K.E. Society's

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Rajarambapu Institute of   Technology, Rajaramnagar.

A

Report of Self Learning on

"Expenses Management Web-app"

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Under the guidance of

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DEPARTMENT OF COMPUTER SCIENCE AND

ENGINEERING

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CERTIFICATE

This is to certify that Project entitled

"Expenses Management Web-app"

has been successfully submitted by

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In Partial fulfillment of the requirement for **Self Learning Project** of **Third Year** Computer Science and Engineering for academic year 2019-2020 –Semester-I.

Prof. G. G. Shingan   **Dr. N. V. Dharwadkar**

 Course In charge   **Head CSE**

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We thank everyone who helped us in some other way regarding our project work.

Date:-

Place: -Sakharale

- Project Group

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emp: Employee

DB: Database

NOMENCLATURE:

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ABSTRACT

In the medium scale firms, multiple types of expenses exist and employee expense management is one of the key solutions for it. To solve this problem, we designed

this web-app for such firms. We are implementing it for "Kiran Construction and Trading Company". New technological advancements are coming into the market daily, and to get acquainted with firebase cloud firestore, we choose this project.

CHAPTER 1 INTRODUCTION

1.1 Introduction:

When it comes to expense management in this technologically developed world, apps and web-apps are used on high scale in the companies. So we thought if we could build such a solution for any firm/company, it can. Because of the easy availability and accessibility of the Internet, the World Wide Web (WWW) is becoming one of the cheap and easy platform for use.

Most of the construction companies have their construction sites at various locations, and their employees working for the sites. When employees pay the money for material, travelling, personal, food etc. then they have difficulty in keeping track of their daily expenses. This system is very useful since various companies are spreading everywhere so it is beneficial to keep track of expenses by employees.

1.2 Problem Statement:

Expense Management Web-app for Construction Company.

1.3 Scope:

Online Expense Tracker System is a system which will keep track of expenses of employees in construction companies. This System take input expense and type from employee and add it to the database. Online expense tracking System will show the history of daily expenses. In this era various construction companies need this types of online expense tracker system which helps the owner to take action by keeping an eye on expenses. In this project we are going to implement real time system that will keep track of expense of employee.

These web-app help the company to move forward quickly, fulfill their vision and accomplish their goals, E-way. Nowadays, keep track of expenses is a need of every owner because of increasing frauds in the constructions. It needs to be checked by owner.

Online expense tracker system is to fulfill the needs of owner/manager. Owner need a system which will keep track of their daily expenses. So owner can analyses the expenses of different types of constructions and take corrective actions on it. System will help the owner to notify about their expenses. So further actions will be taken. There are various online tracker projects available in the market, but we analysis the requirements of owner and designed a feasible system for that. We designed a system where employees in

the company can add their entries about daily expenses in vouchers. So manager can see all details about construction types and he can verify their uploaded details. So it can be added in voucher history. This is a brief introduction about our project.

1.4   Objectives:
- To design web-app.
- To solve problem of daily expense tracking.
- To provide easy, secure, time efficient and user friendly application for company owner, and employees related with Kiran Construction and Trading Company.

1.5   Methodology/Nature/Problem solving approach:

When we started to search the topics we came across many topics, but we were unable to come across the topic which we can start off.

Before getting this project we searched for various stakeholders and trying to understand their problems.

1. Potdar Arts, Islampur.
2. Creative Vision Studio, Islampur.
3. Kiran Construction and Trading Company, Kalamb.

We reached at Potdar Arts, Islampur and get their problem of billing system. We studied their problem and taken a literature survey through web. We found that similar applications are already present and used by various retailers.

Then we visited Creative Vision Studios. It is design studio for song editing and video editing. They need project management software for design projects and client and deadline details.

Then we moved to the problem of Kiran Construction and Trading Company, discussed their problem via voice call. We came on the conclusion that this is new to the company and our web-app idea will be helpful for their company.

1. Name of Company Organization: Kiran Construction Pvt. Ltd.
2. Address of Company: Market Yard, Kalamb, Tal-Kalamb, 413507.

3. Name of Owner: Mr. Balwant Tambare

4. Contact number of Owner: 9657495858

5. Email ID: kiranconstruction01@gmail.com

Kiran Construction and Trading Company is one of the most renowned construction business firms. It is situated in Kalamb, Maharashtra. It has project specialization in Mobile Towers, Road Construction and 33-11 kv electrical plants.

In existing system, employees and owners have to insert daily expense related data. Company owner and manager write all the information into a register. When the employee arrives for reporting expenses, manager will make entry into register.

Then this expense note submitted to manager. This takes a lot of time. After submitting the note, then expense adding start. It also takes more time. Many times they mistakes in adding and reporting as well as all the expense must be submitted into dairy within working hours. This is not possible many times because of some inconvenience. As well as if the expense may not be removed cause wastage of papers.

When expense is made by the manager of company don't get report immediately. It may be inconvenient for report generation. To overcome this we will develop one web-app for employee for immediate reporting of expense.

So the Company has some paper loss in this system. They wasted their time as well as money on this system. So they need a new system which is more effective as well as time and money consuming.

