LOAN4WISH LEAD MANAGEMENT

A Project Report Submitted

in Partial Fulfilment of the Requirements

for the Degree of

MASTER OF COMPUTER APPLICATION

by

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to the

Department of Computer Applications

Dr. A.P.J. ABDUL KALAM TECHNICAL UNIVERSITY

LUCKNOW

(Formerly Uttar Pradesh Technical University, Lucknow)

AUGUST 2021

COMPANY CERTIFICATE

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This is to certify that the project name "Loan4Wish Lead Management" prepared by "Mr. Sunil Sharma", sixth semester student of MCA of "Krishna Institute of Engineering & Technology, Ghaziabad", is here by accepted and approved as a credible work. He is working on a position of Intern in Jcentrix Private Limited since March, 30, 2021.

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Certified that **Sunil Sharma** (1802914016) has carried out the project work presented in this report entitled "**LOAN4WISH LEAD MANAGEMENT**" for the award of **Master of Computer Application** from Dr. A.P.J. Abdul Kalam Technical University, Lucknow under my supervision. The report embodies result of original work, and studies are carried out by the student himself and the contents of the report do not form the basis for the award of any other degree to the candidate or to anybody else from this or any other University.

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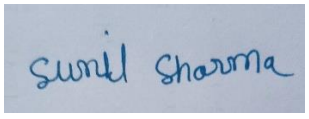
ACKNOWLEDGEMENT

I take this occasion to thank God, almighty for blessing us with his grace and taking out to a successful culmination. I extend my sincere and heartfelt thanks to our esteemed guide, **Dr. Sangeeta Arora** for providing me with the right guidance and advice at the crucial junctures and for showing me the right way. I extend my sincere thanks to our respected **Head of the department Dr. AJAY SHRIVASTAVA**, for allowing us to use the facilities available. I would like to thank the other faculty members also, at this occasion. Last but not the least, I would like to thank my friends and family for the support and encouragement they have given me during our work.



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LOAN4WISH LEAD MANAGEMENT

SUNIL SHARMA

ABSTRACT

Today's market is progressing with a great pace. The people are lacking the time to accomplish all their tasks. The technology that saves time is always appreciated whether it an automated machine in a factory or a bank providing a loan to its customers. Most of the times, banks deal with a delay in the process due to inappropriate loan processing system. This in some cases leads in the loss of their prospective customers. A suitable loan management system allows the bank to provide their customers with quick loan approvals, while at the same instance, the banks are allowed to disburse the loan amount in a fast pace which further results in happy and satisfied customers. The key aspects of the loan management system include reduced processing time and turnaround, ability to improve the performance throughout and inquire in a much lesser time, tracking of status on line and better document management, minimization of errors, details required and unwanted information requirements and better customer satisfaction with new product offerings and thus, impacting the minds of the customers. The financial sector is growing and grooming as each day passes and thus, introducing efficient new technologies in this sector will surely result in development of agencies and customers. With appropriate steps and efficient technologies, the customers and the agencies can bond together and the financial sector can gain more foothold

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

CHAPTER 1

INTRODUCTION

The main objective of developing this project is to handle the all details of Loans and Investments in the bank. The project has been developed to smoothen the processing of Loans in banks. Our proposed project automates the loan process from both, bankers as well as customer's side. Customer can apply for a loan and after approved it they can track their details from online. Loan4wish is a very efficient process to handle all loan related transaction in a very accurate and convenient way. Loan4wish is an interface which facilitates a customer to apply for a loan online and to track the status from time-to-time.

1.1 Purpose

The Main objective is to provide good interaction & communication facilities between customers & Administrator. Loan management system has been designed to online the back-office activities of bank and finance company which offers any type of loan. Administrator manage customer information database more efficiently, Loan details, maintain loan type and interest rate information. Admin can use calculator to give exact payable loan amount for the customer & generate all these work info as a report of each customer.

1.2 Scope of the project

The main objective of this project is to provide easy and good solutions for all customer that need to apply to loan. This application provides a very easy and user-friendly user interface for everyone. The admin can check the status of the tasks assigned to every

individual. To use this application the controlling authority needs to register as admin in this application and others can register normally. The admin can assign tasks to each registered user of the application and can check the report of them

1.3 STUDY OF THE SYSTEM

*1.3.*1 MODULES

There are Following Modules of this System: -

3.1.1 User management

Registration: -

Customer, User can registration with basic information like User name, Mobile no. email id etc

Login

Admin, Users can login with username and password.

Manage Profile

Admin, User can manage profile and update information

1.3.1.2 Loan Application

Admin manage loan application which is sent by customer using the system.

1.3.1.3 Customer Information Module

It shows all an information & details of the customer database which includes all the details like customer name, address, contact no, bank account no, PAN no, email id, etc. Only Admin can manage customer record.

1.4 USERS

There are two main users:

1. Admin
2. customer

1.4.1 Admin

• Admin can login the system with user name and password.

• Admin can change password

• He can manage loan type and interest rate in the system.

• Admin can manage loan application sent by customer using the system to decide to give loan and for that customer will be contacted by company's agent to get document of loan.

• He can maintain information & details to the customer such as customer name, address, contact no, bank account no, pan no, email id, etc. Only Admin can manage customer record.

• He can manage loan details such as Loan no, loan type, Loan Amount, loan tenure, interest rate, Issue date etc. for the customer.

• He can calculate and manage EMI details

• He can manage at the time of receiving EMI which contains details of given an EMI and the EMI that are remain in future to get next time of customer.

1.4.2 Customer

• The customer - seeking the loan and information related loans.

• They can view an interest rate and the loan type in the system.

• They can apply loan application using the system to get loan and track their profile details from online after given the loan.

• Once loan is approved, they can download a loan form in MS word document to signature.

• User can register with the basic information like User name, Mobile no, email id etc.

• User can login the system with his username and Password.

• They can view their information & details such as customer name, address, contact no, bank account no, pan no, email id, etc.

• They can view loan details such as Loan no, loan type, Loan Amount, loan tenure, interest rate, Issue date etc.

• They can view their EMI details.

• They can view the details of given payment of an EMI details

• Search feature allows customer to find their details.

CHAPTER 2

Literature Review

2.1 What is loan4wish

Loan management systems help automate the entire loan lifecycle. Depending on requirements, these programs can assist in part or whole. The software can help with processing customer information, create new loans, and more. They can also provide lenders with accurate statements and reports. Moreover, they can manage interest rates and provide the tools for collection automation.

Providing a loan should be a simple process. One should check the client's eligibility to get the loan and then approve or deny the loan. Once approved, the customer should receive the funds.

With the incomplete information in the credit market, according to the bank loan risk classification of the five principles, the loan risk management has to be used the absorption Markov chain. Then through the establishment and analysis of the state transition probability matrix of bank loan, the bank loan can be carried out risk forecast and management, on which base we can build the forward-looking loan loss provision model on the foundation of Markov chain and provide the feasible method for bank loan administrative decision.[1]

The loan risk is the possibility of loan and interest losses caused by being unable to recover the loans on schedule. So, a set of modern quantitative methods to effectively identify the credit risk is urgently needed to fully reveal the future solvency capability of evaluation object. This paper has firstly constructed a set of credit evaluation index system, and on that basis, using a large number of cleared loan data by far to determine five

evaluation index value related to “five-category loan” classification, establish fuzzy pattern recognition model of loan risk, and determine the risk level of outstanding loan.[2]

Loan provision is associated with a credit risk. Banks assess the creditworthiness of potential borrowers to lower a credit risk. Creditworthiness assessment is carried out by credit scoring methods. Most of these methods classify individuals into two categories: `good' or `bad' creditworthiness. Decision support system for loan granting based on these methods fail to differentiate the loan price for private borrowers. In practice, banks mostly grant loans applying decision support system that makes no price differentiation for individuals according to their private information. A bank may differentiate a loan price to attract a specific group of borrowers. In this paper, loan price differentiation impact on the behaviour of banks potential borrowers in the market for consumer lending is analysed. A concept of a decision support system for loan granting based on the use of a continuous loan price function of the borrower's creditworthiness rating is proposed. Competition between banks using different loan price function of creditworthiness rating is analysed. Borrowers with a low credit risk are interested in switching to a bank that reflects more private information in a loan price. Application of the proposed system provides a competitive advantage for a bank to attract borrowers with a low credit risk. It is shown that fuzzy logic has a potential to be applied in a decision support system based on continuous price function for granting a credit.[3]

In order to increase sharing level and effect of books and information between libraries, construction of books-checkout information system in the interlibrary using the system architecture of SaaS (Software as a Service), books- checkout information system consists of four modules, including administrator management, user management, function management and literature management. The system structure and module design of information system software are also introduced in detail, and function analysis of each module are made, task content of each module is designed, the relation between entity class and attribute involved in information system are demonstrated, and system class diagram is listed, finally main module function of information system is implemented by Java Web technology and MySQL database.[4]

It is difficult that lower credit rating companies get loans from the bank, an essential reason is that the loan willingness of bank is lower for these companies. Therefore, explore the factors affecting the loan willingness of bank and implement some specific measures, which are conducive to solve financing difficult problem for these companies. We firstly put forward four main factors of which affecting bank's loan willingness, namely target profit, non-performing loan ratio, value customer ratio, business promotion ratio set by the bank itself, then based on prospect theory, we have measured these factors, and established a simulation model to calculate loan willingness. As a result, with the change of reference point of four main factors, and the change of the upper limit and lower limit of four factors, the bank's loan willingness will alter accordingly. What's more, the function curves of bank's loan willingness are nonlinear and complex. In final, we analysed reasons for these results briefly.[5]

Program Nasional Pemberdayaan Masyarakat (PNPM) Mandiri is an Indonesian government-supported program which aims to fight against poverty in Indonesia. The key strategy is by providing credit project fund to various social communities all over Indonesia in order to enhance capability and productivity of the communities themselves. To get the funding, the communities give the proposals which will be verified by the management of PNPM Mandiri. The proposal assessment has many criteria to determine the feasibility of proposal. To support the decision making made by PNPM management, therefore we developed a decision support system (DSS) that supports the Government Loan allocation. The result shows that the DSS help the PNPM management to customize the existing model. This system also enables the management to know quickly the most appropriate model to shortlist the credit project proposals so that the project funds will properly be given to the deserved communities.[6]

The study presents the contributions of browser based cooperative records management system with loan assessment system (CRMLAS) to Koningsdag Multi-Purpose Cooperative Incorporated (KMPCI). CR MLAS is sufficiently transparent and comprehensive to cooperative members and stakeholders that performs as a business intelligence solution. The CRMSLAS is a browser-based transaction system that allows cooperative members to perform transactions in robust and secured environment. The study

aimed to develop an application system that provides mobility access to information in various computing devices. The study is anchored to innovation system theory on the collaborative discussions on system development from different cooperative stakeholders. A sample of 100 respondents was selected through purposive sampling identified as cooperative experts by the members. Descriptive quantitative research design was utilized to gather respondent's perceptions on cooperative current system over CRMLAS. The study also utilizes system development life cycle that describes the phases involved in information systems development. The researcher employ/ed different application software's in the development of the system. The findings revealed that all the cooperative stakeholders desired to implement the CRMLAS system which offers faster, effective, efficient and reliable cooperative transactions to its stakeholders. The KMPCI members highly recommend the full implementation of the proposed system for faster report generations, information system security, effective and efficient cooperative operations, mobility access to information and unique end to end offering in the cooperative. Other system features will be available in the near future based on its cooperative policies and procedure as the system is designed to be scalable for such system expansion.[7]

The small loan company is an emergent novelty for the Chinese credit market. The basic function of it is the financial intermediary which provides important services to some private sectors of the China economy. But as a new-born business, there are no systematic research on it and lack of effective supervision as well. This study investigates the credit risk mitigation techniques and features of financial service constitution, time distribution, and risk management. The results indicate it will continue to play an important role in China credit-system.[8]

Agricultural loans provide a much-needed support structure for the overall functioning of the agricultural industry in a country like India where a majority of farmland is owned by a multitude of people, which leads to scattered ownership of the overall farmland and in turn restricts the potential growth of the agricultural industry. This leads to the need for a proper system to improve the efficiency of loan acquisition on the farmer's end and loan supply on the bank's end. In this paper, a feasible Agricultural Loan Recommender system is presented using K- nearest neighbour algorithm. It enables the

farmers to look up statistical and graphical data relevant to agricultural loans and to get recommendations for said loans. Using this system can help farmers be better informed on the overall process of the loan application as well as which bank would be the most suitable to apply for a loan based on their needs. The results of the scheme are analysed with respect to the probability of bank recommendation based on the requested loan amount.[9]

In savings and loan cooperatives there are many problems of embezzlement of funds carried out by cooperative officers. The embezzlement of funds occurs because of the non-transparency of transactions that occur in savings and loan cooperatives. This transparency problem can be solved using blockchain-based recording technology. With blockchain, cooperative members can contribute as peer to protecting existing data.[10]

This paper uses the option pricing theory, based on the risk of default under the mortgage related to pricing model. Mortgage loan risk compensation will be converted to put option with the different strike price.[11]

To determine and to understand the working of loan systems for the cause of Loan Prediction using the demographic information of various factors that combine to form the nature of the approval using algorithms and concepts of Machine Learning and ultimately deploying this model on Cloud Based Platforms. Machine learning being aided by Cloud services are progressively seeing immense growth in the industry as they have benefits of Scalability, Affordability and easy use of models on systems as and when required. Therefore, datasets are designed, automated and put under testing and training. The major aim of this project is to predict which of the customers will have their loan paid or not using prominent algorithms like Decision Tree, Logistic Regression and Random Forest. Logistic Regression Confusion matrix analysis is relatively in accordance to Decision Tree and Random Forest algorithm helping us attain an accuracy of 86% with minimum error.[12]

This paper analyses the optimal solutions in the Stackelberg game with government and a monopolistic manufacturer with green production under the green loan policy. The government will offer the interest subsidy depending on the environmental effort coefficient of the green products. The manufacturer will always take high pricing strategy to maximize its profit and make its pricing decision based on the subsidy offered by the

government. By comparing with the optimal results in the case of no green loan policy, the manufacturer's profit, consumer surplus and environmental influence after the implementation of green loan policy are all improved, and there exists Pareto improvement. This paper also gives some suggestion to the policy maker.[13]

As a direct result of the sub-prime loan crisis, in September, 2008, the global financial crisis broke out in the United States. There are some internal relationships between the current crisis and the international financial system including international payment system and national payment systems. From the beginning of 1980s to the mid-1990s, China had sought to re-establish its own financial system from the central-planed financial system imitating the Japanese model, so-called bank-centred financial system, compared with the market-centred system, the so-called Anglo-Saxon-based financial system, typically existing in the United States and the United Kingdoms. But China changed the reform direction to the market-centred system later in the mid-1990s under the new international economic background. This paper takes financial system, economic management, soft budget constraints as objects of study, through analysing characteristics of the bank-centred system and the market-centred financial systems in the world, urging that China should accelerate financial liberalization in order to defend its financial system from financial risks.[14]

With the market economy environment and the supervision of the government, enterprises and banks support and restrict each other, and promote the development of market economy. Therefore, it is of great theoretical and practical significance to build a model of capital lending between enterprises and banks with government influence. In this paper, small enterprises, banks and government are three participants in a loan decision problem. First of all, the loan decision model between small enterprises and banks under the condition of government's subsidy and supervision is constructed. Then, by using genetic algorithm, the loan chance constraint program is solved, and the optimal loan decision of the small enterprise and the bank is gotten. Finally, a practical example shows the effectiveness of the method.[15]

CHAPTER 3

SYSTEM ANALYSIS

System analysis is the process of gathering and interpreting facts, diagnosing problems and using the information to recommend improvements on the system. System analysis is a problem-solving activity that requires intensive communication between the system users and system developers.

System analysis or study is an important phase of any system development process. The system is viewed as a whole, the inputs are identified and the system is subjected to close study to identify the problem areas. The solutions are given as a proposal. The proposal is reviewed on user request and suitable changes are made. This loop ends as soon as the user is satisfied with the proposal.

3.1 EXISTING SYSTEM

Here the existing system is a manual that doesn't maintain details with proper security and can’t track details easily.

It doesn’t allow the customer to check their profile in proper way which leads customer dis-satisfaction.

Does not provide option to download loan form

Existing system does not contain functionalities of fast retrieval information such as customer details and maintenance of all the loan details so it involves lots of paperwork.

Doesn’t user-friendly interface.

Lots of time is required to manage customer info & details so it feels that existing system not accurate and therefore maintenance becomes very complicate.

It used to take more time to find customers because there are required extra manual effort such as to hire candidate.

Difficulty in generating different reports as per the business requirement

3.2 PROPOSED SYSTEM

In the proposed system customer need not go to the shop for buying the products. He can order the product he wish to buy through the application in his Smartphone. The shop owner will be admin of the system. Shop owner can appoint moderators who will help owner in managing the customers and product orders. The system also recommends a home delivery system for the purchased products

3.3 Loan Perspective

3.3.1 Interfaces

There are many types of interfaces as such supported by the loan4wish software system namely; User Interface, Software Interface and Hardware Interface.

