LEAD MANAGEMENT SYSTEM

A PROJECT REPORT

Submitted By SHARVAN KUMAR ARYA

(Enrollment No. 180291404395)

Submitted in partial fulfillment of the

Requirements for the Degree of

MASTER OF COMPUTER APPLICATION

Under the Supervision of Dr Sangeeta Arora



Submitted to DEPARTMENT OF COMPUTER APPLICATIONS

KIET Group of Institutions Ghaziabad
Uttar Pradesh-201206
(August 2021)

CERTIFICATE



Certified that Sharvan Kumar (Enrollment No. 180291404395) have carried out the project work having "Lead Management System" for Master of Computer Applications from Dr.. A.P.J. Abdul Kalam Technical University (AKTU), Lucknow under my supervision. The project report embodies original work, and studies are carried out by the student himself/herself and the contents of the project 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/Institution.

Dr. Sangeeta Arora

External Examiner

Associate Professor

Dept. of Computer Applications

KIET Group of Institution, Ghaziabad

Dr. Ajay Kumar Srivastava

Professor & Head

Department of Computer Applications

KIET Group of Institutions, Ghaziabad

ACKNOWLEDGEMENT

I take this occasion to thank God, almighty for blessing us with his grace and taking our endeavor to a successful culmination. I extend my sincere and heartfelt thanks to our esteemed guide, Mr. Vijay Thakur 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 Mr. 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 the course of our work.

SHARVAN KUMAR (180291404345)

Lead Management System

Sharvan Kumar

ABSTRACT

Lead Management System admin can create lead view existing lead and create opportunity if the lead is exists.in this we can see lead all about information. Manager can view the lead create the lead and create opportunity.

When we save lead, we show a modal that have a two-button ok and click here.

When we click ok then lead can be saved on lead page and when we click click-here then Open the opportunity page and we create the opportunity and save the opportunity page lead can be saved and opportunity can be saved.

When leads saved then data also saved into brand profile and contact. In this section we can edit and view the data. One major thing this section delete only by admin.

Admin can also add departments and users. admin have right to set the roles for user. Any kind of operation that performed by the user that define by the admin.

Admin can also provide the feature to add departments roles for user access and view but only delete by the admin.

TABLE OF CONTENTS

CERTIFICATE	ii
ACKNOWLEDGEMENT	iii
ABSTRACT	iv
LIST OF FIGURES	vii
LIST OF TABLES	viii
1.INTRODUCTION	PAGE NO
1.1 PROJECT OBJECTIVES	1
1.2 PROJECT SCOPE	1
1.3STUDY OF SYSTEMS	2
2.SYSTEM ANALYSIS	
SYSTEM ANALYSIS	4
2.1 Flow Chart	5
2.2 Use Case Diagram	6
2.3 DFD	9
3.SYSTEM DESIGN	
3.1 Input and Output Design	10
3.2 System Tools	11

REFRENCES	54
4.LITERATURE REVIEW	47
3.5 Screenshots	29
3.4 Tables and Sample Data	13
3.3 Class Diagram	12

CHAPTER 1

INTRODUCTION

Lead management commences with introduction of leads from varied sources like - website forms, marketing campaigns, social media, tradeshow registrations, etc. Recording tools and techniques come to fore when a lead is generated. A smart tool captures all relevant details like a lead's region, source, type, background, level of interest, etc.

1.1Purpose

A good lead management system:

Accelerates the process Reduces lead generation costs

Controls lead nurturing expenses

Increases the conversion ratio

Keeps a tab on return of investment

1.2Scope of the project

Automated software solutions eliminate duplicate entries, consolidating authentic data in the central repository. Management can closely monitor leads and measure employee performances. An updated team takes better decisions with clarity. Extensive reports enable predictive forecasting through analysis.

1.3STUDY OF THE SYSTEM

MODULES

The system after careful analysis has been identified to be presented with the following modules and roles.

The modules involved are:

Administrator

Manager

Client

ADMINISTRATOR

The administrator is the super user of this application. Only admin have access into this admin page. Admin may be the owner of the shop. The administrator has all the information about all the users.

Admin has access to add, modify all the data create/edit masters.

Add Lead-

Admin can add new lead.

Modify Lead-

Admin can modify the lead whose already created.

Delete Lead-

Admin can delete any lead.

Search Lead-

Admin can search any lead.

MANAGER

Manager is a module of system that can see the data of users add new user and edit all data. Manager cannot have all access.

Add Users-

Manager can add new users. and see all data of users.

Edit data-

Manager can edit all data of users.

Chapter-2

System Analysis

System Features

Admin/Manger

User Detail

Search option

Client profile detail

Lead detail

Reports

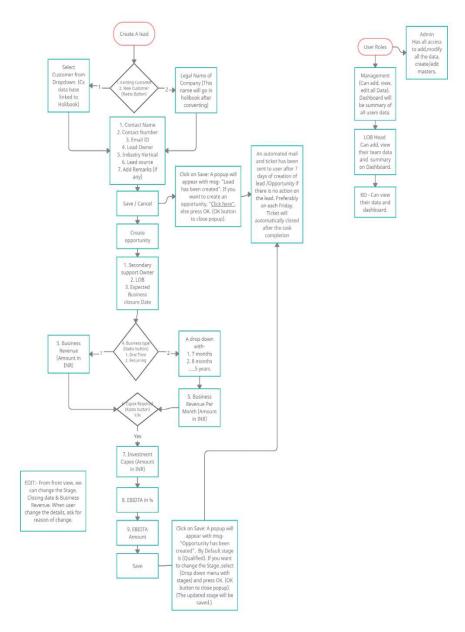
Client

Contact detail

Profile detail

2.1 Flow chart

A flowchart is a picture of the separate steps of a process in sequential order. It is a generic tool that can be adapted for a wide variety of purposes, and can be used to describe various processes, such as a manufacturing process, an administrative or service process, or a project plan.



Figer: 2.1 Flow chart of project

2.2 Use Case Diagram-

A use case diagram is a graphical depiction of a user's possible interactions with a system. A use case diagram shows various use cases and different types of users the system has and will often be accompanied by other types of diagrams as well. The use cases are represented by either circles or ellipses.

2.2.1 Global Diagram-

When leads saved then data also saved into brand profile and contact. In this section we can edit and view the data. One major thing this section delete only by admin.

Admin can also add departments and users. admin have right to set the roles for user. Any kind of operation that performed by the user that define by the admin.

Admin can also provide the feature to add departments roles for user access and view but only delete by the admin.

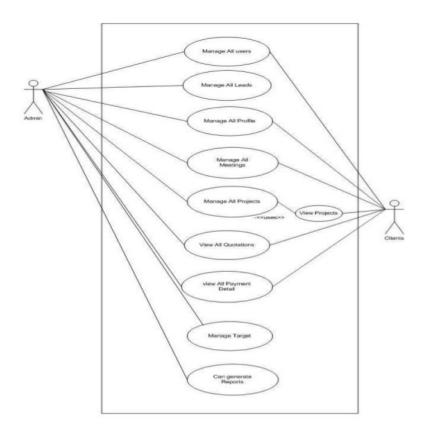


Fig:2.2 Activity Diagram

2.2.2 User Manage

User have right to create a lead, create opportunity, edit lead, edit opportunity, view lead and view opportunity. User can also store the data in the brand profile and contact module.

Users have different roles that are manager, lob-head, IPL-head, Retail-bd, IPL-bd.

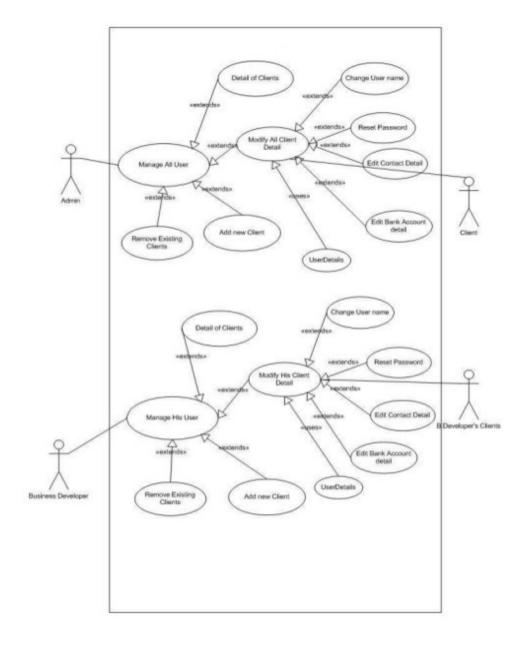


Fig:2.3 Detail Diagram

2.2.3 Lead Manage

In the lead module can manage all client and their lead roles. For example, add lead, update lead, view lead, delete lead, view leads details etc.

In this module BD only have access to view the lead. They have no right to add, edit, delete only have access to view the lead and opportunity.

