

A PROJECT REPORT ON

CABLE OPERATOR MANAGEMENT SYSTEM

**Submitted to Savitribai phule pune university for the partial
fulfillment of the**

Requirement for the

**Award of Degree for
MSC(Comp.sci)**

Done by

Harshal Arun Sonawane

ACKNOWLEDGMENT

My express thanks and gratitude and thanks to Almighty God, my parents and other family members and friends without whose support, I could not have made this project successful.

I wish to place on my record my deep sense of gratitude to my project guide, **Mr.Prashant Shinde,WebScript Technologies,Pune** for his

constant motivation and valuable help through the project work. Express my gratitude to **Mr.Ramesh Shinde**, Director of **WebScript Technologies** for his valuable suggestions and advices. I also extend my thanks to other Faculties for their Cooperation during my Project.

Finally I would like to thank my friends for their cooperation to complete this project.

Harshal Arun Sonawane

PREFACE

In an era where having a computer sing of your operations is a matter of prestige for some and necessity for others. Management of these projects is still an area which is ignored or done in traditional manner. We in a system called '**Cable Operator Management System**' is integrated and automation software for cable operators. Cable operators will provide distributed channels to their customers.

This application provides most of the features required to manage the projects developed in a software development firm.

To maintain their customers and number of users this software provides automation. In this COM System they can main their staff member's details and their customer details. By using this COM System they can divide their areas macro parts to micro parts. By using this system they can meet their

business requirements. Cable Operators once they divided their areas into micro parts then they can assign their staff members to take care about their micro part areas.

This volume presents the manner in which the software was developed and how the various problems are tackled at the different levels to convince the user.

We hope that this package would prove to be an excellent environment for simpler for end user.

Harshal Sonawane

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WebScript Technologies Executive Summary

WebScript Technologies is a Pune based software company established in Feb 2012. Our expertise includes design, development and implementation of software solutions for businesses. We are working on different platforms including desktop application, web based application, mobile application, microcontroller based application etc. Our team is continuously taking effort to study and analyse latest technologies and adopt them as per requirement in different vertical and horizontal solutions.

ERP

An ERP solution aims to provide single software which will integrate all the divisions in your organization planning, manufacturing, sales, marketing, finance, HR and yet fulfill

each division's information and planning needs. ERP streamlines processes within your organization and helps you meet business needs more efficiently and quickly.

Clients

WebScript Technologies works with clients ranging from small, start-up organizations to large, well-established corporations. The company's client base represents a wide variety of industries, including agriculture, Engineering Industries, banking / finance, Telecommunications, healthcare, manufacturing, and of course IT.

QUALITY : We have made Quality a way of life at WebScript Technologies, the core of the work we do, and the way we do it. This involves re-use of best and smart practices, consistent improvement and improvisation of our methodologies and processes, which inculcate a sense of doing things right-the first time and every time.

By adopting new standards and a relentless pursuit of continuous improvement in our quality management systems and processes, we continue to ensure commitment to customer satisfaction.

Date: 01 June, 2021

TO WHOMSOEVER IT MAY CONCERN

This is to certify that Harshal Arun Sonawane, a student of MES' Abasaheb Garware College, Pune affiliated with Savitribai Phule University, working on the Project "Cable Operator Management System" has successfully completed his industrial training for the period of six months that is from Feb 2021-Jul 2021 at WebScript Technologies.

During his internship, he was found to be punctual, hardworking and inquisitive.

Yours sincerely,

For WebScript Technologies.



Ramesh M. Shinde

Project Manager

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ABSTRACT

Title of the Project: CABLE OPERATOR MANAGEMENT SYSTEM

Description:

Cable Operator Management System is integrated and automation software for cable operators. Cable operators will distribute TV channels to their customers for that they charge some money monthly.

To maintain their customers and number of users this software provides automation. In this COM System they can main their staff member's details and their customer details. By using this COM System they can divide their areas macro parts to micro parts. By using this system they can meet their business requirements. Cable Operators once they divided their areas into micro parts then they can assign their staff members to take care about their micro part areas.

Cable operators they can maintain their staff members like collection boys, helpers and technicians. All the collection boys will have user id and password. At the end of the every day they will login to the COM System they will feed their collection details and remarks.

By using this COM System they can know about their equipments located on which areas. How many active / non active customers are there? all these details they can view it by using the reports. MIS reports were generated for the month of collections, expenses, pending amount, complaints area wise and date wise, month wise.

Existing system :

All the work cable operator used to maintain manually in books , vouchers, collection cards etc.,

Proposed System:

To Automate entire operations of the Cable Operator to maintain their customers list and collections. In this COM System they can maintain their staff member's details and their customer details. By using this COM System they can divide their areas macro parts to micro parts. By using this system they can meet their business requirements. Cable Operators once they divided their areas into micro parts then they can assign their staff members to take care about their micro part areas.

By using this COM System they can know about their equipments located on which areas. How many active / non active customers are there? all these details they can about it by using the reports. MIS reports were generated for the month of collections, expenses, pending amount, complaints area wise and date wise, month wise.

Scope :

To maintain entire operations of the cable operator to be Automated.

System Design:

COM System (COMS) is an integrated software deals with Cable Operators. Helps the Cable Operators manage their customers and provides the information about various channels. It makes easy to all operations of the Cable Operators and accurate.

Masters :

The information specified in the Master is regarded as static, in the sense that it is “Permanent” or non-changing or stable. The updates are infrequent and may be regarded as permanently stored in the Database. The Master Group has functionality to View / Change.

The master pages will have access to administrators only.

1. Customer Master -- Admin will add the new customers to those who come in their areas and take new connections. Admin can add or delete the customers and they can view the entire customers list area wise.
2. Employee Master -- Admin will add the staff and will provide the privileges as per the staff designation. All the staff members cannot access all the modules. He can add or delete the staff accounts.
3. Package Master -- Admin will add or modify the Customer Package depending on the Customer request.
4. User Master-- Admin will add or modify the System User

Transaction:

Transactions deal with dynamic or transient data.

Transactions *do not* affect the MASTER Data.

The TRANSACTION Group of functionality is as follows:

1. **Collection Screen** -- In this module Cable operators will generate the monthly wise collection statement for their particular areas and customer wise. They can generate the date to date collection statements. Staff wise collection statements and area wise statements will generate by using this module.
2. **Customer receipt** – Customer Payment Receipt generation .

Reports

In this module we can generate the various MIS Reports to keep track of the revenue, customer statistics area wise, month wise, during the days and year wise etc.,

1. Customer Ledger
2. Customer Receipt
3. Customer Request
4. Total Collections
5. Collections between Dates
6. Customer A/c

Software and Hardware Requirement :

Software Requirements :

OPERATING SYSTEM	: WINDOWS
FRONT END	: HTML,CSS,JQUERY
BUSINESS LOGIC	: PHP
DATABASE	: MYSQL

Hardware Requirements :

PROCESSOR	: P3 OR HIGHER
RAM	: 512MB
HARD DISK	: 20GB

INTRODUCTION

1) PURPOSE OF THE PROJECT

Cable Operator Management System is integrated and automation software for cable operators. Cable operators will distribute TV channels to their customers for that they charge some money monthly.

To maintain their customers and number of users this software provides automation. In this COM System they can main their staff member's details and their customer details. By using this COM System they can divide their areas macro parts to micro parts. By using this system they can meet their business requirements. Cable Operators once they divided their areas into micro parts then they can assign their staff members to take care about their micro part areas.

2) PROBLEMS IN THE EXISTING SYSTEM

An extensive study of existing system was carried out. There is an existing system available in branch. The system is run manually . It is difficult to run efficiently by man power, and difficult to respond every user within short period. Thus we came to know the essential need to make it automated

.

3) PROPOSED SYSTEM:

To Automate entire operations of the Cable Operator to maintain their customers list and collections. In this COM System they can maintain their staff member's details and their customer details. By using this COM System they can divide their areas macro parts to micro parts. By using this system they can meet their business requirements. Cable Operators once they divided their areas into micro parts then they can assign their staff members to take care about their micro part areas.

By using this COM System they can know about their equipments located on which areas. How many active / non active customers are there? all these details they can about it by using the reports. MIS reports were generated for the month of collections, expenses, pending amount, complaints area wise and date wise, month wise.

4) SCOPE OF THE PROJECT

To maintain entire operations of the cable operator to be Automated.

- To maintain entire operations of the cable operator to be automated.
- The current system is interactive with the database provides efforts can be made so that the system can adopt the available database features of a new site.

PROJECT ANALYSIS

STUDY OF THE SYSTEM

The complete system can be divided into five halves on basis of access levels.

- A) Account Management
- B) Utilities
- C) Authoring
- D) Editing
- E) Approving
- F) Deployment

Account management:

Using this part of an application the administrator can view the list of users and their area of specialization. The administrator can create a new users, modify existing user. An administrator provides permission to the newly created user by placing the new user into set of roles such as a author, approver, editor or deploy. This part of the application is only accessible to the administrator.

Utilities :

Utilities section of the application is used to shut down the application for the normal person to operate as well as to up the site back for its use.

Authoring:

An administrator or a person with the author privileges can access this part of the application. This part of the application includes creating new content in the form of stories which is normally done by the developers or content writers.

The newly created content may include no of notes which will guide the editor at the time of editing the content. The newly created content then can be posted to editor for editing.

Editor:

An editor receives the content posted by the author. An editor can view the content and later post the content to a new revision or to an existing revision. If a content is found unsuitable to the cause the content is returned back to the author. This part of the application can be explored only by an administrator or the users who possess an editor privilege. The editor can withdraw the content from being hosted if found unfit for hosting.

Approver:

An approver is a person who will approve the contents to be hosted on the site. An approver can approve the content to the deploy section or Discontinue the content usage or return the content back to the editor for revision. The returned content should accompany with a message to the editor regarding the revision in the content. This part of the application can be accessed by the administrator of the person who possess an Approver privilege.

Deploy:

This area of the application includes the deployment part of an application. A deploy person can view the content before deploying it. The person can also return the content if found unfit to be hosted on the site. The returned content is sent back to the approver. The deployment of the content includes the content to be placed in specific area of the hosting environment. The hosting environment is divided into three categories. The Deploy content, the manager content, the protected content. These categories are subdivided into no of sections.