The protocol used shall be HTTP.

There shall be logical address of the system in IPv4 format.

3.3.2 User Interfaces

The user interface for the software shall be compatible to any browser such as Internet Explorer, Mozilla or Netscape Navigator by which user can access to the system. The user interface shall be implemented using any tool or software package like Java Applet, MS Front Page, EJB etc.

3.3.3 Hardware Interfaces

Since the application must run over the internet, all the hardware shall require to connect internet will be hardware interface for the system. As for e.g., Modem, WAN – LAN, Ethernet Cross-Cable.

3.3.4 Communication Interfaces

The e-store system shall use the HTTP protocol for communication over the internet and for the intranet communication will be through TCP/IP protocol suite. The communication is quite simple. First of all, the user has to do registration. After this every user has its own account. Another phase is login. After login the user can post, share the documents to individual.

3.3.5 Operations

The Loan4wish will be developed completely independent and dynamic website. Customer must have an account to apply to loan.

This application stores all the information in the database which can be retrieved whenever needed and all the validations are performed during the entry of the data by the user thus ensuring that the user cannot enter any wrong data which could cause problem later.

3.4 NON-FUNCTIONAL REQUIREMENTS

EFFICIENCY REQUIREMENT

When a loan4wish is web application implemented customer can apply for loan in an efficient manner.

RELIABILITY REQUIREMENT

The system should provide a reliable environment to both customers and owner. All Application should be reaching at the admin without any errors.

USABILITY REQUIREMENT

The android application is designed for user friendly environment and ease of use.

IMPLEMENTATION REQUIREMENT

Implementation of the system using angular and bootstrap in front end with MySQL as back end and it will be used for database connectivity. And the database part is developed by MySQL. Responsive web designing is used for making the website compatible for any type of screen.

3.5 FUNCTIONAL REQUIREMENTS

3.5.1 USER

USER LOGIN

Description of feature

This feature used by the user to login into system. A user must login with his user's name and password to the system after registration. If they are invalid, the user not allowed to enter the system.

Username and password will be provided after user registration is confirmed.

Password should be hidden from others while typing it in the field

3.5.2 REGISTER NEW USER

Description of feature

A new user will have to register in the system by providing essential details in apply loan to view in the system. The admin must accept a new user by unblocking him.

System must be able to verify and validate information.

The system must encrypt the password of the customer to provide

security.

3.6 SYSTEM TOOLS

The various system tools that have been used in developing both the front end and the back end of the project are being discussed in this chapter.

3.6.1 FRONT END

Angular, bootstrap is utilized to implement the frontend.

3.6.1.1 Angular

The Angular framework is currently maintained by Google together with a community of individual and corporate developers. Angular is a client-side framework built around the idea of extending HTML with new elements called web components that add additional behaviours.

Fig. 3.1 Angular

Components can be either HTML attributes or elements. They have associated templates that render a component's data by using expressions written inside double curly-braces ({{}}). Listing 2-4 showcases the main components of a basic Angular application using two-way binding. Notice that the application is divided into various files.

Angular is a typescript based open-source front-end framework mainly maintained by Google and by a community of individuals and corporations to address many of the challenges encountered in developing single-page-Application. AngularJS lets you extend HTM with HTML attributes called directives Angular directives offers functionality to HTML application Angular provided built in directives and user defines directives.

Angular used double braces {{}} as holders for data Angular directives are HTML attributes with the prefix ng-

The ng-app directive initializes an angular application. The directive initializes application.

3.7 ANGULAR ARCHITECTURE

The following diagram shows the major components of the Angular operating system. Each Section is described in more detail below.

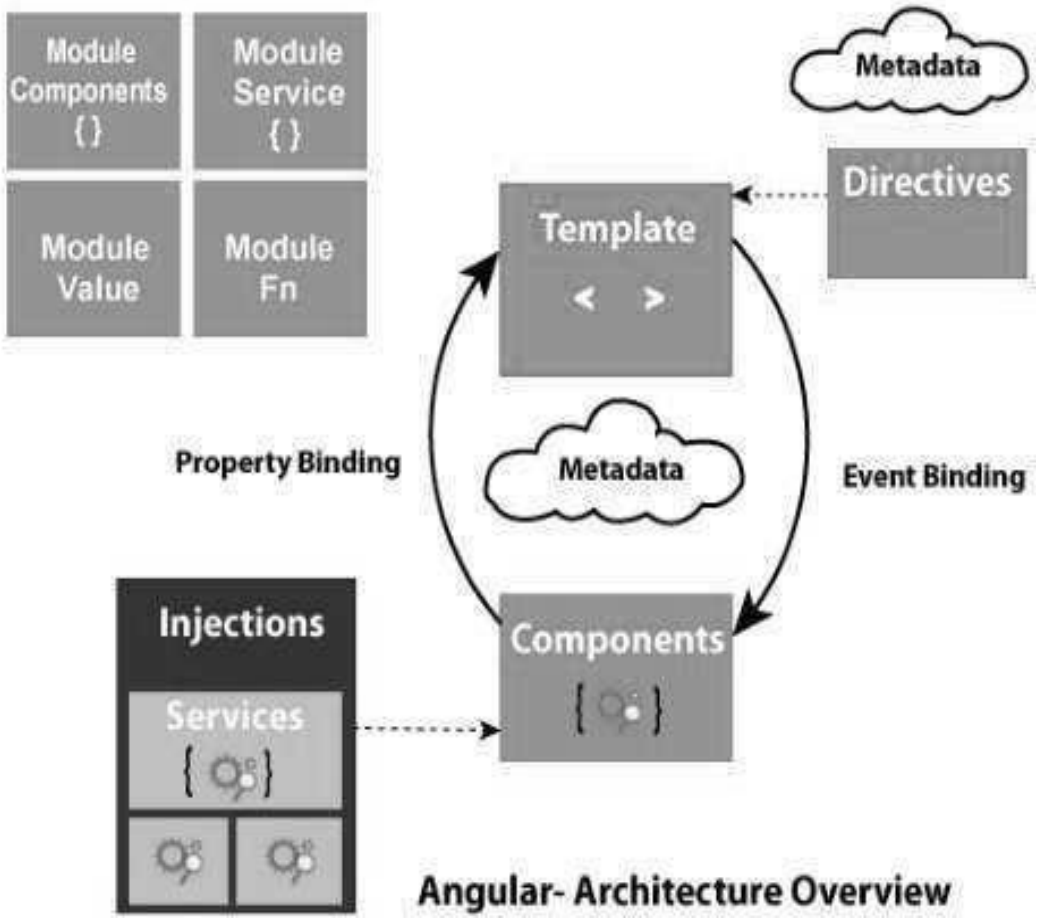


Fig. 3.2**:** Angular Architecture

3.8 Versions of Angular

Sr.No	Released Version	Date
1	AngularJs	2010 by Google
2	Angular 2	Sept 2016
3	Angular 4	March 2017
4	Angular 5	November 1st, 2017
4	Angular 6	May 4th,2018
5	Angular 7	October 18th, 2018
6	Angular 8	May 28th, 2019
7	Angular 9	November 2019

Table. 3.1: Angular Versions

3.9 APPLICATIONS

Angular will ship with a set of core applications including an email client, SMS program, calendar, maps, browser, contacts, and others. All applications are written using the Typescript programming language.

3.9.1 APPLICATION COMPONENT

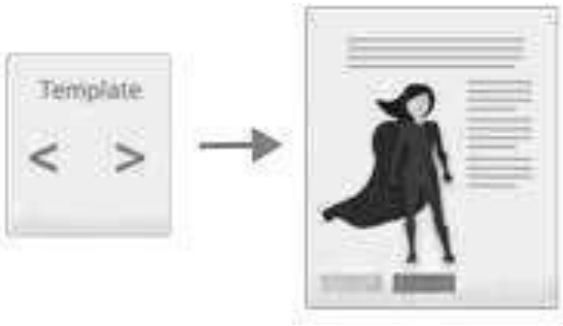
Libraries:

Angular includes a set of libraries used by various components of the Angular system with help of NPM.

Views:

Views represent the user interface of the application. In Angular, views are often HTML files with embedded Angular code that performs tasks related solely to the presentation of the data. Views handle the job of providing data to the web browser or other tool that is used to make requests from the application.

Templets:



.

Fig. 3.3 Templet

A template is an HTML snippet that tells Angular how to render the component in angular application. The template is immediately associated with a component defines that component's view

Component

Component are a logical piece of code for Angular application a component consists of following Template. this is used to render the view of the application This contains the HTML that needs to be rendered in the view for the application .it is used the binding and directive.

Module

module is a mechanism to group components, directives, pipes and services that are related, in such a way that can be combined with other modules to create an application.

Services

Angular services are singleton objects that get instantiated only once during lifetime of an application. They contain methods that maintain data throughout the life of an application. data does not get refreshed and is available all the time. The main objective of a service is to organize and share business logic, models, or data and functions with different components of an Angular application.

Metadata

Meta data is, Active Record is the object-relational mapping (ORM) layer Metadata is used to decorate the class so that it can configure the expected behaviour of a class. Decorators are the core concept when developing with Angular (versions 2 and above). The user can use metadata to a class to tell Angular app that App component is the component. metadata can be attached to the typescript using the decorator.

Data-binding

Data-binding in AngularJS apps is the automatic synchronization of data between the model and view components.

The way that AngularJS implements data-binding lets you treat the model as the single- source-of-truth in your application.

Routing

If you want to navigate to different pages in your application, but you also want the application to be a SPA (Single Page Application), with no page reloading you can use the Route module.

Ng Modules

Ng Modules configuration the injector and the compiler and help organizations related this.

Rx JS Library

his directory Reactive programming is an asynchronous programming paradigm concerned

streams and the propagation changing.

Rx JS (Reactive Extensions for Java Script) is a library for reactive programming using observables that makes it easier to compose asynchronous or call-back-based code.

Observables

Observables provided support for passing message between parts of your application.

They are used frequently in Angular and are the recommended technique for event handling,asynchronous programming, and handling multiple values.

dependency injection

Dependency injection (DI), is an important application design pattern

Angular has its own DI framework, which is typically used in the design of Angular applications to increase their efficiency and modularity.

Directives:

Angular directives are used to extend the power of the HTML by giving it new syntax.

Each directive has a name — either one from the Angular predefined like ng-repeat, or a custom one which can be called anything. And each directive determines where it can be used:in an element, attribute, class or comment

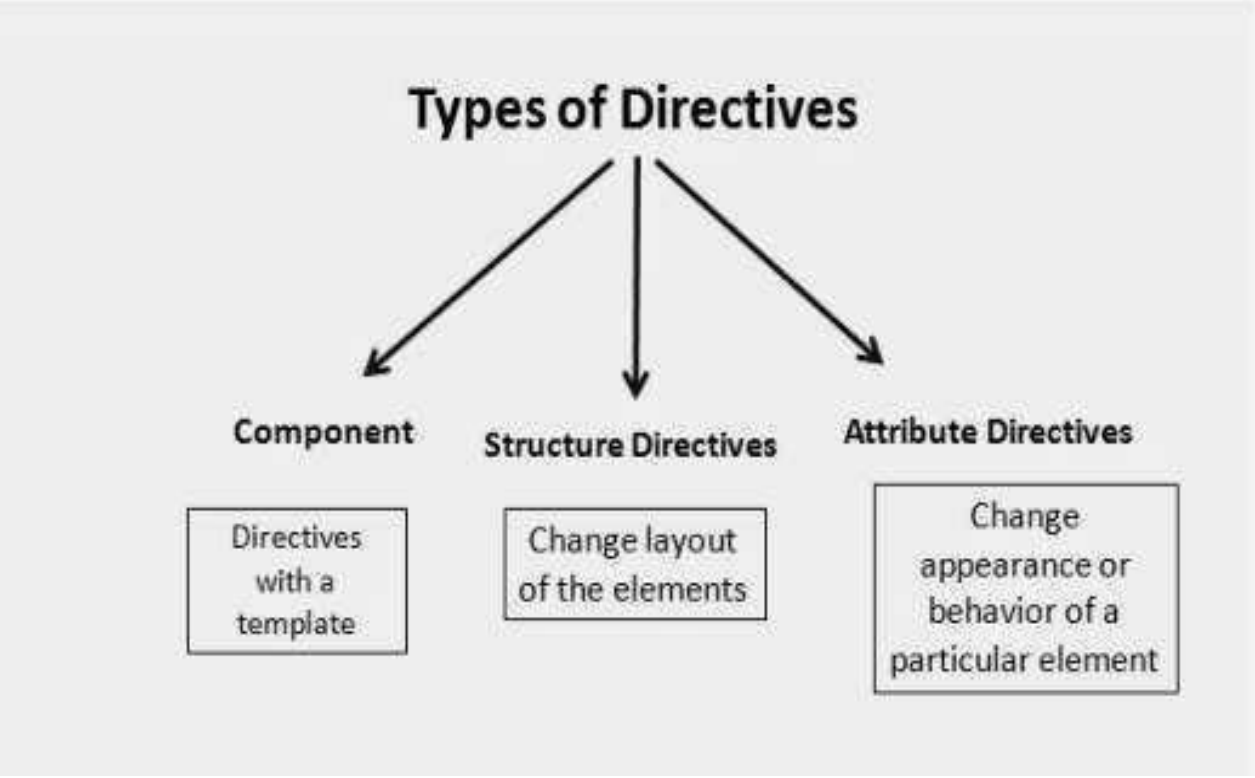


Fig. 3.4 Directives

3.10 TECHNOLOGY DESCRIPTION

XML (Stands for extensible Markup Language)

XML stands for Extensible Mark-up Language.XML is a very popular format and commonly used for sharing data on the internet. This chapter explains how to parse the XML file and extract necessary information from it.

Android provides three types of XML parsers which are DOM, SAX and XML Pull Parser. Among all of them android recommend XML Pull Parser because it is efficient and easy to use. So, we are going to use XML Pull Parser for parsing XML.

The first step is to identify the fields in the XML data in which you are interested in. For example. In the XML given below we interested in getting temperature only. An alternative to writing XML resource files or using the graphical layout tool is to write Java script code to directly create, configure and manipulate the view objects that comprise the User Interface of an Angular Activity. Within the context of the chapter, we will explore some of the advantages and disadvantages of creating a user interface layout in java code before describing some of the key concept such as view properties, layout parameter and rules. Finally, an example project will be created and used to demonstrate some of the typical steps involved in this approach to android user interface creation.

XML was designed to store and transport data. It is designed to be self-descriptive. An xml fil consists of many components.

Here is the table defining the components of an XML file and their description.

3.11 Organizing Object Behaviour with Interfaces

In Java, you can organize object behaviour in what are called interfaces. While a class defines an object, an interface defines some behaviour that can be applied to an object. For example, we could define a Swimmer interface that provides a set of methods that are

common across all objects that can swim, whether they are fish, otters, or submergible androids. The Swimmer interface might specify four methods:

Start Swimming (), stop Swimming (), dive (), and surface ().

```
public interface Swimmer {

Void start Swimming ();

void stop Swimming ();

void dive ();

void surface ();

}
```

A class like Fish could then implement the Swimmer interface (using the implements keyword) and provide implementations of the swimming behaviour: public class Fish implements Swimmer {Provide implementations of the four methods within the Swimmer interface}

3.12 Bootstrap

The most popular CSS framework is the one originally released as Twitter Blueprint. It was called that because it was developed to bring consistency across the various sites developed at Twitter.

Later it was renamed to Bootstrap when it was released as an open-source project in the summer of 2011.Bootstrap contains a set of CSS and HTML-based templates for styling forms, elements, buttons, navigation, typography, and a range of other UI components. It also comes with optional JavaScript plugins to add interactivity to components. Bootstrap is mobile-first, based on a responsive 12-columns grid system for the layout of the components on the screen. As example here is the code for a grid that automatically adapts to the screen size of the device.

3.13 BACK END

MySQL

MySQL is the world's second most widely used open-source relational database management system (RDBMS). The SQL phrase stands for Structured Query Language. The back end is implemented using MySQL which is used to design the databases

An application software called navicert was used to design the tables in MySQL

Database Package

The main package is android. Database SQLite that contains the classes to manage your own databases.

Database Creation

In order to create a database, you just need to call this method open or Create Database with your database name and mode as a parameter. It returns an instance of SQLite database which you have to receive in your own object. Its syntax is given below SQLiteDatabasemydatabase=openOrCreateDatabase("yourdatabasename", MODE PRIVAT null)

Apart from this, there are other functions available in the database package, that does this job. They are listed below.

