphical diagram that represents the sequence of steps to solve a problem. A flowchart is a diagrammatic representation of an algorithm. In computer programming, the flowchart diagram helps to write down an algorithm to solve the problem. It was originated from computer science as a tool for representing algorithms and programming logic but had extended to use in all other kinds of processes. Nowadays, flowcharts play an extremely important role in displaying information and assisting reasoning. They help us visualize complex processes, or make explicit the structure of problems and tasks. A flowchart can also be used to define a process or project to be implemented.

4.3 Sequence Diagram

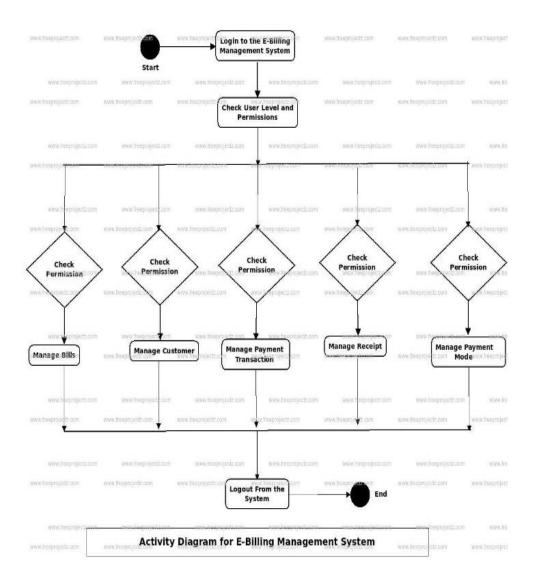


Fig 4.3. Sequence Diagram

4.4 Usecase Diagram

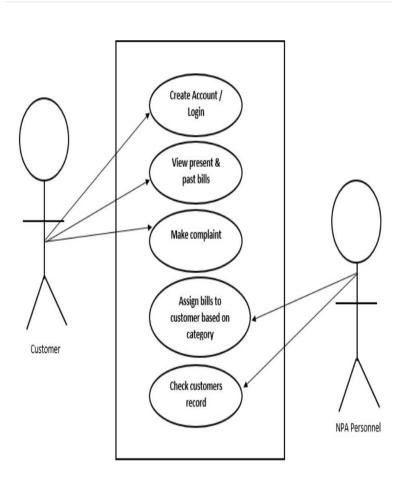


Fig 4.4: Usecase Diagram

A use case diagram is a representation of a user's interaction with the system and shows the relationship between the user and the different use cases. In above fig. our system represents the interaction between user and system.

4.5 Programming Language Used

- Visual Studio code
- Htnl
- Css
- Javascript

Visual Studio Code:- Visual Studio Code is a source-code editor that can be used with a variety of programming languages, including C#, Java, JavaScript, Go, Node.js, Python, C++, C, Rust and Fortran.It is based on the Electron framework,[21] which is used to develop Node.js web applications that run on the Blink layout engine. Visual Studio Code employs the same editor component (codenamed "Monaco") used in Azure DevOps (formerly called Visual Studio Online and Visual Studio Team Services).

Out of the box, Visual Studio Code includes basic support for most common programming languages. This basic support includes syntax highlighting, bracket matching, code folding, and configurable snippets. Visual Studio Code also ships with IntelliSense for JavaScript, TypeScript, JSON, CSS, and HTML, as well as debugging support for Node.js. Support for additional languages can be provided by freely available extensions on the VS Code Marketplace.

Instead of a project system, it allows users to open one or more directories, which can then be saved in workspaces for future reuse. This allows it to operate as a language-agnostic code editor for any language. It supports many programming languages and a set of features that differs per language. Unwanted files and folders can be excluded from the project tree via the settings. Many Visual Studio Code features are not exposed through menus or the user interface but can be accessed via the command palette.

Visual Studio Code can be extended via extensions,[25] available through a central repository. This includes additions to the editor[26] and language support.[24] A notable feature is the ability to create extensions that add support for new languages, themes, debuggers, time travel debuggers, perform static code analysis, and add code linters using the Language Server Protocol.