Administrator:

An administrator has all the privileges that of the guest as well as the normal registered user. Along with these common features an administrator has the administrator related features such as creating new users and granting roles to those newly created users. The roles granted by the administrator cannot be changes by the user. An administrator can create new user as a guest or as an user or an administrator. The access levels are as per the grants done by the administrator.

An administrator can also be part of a team and could lead a project team this is possible only if administrator when building a team includes himself in the team section. If included as a manager he is not a part of the team but supervisor of the team.

The register option on the homepage of the application is provided only to register a new user as a guest.

ACCESS CONTROL FOR DATA WHICH REQUIRE USER AUTHENTICATION

The following commands specify access control identifiers and they are typically used to authorize and authenticate the user (command codes are shown in parentheses)

USER NAME (USER)

- The user identification is that which is required by the server for access to its file system. This command will normally be the first command transmitted by the user after the control connections are made (some servers may require this).

PASSWORD (PASS)

- This command must be immediately preceded by the user name command, and, for some sites, completes the user's identification for access control. Since password information is quite sensitive, it is desirable in general to "mask" it or suppress type out.

SOFTWARE REQUIREMENT SPECIFICATION

SOFTWARE REQUIREMENT SPECIFICATION

REQUIREMENT SPECIFICATION:

The software, Electronic Document Management system is designed for management of the content over a site.

INTRODUCTION

Purpose: The main purpose for preparing this document is to give a general insight into the analysis and requirements of the existing system or situation and for determining the operating characteristics of the system.

Scope: This Document plays a vital role in the development life cycle (SDLC)

As it describes the complete requirement of the system. It is meant for use by the developers and will be the basic during testing phase. Any changes made to the requirements in the future will have to go through formal change approval process.

Developers Responsibilities Overview:

The developer is responsible for:

- 1) Developing the system, which meets the SRS and solving all the requirements of the system?

- 2) Demonstrating the system and installing the system at client's location after the acceptance testing is successful.
- 3) Submitting the required user manual describing the system interfaces to work on it and also the documents of the system.
- 4) Conducting any user training that might be needed for using the system.
- 5) Maintaining the system for a period of one year after installation.

Functional Requirements:

OUTPUT DESIGN

Outputs from computer systems are required primarily to communicate the results of processing to users. They are also used to provide a permanent copy of the results for later consultation. The various types of outputs in general are:

- . External Outputs, whose destination is outside the organization.
- . Internal Outputs whose destination is within organization and they are the
 - user's main interface with the computer.

- Operational outputs whose use is purely within the computer department.
- Interface outputs, which involve the user in communicating directly with

Output Definition

The outputs should be defined in terms of the following points:

- Type of the output
- Content of the output
- Format of the output
- Location of the output
- Frequency of the output
- Volume of the output
- Sequence of the output

It is not always desirable to print or display data as it is held on a computer. It should be decided as which form of the output is the most suitable.

For Example

- Will decimal points need to be inserted
- Should leading zeros be suppressed.

Output Media:

In the next stage it is to be decided that which medium is the most appropriate for the output. The main considerations when deciding about the output media are:

- .The suitability for the device to the particular application.
- .The need for a hard copy.
- .The response time required.
- .The location of the users
- .The software and hardware available.

The cost.

Keeping in view the above description the project is to have outputs mainly coming under the category of internal outputs. The main outputs desired according to the requirement specification are:

The outputs were needed to be generated as a hot copy and as well as queries to be viewed on the screen. Keeping in view these outputs, the format for the output is taken from the outputs, which are currently being obtained after manual processing. The standard printer is to be used as output media for hard copies.

INPUT DESIGN

Input design is a part of overall system design. The main objective during the input design is as given below:

- To produce a cost-effective method of input.
- To achieve the highest possible level of accuracy.
- To ensure that the input is acceptable and understood by the user.

INPUT STAGES:

The main input stages can be listed as below:

- Data recording
- Data transcription
- Data conversion
- Data verification
- Data control
- Data transmission
- Data validation
- Data correction

INPUT TYPES:

It is necessary to determine the various types of inputs. Inputs can be categorized as follows:

- External inputs, which are prime inputs for the system.

- Internal inputs, which are user communications with the system.
- Operational, which are computer department's communications to the system?
- Interactive, which are inputs entered during a dialogue.

INPUT MEDIA:

At this stage choice has to be made about the input media. To conclude about the input media consideration has to be given to;

- Type of input
- Flexibility of format
- Speed
- Accuracy
- Verification methods
- Rejection rates
- Ease of correction
- Storage and handling requirements
- Security
- Easy to use
- Portability

Keeping in view the above description of the input types and input media, it can be said that most of the inputs are of the form of internal and interactive. As

Input data is to be the directly keyed in by the user, the keyboard can be considered to be the most suitable input device.

ERROR AVOIDANCE

At this stage care is to be taken to ensure that input data remains accurate from the stage at which it is recorded upto the stage in which the data is accepted by the system. This can be achieved only by means of careful control each time the data is handled.

ERROR DETECTION

Even though every effort is make to avoid the occurrence of errors, still a small proportion of errors is always likely to occur, these types of errors can be discovered by using validations to check the input data.

DATA VALIDATION

Procedures are designed to detect errors in data at a lower level of detail. Data validations have been included in the system in almost every area where there is a possibility for the user to commit errors. The system will not accept invalid data. Whenever an invalid data is keyed in, the system immediately prompts the user

and the user has to again key in the data and the system will accept the data only if the data is correct. Validations have been included where necessary.

The system is designed to be a user friendly one. In other words the system has been designed to communicate effectively with the user. The system has been designed with pop up menus.

USER-INTERGFACE DESIGN

It is essential to consult the system users and discuss their needs while designing the user interface:

USER INTERFACE SYSTEMS CAN BE BROADLY CLASIFIED AS:

1. User initiated interface the user is in charge, controlling the progress of the user/computer dialogue. In the computer-initiated interface, the computer selects the next stage in the interaction.
2. Computer initiated interfaces

In the computer initiated interfaces the computer guides the progress of the user/computer dialogue. Information is displayed and the user response of the computer takes action or displays further information.

USER_INITIATED INTERGFACES

User initiated interfaces fall into two approximate classes:

1. Command driven interfaces: In this type of interface the user inputs commands or queries which are interpreted by the computer.
2. Forms oriented interface: The user calls up an image of the form to his/her screen and fills in the form. The forms oriented interface is chosen because it is the best choice.

COMPUTER-INITIATED INTERFACES

The following computer – initiated interfaces were used:

1. The menu system for the user is presented with a list of alternatives and the user chooses one; of alternatives.
2. Questions – answer type dialog system where the computer asks question and takes action based on the basis of the users reply.

Right from the start the system is going to be menu driven, the opening menu displays the available options. Choosing one option gives another popup menu with more options. In this way every

option leads the users to data entry form where the user can key in the data.

ERROR MESSAGE DESIGN:

The design of error messages is an important part of the user interface design. As user is bound to commit some errors or other while designing a system the system should be designed to be helpful by providing the user with information regarding the error he/she has committed.

This application must be able to produce output at different modules for different inputs.

Performance Requirements:

Performance is measured in terms of the output provided by the application.

Requirement specification plays an important part in the analysis of a system. Only when the requirement specifications are properly given, it is possible to design a system, which will fit into required environment. It rests largely in the part of the users of the existing system to give the requirement specifications because they are the people who finally use the system. This is because the requirements have to be known during the initial stages so that the

system can be designed according to those requirements. It is very difficult to change the system once it has been designed and on the other hand designing a system, which does not cater to the requirements of the user, is of no use.

The requirement specification for any system can be broadly stated as given below:

- The system should be able to interface with the existing system
- The system should be accurate
- The system should be better than the existing system

The existing system is completely dependent on the staff to perform all the duties.

MODULES OF THE APPLICATION

Masters :

The information specified in the Master is regarded static, in the sense that it is “Permanent” or non-changing or stable. The updates are infrequent and may be regarded as permanently stored in the Database. The Master Group has functionality to View / Change.
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Transaction Module:

Transactions deal with dynamic or transient data.

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The TRANSACTION Group of functionality is as follows:

3. **Collection Screen** -- In this module Cable operators will generate the monthly wise collection statement for their particular areas and customer wise. They can generate the date to date collection statements. Staff wise collection statements and area wise statements will generate by using this module.
4. **Customer receipt** – Customer Payment Receipt generation .

Report Module

In this module we can generate the various MIS Reports to keep track of the revenue, customer statistics area wise, month wise, during the days and year wise etc.,

7. Customer Ledger
8. Customer Receipt
9. Customer Request
10. Total Collections
11. Collections between Dates
12. Customer A/c

FEASIBILITY STUDY

Feasibility Study:

Feasibility Study is a high level capsule version of the entire process intended to answer a number of questions like: What is the problem? Is there any feasible solution to the given problem? Is the problem even worth solving? Feasibility study is conducted once the problem clearly understood. Feasibility study is necessary to determine that the proposed system is Feasible by considering the technical, Operational, and Economical factors. By having a detailed feasibility study the management will have a clear-cut view of the proposed system.

The following feasibilities are considered for the project in order to ensure that the project is variable and it does not have any major obstructions. Feasibility study encompasses the following things:

- Technical Feasibility
- Economical Feasibility
- Operational Feasibility

In this phase, we study the feasibility of all proposed systems, and pick the best feasible solution for the problem. The feasibility is studied based on three main factors as follows.

2.1. Technical Feasibility:

In this step, we verify whether the proposed systems are technically feasible or not. i.e., all the technologies required to develop the system are available readily or not.

Technical Feasibility determines whether the organization has the technology and skills necessary to carryout the project and how this should be obtained. The system can be feasible because of the following grounds.

All necessary technology exists to develop the system.

This system is too flexible and it can be expanded further.

This system can give guarantees of accuracy, ease of use, reliability and the data security.

This system can give instant response to inquire.

Our project is technically feasible because, all the technology needed for our project is readily available.

2.2. Economical Feasibility:

In this step, we verify which proposal is more economical. We compare the financial benefits of the new system with the investment. The new system is economically feasible only when the financial benefits are more than the investments and expenditure. Economical Feasibility determines whether the project goal can be within the resource limits allocated to it or not. It must determine whether it is worthwhile to process with the entire project or whether the benefits obtained from the new system are not worth the costs. Financial benefits must be equal or exceed the costs. In this issue, we should consider:

- The cost to conduct a full system investigation.
- The cost of h/w and s/w for the class of application being considered.
- The development tool.
- The cost of maintenance etc.,

Our project is economically feasible because the cost of development is very minimal when compared to financial benefits of the application.