CHAPTER 2: REQUIREMENTS SPECIFICATION AND ANALYSIS

2.1 Functional requirements definitions:

1. Company Owner: is the owner of Kiran Construction and Trading Company.
2. Employee: Working staff of the company.

3. Voucher: The expense added by an employee at that time of working.

Employee:

1. Login
2. Add voucher
3. Load previous voucher with type of construction, cost, and type of expense.

Admin:

1. Login
2. Master Registration of employee
3. Master data entry
4. User management

Software Requirements:

- Technologies used:
  - Firebase Cloud Database
  - Cloud Firestore Database
  - Firebase Hosting
  - Firebase Analysis
  - Sublime Text 3 Editor
- Operating Environment/Supported Browsers:
  - IE 11
  - Mozilla Firefox
  - Chrome
  - And all the modern browsers.
- Front End/ UI Design:
  - HTML
  - CSS
- Backend / Server Side Languages:
  - Jquery
  - JavaScript
- Server Side Technology

o Firebase

2.2 Non-functional Requirements:

Performance Requirements:

- Web-app accessed remotely by employees.
- Web-app must pass web-app instruction to database and database setup must return response to web-app.
- Web-app module must insert and retrieve to and from database server side system.
- Firebase security rules will handle authentication.
- Firebase firestone is used to effectively access database.

Safety and Security Requirements:

Safety requirements Web-app:

- All web pages should be safely worked according to commands received from the user.
- Firebase security rules is used to access web-app and with providing authentication.
- Google and login with email and password is provided.

Security levels provided for the web server module:

- Accurate connections are made between web-app and database.
- Web-app send data to database which is created with firebase retrieve data securely.

Software Quality Attributes

- Reliability: All web pages of the web-app should perform its required functions under stated conditions for any period of time.
- Maintainability: The system should have prevent unexpected breakdowns, meet new requirements, correct defects or their cause.
- Availability: System should be available to user whenever required.
- Portability: The system should have the ability to cope with a changed environment and to run on multiple platforms.

CHAPTER 3 SYSTEM ARCHITECTURE AND DESIGN

3.1System Architectural Design:

Users

data transfer

Firebase cloud database
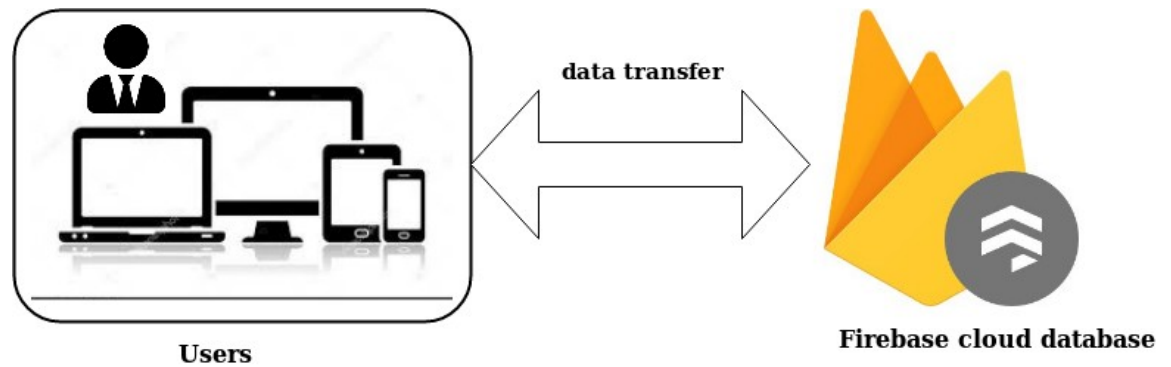
3.2: Use Case Design Model:

Users of system:

Actors   **:** Employee, Database, Admin

Human   : Employee, Admin
Non-human : Database
Primary   : Employee
Secondary   : Admin, Database
Active   : Employee
Passive   : Web page, database