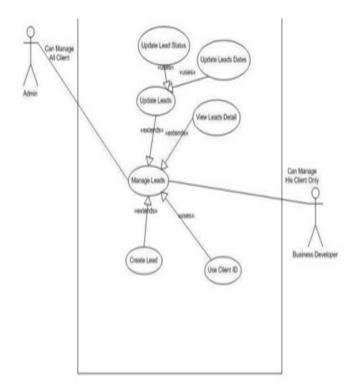


Fig:2.4 Lead Manage Diagram

2.3 Activity Diagram for Lead

DFD

A Data Flow Diagram (DFD) is a structured analysis and design tool that can be used for flowcharting. A DFD is a network that describes the flow of data and the processes that change or transform the data throughout a system. This network is constructed by using a set of symbols that do not imply any physical implementation. It has the purpose of clarifying system requirements and identifying major transformations. So it is the starting point of the design phase that functionally decomposes the requirements specifications down to the lowest level of detail. DFD can be considered to an abstraction of the logic of an information oriented or a process-oriented system flow-chart. For these reasons DFD's are often referred to as logical data flow diagrams.

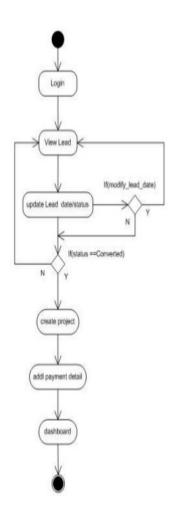


Fig:2.5 Lead Manage Diagram

Chapter-3

System Design

System design is the solution for the creation of a new system. This phase focuses on the detailed implementation of the feasible system. It emphasis on translating design. Specifications to performance specification. System design has two phases of development Logical design Physical design During logical design phase the analyst describes inputs (sources), outputs (destinations), databases (data sores) and procedures (data flows) all in a format that meets the user requirements. The analyst also specifies the needs of the user at a level that virtually determines the information flow in and out of the system and the data resources. Here the logical design is done through data flow diagrams and database design. The physical design is followed by physical design or coding. Physical design produces the working system by defining the design specifications, which specify exactly what the candidate system must do. The programmers write the necessary programs that accept input from the user, perform necessary processing on accepted data and produce the required report on a hard copy or display it on the screen.

3.1 INPUT AND OUTPUT DESIGN

3.1.1 INPUT DESIGN

Input design is the link that ties the information system into the world of its Users. The input design involves determining the inputs, validating the data, minimizing the data entry and provides a multi-user facility. Inaccurate inputs are the most common cause of errors in data processing. Errors entered by the data entry operators can be controlled by input design. The user-originated inputs are converted to a computer-based format in the input design. Input data are collected and organized into groups of similar data. Once identified, the appropriate input media are selected for processing. All the input data are validated and if any data violates any conditions, the user is warned by a message. If the data satisfies all the conditions, it is

transferred to the appropriate tables in the database. In this project the student details are to be entered at the time of registration. A page is designed for this purpose which is user friendly and easy to use. The design is done such that users get appropriate messages when exceptions occur.

3.1.2 OUTPUT DESIGN

Computer output is the most important and direct source of information to the user. Output design is a very important phase since the output needs to be in an efficient manner. Efficient and intelligible output design improves the system relationship with the user and helps in decision making. Allowing the user to view the sample screen is important because the user is the ultimate judge of the quality of output. The output module of this system is the selected notifications.

3.2 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.

3.2.1 FRONT END

Php, Java script, bootstrap, Ajax, jQuery

3.2.2 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 Navi cat was used to design the tables in MySQL.

3.3 Class Diagram-

A class diagram is a type of diagram and part of a unified modelling language (UML) that defines and provides the overview and structure of a system in terms of classes, attributes and methods, and the relationships between different classes.

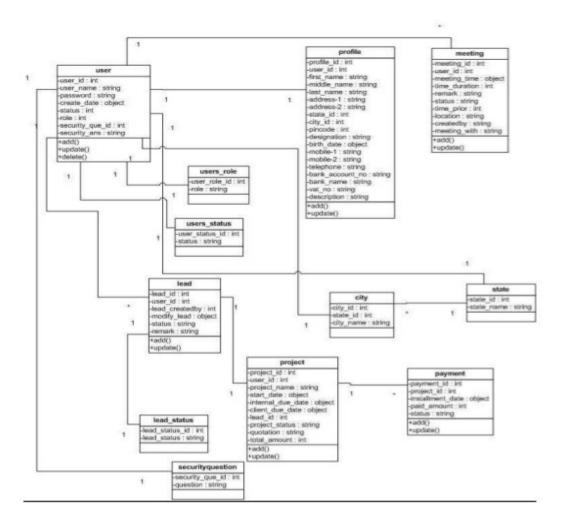


Fig:3.1 Class Diagram

3.4Tables and Sample Data-

Users-

User are created by the admin and admin have right to access view, create, edit, and delete.

User have different department roles like as CEO, LOB BD, IPL BD.

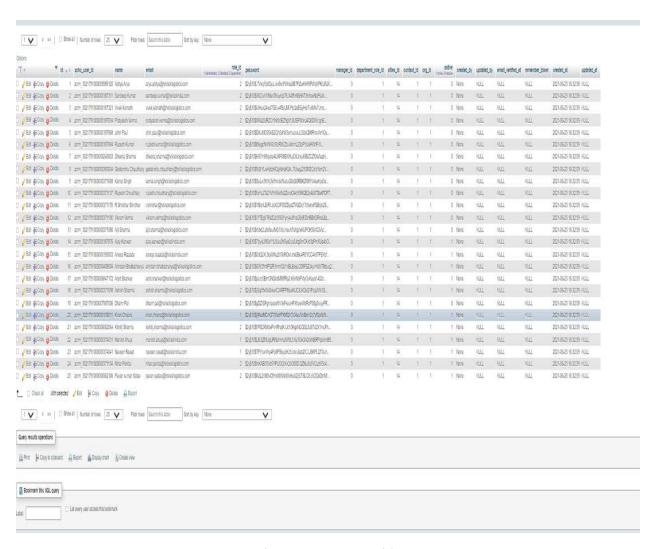


Fig:3.2 User DB Table

Brand Profiles-

In this module brand can created by the admin, manager, LOB Head, IPL head. when leads are created then leads data also store in the brand module. admin, manager, LOB Head, IPL head can have right to add, edit and view but only admin have access to delete the leads and brand data from this module.

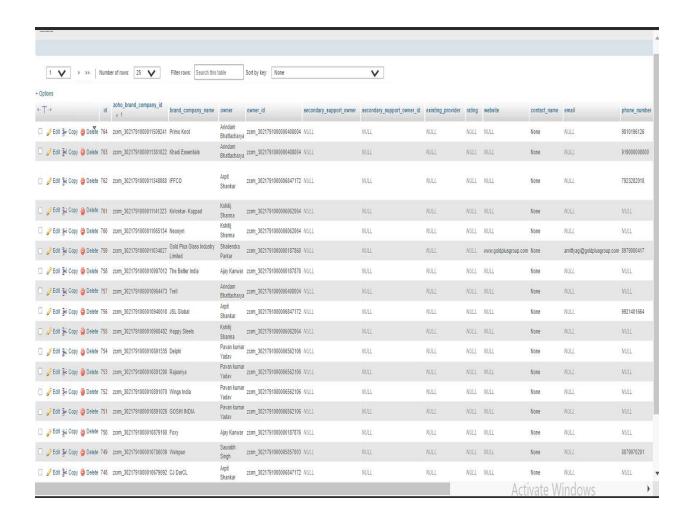


Fig:3.3 Brand profile DB Table

Business Line-

In this module we have communications, Consulting, Freight, Fulfillment Center, HoliTech, LMD, OSCM, ISCM, PAS Engineering. The primary role of the Business Lead is to be the main contact for the customer during implementation; as well as, keeping the project on time and within scope. The Business Lead will work closely with the Implementation Engineer to ensure the success of the Implementation.

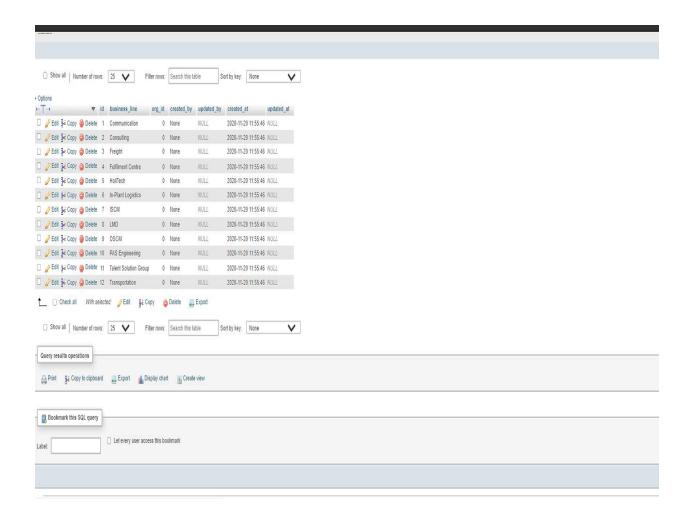


Fig:3.4 Business Line DB Table

Cities-

In this module leads have different cities options when leads are created then we can access the cities modules. Cities are related to specific places likes as Dharamshala, Shimla, Delhi, Kolkata Agra etc.