2.3. Operational Feasibility:

In this step, we verify different operational factors of the proposed systems like man-power, time etc., whichever solution uses less operational resources, is the best operationally feasible solution. The solution should also be operationally possible to implement. Operational Feasibility determines if the proposed system satisfied user objectives could be fitted into the current system operation. The present system Enterprise Resource Information System can be justified as Operationally Feasible based on the following grounds.

The methods of processing and presentation are completely accepted by the clients since they can meet all user requirements.

The clients have been involved in the planning and development of the system.

The proposed system will not cause any problem under any circumstances.

Our project is operationally feasible because the time requirements and personnel requirements are satisfied. We are a team of four members and we worked on this project for three working months.

PROJECT INITIATION:

In this phase, we perform the preliminary investigation procedures like setting up project goals, gathering requirements from client etc., this phase consists of two sub-phases as follows.

3.1. Formulation of Goals:

In this step, we formulate the goals to be achieved in the new system. As the applications are web-based, the goals can be categorized into two types like informatory goals and functional goals. Formulation of web-based systems and applications represents a sequence of web engineering actions like identification of business needs, description of objectives, definition of major features and functions etc.,

Formulation Questions

Q. What is the main motivation (business need) for the application?

For the present application, the business needs are identified as follows. The companies need an online intranet application to publicize their art galleries and put for auctioning. The companies need an application to store and manage all the galleries details. The agents need an application to search for good companies in a desirable location. The users or bidders need an application to facilitate any-time bidding. The users search for art galleries and select the desirable one. Then the users can bid a price on their own. All these biddings can be seen by the company. It can select the best bid from the list and can make a deal.

Q. What are the objectives that the application must fulfill?

The goals for the present web-application are identified as follows.

1. Informatory Goals:

Informatory goals speak about what kind of information must be served by the application. This application should fulfill the following informatory goals.

- This application should provide complete information about the several companies which deal with art galleries and their auctions.
- This application should provide complete information about the several agents who act as mediators in helping find the right product for a right bidding price.
- This application should provide complete information about the several galleries added by the company. This information includes the product name, description, bidding price, last date etc.,
- This application should provide information about the complete catalog of the company.

The application should provide the complete information, terms & conditions.

2. Functional Goals:

- Functional goals speak about what kind of services or functionalities must be provided by the application to the different categories of users.
- All kinds of users to the web-application should have a proper login facility with password recovery option.
- The companies, agents and users can register to the portal using the registration forms.
- The administrator should have a facility to view a list of companies' registrations. He can view the complete profile of the company. Once all the payment formalities are finished, the administrator approves the company. Or he may also reject the company. Only approved companies can login to the portal.
- The registered company should have a functionality to add and manage art galleries.
- The bidder or the user should have a search program which can fetch the list of galleries and their products which are related to different companies.

- The user can view the details of the gallery products. He can also search the products which are currently available for bidding.
- The user can select a product and bid it with a desired bidding price.

3.2. Requirements Gathering:

In this step, we gather the requirements from the client, which act as inputs for the development of the application. To gather requirements from different types of clients, we follow different techniques like personal interviews, questioners, observation, record review etc., Requirements' gathering is a process of understanding the requirements of a problem. For a web-based application, the requirements gathering objectives are proposed as follows.

- Identify content requirements
- Identify functional requirements

CONTENT REQUIREMENTS

This application should provide complete information about the several companies which deal with art galleries and their auctions. This application should provide complete information about the several agents who act as mediators in helping find the right product for a right bidding price. This application should provide complete information about the several galleries added by the company. This information includes the product name, description, bidding price, last date etc, This application should provide information about the complete catalog of the company. The application should provide the complete information, terms & conditions.

FUNCTIONAL REQUIREMENTS

All kinds of users to the web-application should have a proper login facility with password recovery option. The companies, agents and users can register to the portal using the registration forms. The administrator should have a facility to view a list of companies' registrations. He can view the complete profile of the company. Once all the payment formalities are finished, the administrator approves the company. Or he may also reject the company. Only approved companies can login to the portal. The registered company should have a functionality to add and manage art galleries.

ANALYSIS

ANALYSIS:

In this phase, we thoroughly study the requirements gathered from the client and analyze them. Then we develop a model to the solution using different modeling techniques. The following are the different sub-phases involved in this phase.

4.1. Requirement Analysis:

In this step, the requirements gathered from the client in previous phase, are thoroughly analyzed and the client requirement is understood properly. Requirement analysis for web applications encompasses three major tasks: formulation, requirements gathering and analysis modeling. During formulation, the basic motivation and goals for the web application are identified, and the categories of users are defined. In the requirements gathering phase, the content and functional requirements are listed and interaction scenarios written from end-user's point-of-view are developed. This intent is to establish a basic understanding of why the web application is built, who will use it, and what problems it will solve for its users.

4.2. System Requirement Specification:

In this step, we generate a report on System Requirement Specification. This is a document, which consists of the list of requirements and functionalities to be provided in the new system. Here we also generate reports on software requirement and hardware requirement for developing the application.

SELECTED SOFTWARE

PHP:

PHP started out as a small open source project that evolved as more and more people found out how useful it was. Rasmus Lerdorf unleashed the first version of PHP way back in 1994.

- PHP is a recursive acronym for "PHP: Hypertext Preprocessor".
- PHP is a server side scripting language that is embedded in HTML. It is used to manage dynamic content, databases, session tracking, even build entire e-commerce sites.
- It is integrated with a number of popular databases, including MySQL, PostgreSQL, Oracle, Sybase, Informix, and Microsoft SQL Server.
- PHP is pleasingly zippy in its execution, especially when compiled as an Apache module on the Unix side. The MySQL server, once started, executes even very complex queries with huge result sets in record-setting time.
- PHP supports a large number of major protocols such as POP3, IMAP, and LDAP. PHP4 added support for Java and distributed object architectures (COM and CORBA), making n-tier development a possibility for the first time.
- PHP is forgiving: PHP language tries to be as forgiving as possible.
- PHP Syntax is C-Like.

MySQL:

MySQL is a fast, easy-to-use RDBMS being used for many small and big businesses. MySQL is developed, marketed and supported by MySQL AB, which is a Swedish company. MySQL is becoming so popular because of many good reasons –

- MySQL is released under an open-source license. So you have nothing to pay to use it.

- MySQL is a very powerful program in its own right. It handles a large subset of the functionality of the most expensive and powerful database packages.
- MySQL uses a standard form of the well-known SQL data language.
- MySQL works on many operating systems and with many languages including PHP, PERL, C, C++, JAVA, etc.
- MySQL works very quickly and works well even with large data sets.
- MySQL is very friendly to PHP, the most appreciated language for web development.
- MySQL supports large databases, up to 50 million rows or more in a table. The default file size limit for a table is 4GB, but you can increase this (if your operating system can handle it) to a theoretical limit of 8 million terabytes (TB).
- MySQL is customizable. The open-source GPL license allows programmers to modify the MySQL software to fit their own specific environments.

HTML:

Hyper Text Markup Language, commonly referred to as HTML, is the standard markup language used to create web pages. Along with CSS, and JavaScript, HTML is a cornerstone technology, used by most websites to create visually engaging webpages, user interfaces for web applications, and user interfaces for many mobile applications.[1] Web browsers can read HTML files and render them into visible or audible web pages. HTML describes the structure of a website semantically along with cues for presentation, making it a markup language, rather than a programming language. HTML elements form the building blocks of all websites. HTML allows images and objects to be embedded and can be used to create interactive forms. It provides a means to create structured documents by denoting structural semantics for text such as headings, paragraphs, lists, links, quotes and other items. The language is written in the form of HTML elements consisting of tags enclosed in angle brackets (like `<tag>`). Browsers do not display the HTML tags and scripts, but use them to interpret the content of the page. HTML can embed scripts written in languages such as JavaScript which affect the behavior of HTML web pages. Web browsers can also refer to Cascading Style Sheets

(CSS) to define the look and layout of text and other material. The World Wide Web Consortium(W3C), maintainer of both the HTML and the CSS standards, has encouraged the use of CSS over explicit presentational HTML since 1997.

CSS:

Cascading Style Sheets (CSS) is a style sheet language used for describing the presentation of a document written in a markup language.[1] Although most often used to set the visual style of web pages and user interfaces written in HTML and XHTML, the language can be applied to any XML document, including plain XML, SVG and XUL, and is applicable to rendering in speech, or on other media. Along with HTML and JavaScript, CSS is a cornerstone technology used by most websites to create visually engaging web pages, user interfaces for web applications, and user interfaces for many mobile applications. CSS is designed primarily to enable the separation of document content from document presentation, including aspects such as the layout, colors, and fonts.[3] This separation can improve content accessibility, provide more flexibility and control in the specification of presentation characteristics, enable multiple HTML pages to share formatting by specifying the relevant CSS in separate .css file, and reduce complexity and repetition in the structural content, such as semantically insignificant tables that were widely used to format pages before consistent CSS rendering was available in all major browsers. CSS makes it possible to separate presentation instructions from the HTML content in a separate file or style section of the HTML file. For each matching HTML element, it provides a list of formatting instructions. For example, a CSS rule might specify that "all heading 1 elements should be bold", leaving pure semantic HTML markup that asserts "this text is a level 1 heading" without formatting code such as a tag indicating how such text should be displayed.

JAVASCRIPT :

JavaScript is a high-level, dynamic, un-typed, and interpreted programming language. It has been standardized in the ECMA Script language specification. Alongside HTML and CSS, it is one of the three essential technologies of World Wide Web content

production; the majority of websites employ it and it is supported by all modern web browsers without plug-ins. JavaScript is prototype based with first-class functions, making it a multi-paradigm language, supporting object-oriented, imperative, and functional programming styles. It has an API for working with text, arrays, dates and regular expressions, but does not include any I/O, such as networking, storage, or graphics facilities, relying for these upon the host environment in which it is embedded. Despite some naming, syntactic, and standard library similarities, JavaScript and Java are otherwise unrelated and have very different semantics. The syntax of JavaScript is actually derived from C, while the semantics and design are influenced by the Self and Scheme programming languages. JavaScript is also used in environments that are not web-based, such as PDF documents, site-specific browsers, and desktop widgets. Newer and faster JavaScript virtual machines (VMs) and platforms built upon them have also increased the popularity of JavaScript for server-side web applications. On the client side, JavaScript has been traditionally implemented as an interpreted language, but more recent browsers perform just-in-time compilation. It is also used in game development, the creation of desktop and mobile applications, and server-side network programming with runtime environments such as Node.js.