Source control is a built-in feature of Visual Studio Code. It has a dedicated tab inside of the menu bar where users can access version control settings and view changes made to the current project. To use the feature, Visual Studio Code must be linked to any supported version control system (Git, Apache Subversion, Perforce, etc.). This allows users to create repositories as well as to make push and pull requests directly from the Visual Studio Code program.

Visual Studio Code includes multiple extensions for FTP, allowing the software to be used as a free alternative for web development. Code can be synced between the editor and the server, without downloading any extra software.

Visual Studio Code allows users to set the code page in which the active document is saved, the newline character, and the programming language of the active document.

HTML:-

HTML (Hypertext Markup Language) is a text-based approach to describing how content contained within an HTML file is structured. This markup tells a web browser how to display text, images and other forms of multimedia on a webpage.HTML is a formal recommendation by the World Wide Web Consortium (W3C) and is generally adhered to by all major web browsers, including both desktop and mobile web browsers. HTML5 is the latest version of the specification.

How HTML works

HTML is a text file containing specific syntax, file and naming conventions that show the computer and the web server that it is in HTML and should be read as such. By applying these HTML conventions to a text file in virtually any text editor, a user can write and design a basic webpage, and then upload it to the internet. The most basic of HTML conventions is the inclusion of a document type declaration at the beginning of the text file. This always comes first in the document, because it is the piece that affirmatively informs a computer that *this is an HTML file*. The document header typically looks like this: <!DOCTYPE html>. It should always be written that way, without any content inside it or breaking it up. Any content that comes before this declaration will not be recognized as HTML by a computer..

Doctypes are not just used for HTML, they can apply to the creation of any document that uses SGML (Standard Generalized Markup Language). SGML is a standard for specifying a specific

markup language being used. HTML is one of several markup languages that SGML and doctype declarations apply to.

CSS:-

CSS (Cascading Style Sheets) is used to style and layout web pages — for example, to alter the font, color, size, and spacing of your content, split it into multiple columns, or add animations and other decorative features. This module provides a gentle beginning to your path towards CSS mastery with the basics of how it works, what the syntax looks like, and how you can start using it to add styling to HTML.

CSS building blocks:-

This module carries on where CSS first steps left off — now you've gained familiarity with the language and its syntax, and got some basic experience with using it, it's time to dive a bit deeper. This module looks at the cascade and inheritance, all the selector types we have available, units, sizing, styling backgrounds and borders, debugging, and lots more.

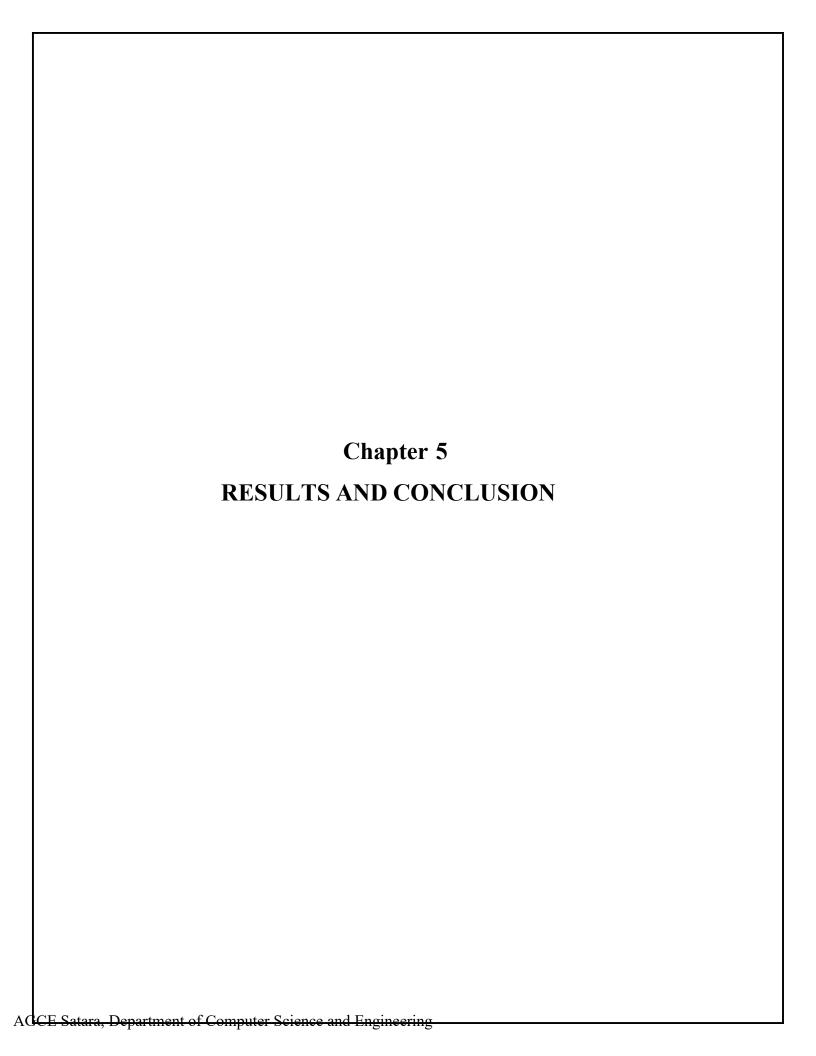
The aim here is to provide you with a toolkit for writing competent CSS and help you understand all the essential theory, before moving on to more specific disciplines like text styling and CSS layout.