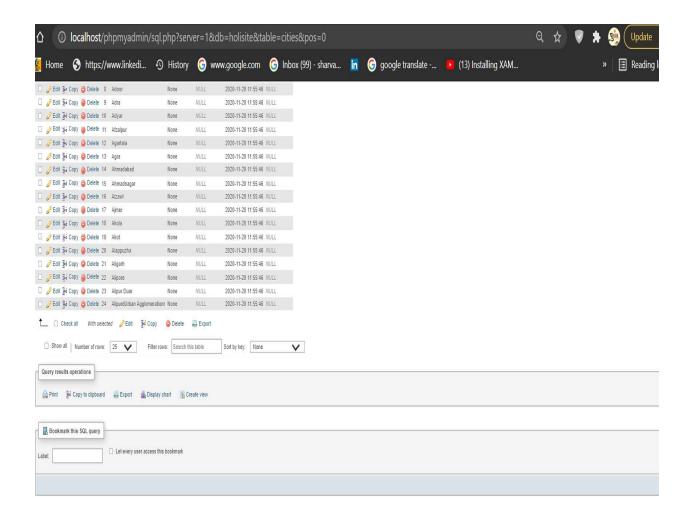


Fig:3.5 Cities DB Table

Contacts-

In this module have user roles and details of the user and leads. Who is created the leads and which roles and department is related to the lead and roles that are define in this module User related details are store here.

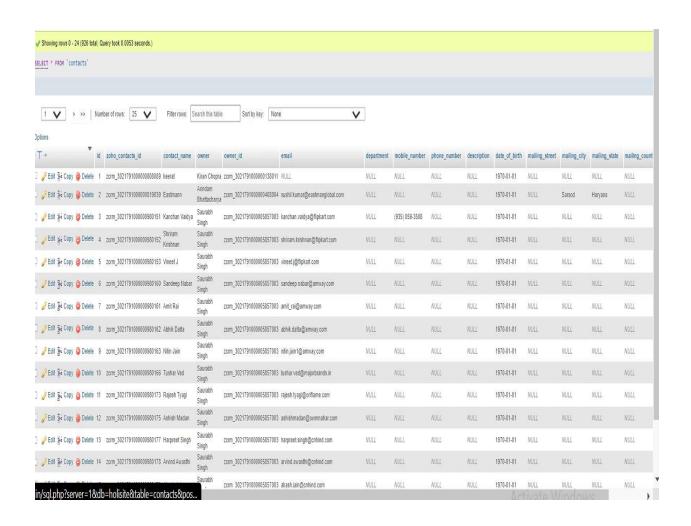


Fig:3.6 Contacts DB Table

Contract Duration-

In this module have store the data for specific duration of time like as One-month, 2 month and so on. In this module have define the duration of data. So that we have benefit for use the data after long period of time.

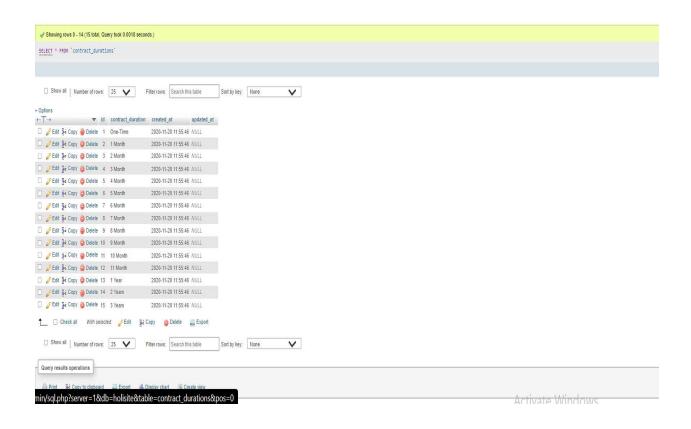


Fig:3.7 Contacts Duration DB Table

Department role-

In this module have various roles that related to the Department. That roles are like as CEO, HoliTech BD Leader, Retail BD leader, PAS BD Leader, Super User And so on. All roles that related to the Department that store under this module. If anyone can try to find the roles related info. That store under this module.

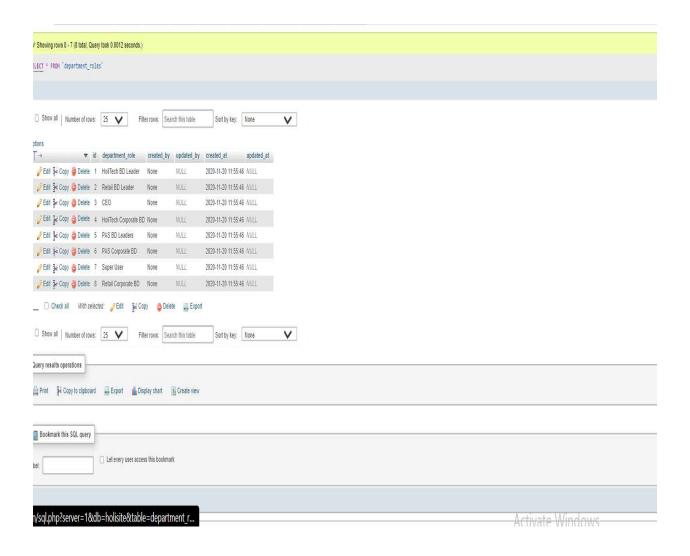


Fig:3.8 Department Roles DB Table

Designations-

In this module have store the data related to designations of the user. User designation are like as Supervisor, Assistant Supervisor, Assistant manager, Assistant manager BD etc. These types of roles are store under this module.

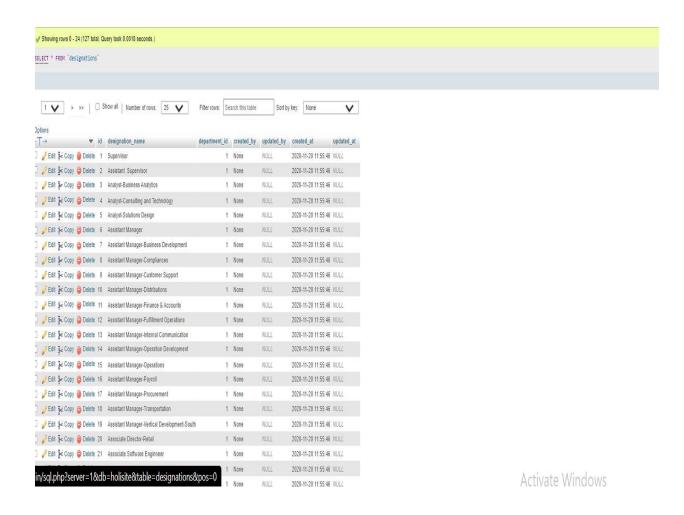


Fig:3.9 Designation DB Table

Industry-

In this module have store the information related to the industry. All industry are define in this modules. Industries like as Automobile, Car Rental, E-Commerce, FMCG, Finance, Food & Beverages, Home Services, Power etc. All are store under this table.

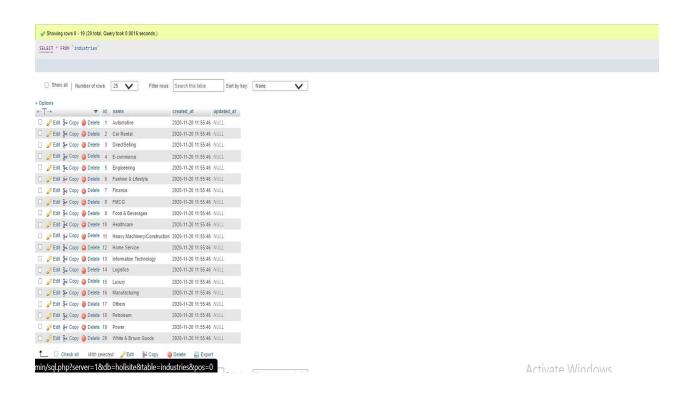


Fig:3.10 Industry DB Table

Leads-

In this module leads data store. Leads is anything it also related to the user details, departments details, also designations details. Leads attributes are Brand company name, contacts name, email, departments, designations. Any things that related to user that are store under this module.