Database Insertion

we can create table or insert data into table using execs method defined in SQLite Database class. Its syntax is given below

```
mydatabase.execSQL("CREATE TABLE IF NOT EXISTS AndroidDatabase(Username
VARCHAR,Password VARCHAR);"); mydatabase.execSQL("INSERT INTO
AndroidDatabase VALUES('admin','admin');");
```

Table: 3.2: Database insertion

This will insert some values into our table in our database. Another method that also does the same job but take some additional parameter is given below

Database Fetching

We can retrieve anything from database using an object of the Cursor class. We will call a method of this class called raw Query and it will return a result test with the cursor pointing to the table. We can move the cursor forward and retrieve the data.

```
Cursor resultSet = mydatbase.rawQuery("Select * from AndroidDatabase",null);
resultSet.moveToFirst();

String username = resultSet.getString(0);
String password = resultSet.getString(1);
```

Table:3.3: Database fetching

There are other functions available in the Cursor class that allows us to effectively retrieve the data.

3.14 PROJECT SCHEDULE (GANTT CHART)

The estimated period for this project was 6 months. The work was divided into several phases as shown in the Gantt chart. Firstly, we research and got familiarized with the tool which we used during later phases. The design and planning of the software and hardware part followed. After that we start coding for this project and then testing and debugging were performed along the way. Hence, complete the project in time as expected.

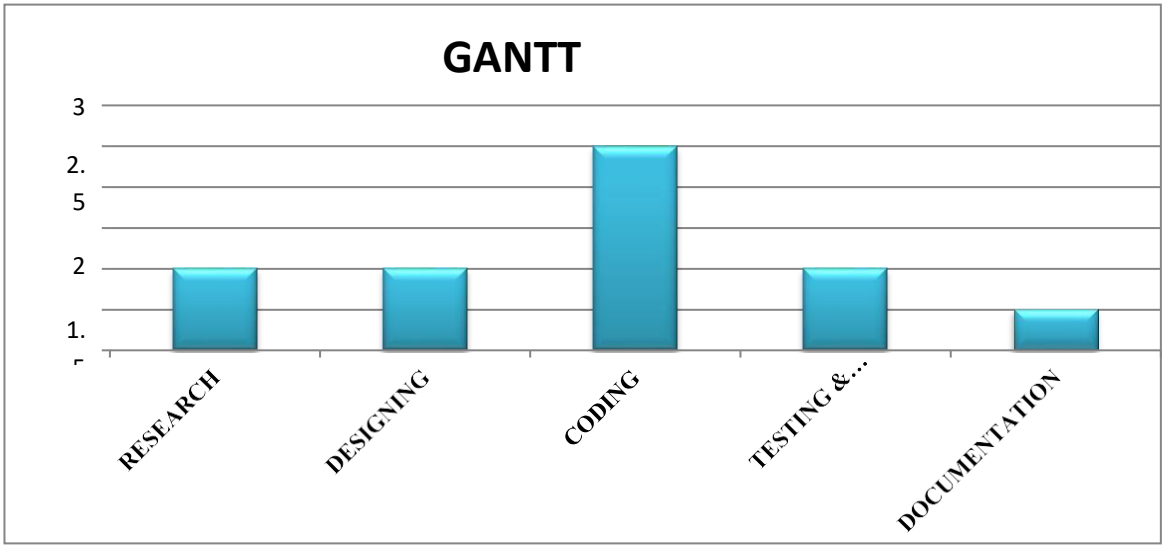


Fig 3.5 Gantt Chart

CHAPTER 4

SYSTEM DESIGN

This section provides gets you acquainted with all the concepts and theories used in this project.

4.1 Loan Management System

Banks, being a financial institution, are engaged in the acceptance of deposit of money, granting credit (by means of overdraft, loan) and other transactions such as foreign exchange, discount of bills, etc.

Loans is one of the transactions being done in the bank which is a type of debt. Similar to all debt instruments, a loan includes redistribution of financial assets over time, between the borrower and the lender. The lender initially lends an amount of money to the borrower initially, which the borrower has to pay back to him, usually but not in regular instalments This service is generally provided at a cost which is referred to as interest on the debt. To pay off the loan, a fixed amount (for paying off and interest together) is paid periodically. A system that manages this whole system is called loan management system.

To provide decision-making assistance at the highest level of management, computers in business have risen to automate the jobs. Large corporations and industries depend on computer's accuracy and efficiency in its operation, with the environment at fast pace as it has the ability to retrieve, store and analyse data at tremendous speed at low cost.

This development is viewed as an opportunity to control the data processing and increase the influence of the organization. Some organizations have their businesses totally dependent on the accurate computer operations. Thus, in the area of loan and advances, the banking industry is no exception to the advantages a computer provides, which contributes to the economic development in large measures.

Loans are readily given to people who have an account (mostly current account). Apart from being a customer, there are other conditions that necessary to be fulfilled for giving an individual a loan. Such conditions may include: having at least one guarantor, provision of collateral security and filling the bank loan management form. Thus, the role of a loan management system can never be overemphasized. A computerized loan management system helps the banks to work without stress.

4.2 Client-server model

A client-server model is a distributed communication framework that divides processes between a service provider (server) and a service requester (client). The clients and servers communicate with each other through a network by exchanging response packages or requests.

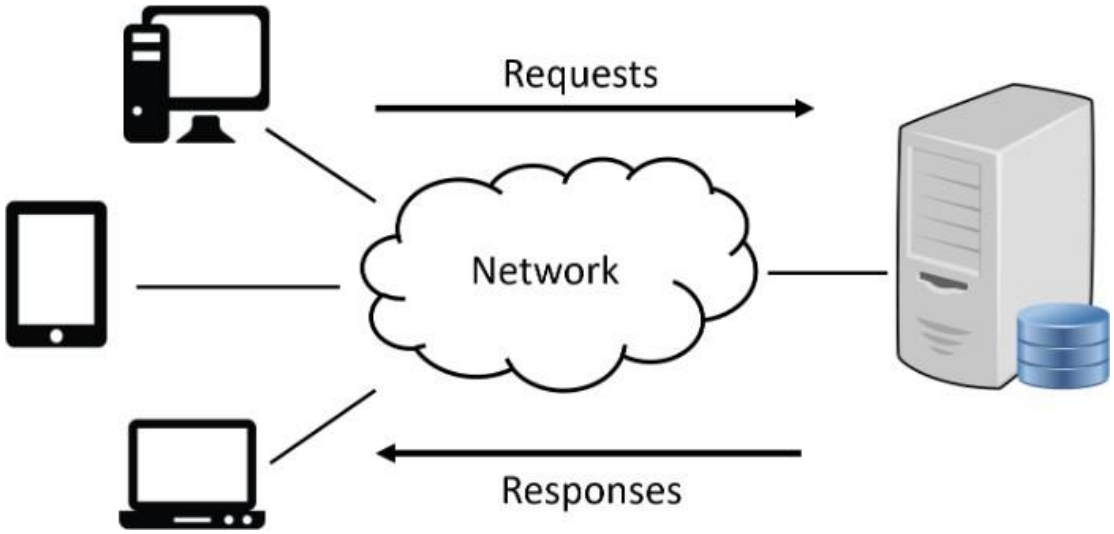


Fig. 4.1 Client-server model

While using this model, the client side shares data and interacts with the database. All the resources are focused on user experience and the user interface. The server side handles business logic, database interactions and handles calculations. The servers can handle one or many different times at the same time.

However, with the rise in demand for applications with complex user interactions and adaptive interfaces rise, the application logic is moving more towards the client. This typically results in a better user experience by avoiding full page reloads after every interaction.

4.3 Document Object Model

The Document Object Model [6] is a programming interface for HTML and XML document. It interfaces pages to programming languages or scripts. The DOM can be seen as a page representation for programs to modify the style, content and structure of the document. The document is presented as a logical tree structure. There is a node in the end of every branch of the tree. There is an object present in each node. Event handlers can also be attached to the nodes. These events handlers get executed once an event is triggered.

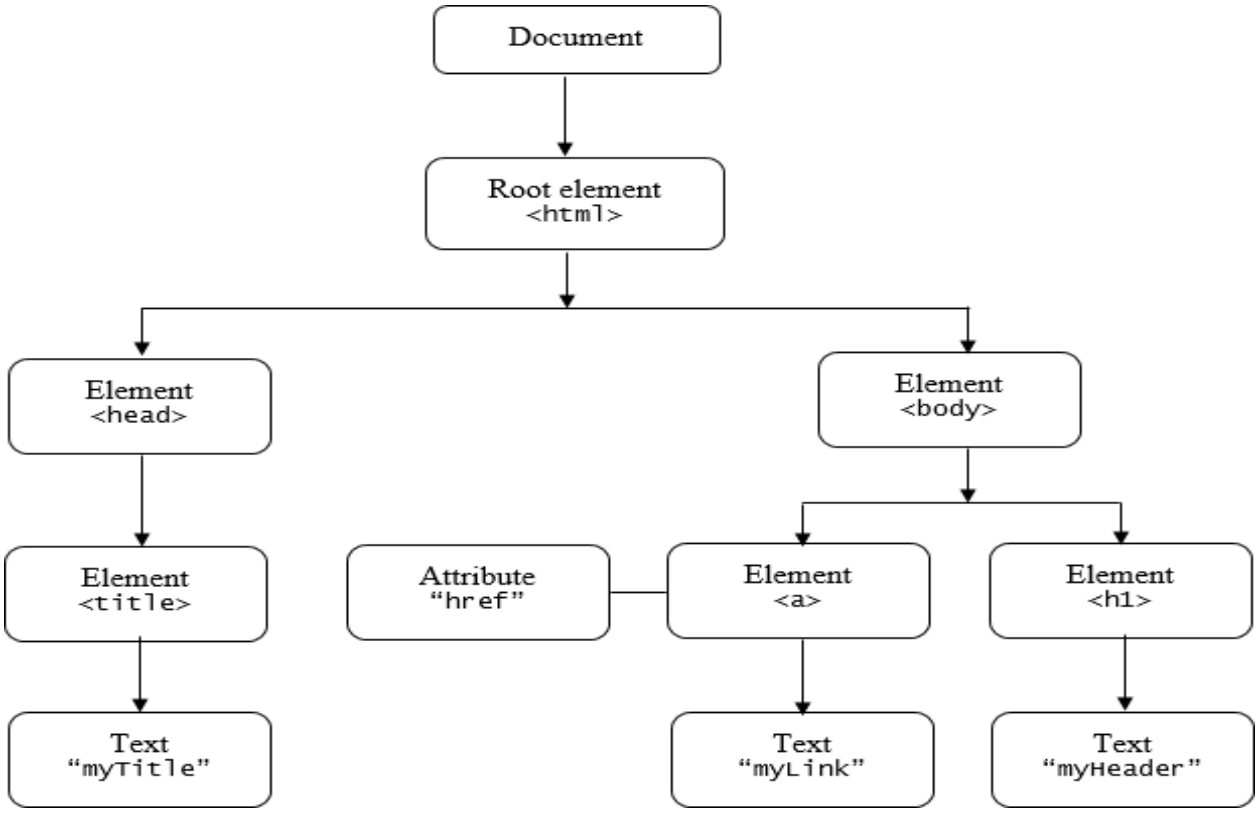


Fig.4.2 The HTML DOM tree of objects

4.4 Methodology

The framework used for the development of the LMS is Agile Development Model. To provide an overview of the project, we have used Software Development Life Cycle (SDLC).

4.4.1 Software Development Life Cycle

Software Development Life Cycle (or SDLC) is a popular framework used by the software industry to define the tasks that have to be performed in each step of the development process. To provide the best results with the resources given is the goal of SDLC

Following are the stages of a Software Development Life Cycle:

- Planning and requirement analysis: A project plan is constructed, based on the objective that is hoped to achieve with the product. In accordance with the technical requirements and the economic resources the feasibility of the product is accessed. After this, the product quality assurance requirements are set. Risk assessment is also done to ensure that minimum risks are encountered in the development process.

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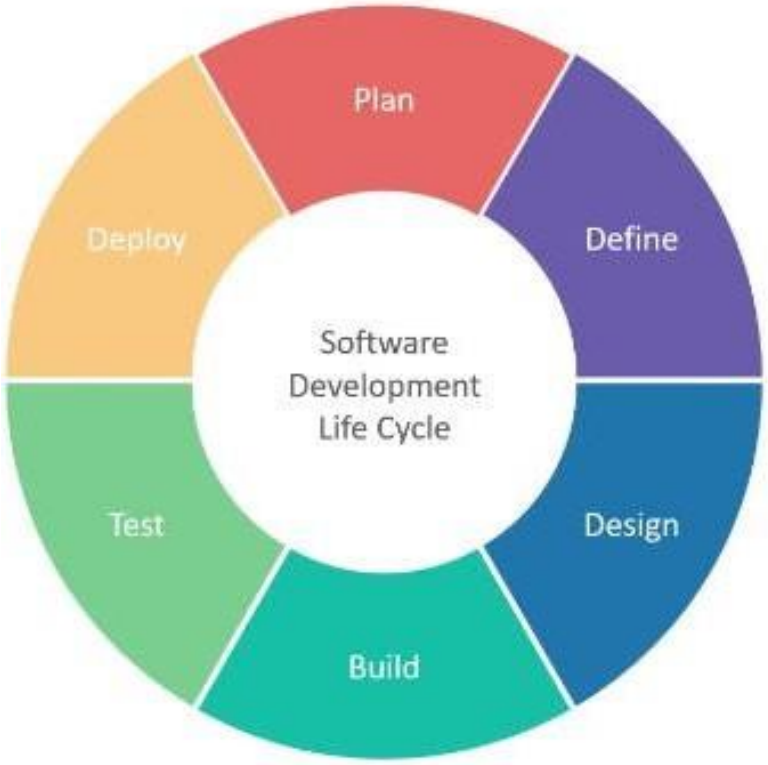

Fig. 4.3 Software Development Life Cycle

- Defining requirements: In this stage, the requirements of the product are clearly documented and defined.

- Designing the product architecture: Based on the requirements of the product, a design document is formed which contains the proposals for the architecture of the product

including the external and internal flow of data and modules to be used. A best approach is selected by the reviewers.

- Developing the product: In this stage, the product is built. According to the design selected, the programming code is generated. Depending on the type of software being developed, the programming language is chosen. Also coding standards and guidelines are set by the developer's organization.

- Testing the product: The software is tested for defects in this stage. The bugs and defects found are reported, tracked and fixed. This phase is repeated until the defined code standards are met.

- Deployment and Maintenance: The product is ready for deployment after it is carefully tested. Depending on the strategy of the organization, the product is set out for deployment. After it is released, when new bugs and errors are discovered or reported by users, the needed enhancements are taken care under the maintenance phase.

4.4.2 Agile Development Model

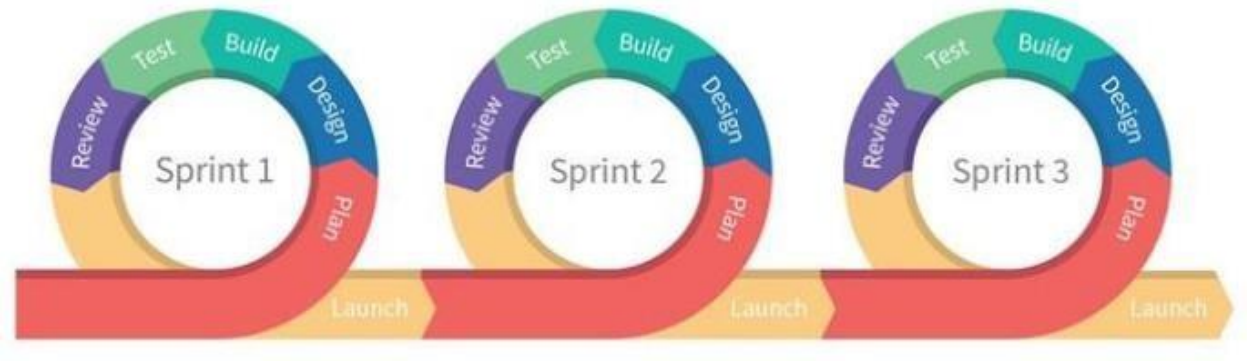

Fig. 4.4. Agile Methodology

Agile Development Model is a popular type of SDLC model. It focuses on adapting the process and satisfying the customer by rapid completion and deployment of working software product.

This model works in an incremental flow with multiple iterations. Each iteration consists of the basic SDLC stages with improvements in every successive iteration. These stages are as explained above: planning, defining, designing, building, testing, reviewing and launching the product. Time duration for an iteration can be from one to three weeks depending on the size of the product. Every iteration consists on teams working simultaneously on their respective areas. In this methodology, an adaptive approach is used with no detailed planning. Step by step development take place. It focuses on what feature is to be developed next and what tasks have to be carried out to accomplish the development of that feature. The in-progress product features that are completed get reviewed by peers and customers, greatly reducing the major failure risks.

The logical reason for considering the Agile Methodology is due to its flexible nature. The Kleiza LMS project has a dynamic set of requirements as new functionalities can be added at any time. Also, feature prioritization can be shift depending on the urgent need of the product.

Another logical basis for selecting this approach is that the company has to do everything in small amount of time encountering minimum failures and risks. To push out quality product fast, feedback is gathered regularly and the development process moves further accordingly.