CSS styling text :-

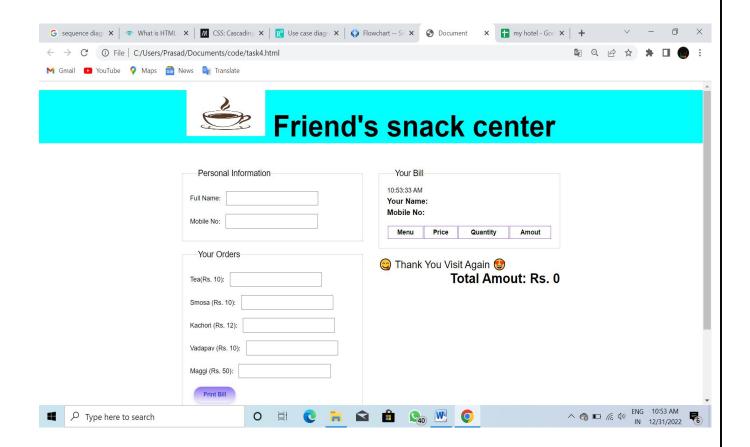
With the basics of the CSS language covered, the next CSS topic for you to concentrate on is styling text — one of the most common things you'll do with CSS. Here we look at text styling fundamentals, including setting font, boldness, italics, line and letter spacing, drop shadows, and other text features. We round off the module by looking at applying custom fonts to your page, and styling lists and links.

CSS layout :-

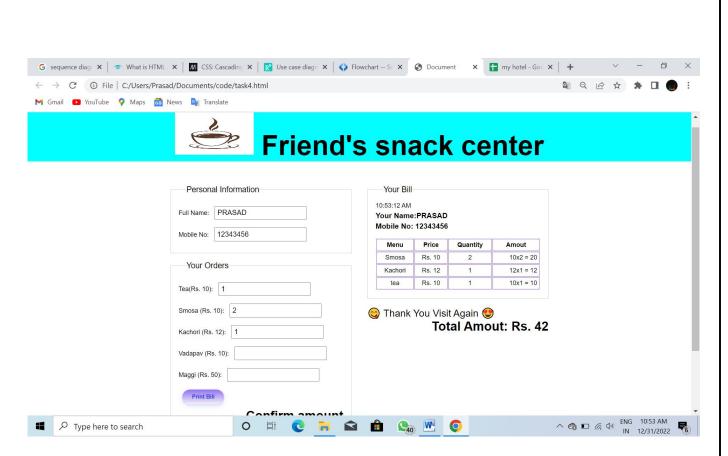
At this point we've already looked at CSS fundamentals, how to style text, and how to style and manipulate the boxes that your content sits inside. Now it's time to look at how to place your boxes in the right place in relation to the viewport, and to each other. We have covered the necessary prerequisites so we can now dive deep into CSS layout, looking at different display settings, modern layout tools like flexbox, CSS grid, and positioning, and some of the legacy techniques you might still want to know about.