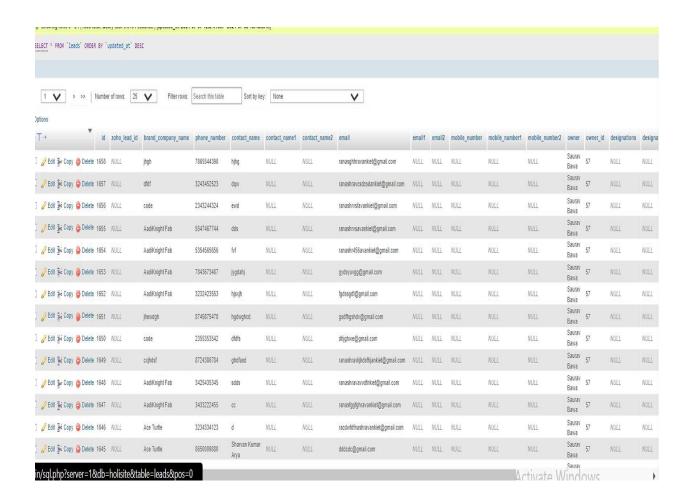


Fig:3.11 Leads DB Table

Lead Source-

In this module store the source of the leads where we can get and finds the leads. Leads are related to the Email marketing, advertisement, Events, And other.

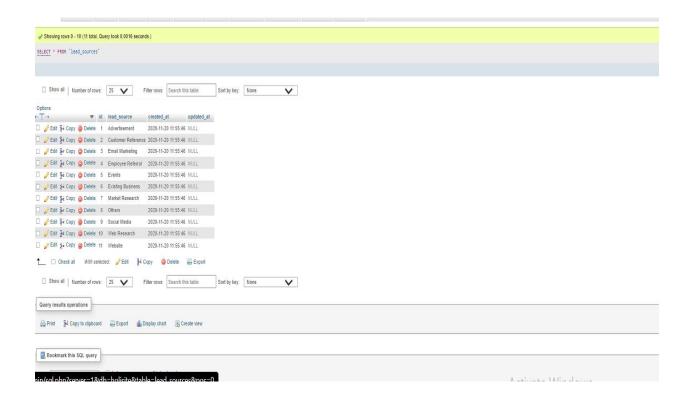


Fig:3.12 Leads Source DB Table

Lob Services-

In this module store of the leads where we can get and finds the leads .we can get leads through DFC.

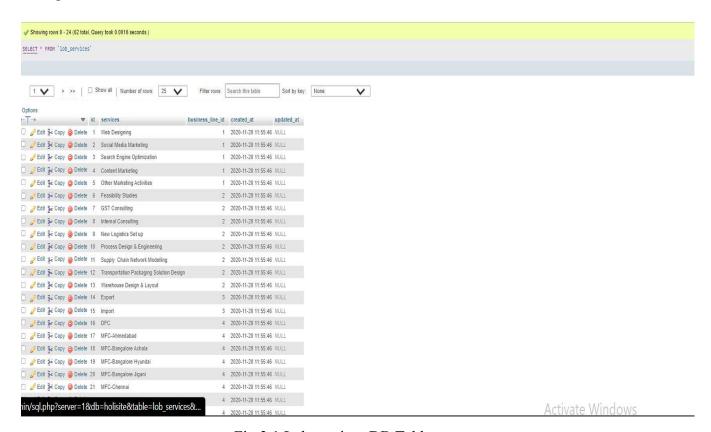


Fig:3.1 Lob services DB Table

Migrations-

In this module we can use all migrate table whose use in the project .in this table all table Migration table department role, leads, opportunity, cities, etc. .

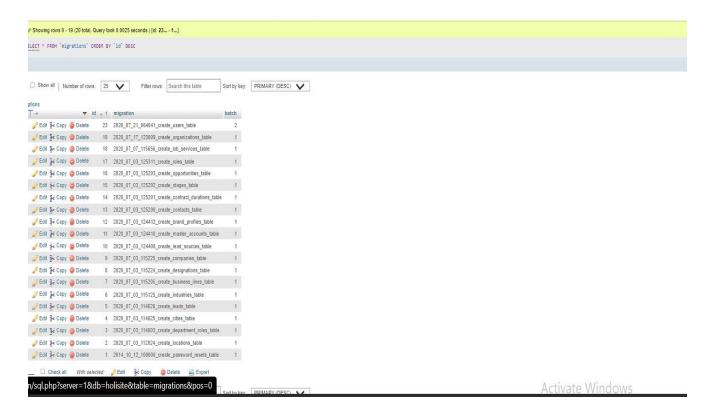


Fig:3.14 migrations DB Table

Opportunity-

in this module we can create opportunity. In this can make direct opportunity or we can create opportunity through leads that has two type existing leads or new customer leads. we can create opportunity through existing customer and new costumer. When we create opportunity through existing costumer or new customer we firstly create leads.

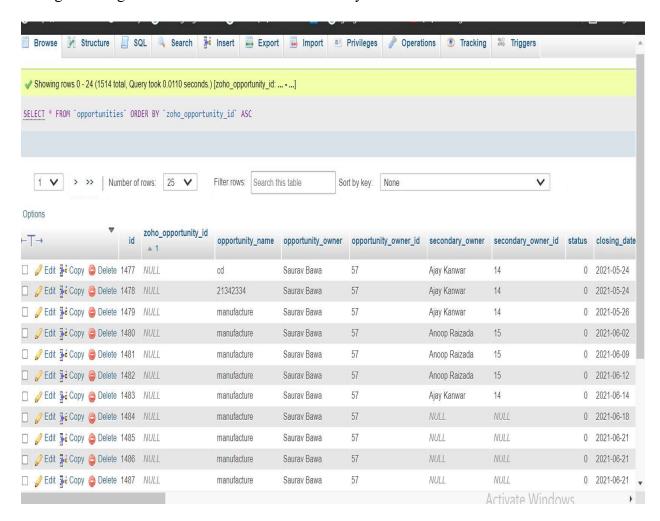


Fig:3.15 Opportunity DB Table

Roles-

In this module we can create different roles that's admin role bd or manager role, lob head role, Ipl head role etc.

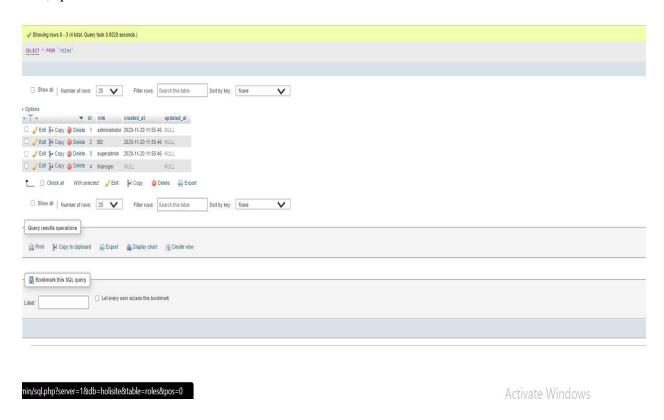


Fig:3.16 Roles DB Table

Stages-

In this module we have different stage that we can store data on the stages based. There are many stages as 10-response,20-qualification opportunity,0-qualification demorant.

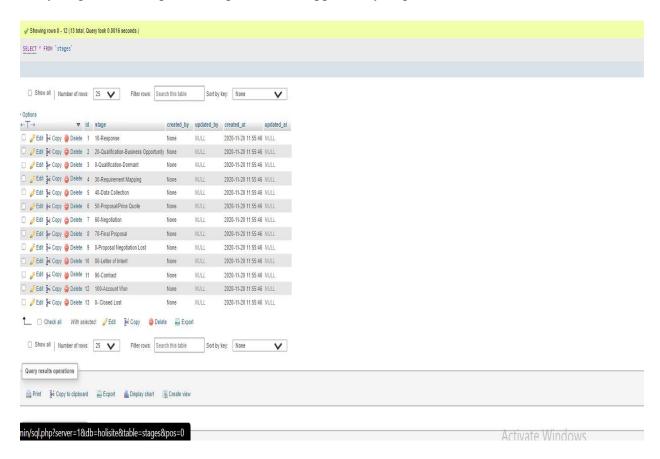


Fig:3.17 Stages DB Table

3.5Screenshots-

Login-

This is login module that can admin, manager, LOB head, IPL head, Retail bd, IPL bd can be login with his credentials.

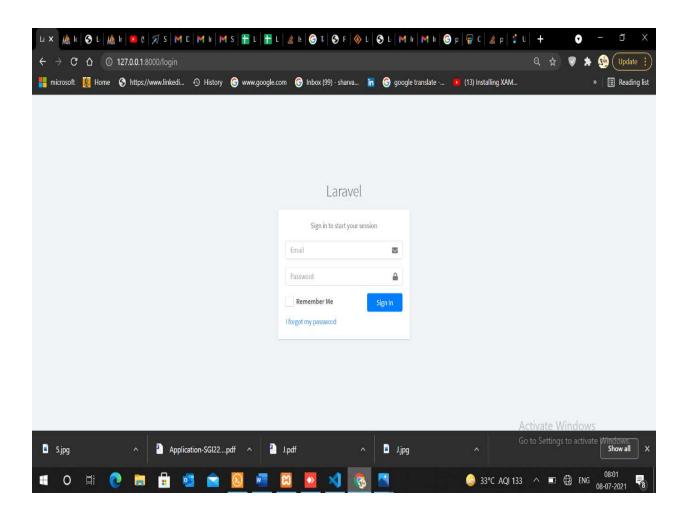


Fig:3.18 Login Module

Home-

Home module we can go any module of the project list. home module we can create lead and we can create opportunity.