      Employee going to use essential use cases. Employee needs support of system to complete daily tracking tasks. System admin responsible for system administration. External system is database which going to store system data and employee related information.
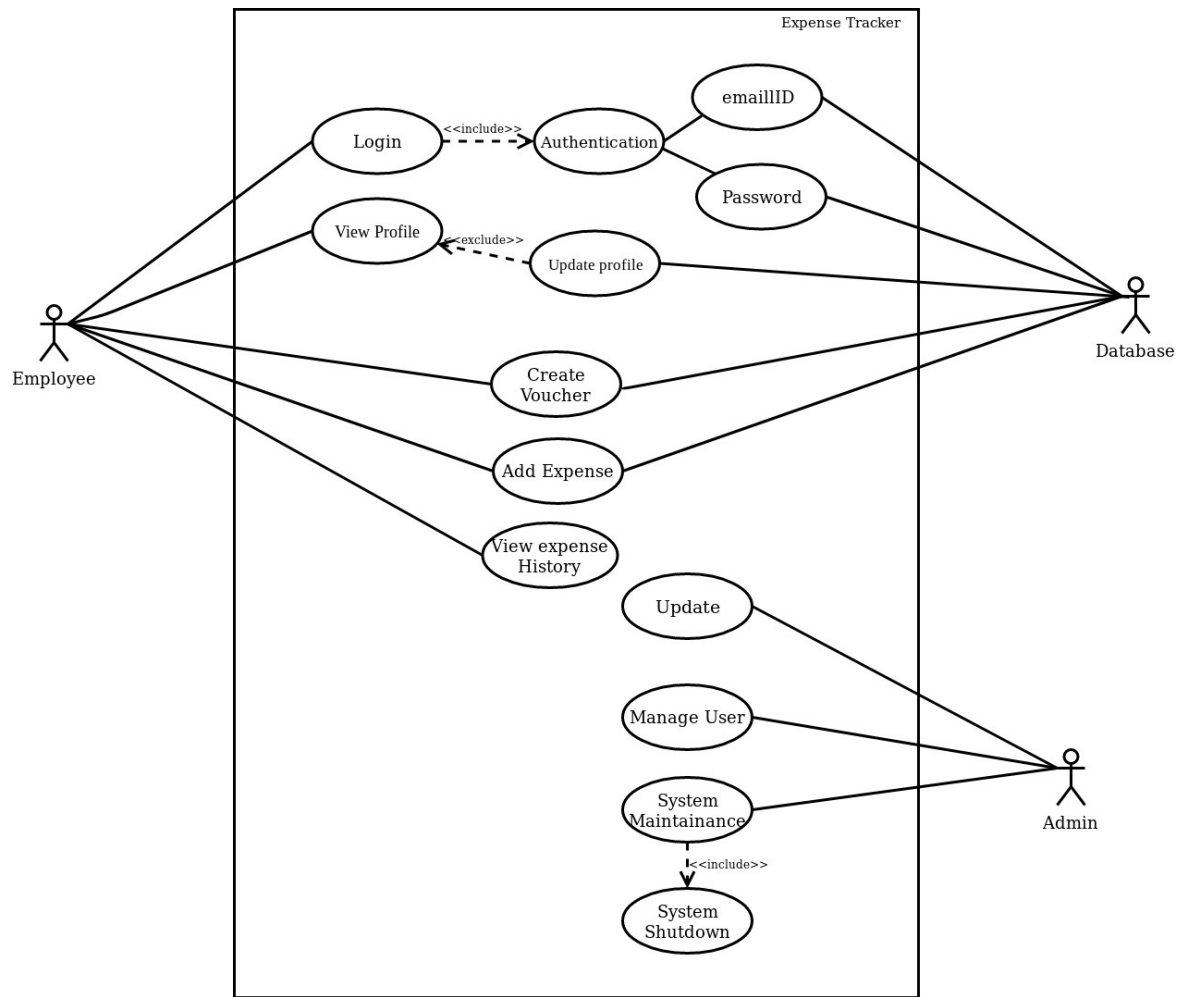
3.3: Design of system:
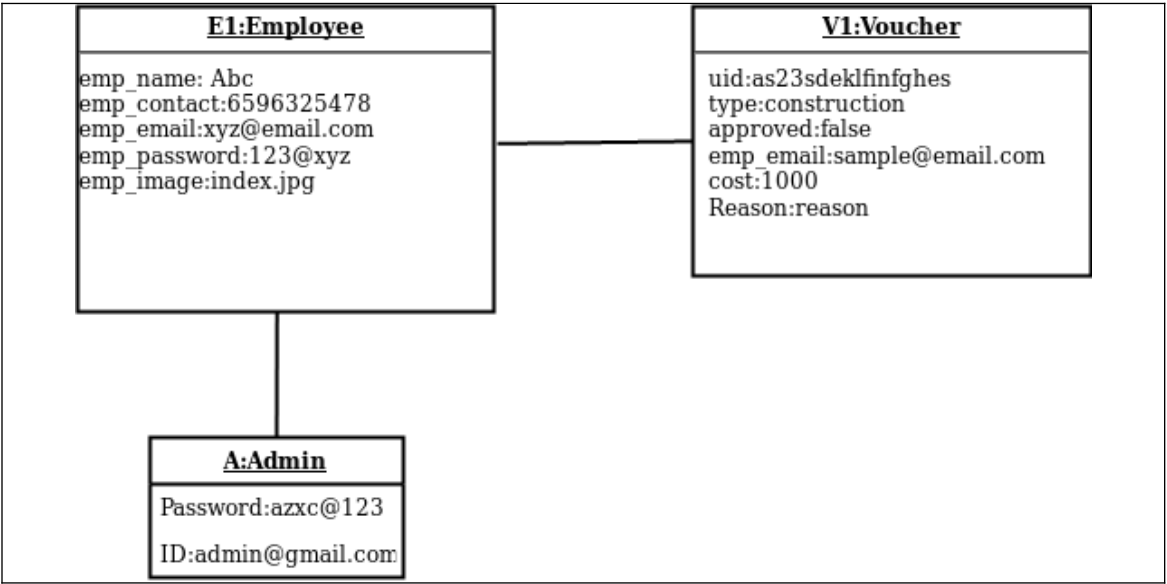
Class Diagram:

A construction company wants to manage the expense of their work through Expense management web-app.