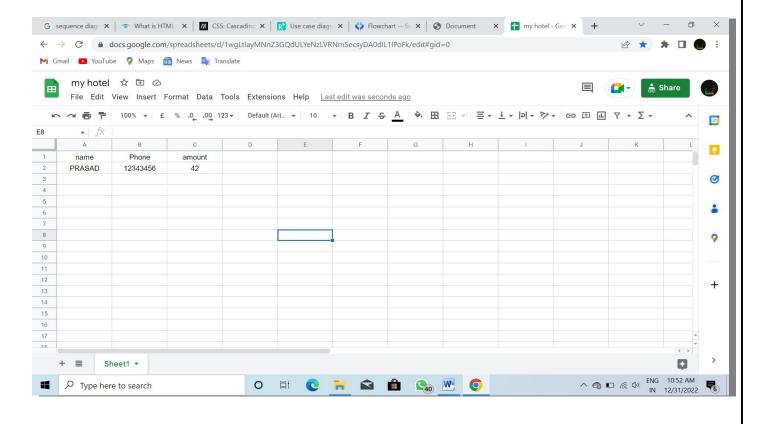
5.1 RESULTS:-



Output 1: Front page



Output 2: Front page with values



Output 3: Database with Stored Values

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5.2 CONCLUSION:-

As a retail business starts to expand, it becomes difficult to have seamless control over the operations. Billing software for a retail business helps in keeping clarity right from the beginning. Many retail business owners overlook the capabilities of retail management software and lose a lot of potential growth in their business.

By employing a billing software, you can manage your inventory and use the collected data to decide ways to improve your stock. A sales software system can give you clear visibility over sales, even when you are not at the store. Some major benefits of using billing software for retail business are listed as follows:

1. Tracking inventory:

Once you fill out the racks and shelves of your retail unit, premises, or warehouse, you need to have clear visibility of the inventory. By accounting the items, you can control invoice quantity according to the stock. It will avoid instances where you bill your customer and later apologise for not having the item in your store.

2. Replenish stock:

By taking account of the sales, you can decide to buy new items according to the demand, and ensure that all items stay in stock. It will help you provide a better experience to your customers. It will help you avoid buying unnecessary items and save up space in your warehouse. You can use this space for keeping larger stocks of in-demand items.

3. Avoid malpractices:

Labour work is required in retail shops, and you might have to recruit new people for work. Some people might turn out to perform malpractices within your premises, but by having a proper system, you can detect them quickly and take action immediately. Having it, your employees will stay loyal as you can detect issues anytime.

4. Improve efficiency:

By using the retail management software you can reduce manual work effectively. It will help you reduce the scope of data entry errors. Also, by having clear visibility of transactions, you can proceed with increased operational efficiency. The more efficient your work goes, the more profits you will make.

5. Business expan	usion:
	g to open a new store in a remote location, you need to have a sales softw
track down the sto	ore activities. It will help in better management and avoid losing profits. Mo
it will help you u	understand the customer's behaviour in a particular region, and make a s
accordingly.	