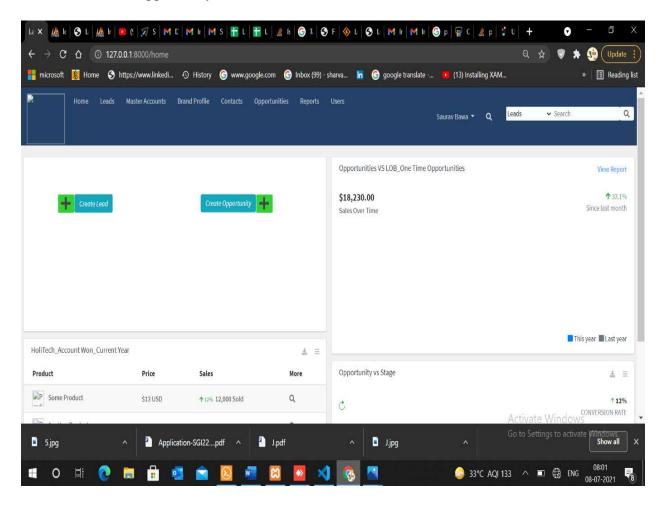


Fig:3.19 Home Module

Create Lead-

Create lead we can create leads two type existing costumer and new costumer. if costumer already exist then we can create lead and new customer can create leads.

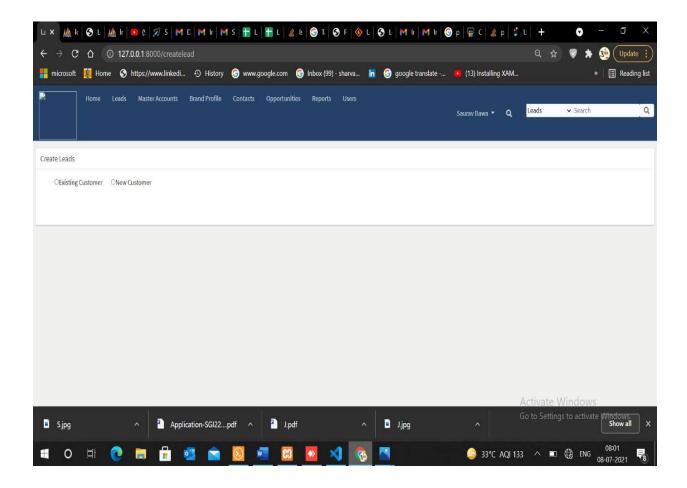


Fig:3.20 create leads

Existing costumer-

In existing costumer he can already have company name and fill this form and create leads.

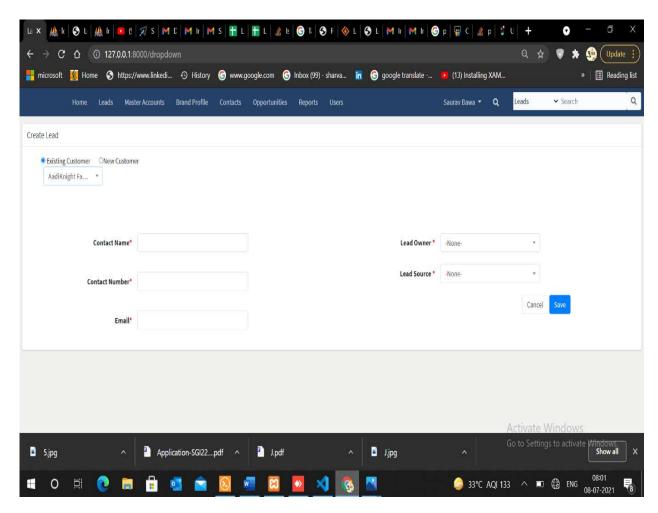


Fig:3.21 existing costumer

New Costumer-

In new customer we can fill the form that have company name, contact owner, contact number, email, lead owner, industry, lead source and create the leads.

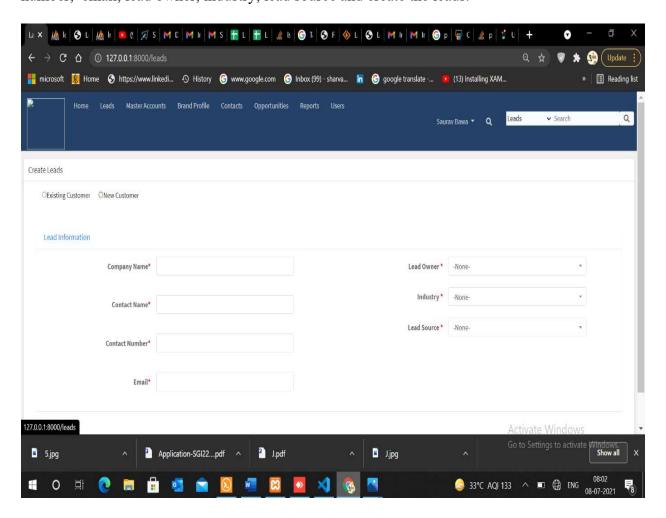


Fig:3.22 new costumer

Create Opportunity-

We create opportunity directly or through leads. When we create directly or through leads then we can fill this form that have company name lob, opportunity name, monthly revenue or etc. then we create opportunity.

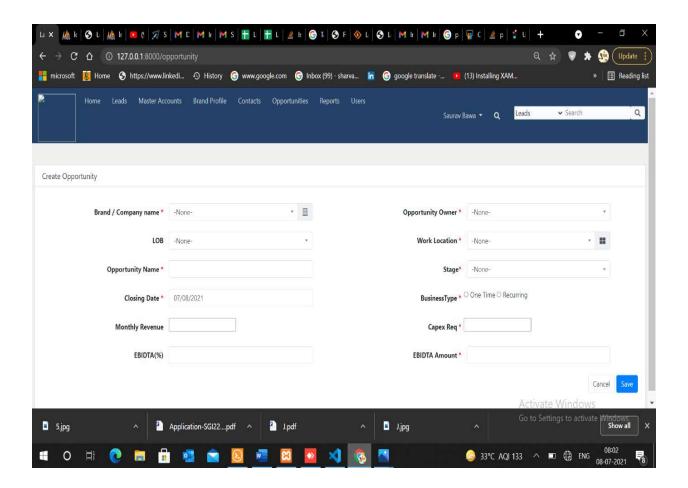


Fig:3.23 create opportunity

Lead Records-

When we save leads then leads have list of those leads that we can save. We can download these leads or import, export the leads.

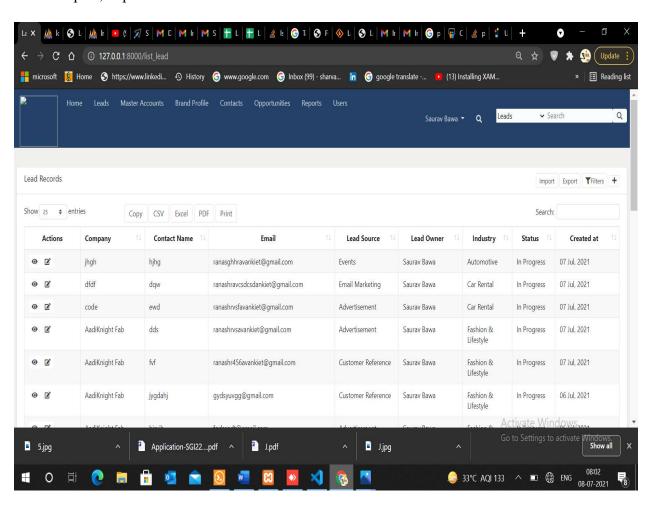


Fig:3.24 list leads

Brand Profile Records-

In brand profile then we can save leads the leads will reach the brand profile and we get list of brand profiles.

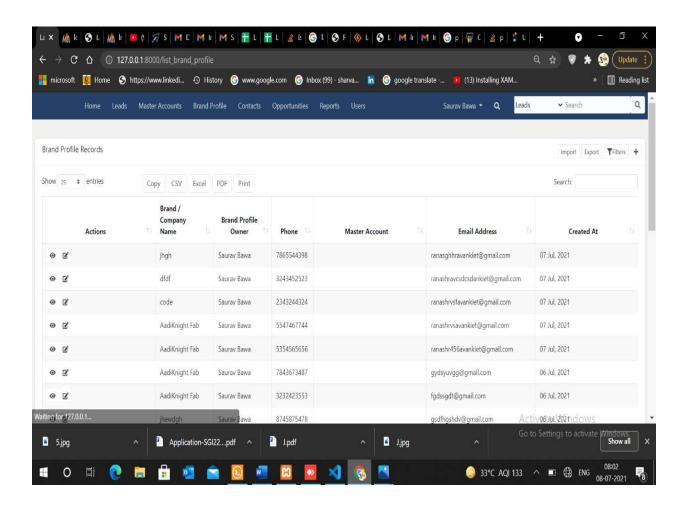


Fig:3.25 list brand profile

Contact Record-

When we create leads then the leads save on contact and can get the list of contact.