Additionally, the development teams here regularly exchange ideas, work in close proximity and discuss the issues encountered. Thus, the progress is done without much documentation. Group meetings are easily arranged and revision is done.

4.5 Project Requirements:

The following section describes the requirements for the LMS. This is the defining stage of the SDLC.

Extensibility is a principle which takes into consideration the future growth during each implementation of the design. It is not possible to design everything in advance in software engineering. Considering this, the extensibility in the design of the product emphasizes properties that helps in modifying or extending the system with minimum

effort. Modifiability, maintainability and scalability are the three most important properties of extensibility.

Modifiability is the ease with which one can modify a software system. The way in which each functionality is architecturally organized and separated helps in determining the modifiability. If a change in system requires as few changes in each related component as possible, a system is said to have high modifiability.

Maintainability is the endeavour required to locate the bugs and errors in an operational software and fix them. In definition, maintainability and modifiability are quite similar. The major distinguishing point between maintainability and modifiability is that the former takes correction of bugs into consideration whereas the latter does not.

Scalability is defined as “the system ability to expand in a chosen dimension without any major architectural changes”. Scalability can be quantified by seeing the ease in how a system without any major change in design can add new components and new functionalities.

Since I have been working on the frontend development team of the project, I state the quality requirements of the project from frontend perspective:

- The system should have an uncluttered, simple user interface with readable font size and font.
- The website must be responsive to the web browsers across all the devices.
- Loading indicators are to be added for asynchronous items.
- While scrolling there must not be any shuttering and each view should have a minimum loading speed.
- The system must not crash or freeze in the browser.

4.6 LMS architecture design

This section details the Designing step in SDLC. The architecture of LMS is structured based on the requirements defined previously. Fundamentally, it uses a React-redux framework of development and the role it follows is of a client-side application.

4.7 System Design

This project has a system design which is based on the conventional client-server model.

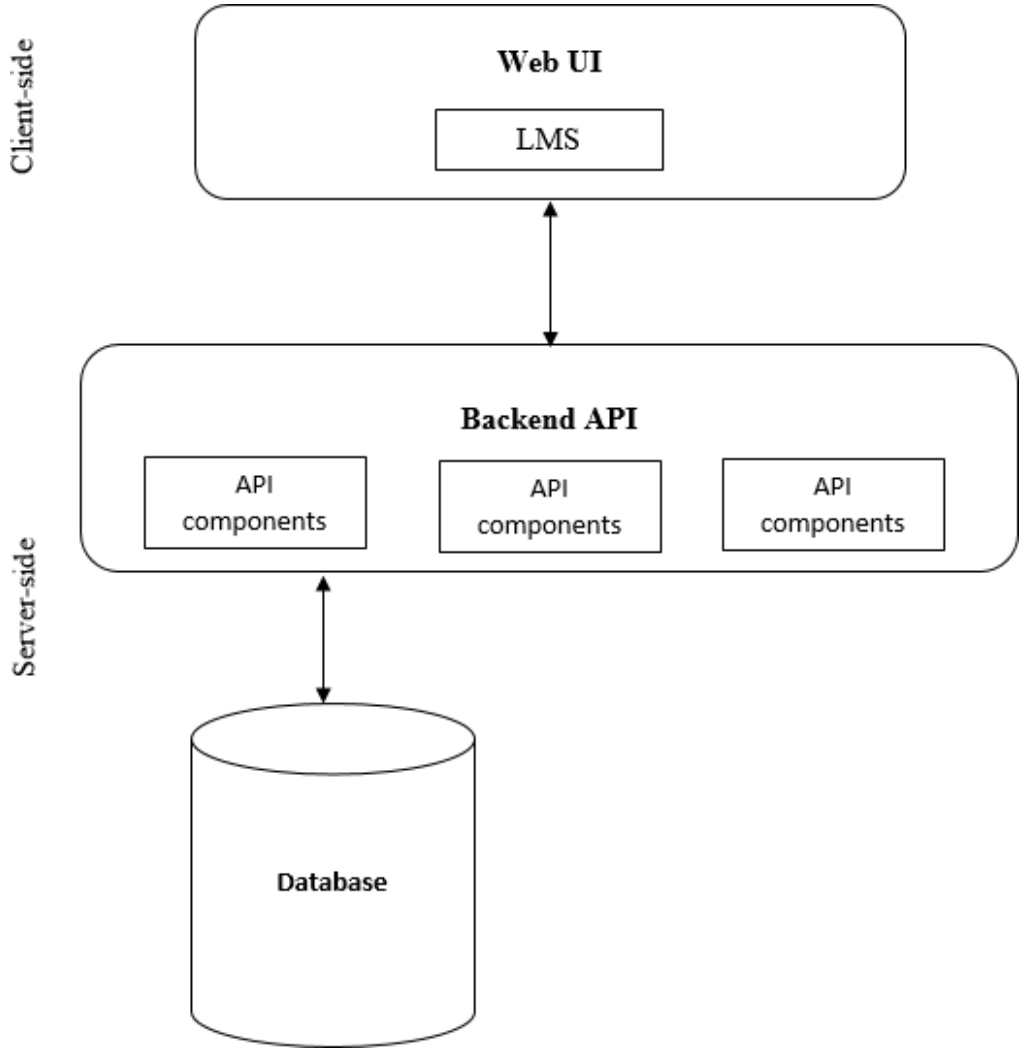

Fig. 4.5 LMS system model

The requests made by the client are handled by the backend API. Business logic, calculations, database interactions are all took care of by the backend. Frontend also do contain structured ways to store data and make calculations. However, the frontend is mainly focused on providing the best UI interface with best user experience and optimal performance. The attractiveness of the of the web page alone is not enough. Depending on the type of the customer the company wishes to attract and what they specifically need right away, the website must be specifically attractive to them. Just as the first meeting depicts the personality of a business profile, the same is the case with the frontend of the website.

4.8 Modular Design

The Modular Design approach focuses on dividing a system into sub-modules which are independent of one another. A modular system comes with the advantages of low cohesion and high coupling, thus increasing scalability, modifiability, reusability and flexibility of the system. Dividing the system into sub-parts helps in creating a different flow path analysis which makes it possible to identify critical components in performance and functionality of the system. We can thus assign priorities to these components based on their importance and spend more time in perfecting them. By optimizing these components, or by replacing the low performing ones with high performing ones, it makes it possible to improve performance and efficiency of the system.

To divide the system into independent discrete modules, the initial step is to identify and elaborate the different functionalities that are possessed by the system. And then, based on these functionalities, the main components are separated. To identify critical components and analyse different flow paths, use case diagrams were used. In modern software engineering, the use case analysis is a valuable and important requirement analysis technique. It helps in capturing the functional requirements of the system and serve a basis for scheduling, estimating and validating effort. They also help in capturing additional behaviour that can improve the robustness of the system. The use cases have proven to be easily understandable by the business users and thus, have proven to be an excellent bridge between end users and software developers. The incremental, evolutionary and inherent iterative nature of use cases make them well fit for agile development.

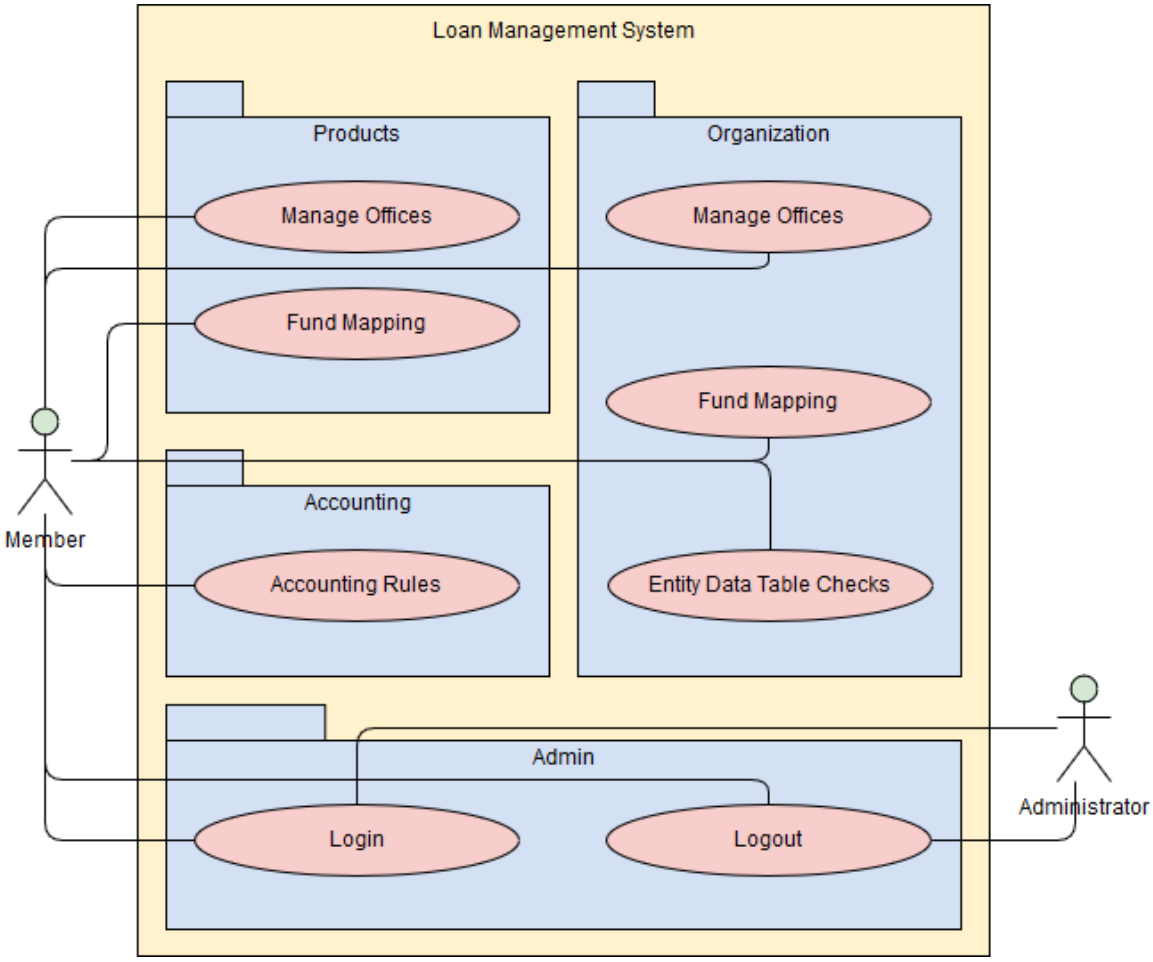

Fig. 4.6 Top level use cases for LMS

In figure above, the most basic interactions between the LMS user and the backend API have been described. The Loan Management System module components are sorted based on the service provided based on this diagram. They are separated into user authentication, accounting, system and organization services.

4.9 Authentication

The user authentication is implemented using React-router, which is discussed in detail further in this project. The application design can be divided as: pages with authentication (Dashboard Page) and pages without authentication (Login Page). The objective here was to create a secure component that allows the user to access only specific

number of pages when logged in or else the user will be redirected to the login page. Whenever the user navigates to a page that requires authentication, user authentication is checked. And obviously we also require log in and log out functions.

CHAPTER 5

BACKEND DESIGN

5.1 ER Diagram

An entity relationship diagram (ERD), also known as an entity relationship model, is a graphical representation of an information system that depicts the relationships among people, objects, places, concepts or events within that system. An ERD is a data modelling technique that can help define business processes and be used as the foundation for a relational database.

An entity relationship diagram (ERD) shows the relationships of entity sets stored in a database. An entity in this context is a component of data. In other words, ER diagrams illustrate the logical structure of databases.

At first glance an entity relationship diagram looks very much like a flowchart.

It is the specialized symbols, and the meanings of those symbols, that make it unique.

In software engineering, an entity-relationship model (ER model for short) is an abstract and conceptual representation of data. Entity-relationship modelling is a database modelling method, used to produce a type of conceptual schema or semantic data model of a system, often a relational database, and its requirements in a top-down fashion. Diagrams created by this process are called entity-relationship diagrams or ER diagrams.

An entity-relationship (ER) diagram is a specialized graphic that illustrates the relationships between entities in a database. ER diagrams often use symbols to represent

three different types of information. Boxes are commonly used to represent entities. Diamonds are normally used to represent relationships and ovals are used to represent attributes. An ER model is an abstract way to describe a database. Describing a database usually starts with a relational database, which stores data in tables.

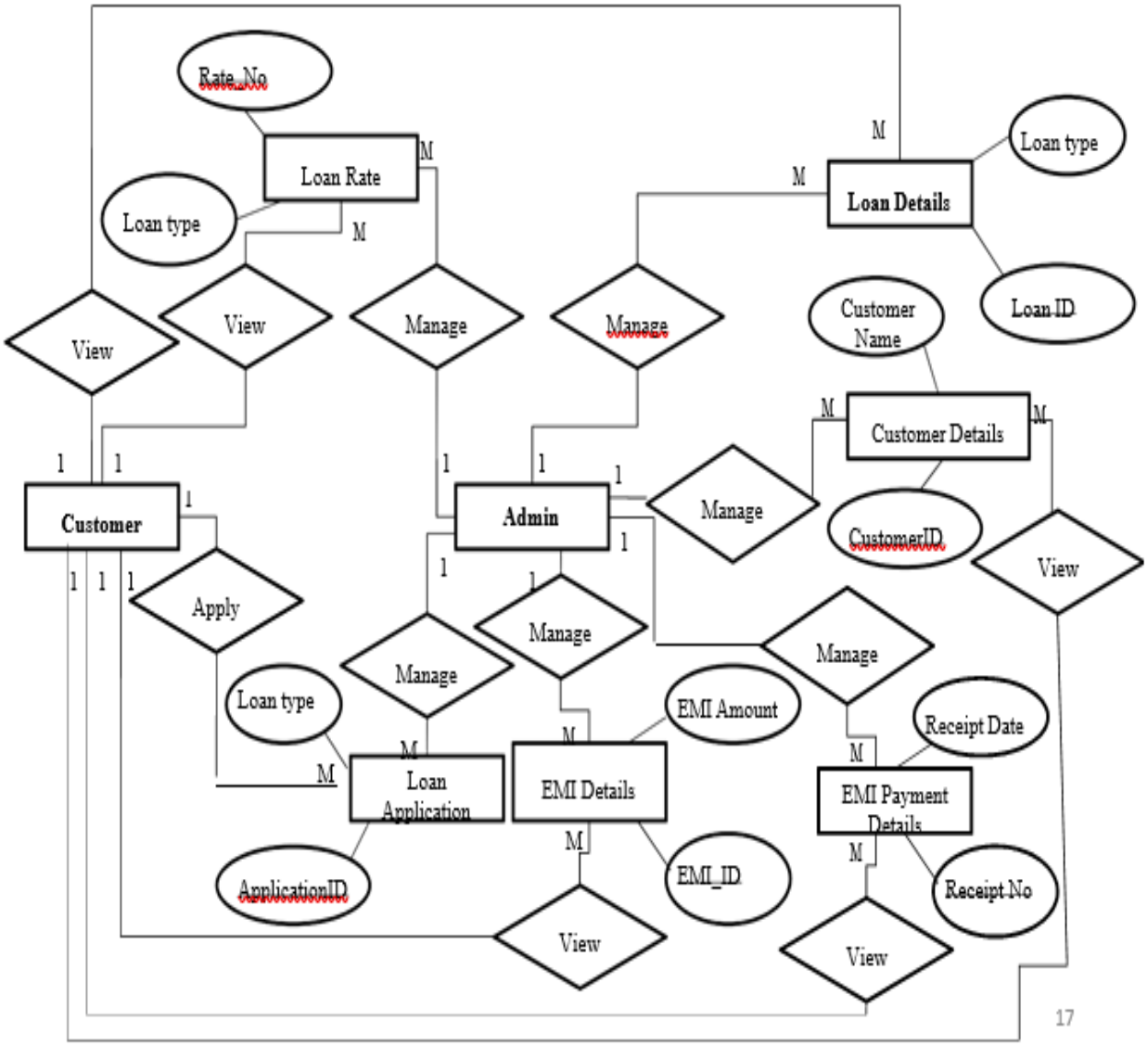

Fig. 5.1 ER diagram

5.2 use case diagram

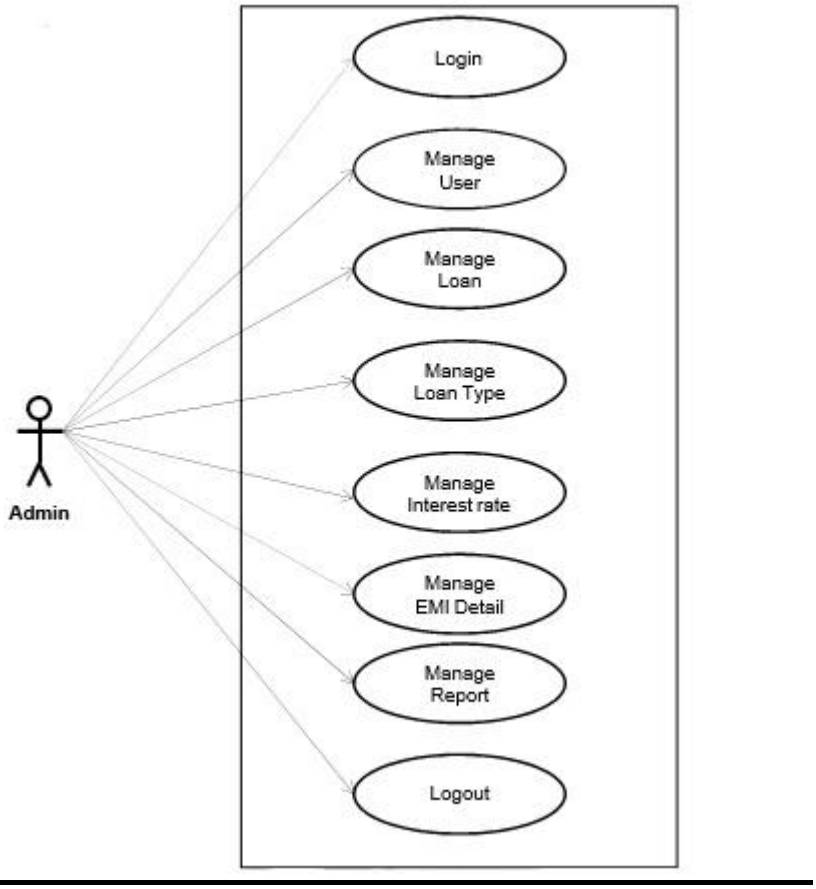

Fig.5.2 use case

5.3 FLOW DIAGRAM

A flowchart is a type of diagram that represents an algorithm or process, showing the steps and their order by connecting these with arrows.