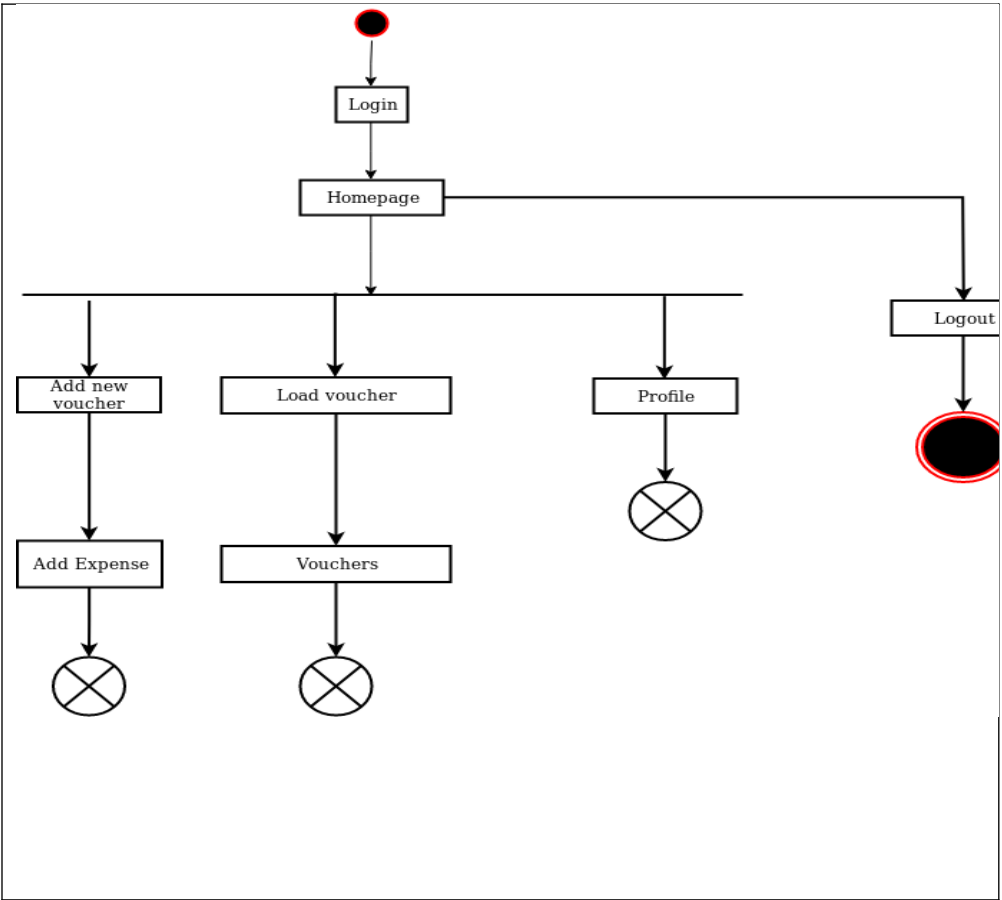**Employees:** Employees who works as an individual contributor.

- Admin is going to handle all system
- Employee can perform following tasks

    •Login

    •Voucher

- One employee can add many vouchers..
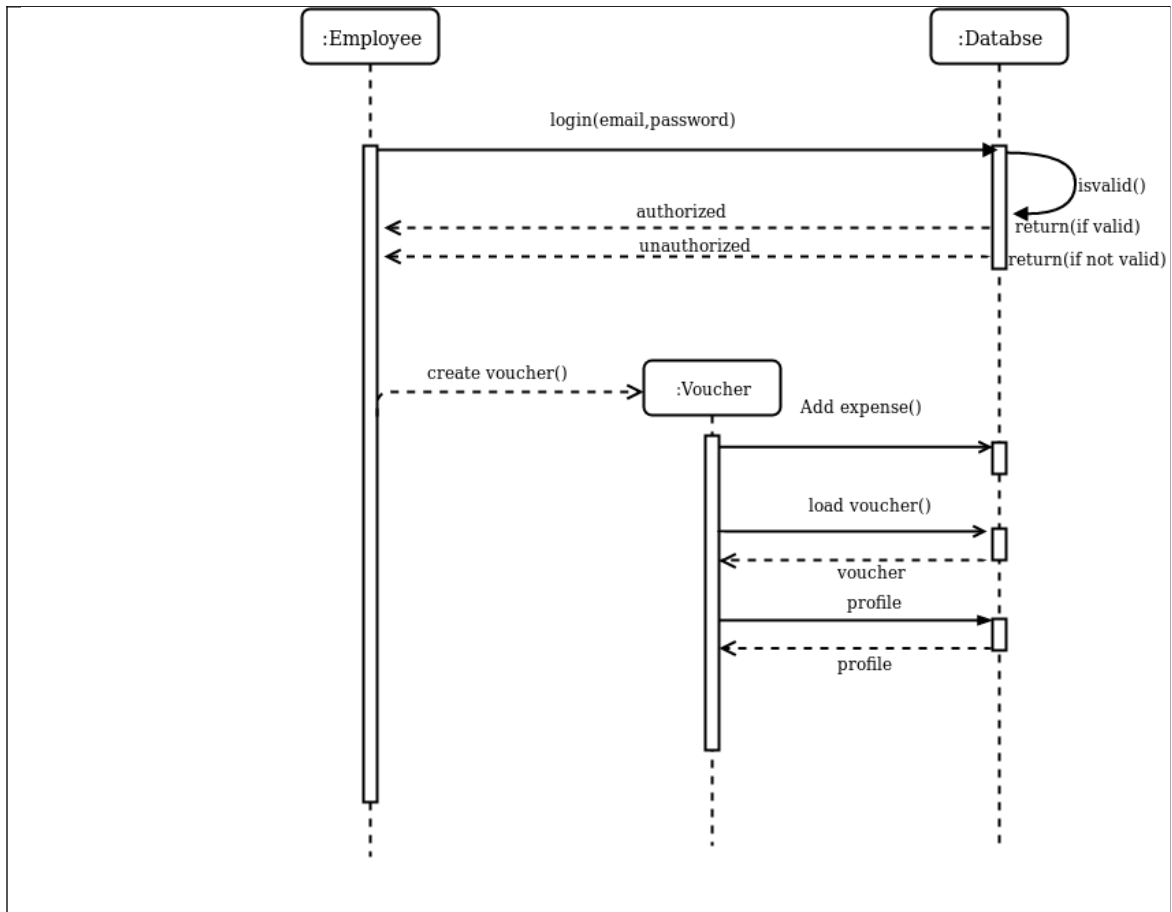- Each voucher have at least one employee

Object Diagram:

E1:Employee
emp_name: Abc
emp_contact:6596325478
emp_email:xyz@email.com
emp_password:123@xyz
emp_image:index.jpg

V1:Voucher
uid:as23sdeklfinfghes
type:construction
approved:false
emp_email:sample@email.com
cost:1000
Reason:reason

A:Admin
Password:azxc@123
ID:admin@gmail.com

Activity Diagram:

Login → Homepage

Homepage branches to:
- Add new voucher → Add Expense
- Load voucher → Vouchers
- Profile
- Logout
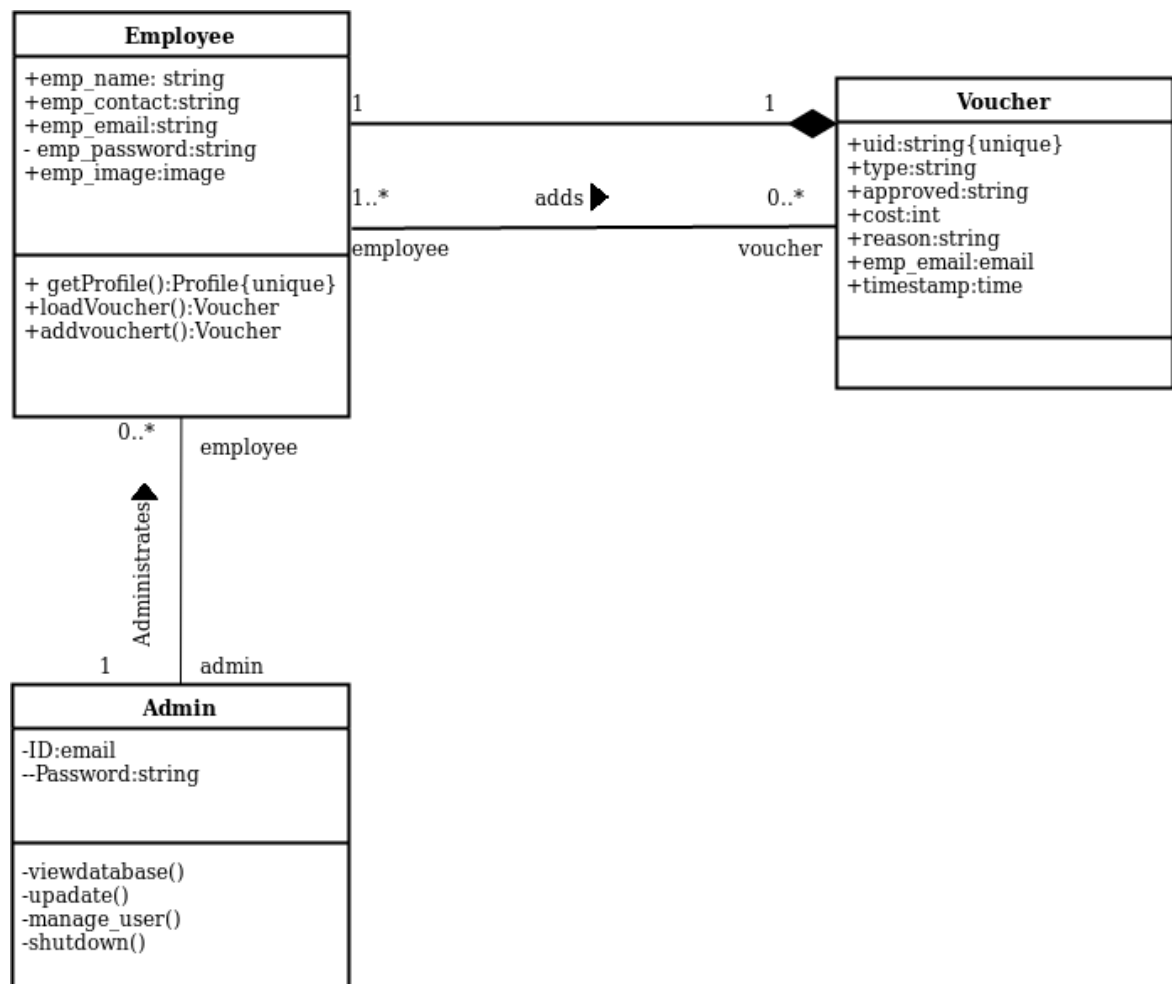
Sequence Diagram:

CHAPTER 4 IMPLEMENTATION DETAILS

Firebase is Google's mobile platform that helps you quickly develop high-quality apps and grow your business. Firebase provides a real-time database and backend as a service. The service provides application developers an API that allows application data to be synchronized across clients and stored on Firebase's cloud.

Real-time syncing makes it easy for your users to access their data from any device, be it web or mobile. Firebase is a good and reliable option to build an appIt can be run on various platform. System made up of various languages used. We build a system with html, JavaScript, css for developing the user interface of web-app at front end and at the backend we use JavaScript, jquery for database connectivity .we build database with NoSQL not with MySQL.

MySQL being a relational database is less flexible with its design constraint whereas NoSQL being non-relational in nature, provides a more flexible design as compared to MySQL. MySQL is being used with a standard query language called SQL whereas NoSQL like databases misses a standard query language.

According to Purdy, for ad hoc queries, joins, updates, relational databases tend to be faster than "NoSQL type databases" for most use cases that's why we choose faster NoSQL database.

SNAPSHOT OF HOME PAGE

On the first page we see the name of the construction company that is Kiran Construction Company and options for employee listing below

1. Sign in: Employee must be signed into the system.
2. Projects
3. About: Information about company and address and area covered by company.
4. Contact: E-mail and phone number of developer.