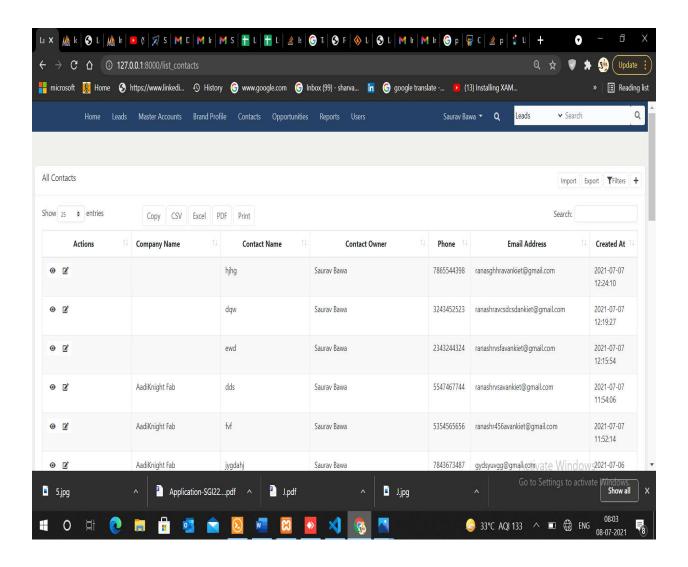


Fig:3.26 list contact

Opportunity Records-

When we create opportunity directly or through leads the opportunity will save on the opportunity list. Then we can get the list of the opportunity.

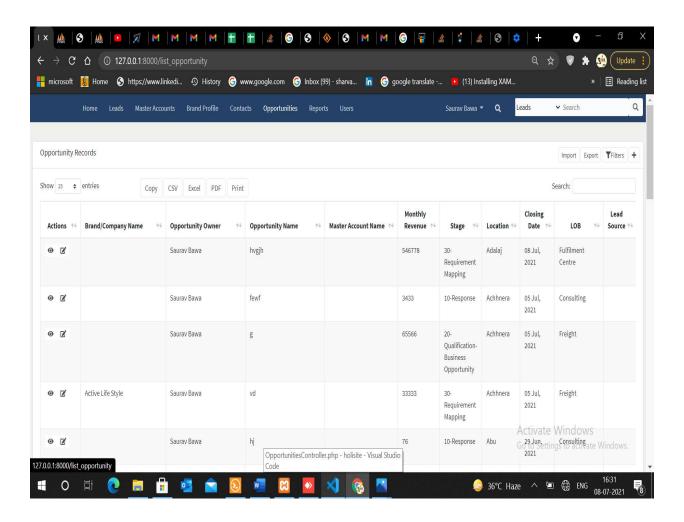


Fig:3.27 list opportunity

Admin Module-

Home-

Home module we can go any module of the project list. home module we can create lead and we can create opportunity.

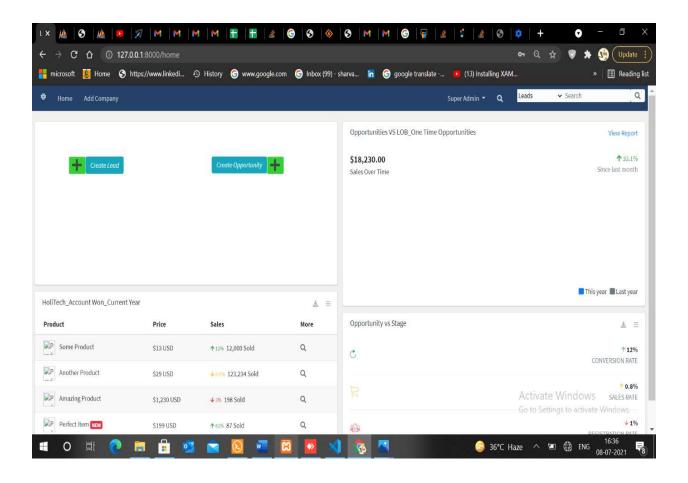


Fig:3.28 home

User Record-

User record that can create by only admin and edit, delete, view only can admin

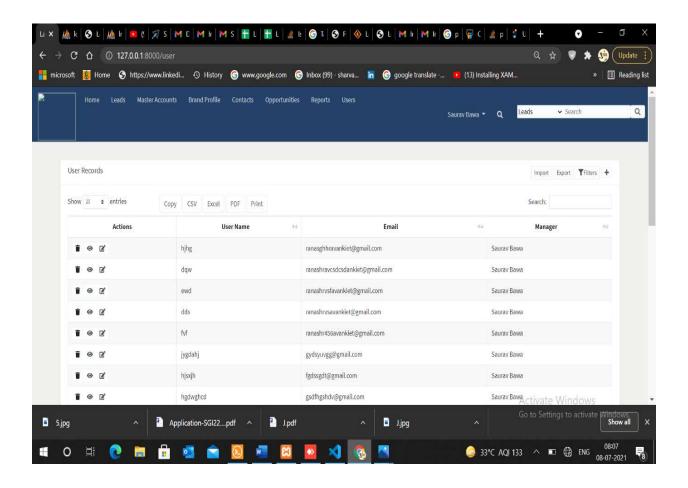


Fig:3.29 list user

Add Company-

Only admin can add the new company or edit delete the company.

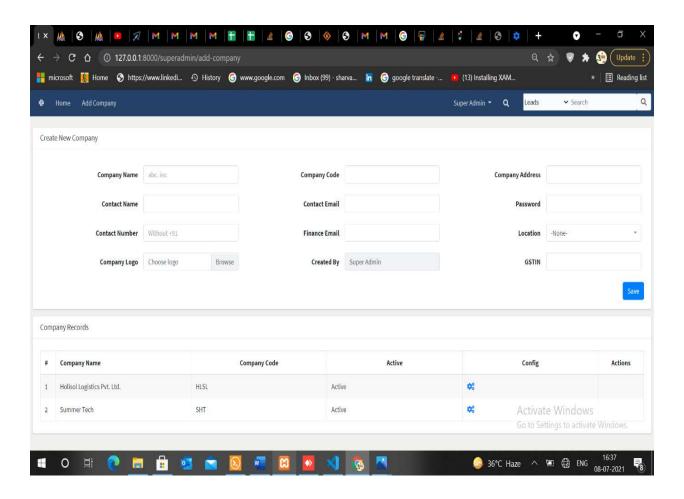
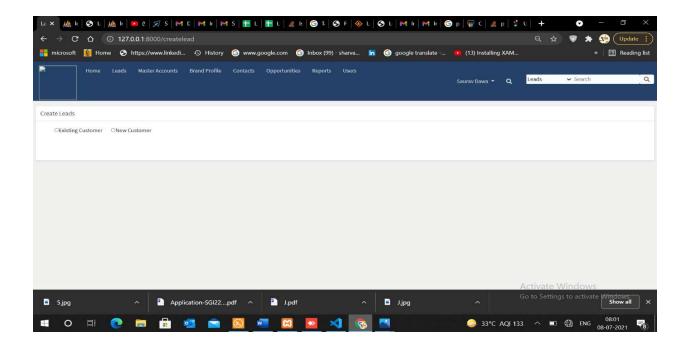


Fig:3.30 add company

Existing Costumer-

In existing costumer he can already have company name and fill this form and create leads.



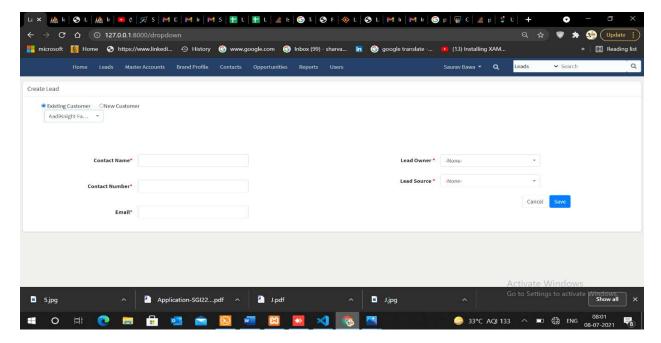


Fig:3.31 existing costumer

New Costumer-

In new customer we can fill the form that have company name, contact owner, contact number, email, lead owner, industry, lead source and create the leads.