This diagrammatic representation can give a step-by-step solution to a given problem. Process operations are represented in these boxes, and arrows connecting the m represent flow of control. Data flows are not typically represented in a flowchart, in contrast with data flow diagrams; rather, they are implied by the sequencing of operations. Flowcharts are used in analysing, designing, documenting or managing a process or program in various fields.

In our flow chart first, we are login into the system through id and password if both are correct then it checks the type of stakeholder i.e., Admin, User, Guest. If the stakeholder is Guest, then he can see his customization screen and can logout from there. He can change and save his customize screen by setting his preferences for news category or weather.

If the stakeholder is a User, then he can view the news and weather. He can update the news from different location of the world and save the changes into the database and logout.

If the stakeholder is Admin, then he can perform many works like manage user, manage news, post news, add user, delete user. Admin providing the user id and password to the User.

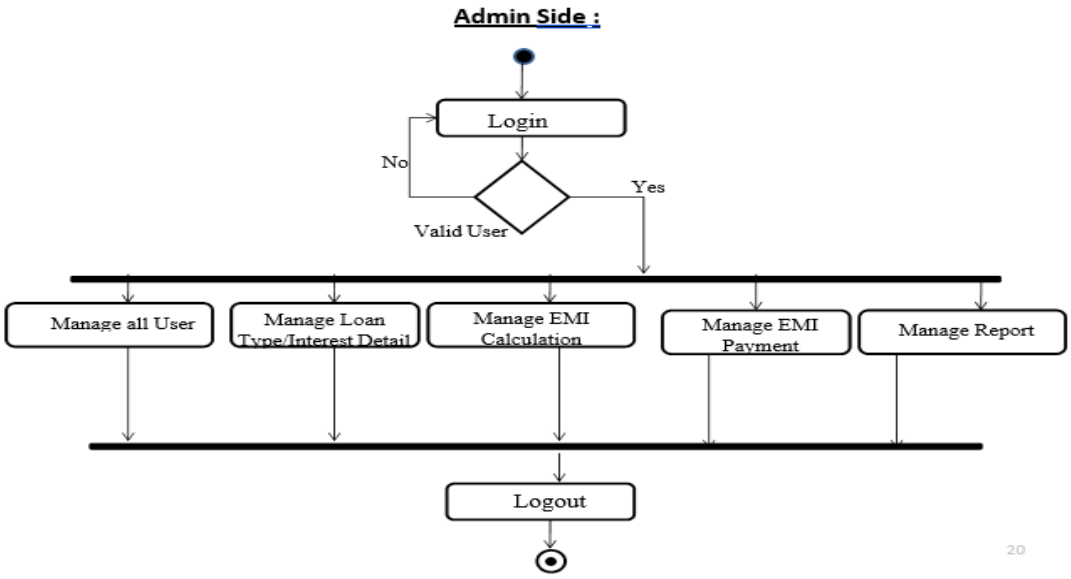

Fig.5.3 User Flow diagram

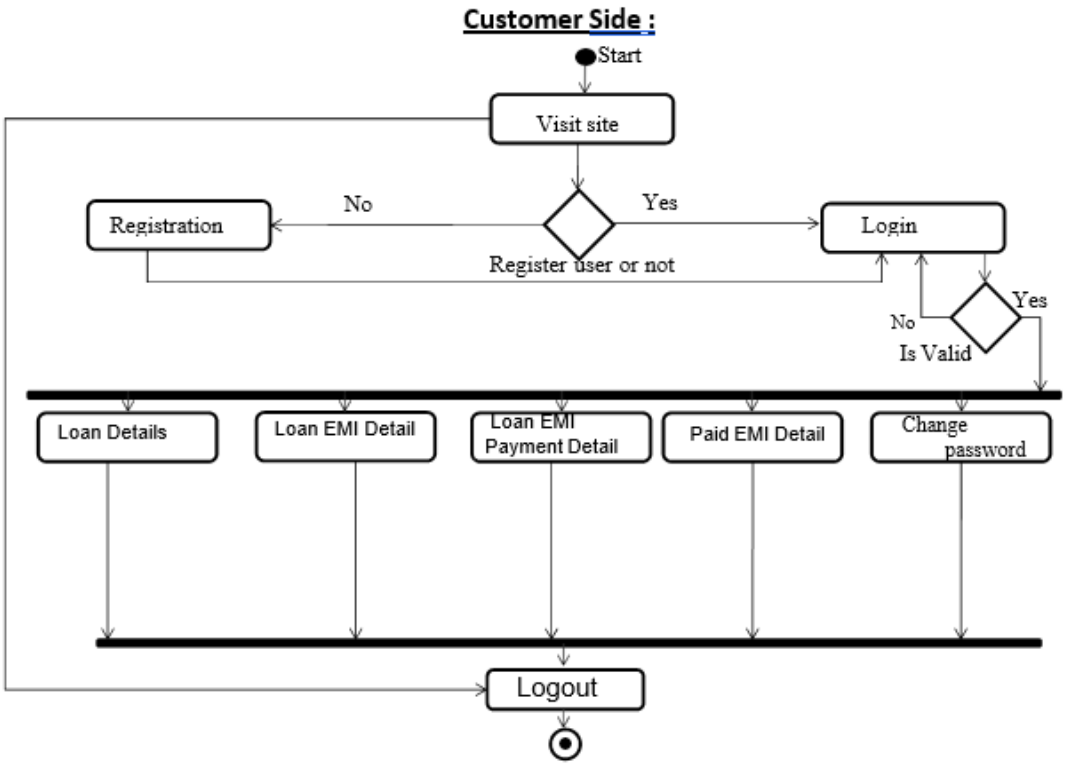

Fig. 5.4 Customer Flow diagram

4.4 Class Diagram

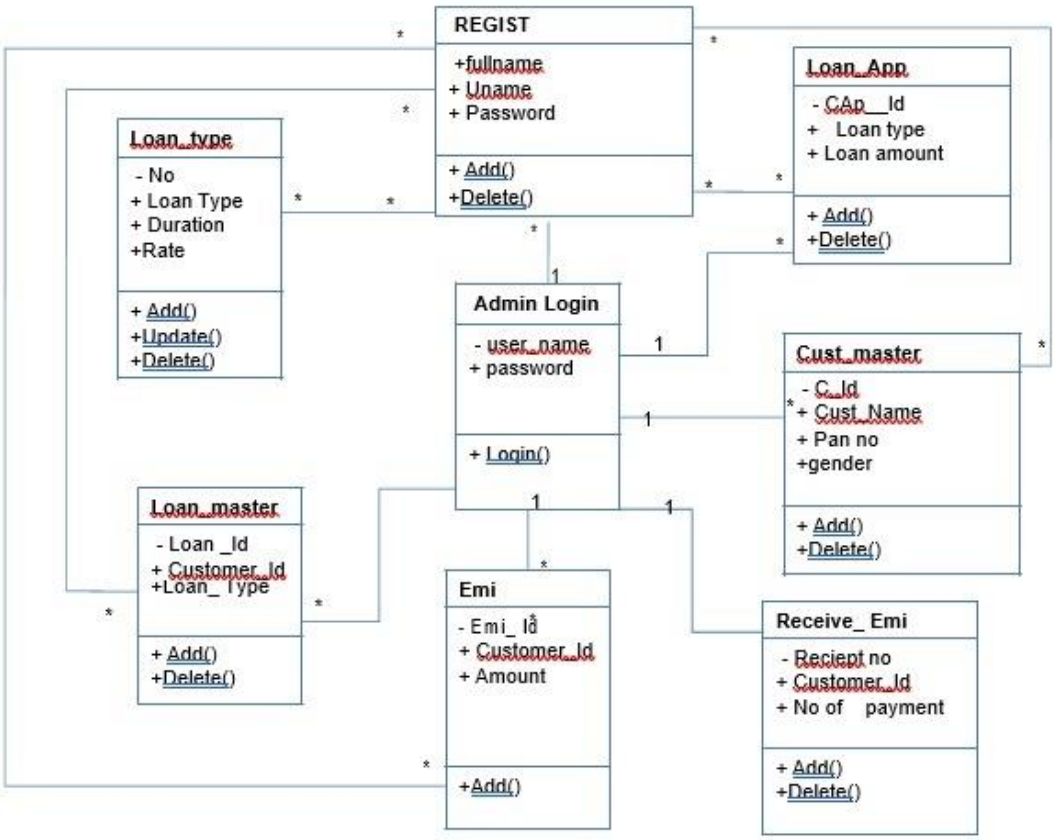

Fig.5.5 Class diagram

CHAPTER 6

FRONTED DESIGN

6.1 home page

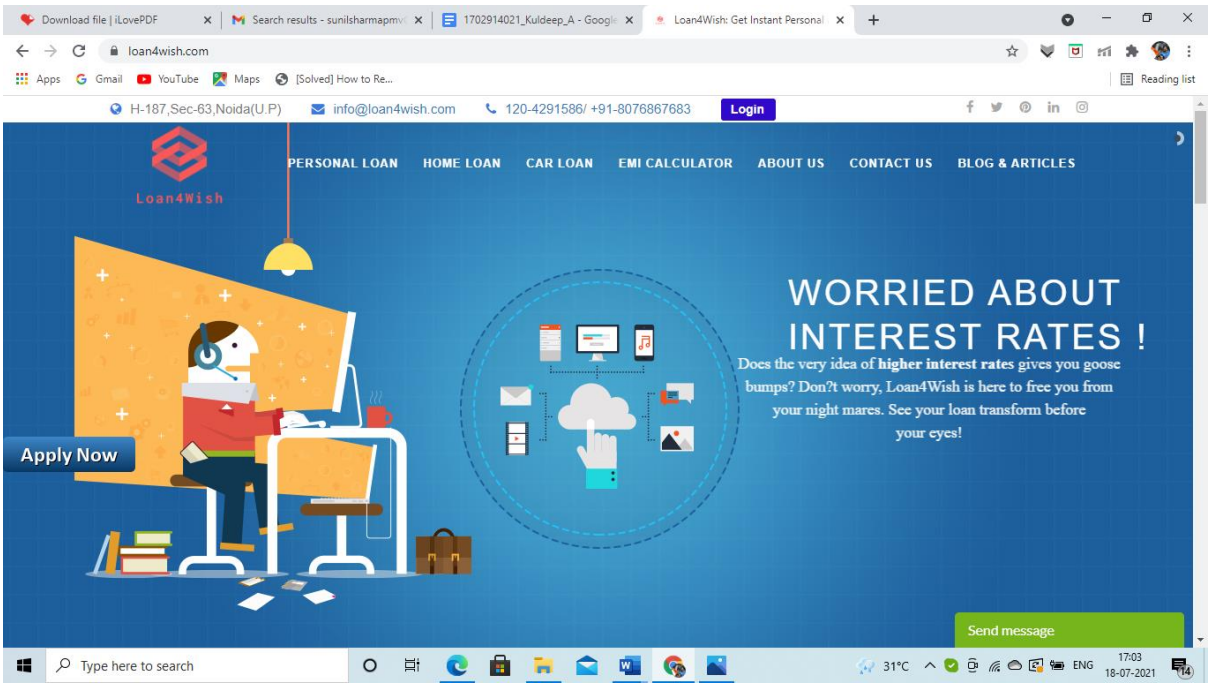

Fig:6.1 Home page

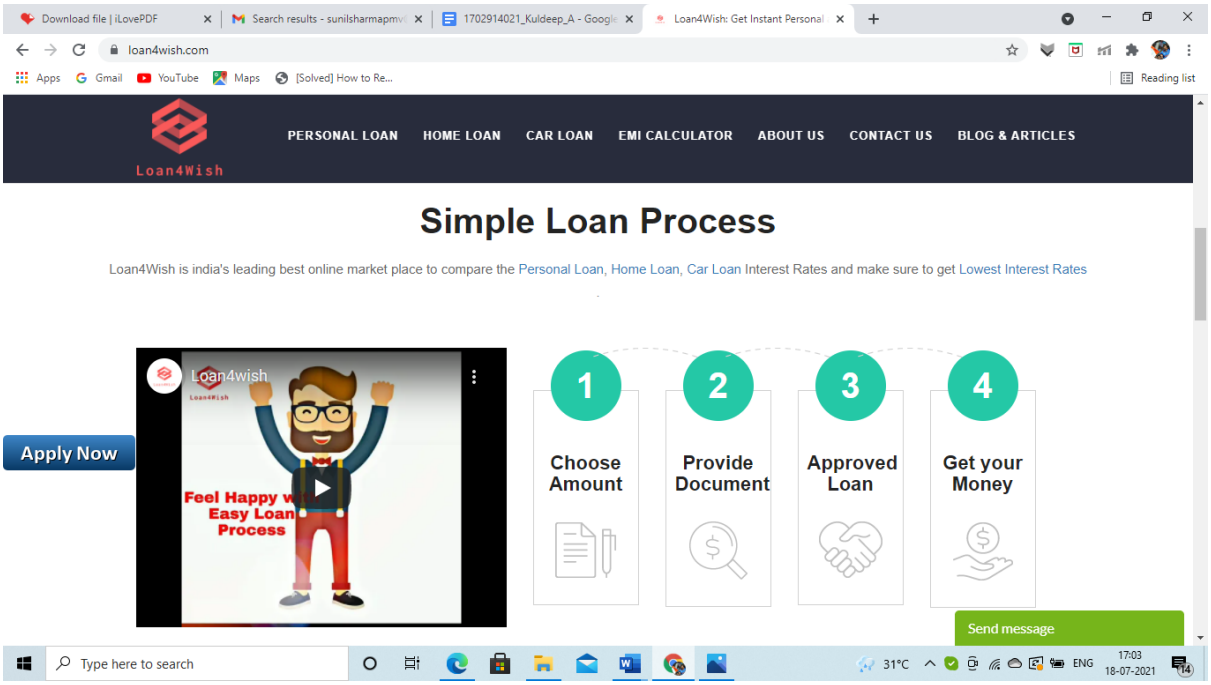

Fig:6.2 Loan process

6.2 Personal loan details

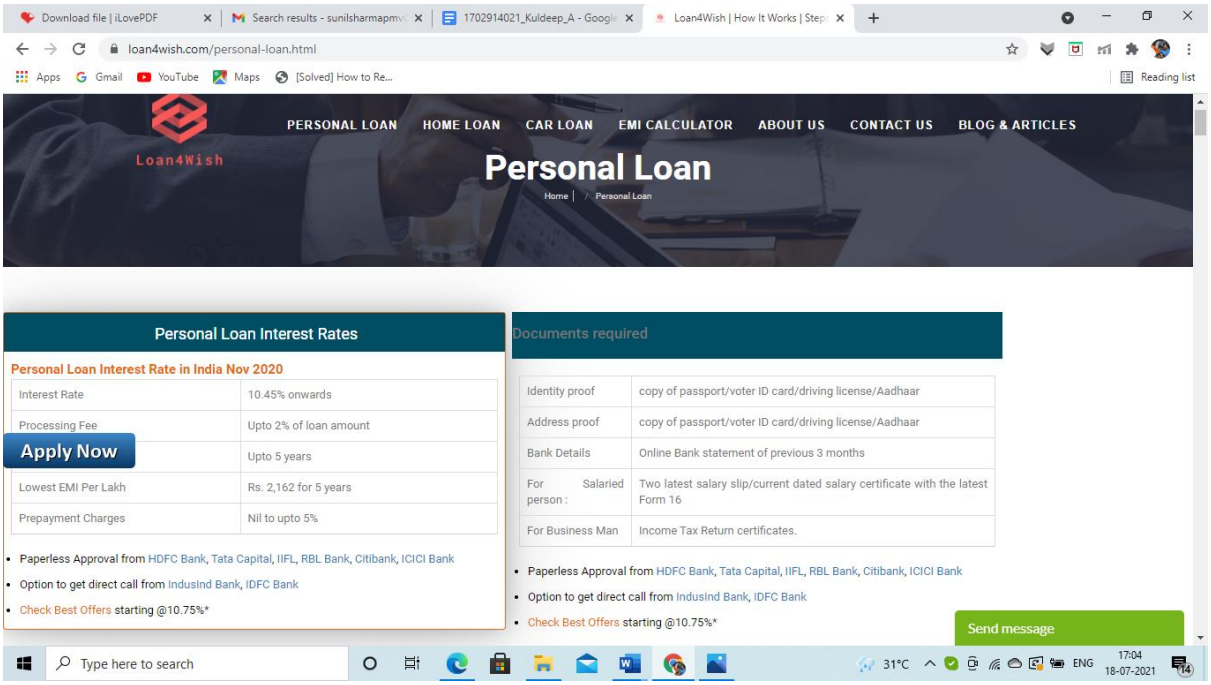

Fig:6.3 Personal loan

6.3 Home Loan Details

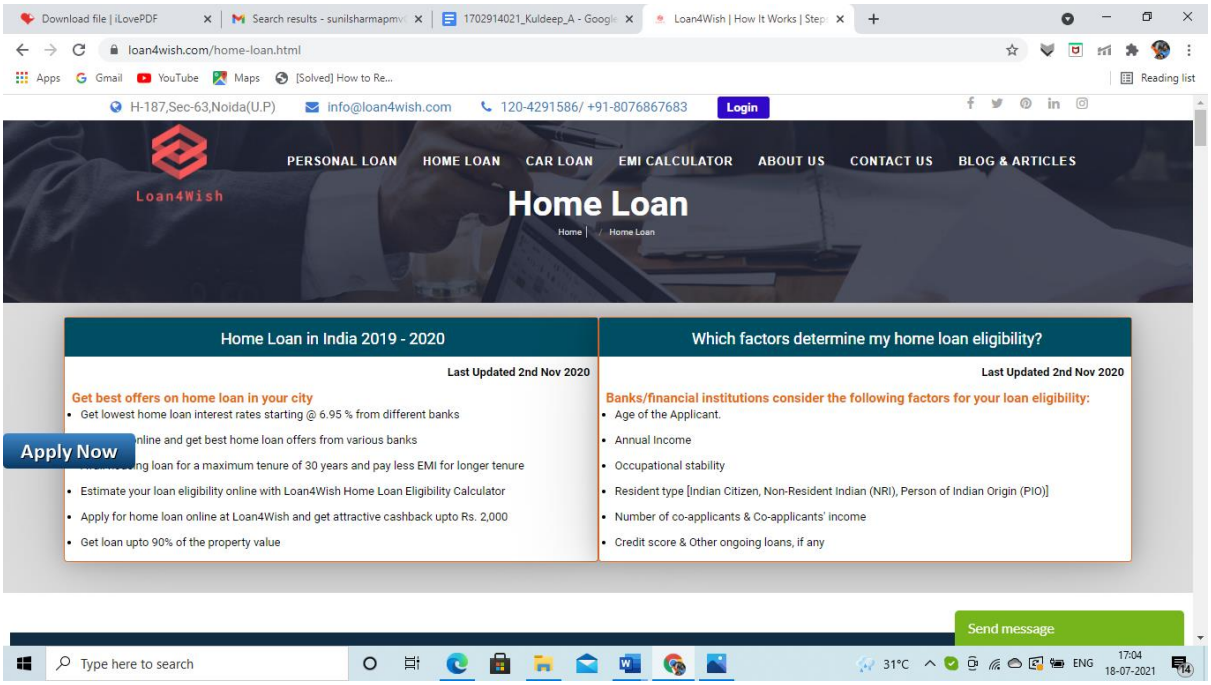

Fig:6.4 Home loan

6.4 Car loan Details

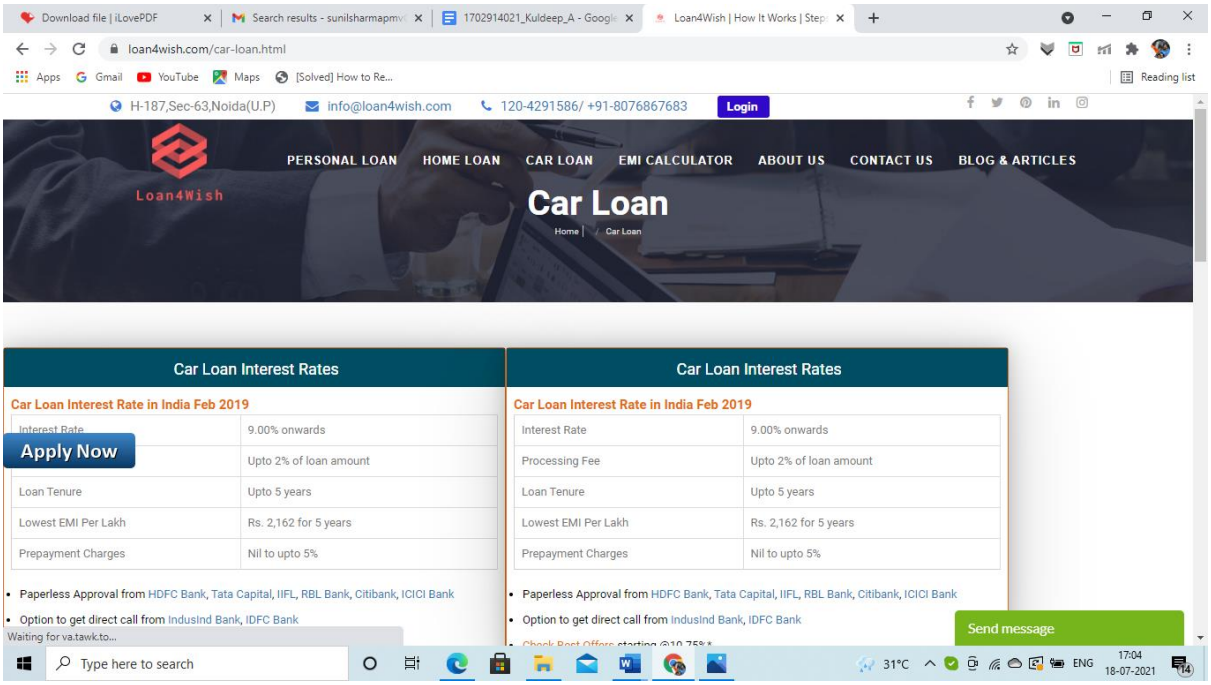

Fig:6.5 Car loan

6.5 EMI Calculator

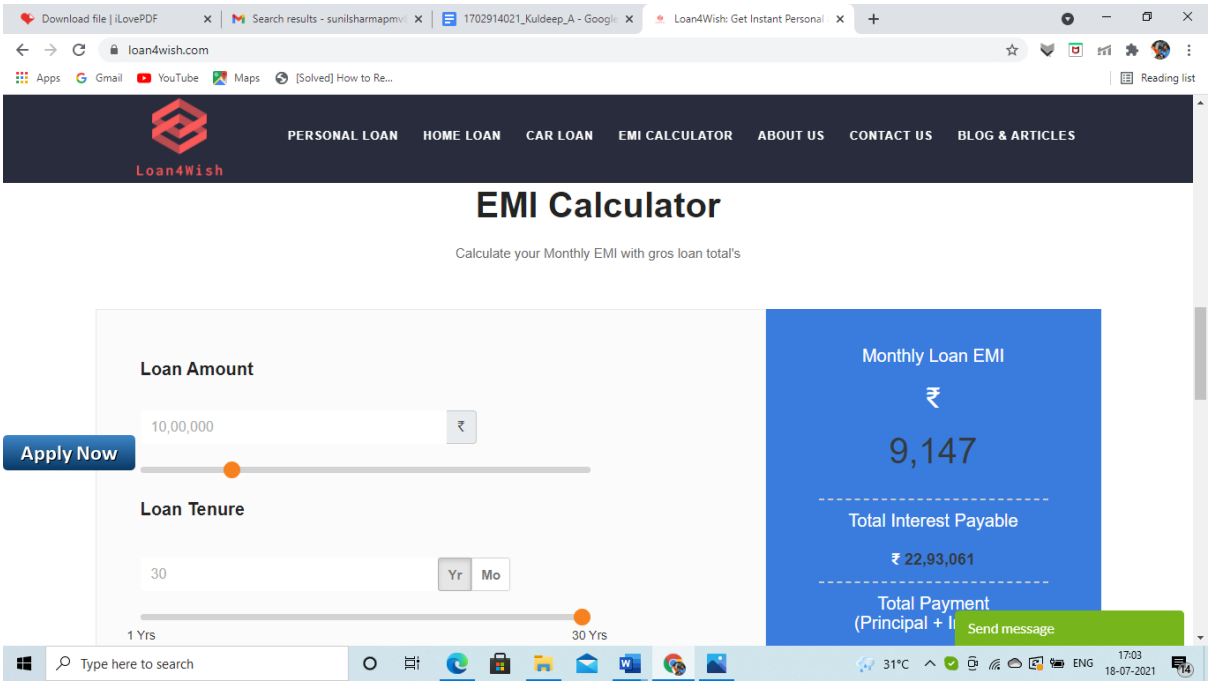

Fig:6.6 EMI Calculator

6.6 Apply Loan

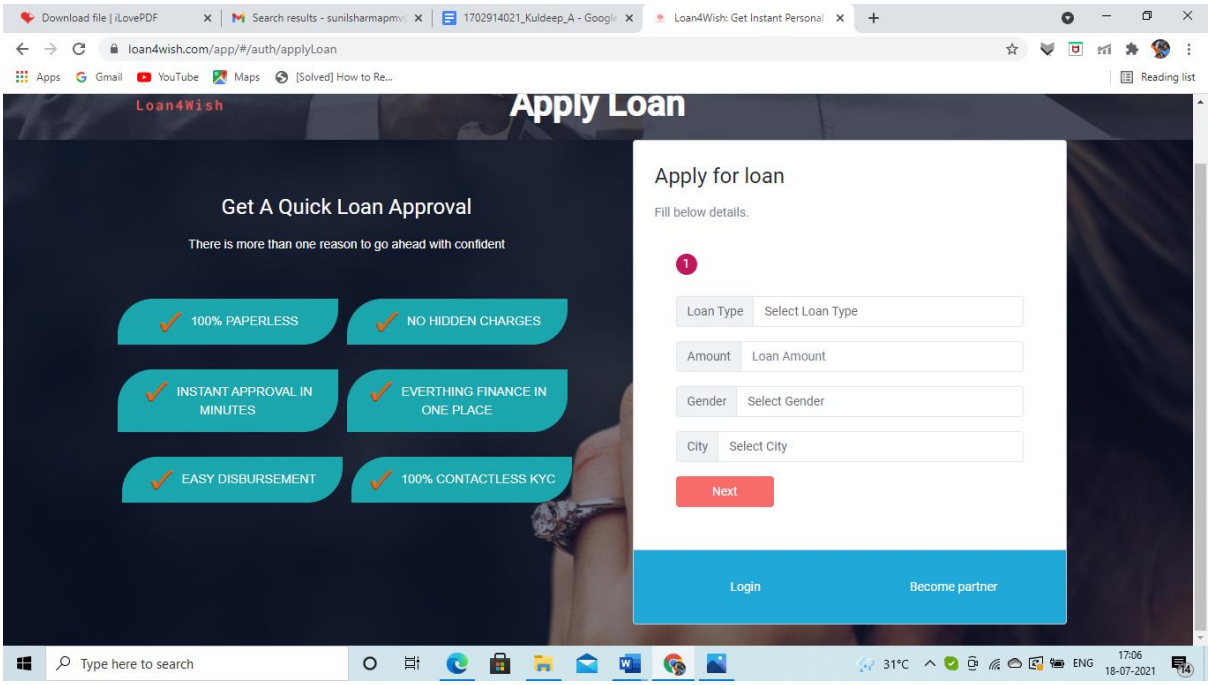

Fig:6.7 Apply loan

6.7 Become partner

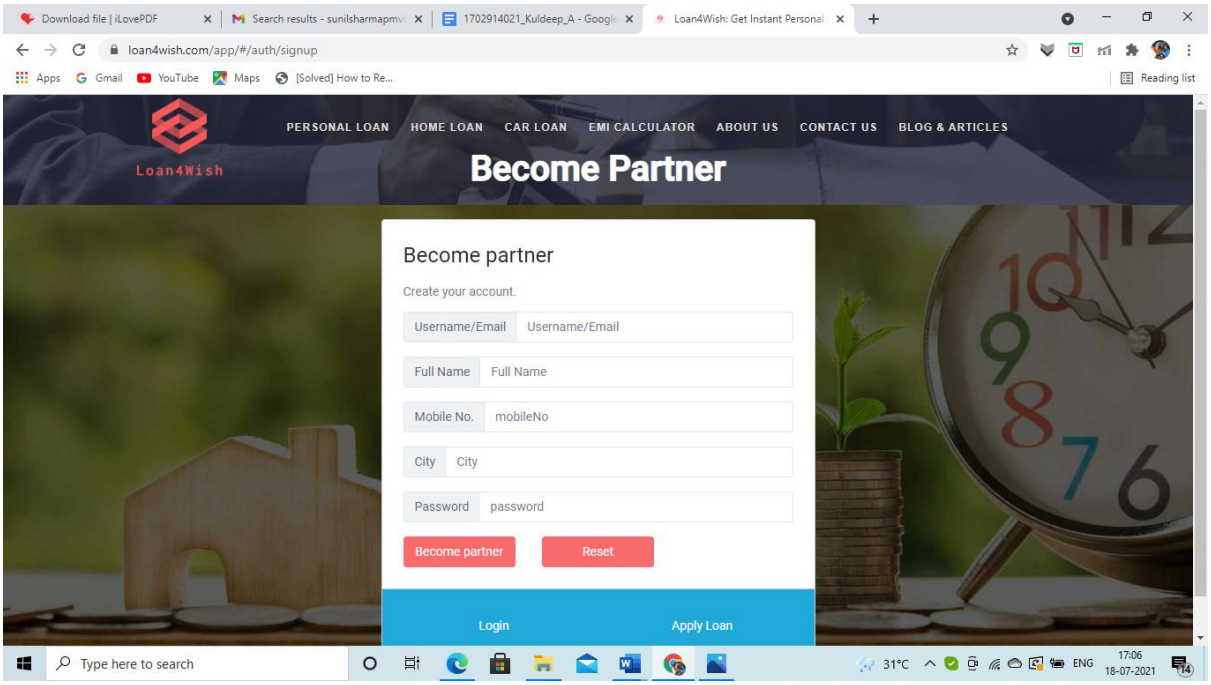

Fig:6.8 Become partner

6.8 Login

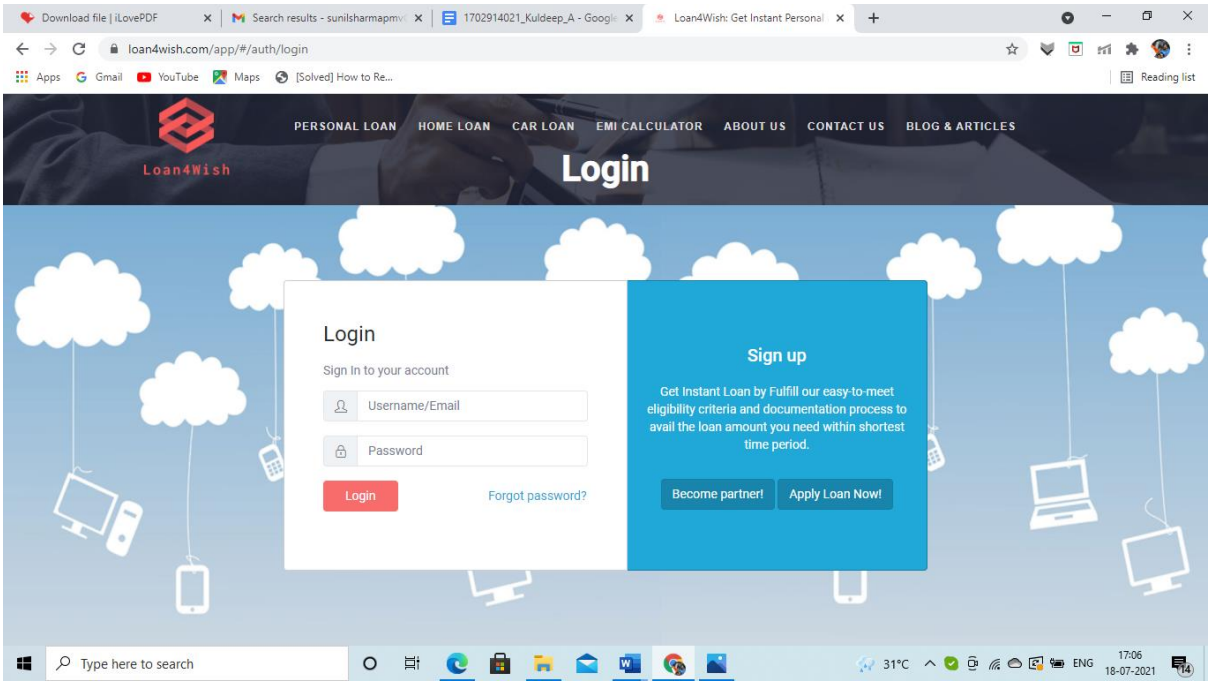

Fig:6.9 Login

6.9 Backend user

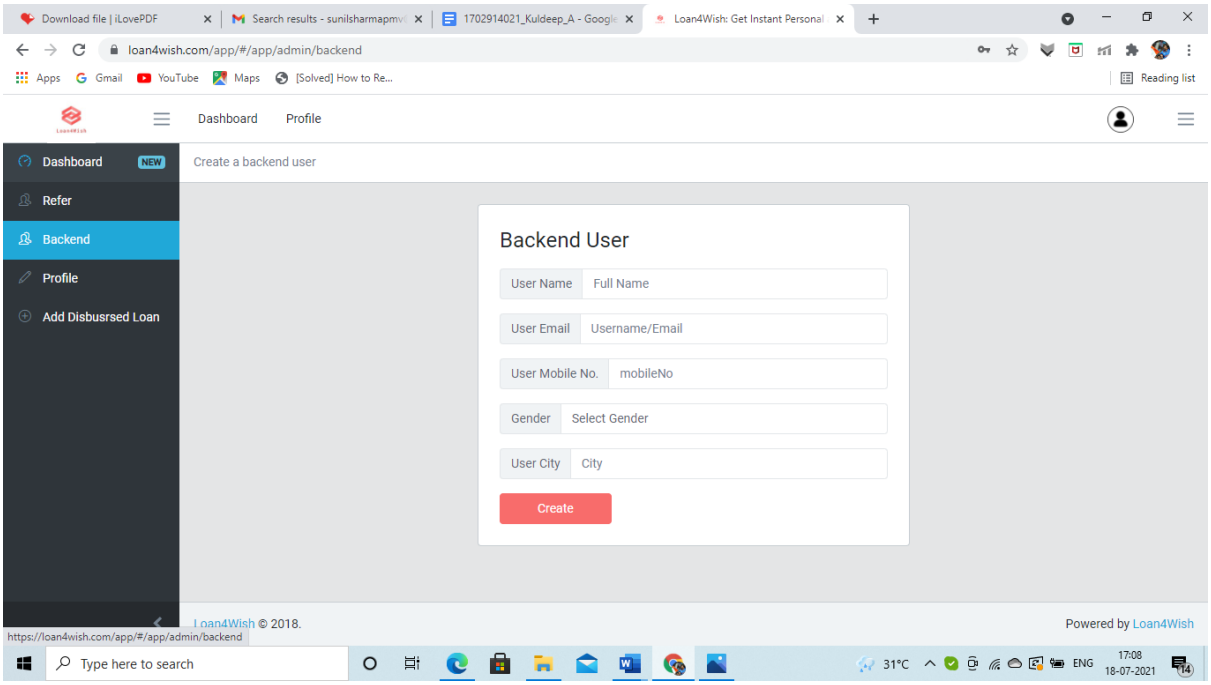

Fig:6.10 Backend user

6.10 Refer a friend

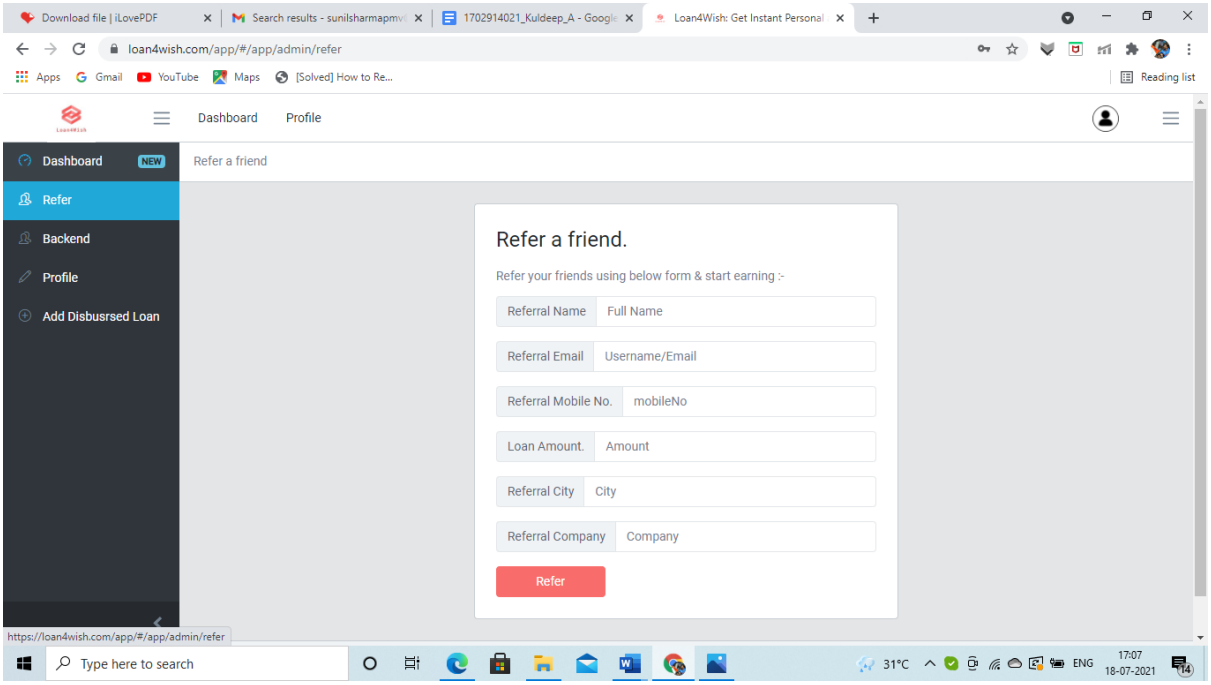

Fig:6.11 Refer a friend

6.11 Dashboard

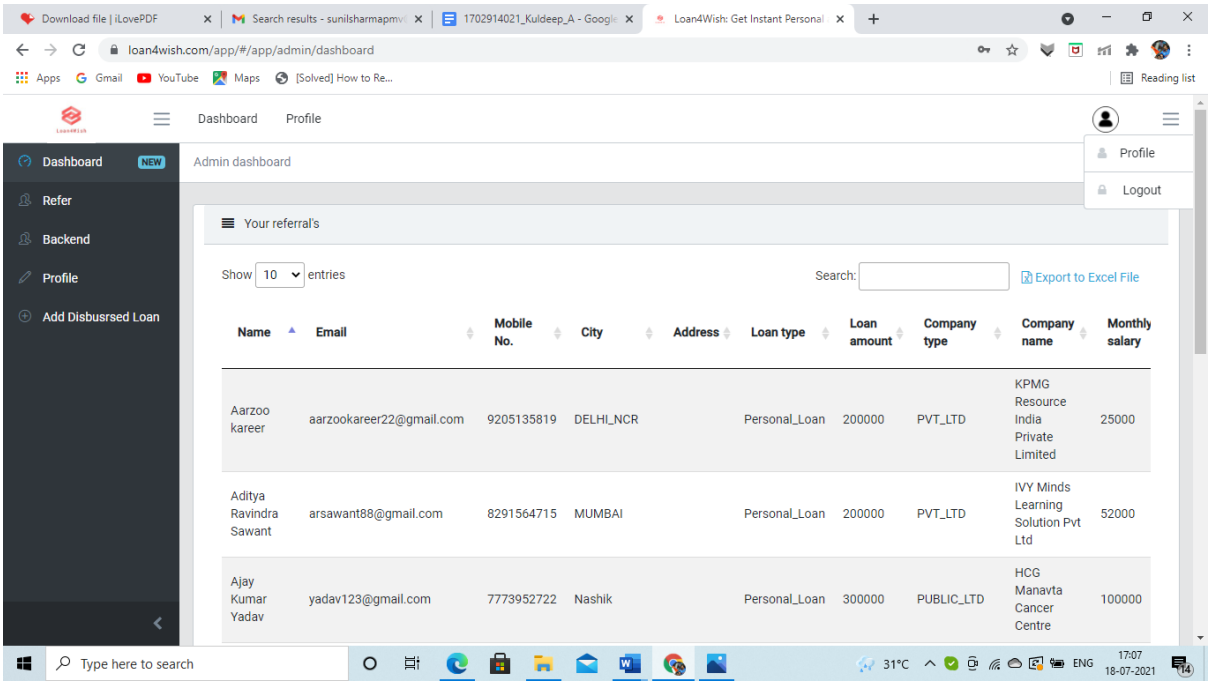

Fig:6.12 Dashboard

6.12 Check your rate

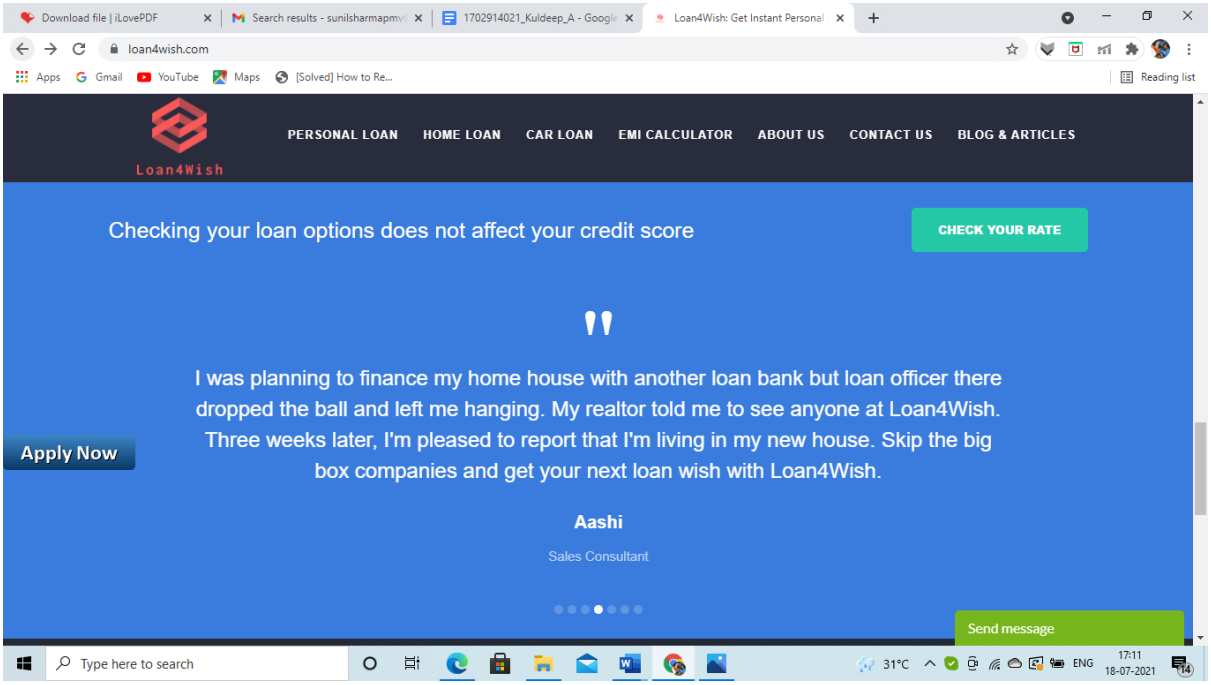

Fig.6.13 Check your rate

6.13 Send massages

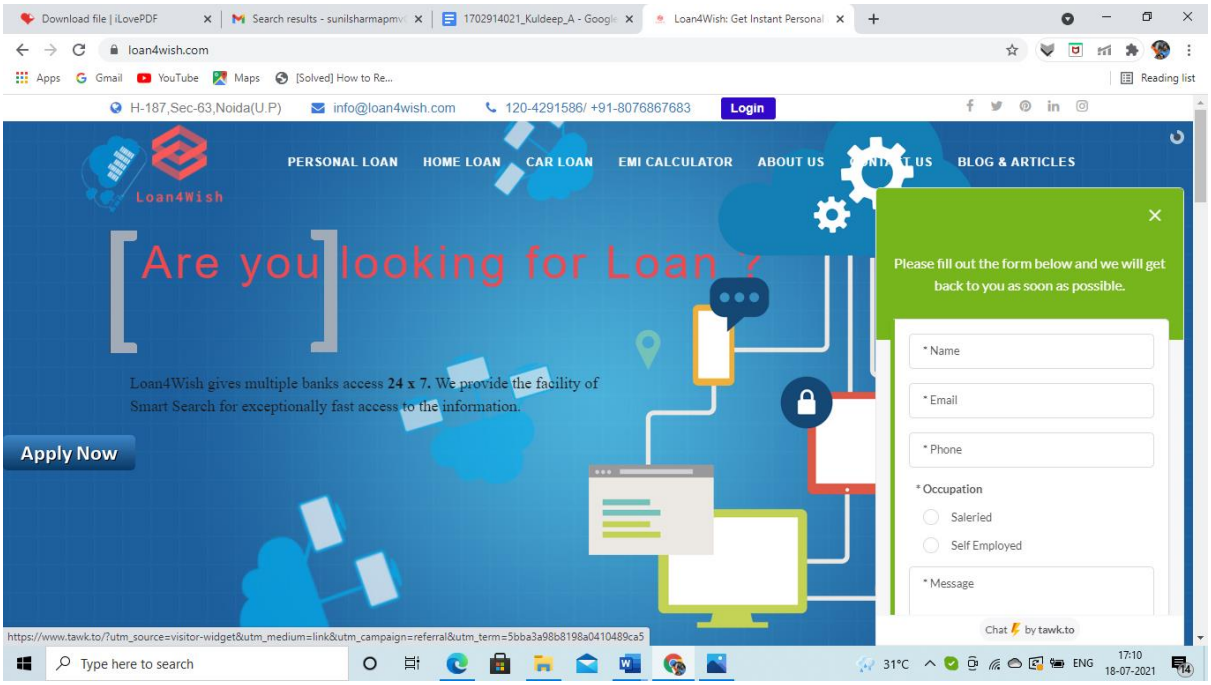