Kiran Construction and Trading Company

Projects

Kiran Construction and Trading Company   Sign In   Projects   About   Contact

Road construction

Apartment

Electrical

Trading
CONSTRUCTION MATERIALS
ELECTRICAL EQUIPMENTS
TILES

About

Kiran Construction and Trading Company is one of the most renowned construction buisness firm. It is situated in Kalamb, Maharashtra. It has project specialition in Mobile Towers, Road Construction and 33-11 kv elctrical plants.
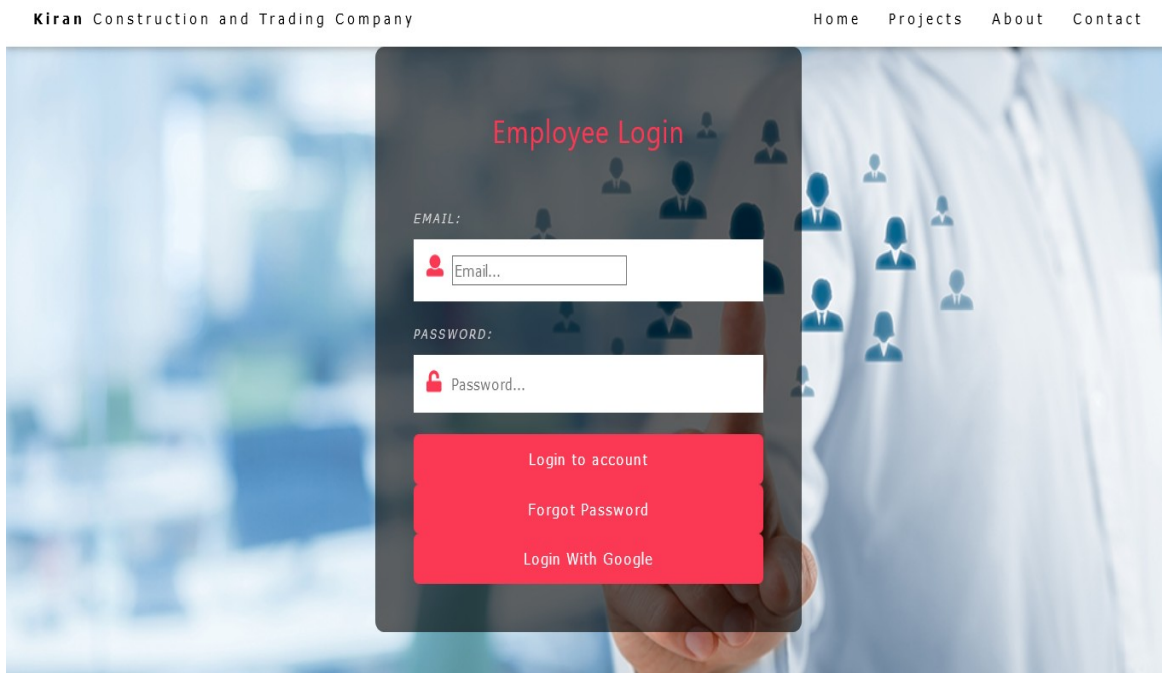
Contact

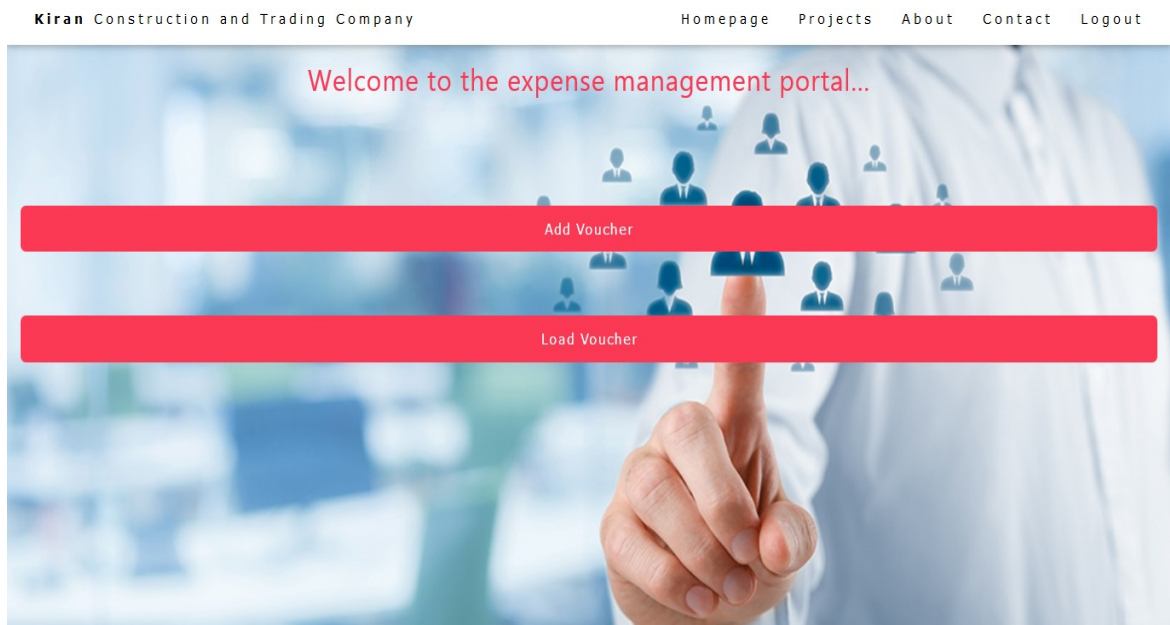Lets get in touch and talk about your next project.

Whatsapp Number: 7057001690

Email: sanket.tambare@pm.me

SNAPSHOT OF SIGN IN PAGE:

Employee Login

EMAIL:

Email...

PASSWORD:

Password...

Login to account

Forgot Password

Login With Google

SNAPSHOT OF AFTER SIGN IN PAGE

Welcome to the expense management portal...