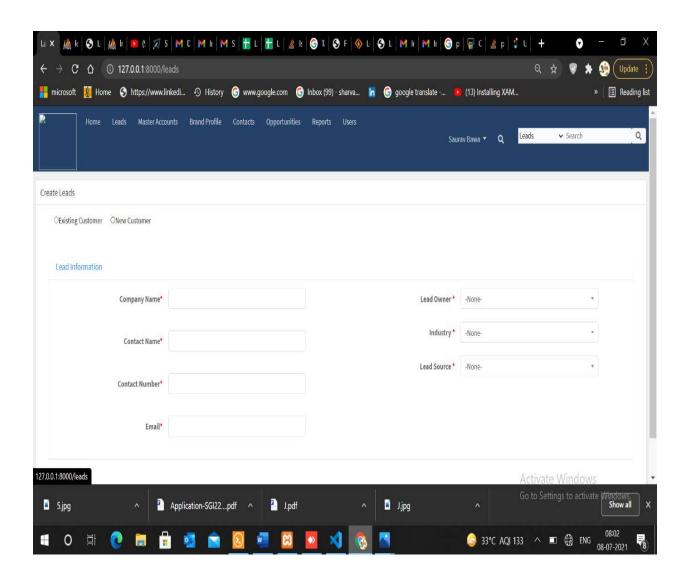


Fig:3.32 New costumer

Create Opportunity-

We create opportunity directly or through leads. When we create directly or through leads then we can fill this form that have company name lob, opportunity name, monthly revenue or etc. then we create opportunity.

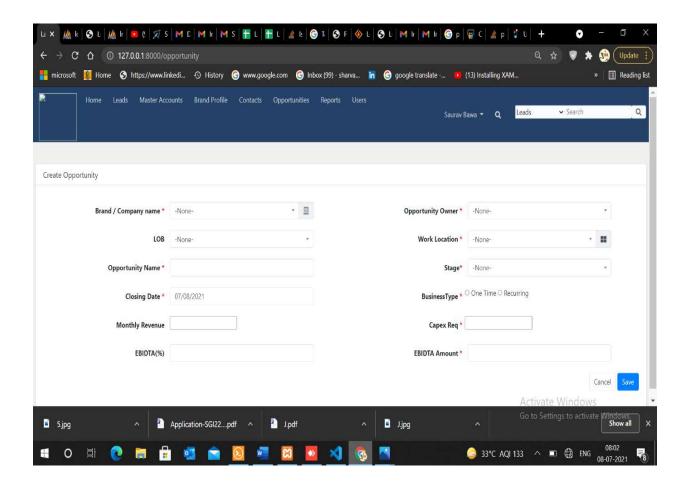


Fig:3.32 New opportunity

Lead Records-

When we save leads then leads have list of those leads that we can save. We can download these leads or import, export the leads.

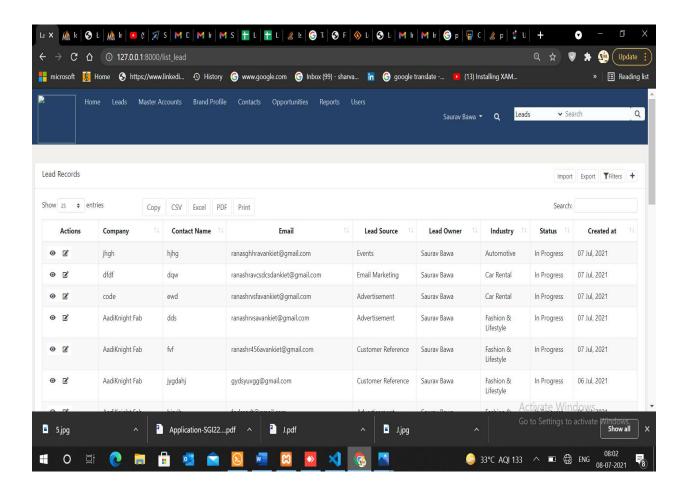


Fig:3.32 list leads

Opportunity Records-

When we create opportunity directly or through leads the opportunity will save on the opportunity list. Then we can get the list of the opportunity.

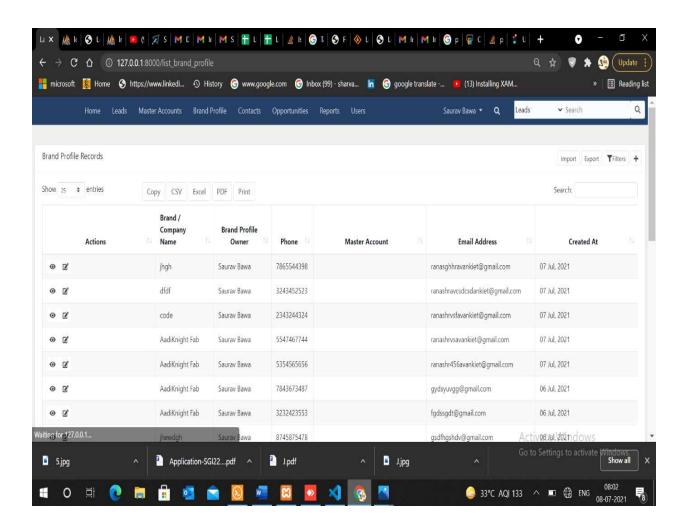


Fig:3.33 list opportunity

CHAPTER-4

LITERATURE REVIEW

Along with the development of technology, many web developers use the framework to simplify the development process. If using pure PHP, the process of development will take a long time. Framework technology continues to evolve, from the full stack model, until the MVC (Model View Controller) model that is now popular. Each framework is implementing a design pattern that is different. While each design pattern if implemented, have advantages and disadvantages of each. Some existing framework has a complex pattern design. Whereas the complexity of the design, not always comparable to the performance. Some of the files are included in a PHP script execution. To overcome this, we used a simple design pattern, namely Singleton and namespace or package in Java. This research resulted in a lightweight PHP framework, with a Singleton design pattern, namespace, AJAX, and multiple databases.[1]

This paper introduced a lightweight Model-View-Controller-liked (MVC-like) format of PHP programming that combined the traditional PHP programming format with the MVC architecture of PHP and set the advantages of both to optimize the programming of PHP. The idea to realize the lightweight MVC-liked format of PHP is adjustment based on the traditional PHP programming format which was added in the MVC architecture. And through using the abstracted simple document of classes to fulfill the corresponding model, view and controller function, this new format achieved combination of class package and function package with the subject. All the algorithms proposed in this paper were tested and verified to be feasible. Besides, the analysis and judgment of this new format's prospect was done in the end.[2]

Hypertext Preprocessor (PHP) web application frameworks have become significantly popular in web development, by providing built-in libraries which could help developers to write codes without writing them from scratch. Because of their popularities, most developers are required to have solid knowledge on using the available frameworks. To create a dynamic and real-time web application, most of the developers use Ajax technology due to what it is capable of. However, most of the existing PHP frameworks do not have built-in Ajax libraries where users need to implement their own Ajax request. Therefore, in this paper, we develop a new PHP web application development framework based on the Model View Controller (MVC) architectural pattern and Ajax technology. The framework itself implements Ajax technology with its built-in library. After conducting this research, we concluded that the new PHP web application framework could be used as a web application development tool to help users to create a dynamic and real-time web application.[3]

This paper proposes a jQuery-based Ajax general interactive architecture under the research and summary of lots of Ajax application examples. This architecture designs and implements a general Ajax standard interactive model which comparing to traditional process, can effectively conceal the complex Ajax handling mechanism, swiftly realize the Ajax process and reduce the work of exploration.[4]

CSS is a widely used language for describing the presentation semantics of HTML elements on the web. The language has a number of characteristics, such as inheritance and cascading order, which makes maintaining CSS code a challenging task for web developers. As a result, it is common for unused rules to be accumulated over time. Despite these challenges, CSS analysis has not received much attention from the research community. We propose an automated technique to support styling code maintenance, which (1) analyzes the runtime relationship between the CSS rules and DOM elements of a given web application (2) detects unmatched and ineffective selectors, overridden declaration properties, and undefined class values. Our technique, implemented in an open-source tool called Cilla, has a high precision and recall rate. The results of our case study, conducted on fifteen open source and industrial web-based systems, show an average of 60% unused CSS selectors in deployed applications, which points to the ubiquity of the problem.[5]

HTML is a widely used markup language to make up innumerable web pages. Parallelization of a HTML parser would lead to consequential performance improvement and a better user experience. However, parallelizing the HTML parser is challenging because of a strong cyclic dependence in the parser model. In this paper, we propose a semantic-based HTML parallel parser design that splits the input HTML document by a 'div' tag and processes the independent partial inputs with multiple parser threads. We evaluated the proposed HTML parallel parser with the benchmarks selected from top 500 web pages and achieved a maximum speedup of 1.49x.[6]

MySQL uses unencrypted connections between client and server by default. The authentication procedure of MySQL server checks three scopes: client name/IP address, username, and password. The server stores privilege information in the grant tables of the MySQL database. The MySQL server reads the contents of these tables into memory when it starts. Access control decisions are based on the in-memory copies of the grant tables. MySQL provides functions to encrypt and decrypt data values. DES functions allow encryption using the Triple-DES algorithm.[7]

To prevent data loss and damage in MySQL database for a variety of causes, to ensure the normal and efficient operation of information systems and websites based on MySQL databases, this paper takes China Agricultural University website as an example, to explore how to develop reasonable backup and recovery strategies to build a highly available and highly reliable MySQL database backup and recovery system. Based on MySQL master-slave replication technology, this system implements real-time synchronization of data and automatic switching between master and slave database servers, which ensures the high availability of database when master database fails, meanwhile, by using logical backup technology which combines full backup with incremental backup, this system achieves full recovery of data to ensure the high reliability of database when data misuse occurs.[8]