PROJECT DESIGN

SOFTWARE ENGINEERING PARADIGM APPLIED- (RAD-MODEL)

The two design objectives continuously sought by developers are reliability and maintenance.

Reliable System

There are two levels of reliability. The first is meeting the right requirements. A careful and thorough systems study is needed

to satisfy this aspect of reliability. The second level of systems reliability involves the actual working delivered to the user. At this level, the systems reliability is interwoven with software engineering and development. There are three approaches to reliability.

1. **Error avoidance:** Prevents errors from occurring in software.
2. **Error detection and correction:** In this approach errors are recognized whenever they are encountered and correcting the error by effect of error, of the system does not fail.
3. **Error tolerance:** In this approach errors are recognized whenever they occur, but enables the system to keep running through degraded perform or by applying values that instruct the system to continue process.

Maintenance:

The key to reducing need for maintenance, while working, if possible to do essential tasks.

1. More accurately defining user requirement during system development.
2. Assembling better systems documentation.
3. Using more effective methods for designing, processing, login and communicating information with project team members.
4. Making better use of existing tools and techniques.
5. Managing system engineering process effectively.

Output Design:

One of the most important factors of an information system for the user is the output the system produces. Without the quality of the output, the entire system may appear unnecessary that will make us avoid using it possibly causing it to fail. Designing the output should process the in an organized well throughout the manner. The right output must be developed while ensuring that each output element is designed so that people will find the system easy to use effectively.

The term output applying to information produced by an information system whether printed or displayed while designing the output we should identify the specific output that is needed to information requirements select a method to present the formation and create a document report or other formats that contains produced by the system.

Types of output:

Whether the output is formatted report or a simple listing of the contents of a file, a computer process will produce the output.

- A Document
- A Message
- Retrieval from a data store
- Transmission from a process or system activity
- Directly from an output sources

Layout Design:

It is an arrangement of items on the output medium. The layouts are building a

mock up of the actual reports or document, as it will appear after the system is in operation. The output layout has been designated to cover information. The outputs are presented in the appendix.

Input design and control:

Input specifications describe the manner in which data enter the system for processing. Input design features will ensure the reliability of the systems and produce results from accurate data, or thus can be

result in the production of erroneous information. The input design also determines whenever the user can interact efficiently with this system.

Objectives of input design:

Input design consists of developing specifications and procedures for data preparation, the steps necessary to put transaction data into a usable form for processing and data entry, the activity of data into the computer processing. The five objectives of input design are:

- Controlling the amount of input
- Avoiding delay
- Avoiding error in data

- Avoiding extra steps
- Keeping the process simple

Controlling the amount of input:

Data preparation and data entry operation depend on people, because labour costs are high, the cost of preparing and entering data is also high. Reducing data requirement expense. By reducing input requirement the speed of entire process from data capturing to processing to provide results to users.

Avoiding delay:

The processing delay resulting from data preparation or data entry operations is called bottlenecks. Avoiding bottlenecks should be one objective of input.

Avoiding errors:

Through input validation we control the errors in the input data.

Avoiding extra steps:

The designer should avoid the input design that cause extra steps in processing saving or adding a single step in large number of transactions saves a lot of processing time or takes more time to process.

Keeping process simple:

If controls are more people may feel difficult in using the systems. The best-designed system fits the people who use it in a way that is comfortable for them.

NORMALIZATION

It is a process of converting a relation to a standard form. The process is used to handle the problems that can arise due to data redundancy i.e. repetition of data in the database, maintain data integrity as well as handling problems that can arise due to insertion, updation, deletion anomalies.

Decomposing is the process of splitting relations into multiple relations to eliminate anomalies and maintain anomalies and maintain data integrity. To do this we use normal forms or rules for structuring relation.

Insertion anomaly: Inability to add data to the database due to absence of other data.

Deletion anomaly: Unintended loss of data due to deletion of other data.

Update anomaly: Data inconsistency resulting from data redundancy and partial update

Normal Forms: These are the rules for structuring relations that eliminate anomalies.

First Normal Form:

A relation is said to be in first normal form if the values in the relation are atomic for every attribute in the relation. By this we mean simply that no attribute value can be a set of values or, as it is sometimes expressed, a repeating group.

Second Normal Form:

A relation is said to be in second Normal form if it is in first normal form and it should satisfy any one of the following rules.

- 1) Primary key is not a composite primary key
- 2) No non key attributes are present
- 3) Every non key attribute is fully functionally dependent on full set of primary key.

Third Normal Form:

A relation is said to be in third normal form if there exists no transitive dependencies.

Transitive Dependency: If two non key attributes depend on each other as well as on the primary key then they are said to be transitively dependent.

The above normalization principles were applied to decompose the data in multiple tables thereby making the data to be maintained in a consistent state.

Data Dictionary

After carefully understanding the requirements of the client the entire data storage requirements are divided into tables. The below tables are normalized to avoid any anomalies during the course of data entry.

A system is simply a set of components that interact to accomplish some purpose.

Systems are of two types.

- **Open Systems.**
- **Closed Systems.**

Systems that interact with their environments are open systems. They receive input and produce output. In contrast; systems that do not interact with their surroundings are closed systems all ongoing systems are open. Closed systems exist only as a concept.

System development can generally be thought of as having two major components

- **System Analysis.**
- **System Design.**

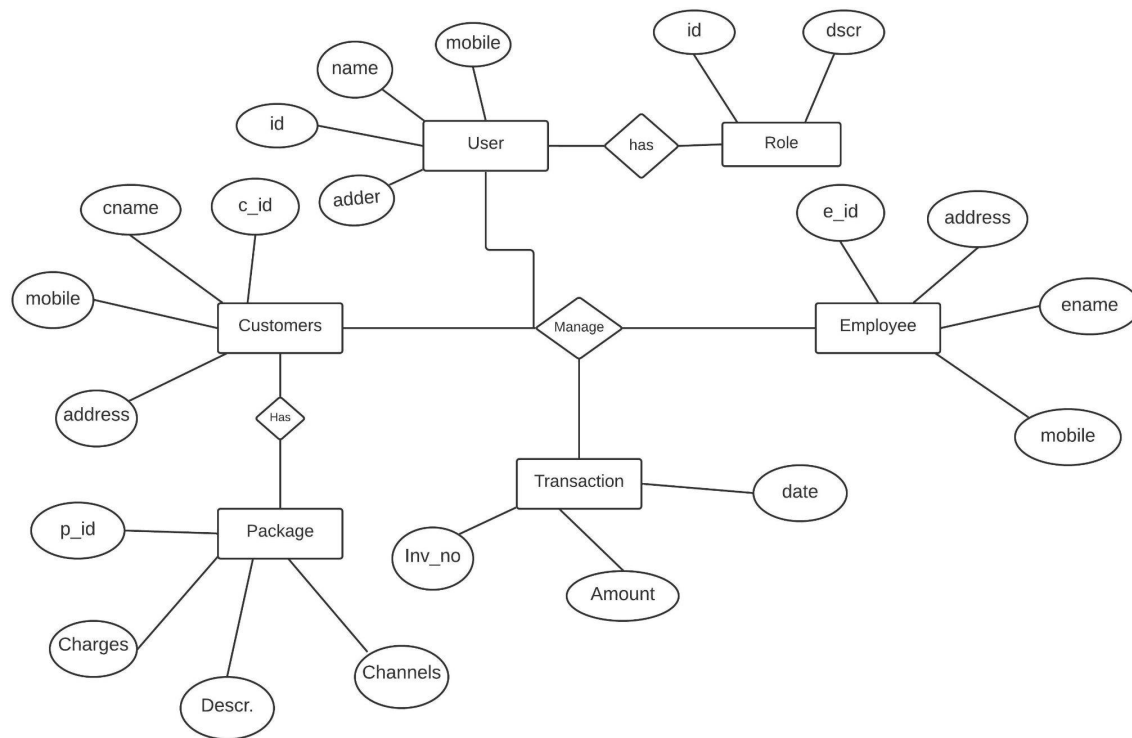
System analysis is the process of gathering and interpreting facts, diagnosing problems, and using the information to recommend improvements to the system. System Design is the process of planning a new business system or one to replace or complement an existing system.

Systems analysis is about understanding situations, not solving problems. Effective analysts therefore emphasize investigation and questioning to learn how the system currently operates and to identify the requirements users have for a new or modified one. Only after analysts fully understand the system are they able to analyze it and assemble recommendations for system design.