Add Voucher

Load Voucher

SNAPSHOT OF ADD VOUCHER:

Kiran Construction and Trading Company   Homepage   Projects   About   Contact   Logout

Now, let's try to enter the first voucher

Cost:
1457
Expenditure Type: construction
Reason: Personal

Submit Details...

Load Voucher Details

Go back to Homepage

SNAPSHOT OF LOAD VOUCHER

Kiran Construction and Trading Company   Homepage   Projects   About   Contact   Logout

Voucher List

Cost	Emp_email	Reason	Type
1457	chaitanyataware10@gmail.com	Personal	construction
1000	chaitanyataware10@gmail.com	elctrical maintenance	electrical
10005	chaitanyataware10@gmail.com	Personal	miscellenous
1001	chaitanyataware10@gmail.com	Personal	construction
10000	chaitanyataware10@gmail.com	Personal	construction

CHAPTER 5 SOFTWARE TESTING:

Verification and validation:

We are now on testing the web-app. we tested the web-app on various browser on desktop or mobile. It run successfully on mobiles and desktop.

First page is homepage on that we show construction types, contact and about sections. This show on the web-app. Then important phase is login. Each employee have login into the system and we test one login id and password for that. its login successfully.

Then we move toward the adding voucher. Simply click on add voucher and then we added details of expenses and types of construction and cost of the voucher and give a reason for that after that submitting the details. We go on new page where vouchers of that employee is shown successfully by web-app. Each voucher generated by itself and cost and all the voucher history.

We go back to the load details of voucher and we loaded the voucher history by load voucher details option. Then performed all the activities and we go next means end of the system. We logged out web-app successfully.

We tested the software and verify all the conditions. Validate and verify all functions performed by employee.

Test cases:

Adding voucher Details:

Database Updates:

Unit testing and integrated testing:
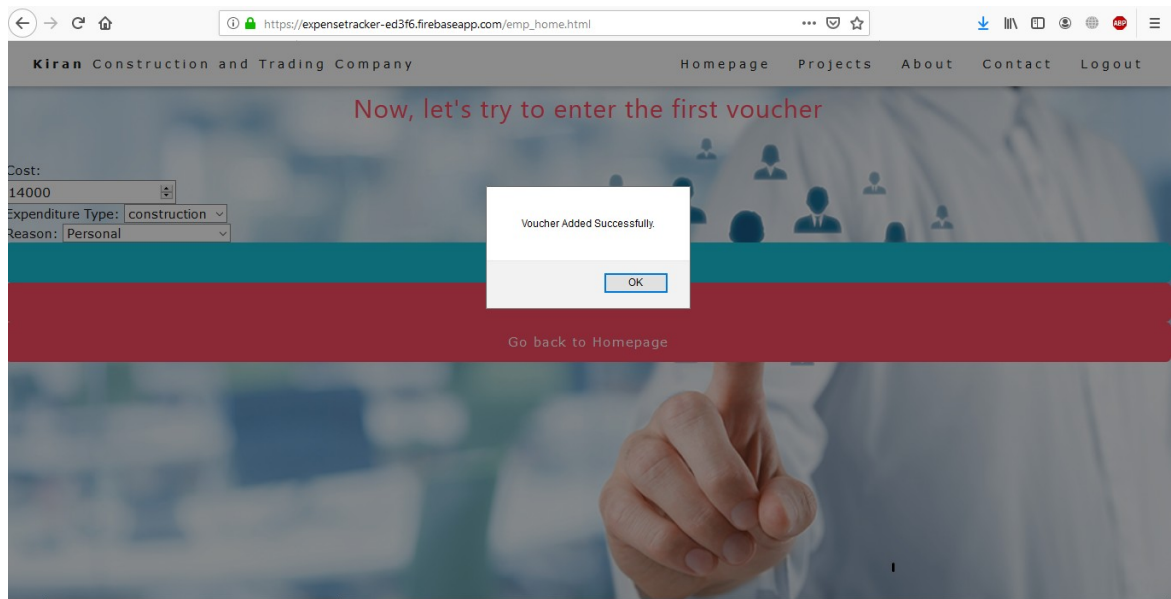
CHAPTER 6 PRODUCT DELIVERY AND FEEDBACK

**Link to Web-app: expensetracker-ed3f6.firebaseapp.com/**

FEEDBACK FORM

Criteria	Scale			
	Excellent	Good	Fair	Poor
Project has been successful, and driven desired business results			✓	
Clients expectations and requirements were understood and effectively implemented		✓		
How much user friendly modules are?		✓		
Project information was communicated in a timely and effective manner		✓		
Project execution was effective, based upon established best practices, processes and tools			✓	
Overall rating for the success of the project		✓		

Remark:

- Online cloud database used so real-time data is synched and project is cost-effective.

- Effective communication regarding the requirement and implementation of project.
- This will definitely reduce the paperwork.