With the rapid development of e-commerce business, a more reliable and extensible database cluster architecture is needed in almost all e-commerce systems. For a distributed-system, Persona extra DB Cluster provides consistency and availability. MySQL Replication provides availability and partitioning tolerance. In an e-commerce system, we need consistency, availability, partitioning tolerance in different scenarios. The contributions of this paper are a new design of a proper architecture to satisfy CAP in different aspects in an e-commerce business, why this architecture is appropriate. Finally, we implemented a system called MEC based on this architecture.[9]

Laravel authentication provides convenience to implement website authentication. Website authentication is a gate for users to access website's information. The authentication process in Laravel's framework is vulnerable toward security's problem such as dictionary attack and brute force attack. Optimization is needed to overcome this problem. This research aims to optimize Laravel authentication process in order to able overcome both dictionary attack and brute force attack. Optimization is done by customizing Laravel's authentication module using object-oriented approach and RUP as a one of software development method. Object oriented approach is performed to define all methods composing authentication module. RUP methodology itself is used to define each method functionality, architecture and finally this method is implemented to customize each method. The final result of this research is Laravel authentication process formed that able to prevent both dictionary attack and brute force attack.[10]

The digital platform can manage the documents effectively, because it can help us to organize, query, and update the documents. Also, we can query the documents on different mobile terminal devices with the help of the network. However, some documents have complex data structure, such as the Bible. In the Bible, each chapter has its own characteristic. The topic of each chapter in the Bible is introduced in its first sentence or its first paragraph. Therefore, it is necessary to use modern digital platform to organize complex data structure in the Bible. Then, this paper designs and develops a new system. This system is based on the Laravel framework with MVC design pattern. The data components of this system are divided into three parts: Model Layer, View Layer, and Controller Layer. The feature includes the architecture of interactive software

system and the technology of Laravel routing engine. The result of experiment shows that the system has an excellent processing ability of complex data structure. By using the Laravel framework, both the time of development and flow of design can be reduced efficiently.[11]

In the modern era, as technologies are getting advance, the work related to them are also getting advance. Today's business is totally dependent on the internet and to run a business we need the help of the internet so that it can grow at bulkier expanse. Everyday humongous amount of data and personal information has been transmitted and retrieved. With the brisk development of internet technology in contemporary years, online business is gradually rampant. Web users are very demanding, and they foresee web services to be easily and quickly accessible from other places around the world all the time, whenever they need it. Web users always need quick and rapid responses. With the broadening trend of the internet, it turns out to be an essential part of our life. Website development is a process that takes time and if done by the basic language it takes more time which is not compatible with this fast and developing world of technologies. So to overcome these problems related to web development frameworks are developed. Frameworks are used so that we can create websites conveniently. This paper generalizes the concept of ecommerce website with a framework. What parameters we have to look upon so that we can prepare a website without any Hassel. This research paper also concludes what advantages did Laravel had on other frameworks, and how it is different to work on Framework. Electronic commerce as the name suggests electronic means through digital instruments or through the World Wide Web and commerce suggest the business so it combined means business through the World Wide Web which is on gravitate. LARAVEL is a free open-source PHP framework. Frameworks are on go, as there is no need to write whole code [12]

JavaScript has become a popular programming language. It is widely used in both client-side and server-side programming in web applications. The robustness and performance of JavaScript programs become vital. Unfortunately, real-world JavaScript programs often suffer from various issues. In this work, we present nine issue patterns derived from open-source projects and propose a general static analysis framework, JS Optimizer, to help detect such patterns of issues and optimize the code accordingly. Comparing to existing work, JS Optimizer is not only highly extensible but also performs code optimizations automatically. We applied JS Optimizer to seven real open-source JavaScript projects and five bugs detected by it have been confirmed by developers. Besides, we conducted a case study based on a popular project and found that addressing the issues detected by our framework can speed up the original project by over 300%. This shows the usefulness of JS Optimizer.[13]

Web browsing is one of the most important applications for personalized consumer electronics devices such as smartphones and tablets. It is common usage pattern on these devices for a user to visit a relatively small set of websites repeatedly, which dominates the total browsing time. Exploiting this, modern web browsers cache downloaded resources in local disks such as HTML/JavaScript files and image files. While saving network bandwidth, resource caching does not eliminate redundant computation for processing these files. This paper presents an efficient inmemory code cache to improve

the performance of interactive, dynamic webpages written in JavaScript. Evaluated on a production-grade JavaScript engine with JS Bench, which record-and-replays five real-world websites, the proposed technique reduces both JavaScript compilation time and execution time by 57.9% and 30.9% on an embedded platform running at 2.3 GHz with 2GB RAM.[14]

The world is moving towards Web. People are more connected now. Web Services are acting the core component for Web 2.0 and related technologies. jQuery is the new industry standard that has redefined ways of client-side programming. Programmers writing multiple lines of code in JavaScript, now can really unleash the power of jQuery with few lines of code. Also, they can make use of Ajax calls and JSON support in invoking of web services. jQuery is now acting as an industry standard as big top IT companies are supporting jQuery in their product(s). jQuery also helps in removing biggest problem of multiple page post backs through client-side scripting.

Through this any web developer can use the Ajax based update of the page which can partially update the page asynchronously without any post back. This will help in reducing the number of calls to the server and ultimately improving the bandwidth.[15]

References

- Sa'adah, U., Akhmad, J., & Hisyam, M. (2015, September). Implementing Singleton method in design of MVC-based PHP framework. In 2015 International Electronics Symposium (IES) (pp. 212-217). IEEE.
- Wang, G. (2011, May). Application of lightweight MVC-like structure in PHP. In 2011 International Conference on Business Management and Electronic Information (Vol. 2, pp. 74-77). IEEE.
- Adam, S. I., & Andolo, S. (2019, August). A new PHP web application development framework based on MVC architectural pattern and ajax technology. In 2019 1st International Conference on Cybernetics and Intelligent System (ICORIS) (Vol. 1, pp. 45-50). IEEE.
- 4. Li, J., & Peng, C. (2012, June). jQuery-based Ajax general interactive architecture. In 2012 IEEE International Conference on Computer Science and Automation Engineering (pp. 304-306). IEEE.
- 5. Mesbah, A., & Mirshokraie, S. (2012, June). Automated analysis of CSS rules to support style maintenance. In 2012 34th International Conference on Software Engineering (ICSE) (pp. 408-418). IEEE.
- 6. Lee, J., Na, Y., & Kim, S. W. (2016, January). Design of HTML parallel parser with semantic-based input splitting. In 2016 International Conference on Electronics, Information, and Communications (ICEIC) (pp. 1-4). IEEE.
- 7. Zoratti, I. (2006, June). MYSQL security best practices. In 2006 IET Conference on Crime and Security (pp. 183-198). IET.
- 8. Ping, Y., Hong-Wei, H., & Nan, Z. (2014, June). Design and implementation of a MySQL database backup and recovery system. In Proceeding of the 11th World Congress on Intelligent Control and Automation (pp. 5410-5415). IEEE.

- Xiang, K. (2014, December). An improvement in MySQL cluster in e-commerce scenarios. In Proceedings of 2nd International Conference on Information Technology and Electronic Commerce (pp. 286-289). IEEE.
- Sendiang, M., Kasenda, S., Polii, A., & Putung, Y. R. (2018, October). Optimizing Laravel Authentication Process. In 2018 International Conference on Applied Science and Technology (iCAST) (pp. 247-251). IEEE.
- 11. Hsieh, C. H., Li, C., Wang, Z., & Ke, C. H. (2020, September). Development of Laravel Digital Platform Based on MVC Design Pattern for Complicated Data Structure-Take the Bible for Example. In 2020 IEEE 3rd International Conference on Information Communication and Signal Processing (ICICSP) (pp. 475-480). IEEE.
- 12. Yadav, N., Rajpoot, D. S., & Dhakad, S. K. (2019, November). Laravel: a php framework for e-commerce website. In 2019 Fifth International Conference on Image Information Processing (ICIIP) (pp. 503-508). IEEE.
- 13. Liu, Y. (2019, May). JSOptimizer: an extensible framework for JavaScript program optimization. In 2019 IEEE/ACM 41st International Conference on Software Engineering: Companion Proceedings (ICSE-Companion) (pp. 168-170). IEEE.
- 14. Heo, J., Woo, S., Jang, H., Yang, K., & Lee, J. W. (2016, October). Improving JavaScript performance via efficient in-memory bytecode caching. In 2016 IEEE International Conference on Consumer Electronics-Asia (ICCE-Asia) (pp. 1-4). IEEE.
- 15. Dhand, R. (2012, September). Reducing web page post backs through jquery ajax call in a trust based framework. In 2012 International Conference on Computing Sciences (pp. 217-219). IEEE.