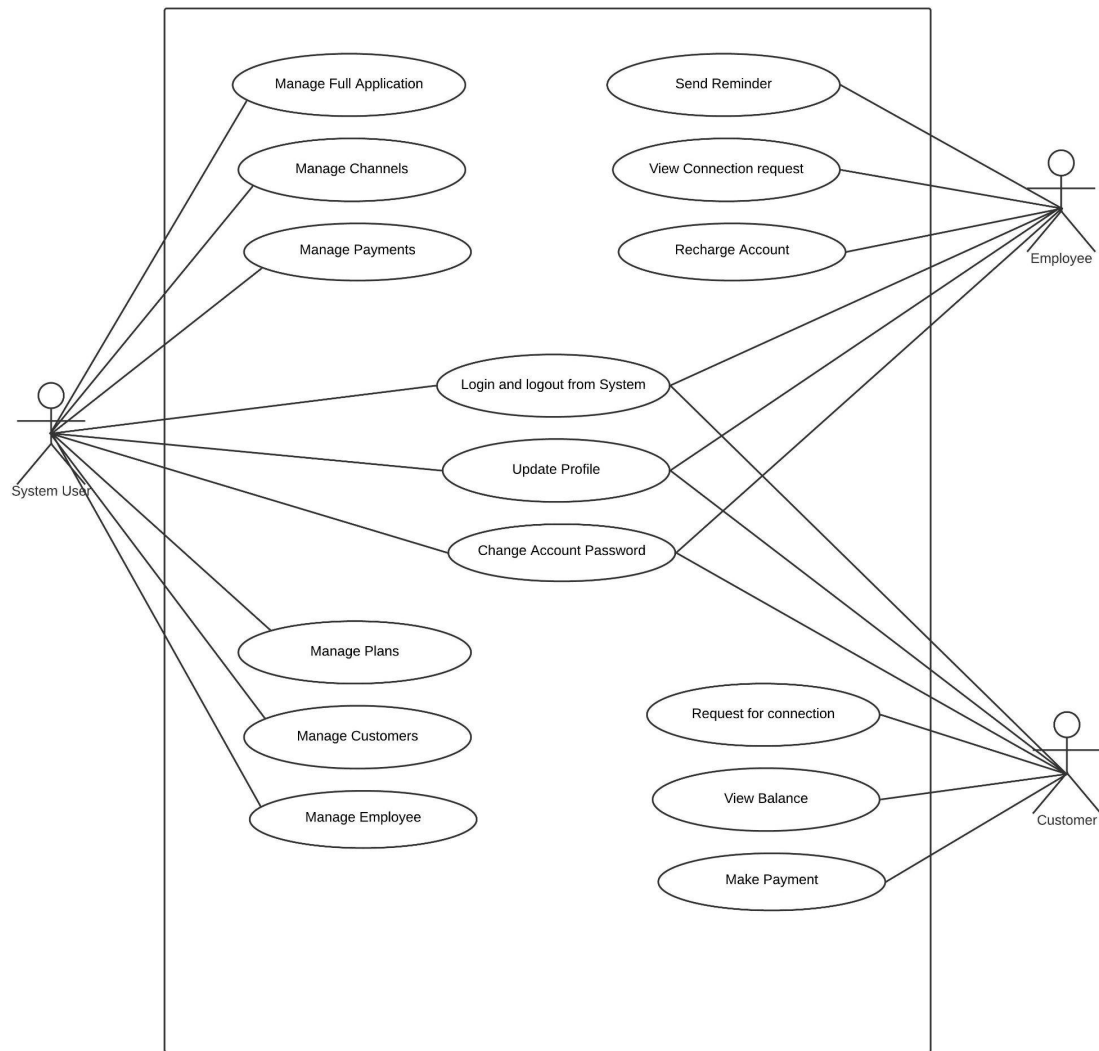
The manner in which a systems investigation is conducted will determine whether the appropriate information is gathered. In turn, having the right information influences the quality of the application that follows .in other words, good system design, whether developed through the SDLC method, prototyping, or structured methods, begins by documenting the current system and proper diagnosing the systems requirements.

UML Diagrams :

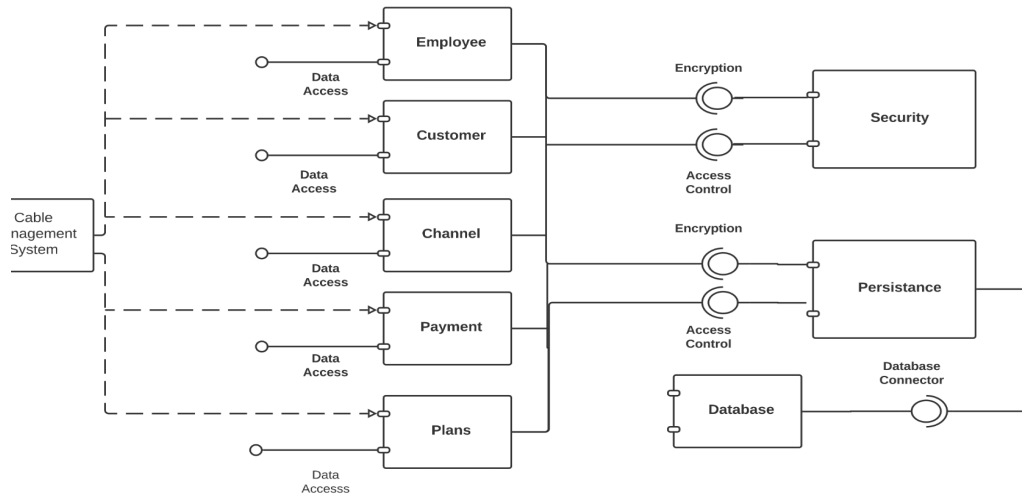
Entity Relationship Diagram:



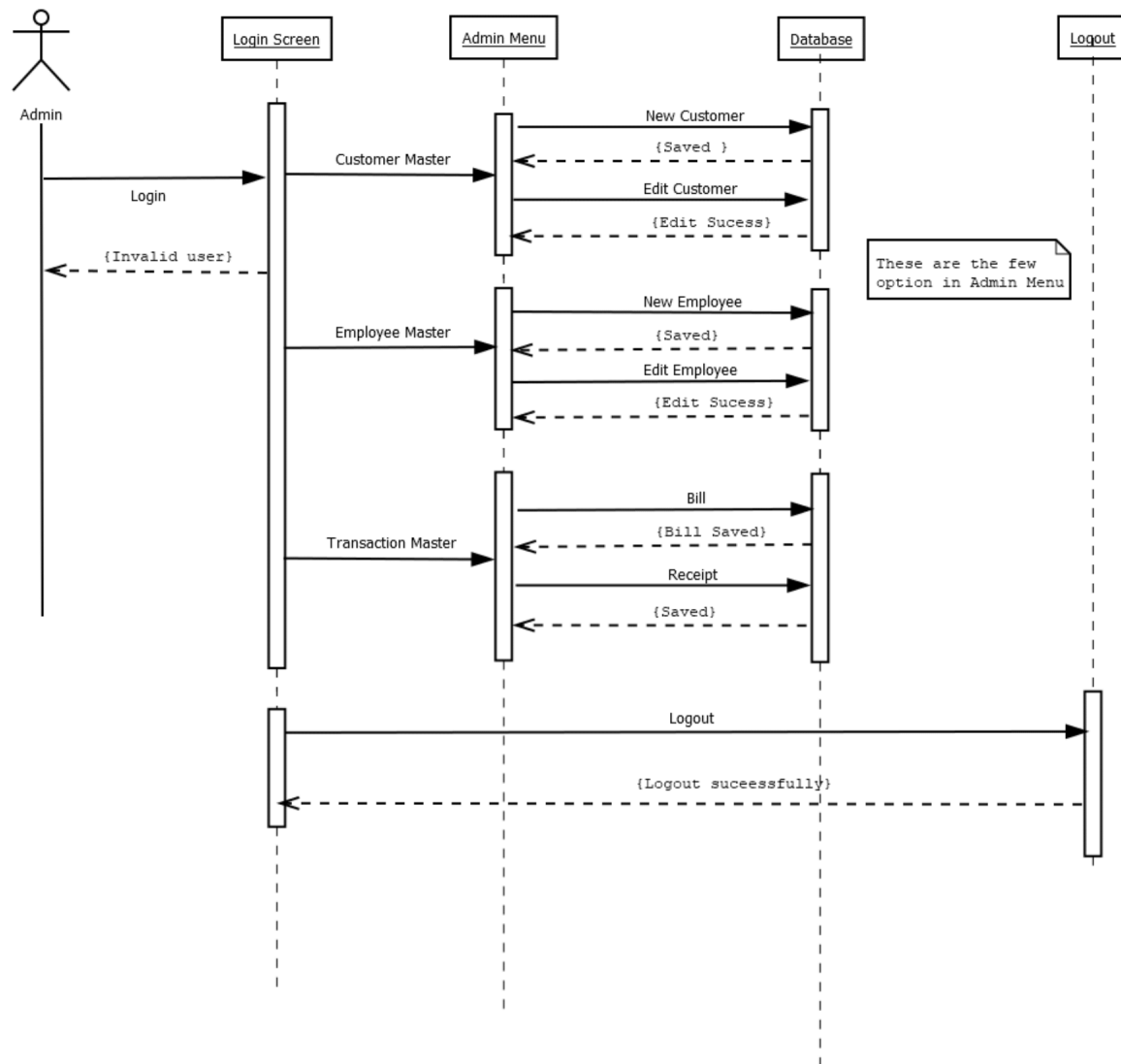
Use Case Diagram:



Component Diagram:

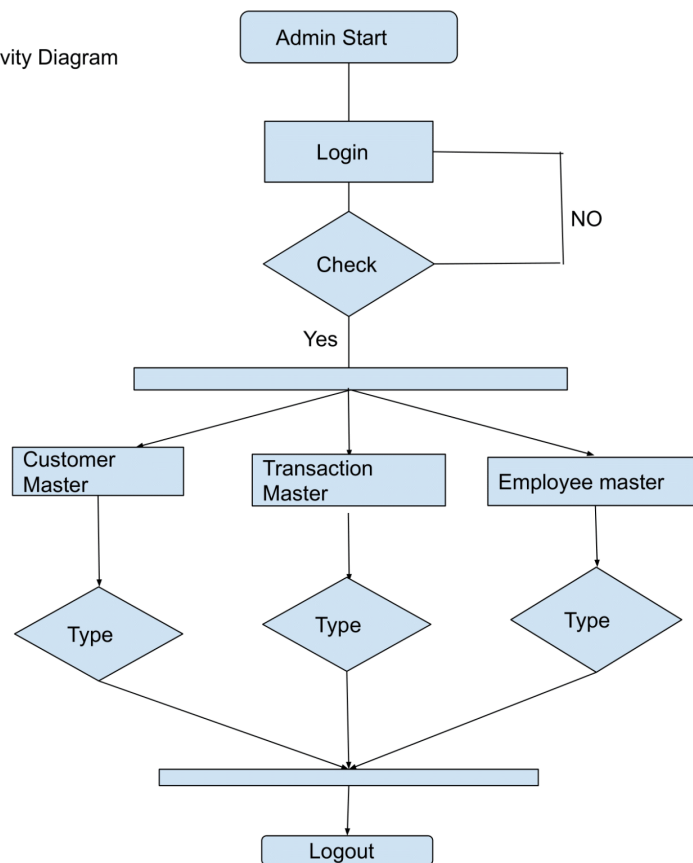


Sequence Diagram:



Activity Diagram:

Admin Activity Diagram



Test Case Design:

In this step, we design all the test cases, which are used by the testers to test the application after construction. Test case is nothing but a sample input or sample activity performed to test for any errors or bugs in the application. In order to perform system testing, we've developed many test cases. Some of them are as follows.