5.3 FUTURE SCOPE:-

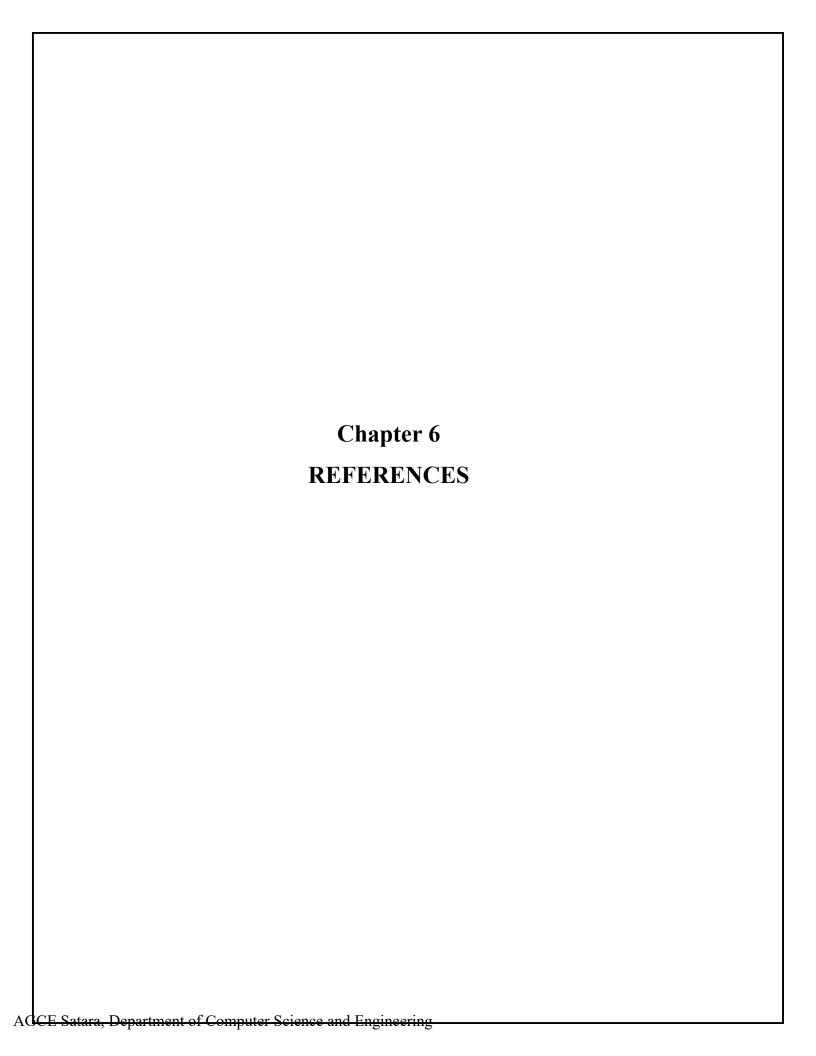
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Billing management/software accessible anywhere With access to the data from everywhere and anywhere, it is quite an advantage to have cloud inventory management/software as it will provide every access to the stock data. With Billing software/management, it is still made easier to work through inventory on a daily basis. This is very much required and highly significant in the management of inventory. Why online billing software is so important? Billing software has a lot of significance as it is the most essential part of every sale. For all successful transactions billing has to be made. Therefore keeping billing software can really help a lot in many ways. Experiencing excellent benefits for invoice preparation are widely available at cloud invoice software. This benefit from software can be widely acclaimed with the fact that this is one of the most reliable places to work with and to store invoice data safely.

This convenient system of working will take away all the major concerns and helps in smooth and effective functioning of a business. Most importantly, it takes very less time to navigate through the software before beginning to work. Working with online invoice software does not require any prior knowledge of accounting or any experience. Therefore, it is quite a simple system to work with and to draw business efficiency and to run the business fast. Plenty of accuracy with online billing software There are plenty of online benefits fully made available with the online billing software. It is quite ideal to work with this software in order to draw the fullest benefits drawn from this software. Multi branch software is definitely very profitable in many ways.

It provides a lot of convenience to maintain and manage branch accounts efficiently. Keeping interbranch software can help in many ways to take care of business.

more prominent and more significant n helping businesses to stay ahead and be successful in business. There is every accounting solution that can provide reliable service apart from keeping the safety and security of all business data. Further it also offers a lot of flexibility, easy access and completely secured in many ways.



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[1]Manzini Takavingofa, Great Zimbabwe University, "Manzlee Retail Management System", May 2006

[2] Olumide Obikoya, Yaba College of Technology, "Design and Implementation of Supermarket Management System", https://www.academia.edu, April 2016

[3] Syed Hasan, "POS System (Shoe Retail System) Documentation", November 2015

[4] H. Kaushik, B. Mounica, B. Swathi, "A survey on monitoring systems," International Journal of Computer Science and Mobile Computing, January 2015

6.2 Books

E-Billing System by Using MIS Concept

6.3 Website

http://www.fastbillingsoftware.com/software-scope-fastbilling.html

https://www.freeprojectz.com/project-report/204

http://ignousupport.blogspot.com/p/general-store-billing-system-project.html?m=1

https://www.powershow.com/view/2ab99b-

Y2YzM/Billing System Software powerpoint ppt presentation

http://ignousupport.blogspot.com/p/general-store-billing-system-project.html?m=1

https://www.slideshare.net/ChandniSharma42/billing-project