Fig:6.14 Send massages

6.14 Blog and Articles

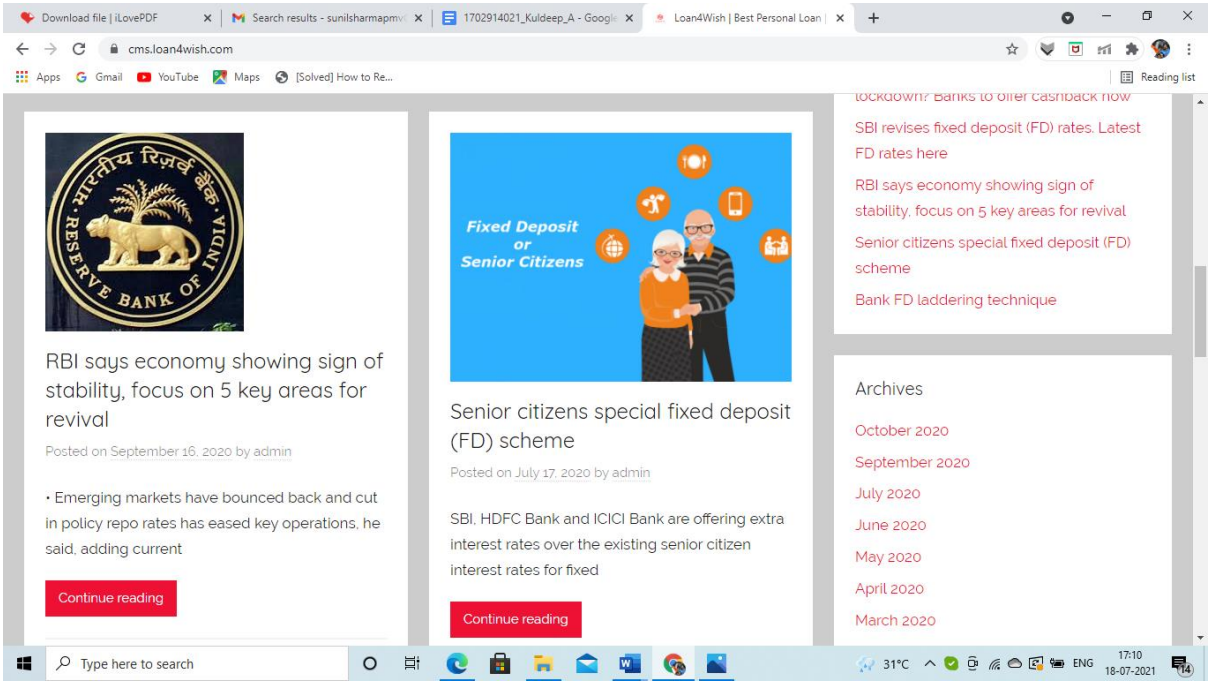

Fig:6.15 Blog and Article

6.14 Upload Documents

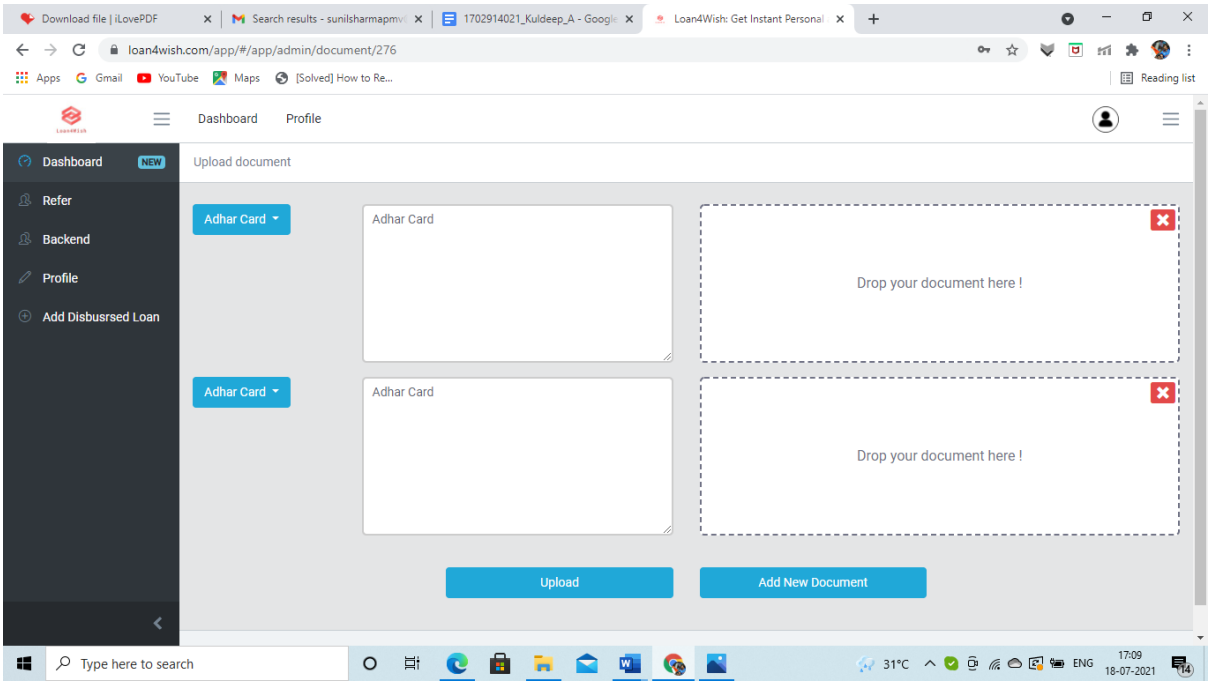

Fig:6.16 Upload Document

56.5 Details form

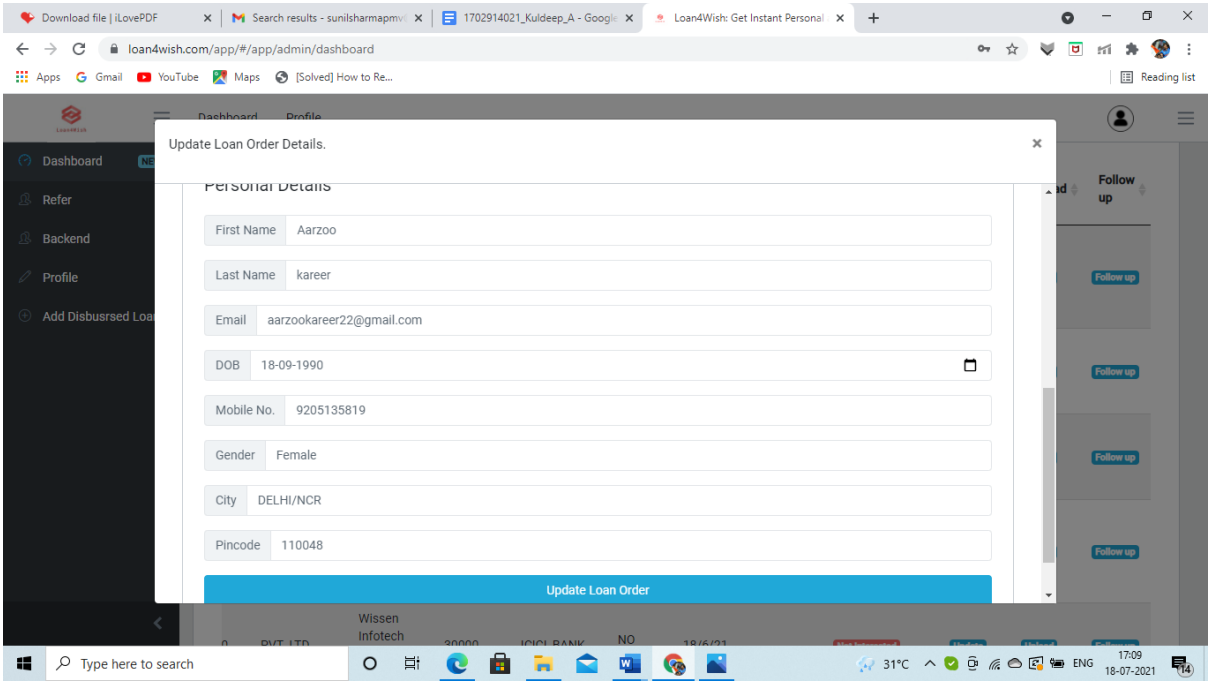

Fig:6.17 Detail form

6.15 Update details form

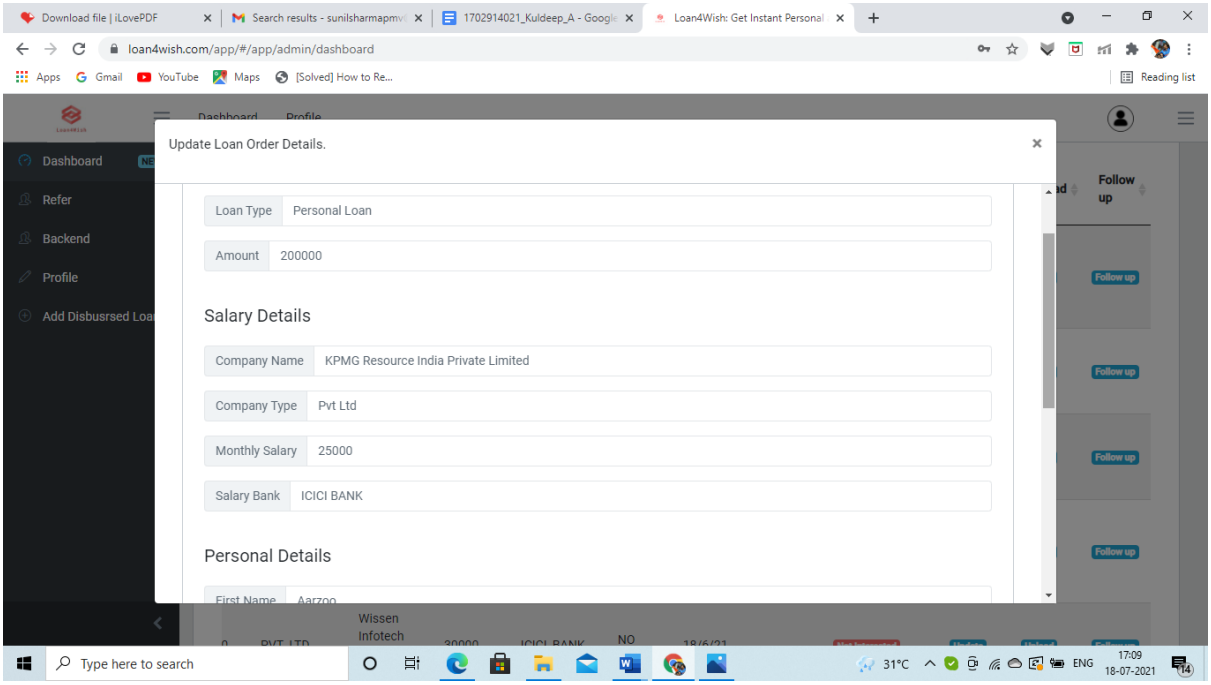

Fig:6.18 Update details form

6.16 Profile Details

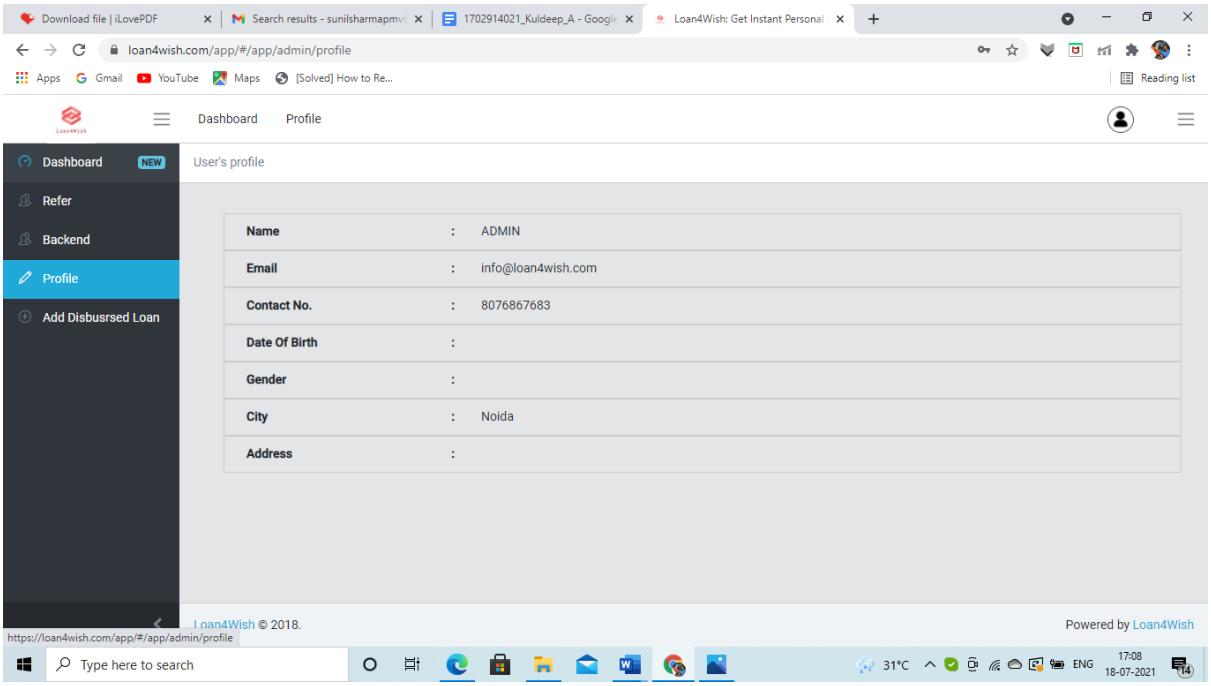

Fig:6.19 Profile Details

CHAPTER 7

TESTING

Testing is the process of confirming that the web program works as it was intended. Each feature is checked for defects in this stage. The product defects are reported, tracked using the Jira software and is fixed by the developer who is responsible for the defected feature.

7.1 Test Plan

Specifically, testing will consist of the following phases:

- Unit and integration level – adherence to coding standards and successful communication between units.

7.1.1 Test Items

Test items – Image, tables, radio button, checkbox, horizontal line, text input field, label, editable table, table, drop down, button.

7.1.2 Features to be tested

The below listed features will be tested:

- Accessibility
- Coding standards

- Security
- Usability
- Functionality
- Navigation
- Scalability

7.1.3 Features not to be tested

The intent is that all of the individual test cases that are contained in the test plan will be performed.

However, in case time does not allow, some of the low priority test cases may get dropped.

7.1.4 Strategy/Approach

The approach we followed for the testing of this project is risk-based testing. In this, each test case prepared is prioritized as, High, Medium, or Low priority and based on the categorization they are scheduled (High priority goes first)

. This general rule might include instances that may be treated as exceptions:

- Using small Number of resources, a large number of low priority test cases can be executed.
- A higher priority test case is preceded by a lower priority test case. For example, many of the inexpensive low priority navigational tests have to be passed necessarily before an expensive and high priority usability test. Manual testing will be used.

7.1.5 Item Pass/Fail Criteria

The entrance criteria for each phase of testing must be satisfied before the next phase is commenced. The project manager has the power to make the decision whether the total

or criticality of any or all detected bugs and defects warrant any delay in the product completion.