CHAPTER 7 MAINTENANCE
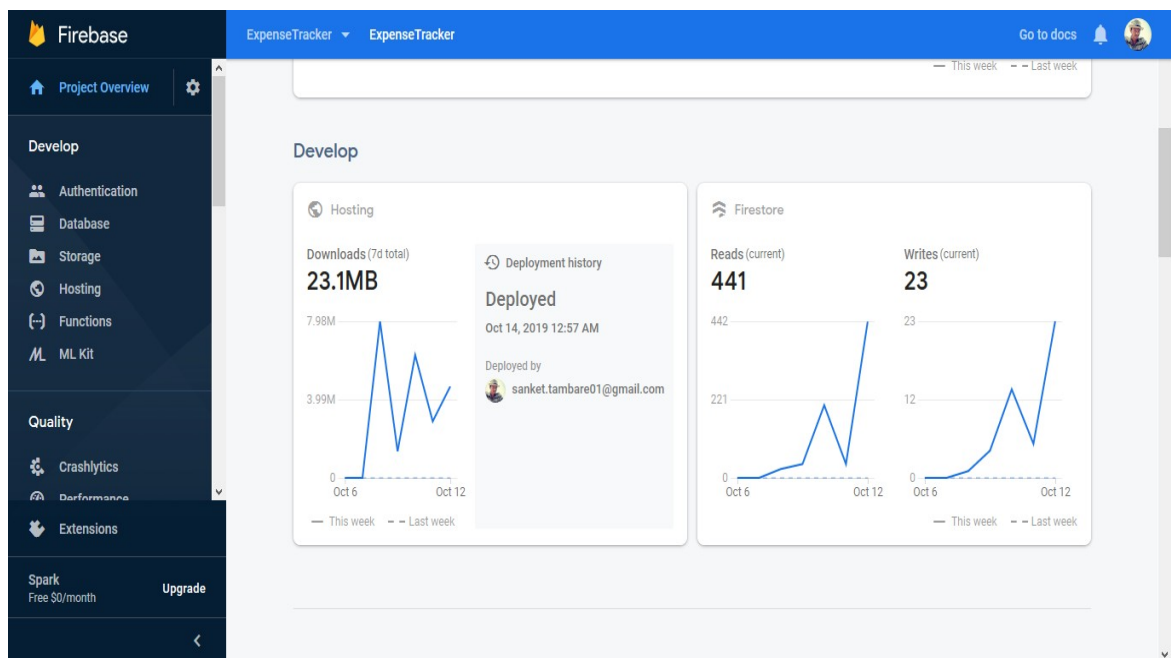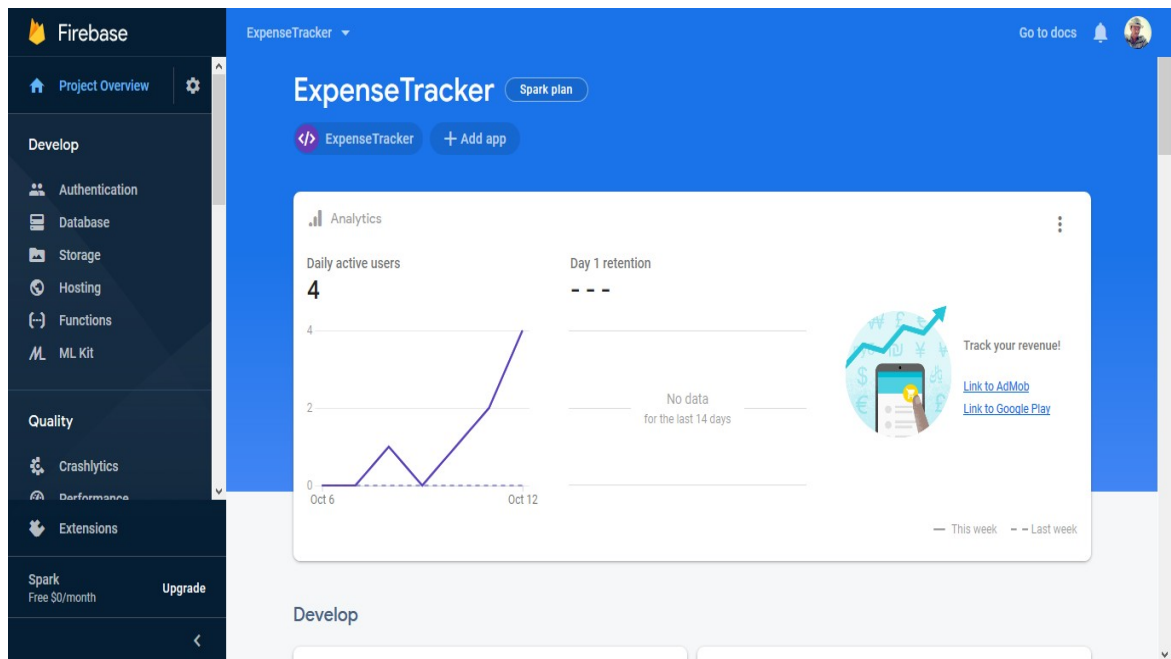
CHAPTER 8 CONCLUSION AND FUTURE WORK

Conclusion:

This web-app is helpful for the employees of the company accessing through different browsers adding expense become easier and time efficient. Google and firebase security is keep secure all web-app and company related data which will be useful in order to store data. The paperwork can be reduced.

These web-app help the company to move forward quickly, fulfill their vision and accomplish their goals, E-way.

Future Scope:

We will introduce manager in system who will manage the employee voucher and take action as approve or reject. The overall report such total expense and expense on each type will be analyzed separately. If any document or bill of the expense by employee may be added as file or image. Employee and manager will be able to export voucher as pdf or other format.

REFERENCES:

Links:

- https://codelabs.developers.google.com/codelabs/firebase-web/?authuser=0#0
- https://firebase.google.com/docs/web/setup?authuser=0
- https://firebase.google.com/docs/reference/js/?authuser=0
- https://www.youtube.com/watch?v=v_hR4K4auoQ&list=PLl-K7zZEsYLluG5MCVEzXAQ7ACZBCuZgZ
- https://www.youtube.com/watch?v=2Vf1D-rUMwE&list=PLl-K7zZEsYLmnJ_FpMOZgyg6XcIGBu2OX
- https://www.w3schools.com/