S.No	Input	Expected Behavior	Observed Behavior	Status Pass(P) Fail(F)
1	Enter the Wrong login-id and password to login	Error Message indicating the status of the user	-do-	P
2	Enter correct hint answer in password recovery form to recover password	Display the password of the user	-do-	P
3	Enter an existing login-id in the user registration form	Error message "login_id already exists. Please choose another one".	-do-	P
4	Delete a gallery which contains products	Error message "Gallery cannot be deleted because it is not empty."	-do-	P
5	Enter bid amount less than base price	Error message "Bid cannot be evaluated as the bid price is less than base price."	-do-	P
6	Send message without body	It should display an error message "Message body cannot be blank"	-do-	P

CONSTRUCTION:

This is the actual constructive phase of the project where the models and designs are added with functionality. The construction phase involves coding, compiling and building the functional modules of the project.

Login :

Username

Password

We'll never share your email with anyone else.

Login

Customer:

Analytics Dashboard - This is an X

localhost/cable/customer.php

DASHBOARDS

Home

MENU

Customer Master

Employee Master

Package Master

User Master

Transaction

Requests

Report

Customer

Enter Customer

Enter Address

Enter Email

Enter Mobile

Select Package

Select Employee

OpeningBal

Installed_date

Enter Status

dd / mm / yyyy

Close

Save

Showing 1 to 6 of 6 entries

Previous

1

Next

balance	Installed_on	Status	Edit	Delete
50	2021-05-12	Active	Edit	Delete
00	2021-06-08	Active	Edit	Delete
00	2021-06-07	Active	Edit	Delete
00	2021-04-12	Active	Edit	Delete
00	2021-06-12	Active	Edit	Delete
00	2021-06-12	Active	Edit	Delete

Activate Windows
Go to Settings to activate Windows.

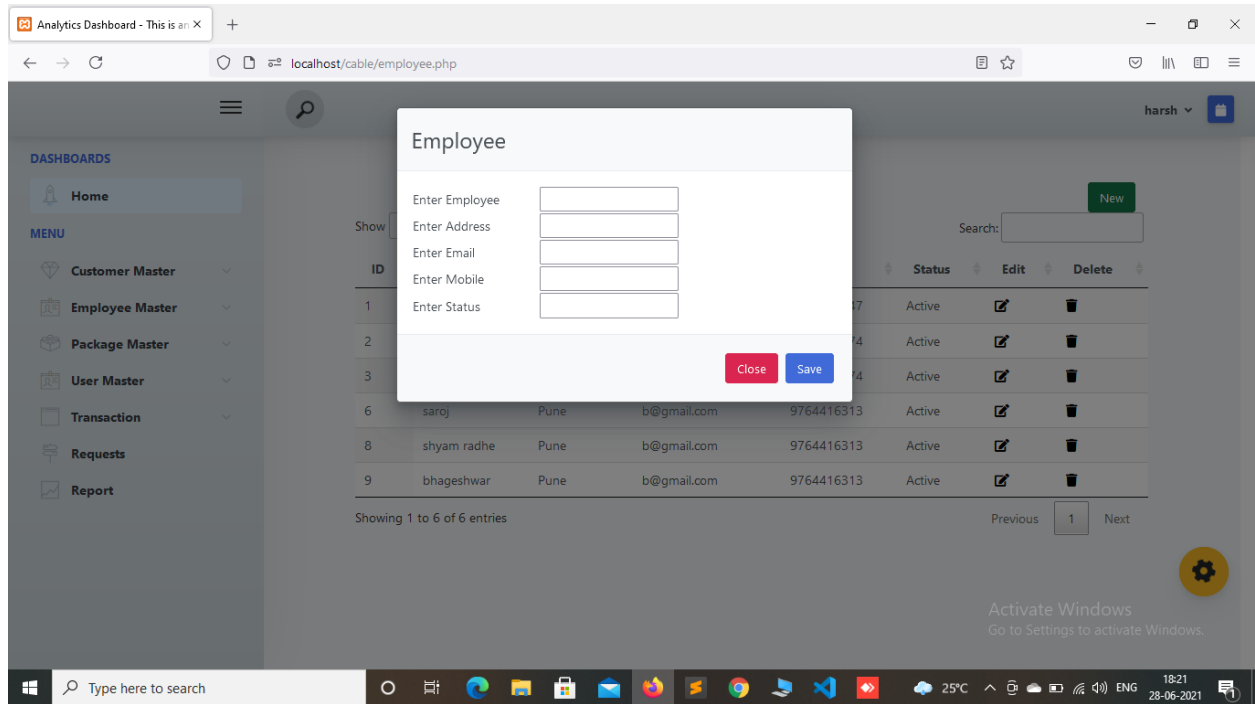
Type here to search

25°C

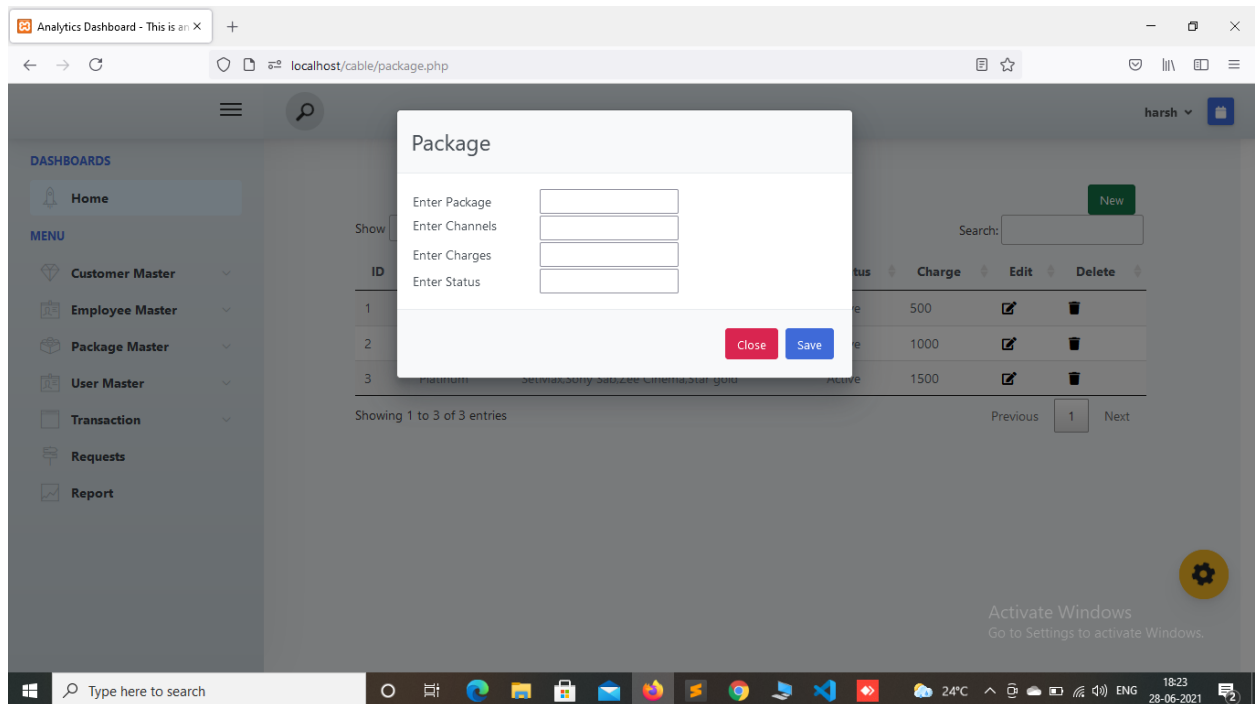
18:20

28-06-2021

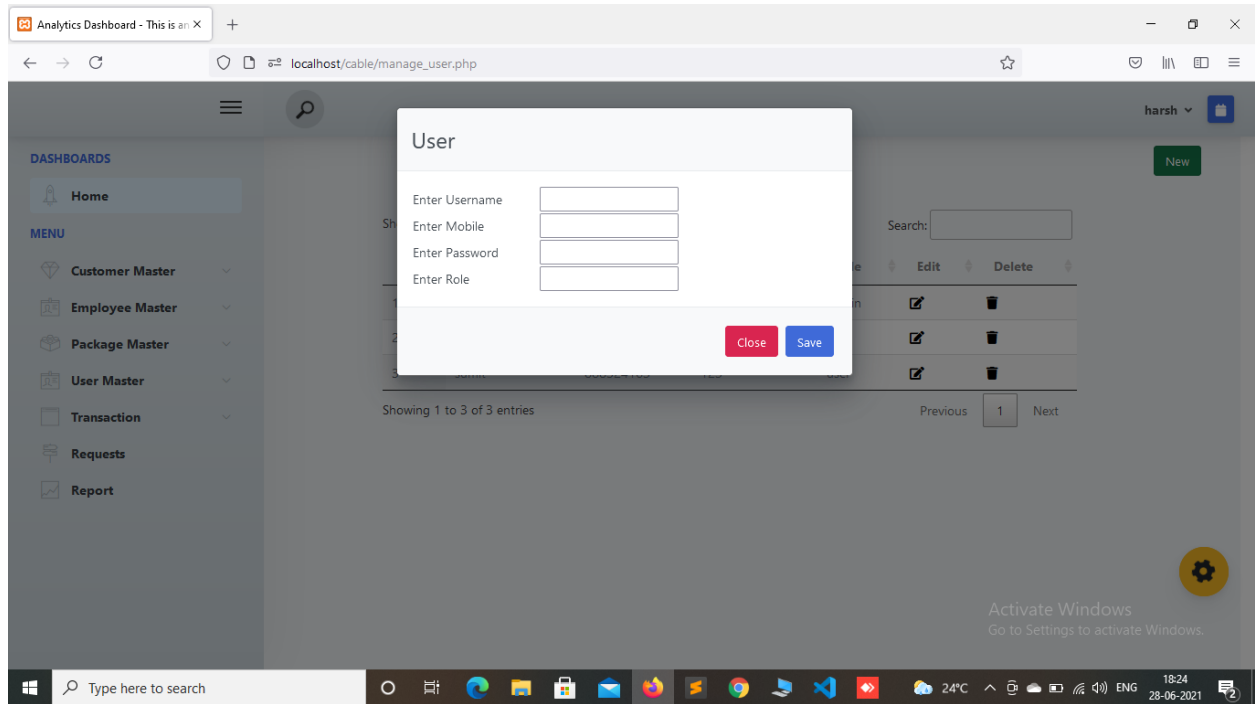
Employee:



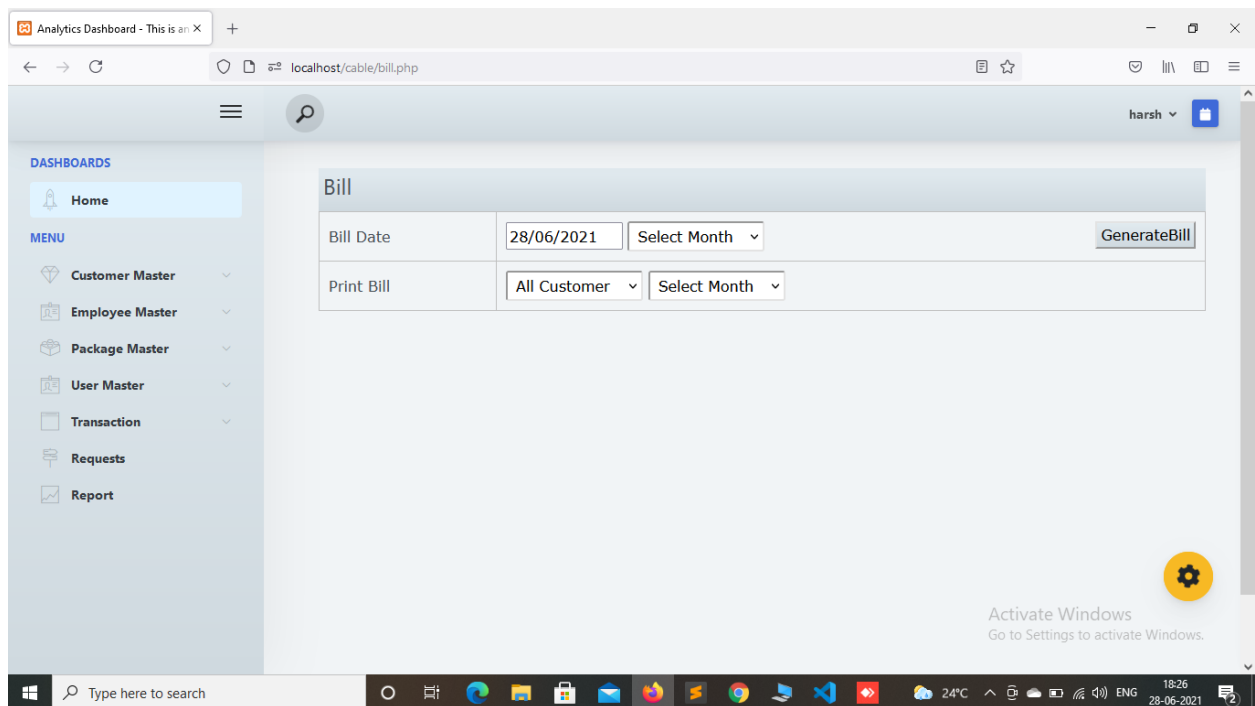
Package:



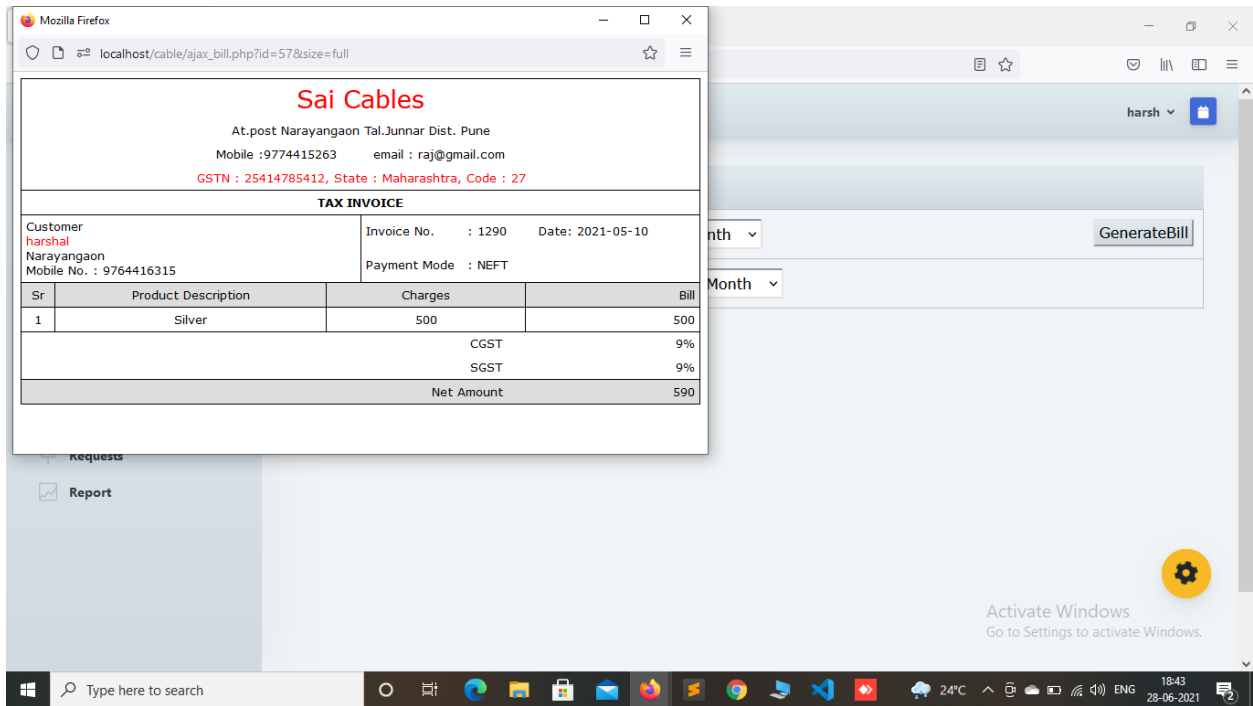
User:



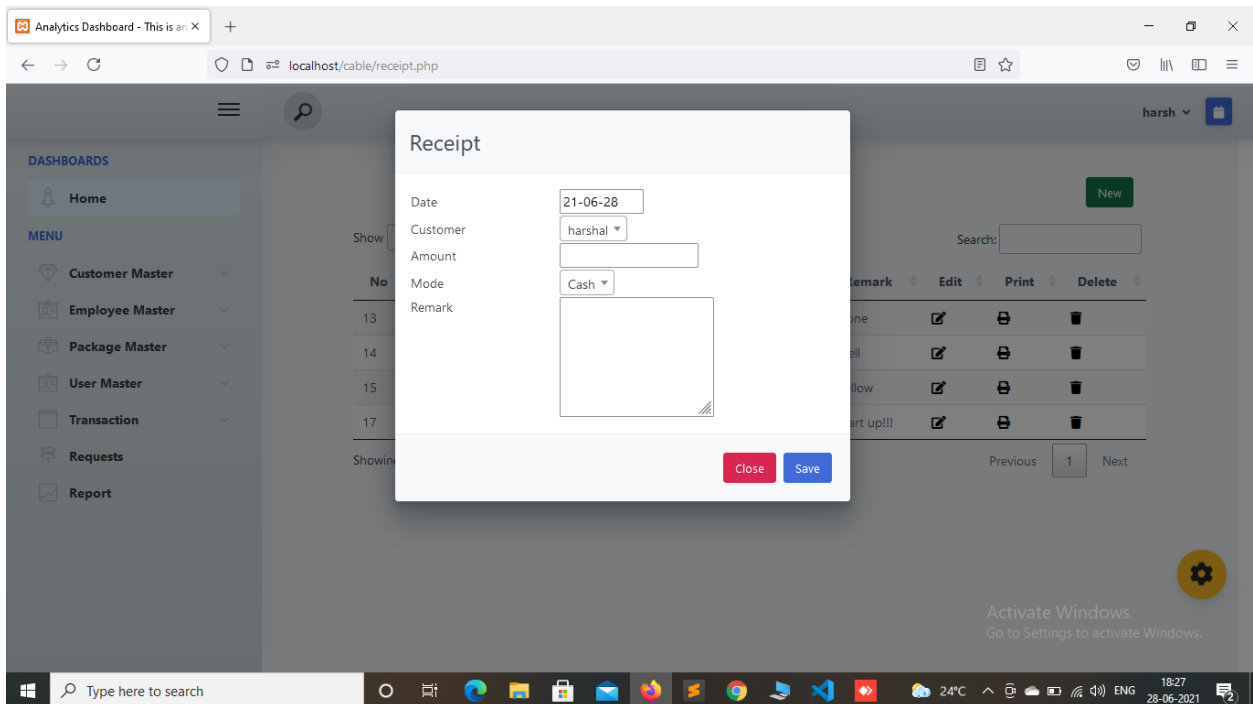
Customer Bill:



Customer Bill Print:



Customer Payment Receipt:



Print Receipt:

Analytics Dashboard - This is an X

Mozilla Firefox

localhost/cable/rcpt_print.php?id=60

Sai Cable

Office :At.post Narayangaon Tal.Junnar Dist. Pune
Mobile : 9774415263email:raj@gmail.com

Receipt of : Sumit

Rs. Two Hundred Only

Remark:hellow

by Bank Transfer

Rs. 200/-

Cashier Passed by

Showing 1 to 4 of 4 entries

Search:

Amount	Remark	Edit	Print	Delete
1500	Done			
500	Well			
200	hellow			
300	Start up!!!			

Previous 1 Next

Activate Windows
Go to Settings to activate Windows.

Type here to search

24°C

ENG

18:41
28-06-2021

Customer Request:

Analytics Dashboard - This is an X

localhost/cable/request.php

harsh

DASHBOARDS

Home

MENU

- Customer Master
- Employee Master
- Package Master
- User Master
- Transaction
- Requests
- Report

Show 10 entries

Search:

ID	Date	Customer	Request	Status	Action
1	2021-05-29	harshal	Change Gold Package instead of Silver	Complete	Confirm
2	2021-05-29	siddhesh	Change Package	Complete	Confirm
3	2021-05-02	Sumit	Update Package	Complete	Confirm

Showing 1 to 3 of 3 entries

Previous 1 Next

Activate Windows
Go to Settings to activate Windows.