7.1.6 Test Deliverables

The following documents have to be generated as a result of the testing activities carried out:

- Master Test Plan (MTP)
- Deliverable documents: test plan
- Test input and output data (Test cases)

7.2 Unit and Integration Test Plan

7.2.1 Introduction

This testing phase uses multiple number of testing techniques. The decision as to which testing technique(s) is appropriate to use for any given code unit is resided by the team leader responsible for signing-off the module.

7.2.2 Features and functions to test

- Accessibility

UIAC1 - Low The colours used in this Web page are friendly to colour blind viewers.

- Coding Standards

Each of the coding units that together make the code module being tested must be coded following all the coding standards, any deviations from the standard must be prior documented and approved by the project manager.

UICS1 – Low

Any pop-up used in the application must meet following requirements:

o the pop-up follows the GUI standard o The pop-up is not too large for its parent window

o the pop-up should have an appropriate initial position on the screen

UICS2 – Medium

All the forms that we have used in the application must necessarily meet the following requirements:

o All validations are performed (and all error messaged are rightly displayed) in top-down, left-to-right fashion of the field.

o Using the Tab key allows the user client to tab through the available data input fields in a top to bottom, left to right order.

o When the form is first viewed, the browser places the cursor on the best suited control/field.

o If radio buttons are used, a default selection is always done.

o All the input fields in the form are validated for invalid data and corresponding error messages are displayed. o All data entry fields are checked to ensure that they accept valid values and that the checking routines used can handle the invalid data appropriately.

UICS3 – High

The below stated design and syntax requirements must be followed by the code:

o Each unit of code has to be copied or inherited from the most appropriate object template and class.

o the internal workings of the program code must not be described by the error messages.

o the coding standards of the W3C HTML standard must be followed by the HTML code and it must be validated via the W3C validation service.

- Security

UISC1 – High

The input data that is received from the user client must be parsed so that it is made sure that no inappropriate meta-character sequences are contained. For example, & &.