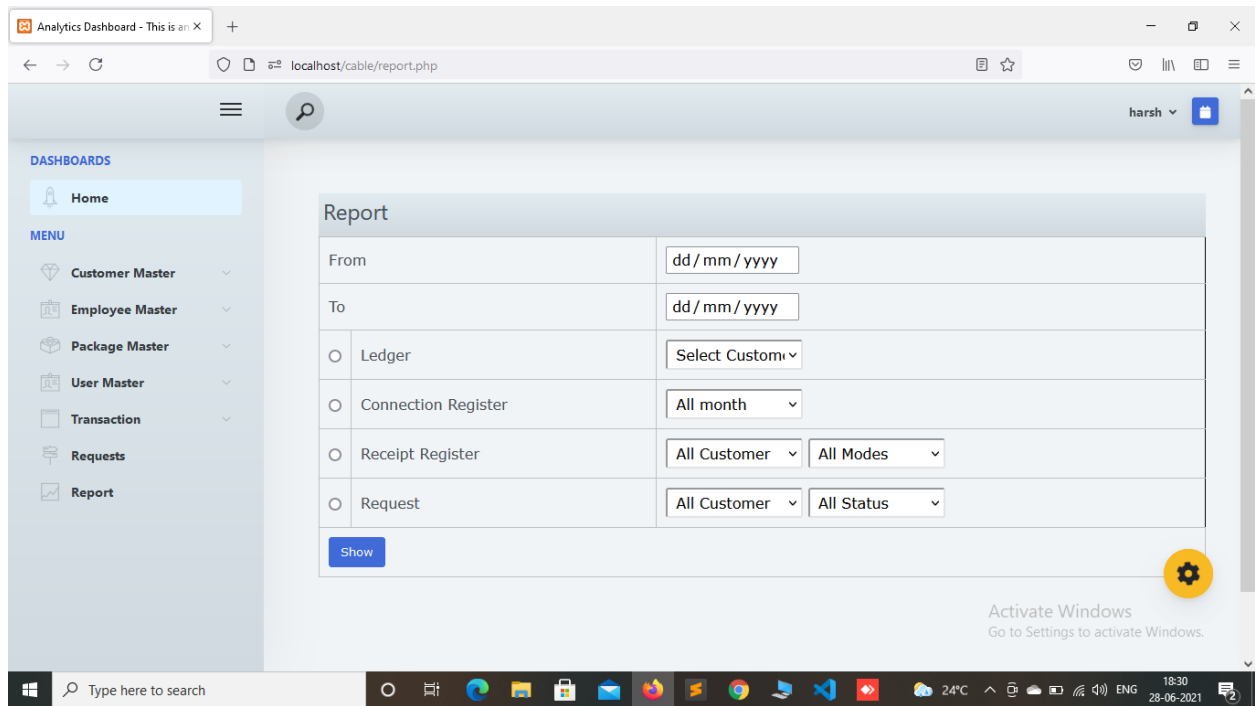
Type here to search

24°C

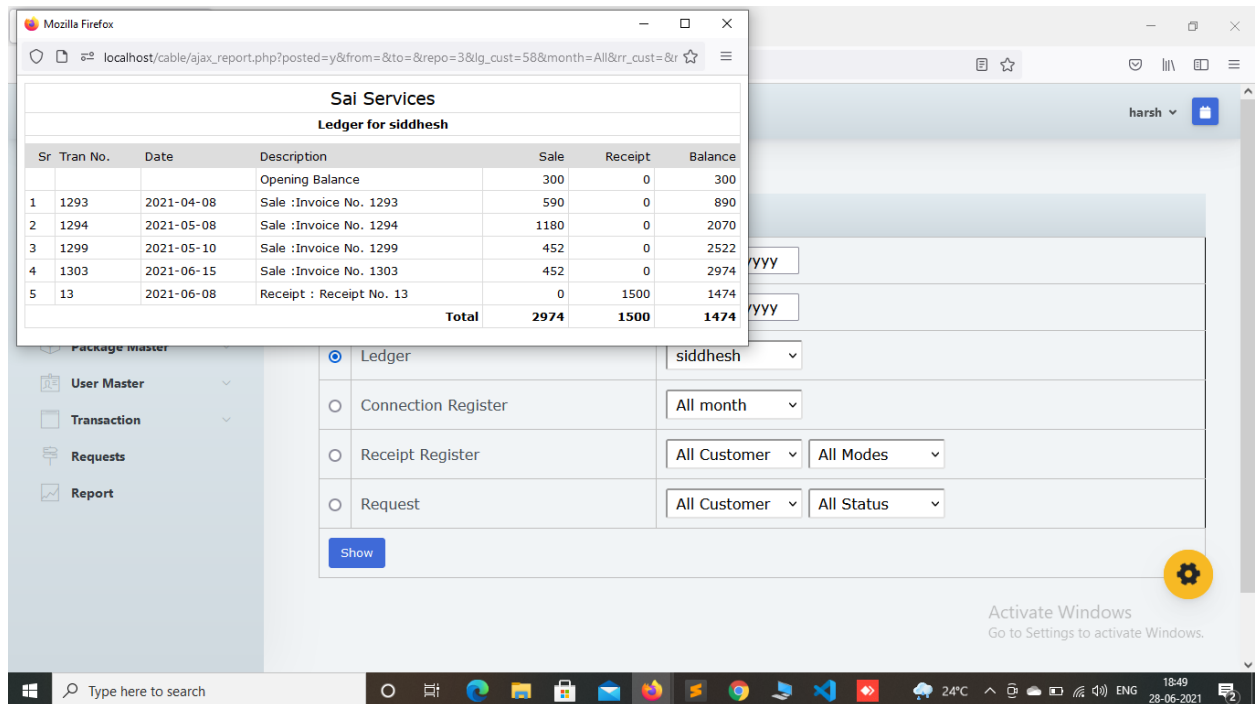
ENG

18:28
28-06-2021

Report Module:



Customer Ledger :



TESTING

Testing is the process of exercising software with the intent of finding errors. The Web-app testing is a collection of related activities with a single goal: to uncover errors in web application content, function, usability, navigability, performance, capacity and security.

There are several areas of testing involved in web applications. For the current web application, I used some of them as follows.

CONTENT TESTING

Content testing attempts to uncover errors in content of the web application. In addition to examining static content for errors, this testing step also considers dynamic content derived from data maintained as a part of database system that has been integrated with the web application.

Content testing of all web pages is evaluated for syntactic and semantic errors.

At syntactic level I have verified the content for spelling, punctuation and any grammar mistakes of all pages which contain the content of the website.

At semantic level I have verified for the following aspects.

- o Whether the content is valid or not.
- o Whether the format of the content is good and readable or not.
- o Whether all the web pages are showing consistent content or not.

The content includes the dynamic information about the companies, stock values and flowchart details which is fetched from the database. The consistency of this information is thoroughly tested.

DATABASE TESTING

Database testing is done to uncover the errors which occur as a consequence of fetching large equities of data from the database, extracting

relevant data from the database, accessing the database using several queries etc,

In this project, I have tested the application for database errors in following areas.

- o While converting the user request into a database query
- o While fetching dynamic content to the web pages.
- o While opening and closing the active connections to the database
- o While presenting the raw data fetched from database in a formatted HTML output.
- o Communication between the web application and the remote database.

USER INTERFACE TESTING

All the interfaces that have been designed are reviewed whether they meet the customer requirement or not. While testing all interfaces I have verified for errors as follows.

- o Errors related to specific interface mechanisms for example proper execution of all menu links that are provided in each web page
- o Errors related to all semantics of navigation and web application functionally that is provided in each web page.
- o Errors in consistency related to different aspects of the interfaces like font style, color, size, screen background color etc.,
- o Errors in viewing the interfaces in different web browsers like Microsoft internet explorer, Mozilla firefox etc.,

INTERFACE MECHANISM TESTING

When a user interacts with a web application, the interaction occurs through one or more mechanisms which are called interface mechanisms.

Testing done within these mechanisms is the interface mechanism testing. This testing is done in following areas.

Links:

Each navigation link is tested to ensure that appropriate web page is linked or not. I have listed all the links in each form to test whether each link is connecting the appropriate page or not.

Forms:

Testing forms has been done at two different levels i.e. at minimum level and at more targeted level. At minimum level I have tested for:

- o Whether labels been correctly defined for fields or not.
- o Whether server is receiving all the information contained in the form and no data are lost in the transmission between client and server.
- o Whether appropriate default values are available when the user does not select any item in the selection box.
- o Whether scripts that perform data validation from the client-side are working properly or not.

At more targeted level I have tested for:

- o Whether text fields have proper width to enter data.
- o Whether text fields are allowing string length more than specified length.
- o Whether tab order among different controls is in required order or not.

Client Side Scripting:

Each and every function written in scripting has been tested by **Black Box Testing**.

I have combined the forms testing with this client-side script testing, because input for scripting is provided from forms. Some methods of scripting will be performed in some particular browsers and in others not. So I have also performed compatibility testing to ensure that the scripting functions will work properly in all browsers.

USABILITY TESTS

In this testing I have verified up to, which level that, users can interact with the system effectively. Tests are designed to determine the degree to which the web application interface makes users easy to work with. I have designed test case so that usability testing can be verified at different levels:

- o Usability test has been performed on each and every individual interface i.e. forms.
- o Usability test has been performed on total web page with related client side scripting functions.
- o Usability test has been performed on total web application.

COMPATIBILITY TESTS

As this is a web application, it should run on different environments like different computer architectures, operating systems, browsers and network connection speeds.

As different computing configurations can result in difference in client side scripting speeds and display resolution, operating system variance may cause web application processing issues.

Different browsers produce slightly different result as we expected, in some cases this results may not be a problem but in some cases there will be serious errors.

To perform these testing strategies first we have prepared what are all the client side functions that encounter problems with different compatibilities. In essence of those we have tested by identifying different computing platform, typical display devices, the operating systems supported on the platform, the browsers that are available with me.

NAVIGATION TESTING

Navigability is tested to ensure that all navigation syntax and semantics are exercised to uncover any navigation errors. (ex: dead links, improper links, erroneous links). The job of navigation testing is to ensure that the navigation mechanisms are functional, and to validate that each Navigation Semantic Unit can be achieved by the appropriate user category.

We have done the navigation testing in following areas.

- Navigation links are thoroughly tested.
- Redirects are properly checked.
- Is the target page to a navigation link is correct or not.
- Is the link caption meaningful or not.

DEPLOYMENT:

The error-free project, which passed all the tests, is now deployed at the client environment in this phase.

FUTURE ENHANCEMENTS

This project can be further enhanced to provide greater flexibility and performance with certain modifications whenever necessary.

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