UISC2 – High

The input data that is received from the user client must be parsed so that it is made sure that no “buffer overflow” or “out of bounds” input data is contained.

- Usability

UIUB1 – Low

Related information on the web page is grouped together on the web page to minimize the user’s eye movement.

UIUB2 – Low

The mandatory data input fields must be flagged with some visual symbol. For example, an asterisk (*) sign.

UIUB3 – Low

When the client views the product on via his/her device, it fits perfectly

- Functionality Cut, copy, paste and zoom. Menu bar options.

- Navigation

UING1 – High

All the links that are used on the web page will be checked to make sure they meet following specifications:

o the link should go to the appropriate location.

o the link should not be broken.

o the link must have an associated “Title” tag.

o Lowercase characters for the address must be used in the internal links.

o the link should not alter the browser's default colours of the link.

- Compatibility

UICP1 – Medium

The window size of this application can be resized automatically according to the screen size of the device the user is viewing it on.

UICP2 - Medium

The content of this application is clearly readable.

7.2.3 Features and functions not to be tested

The notable features and functions that will not be tested include: Non

CHAPTER 8

Conclusion

The project as a whole describes the scope and viability of the IT & IT enabled Units industry and mainly of the financial, technical and its market potential. When we take a close look at the Debt Service Coverage Ratio (DSCR), the DSCR is 2.42: 1, which is at a healthy proposition & proposes a profitable. The Profit and Loss shows a steady growth in profit throughout the year and the firm has a good Current Ratio (average) of 2.84, this shows the current assets and current liabilities are managed & balanced well. The project guarantees sufficient fund to repay the loan and also give a good return on capital investment. When analysing the social- economic impact, this project is able to generate an employment of 15 and above. It will cater the demand of IT & IT enabled Units and thus helps the other business entities to increase the production and service which provide service and support to this industry. Thus, more cyclic employment and livelihood generation. So, in all ways we can conclude the project is technically and socially viable and commercially sound too.

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