EXPENSE MANAGER

A PROJECT REPORT

Submitted by

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In partial fulfillment for the award of the degree of

BACHELOR OF ENGINEERING

in

Computer Engineering

Sal Engineering and Technical Institute, Ahmedabad

Gujarat Technology University, Ahmedabad

May, 2023

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CERTIFICATE

This is to certify that the project report submitted along with the project entitled **Internship** has been carried out by **Vaibhav J Adesara** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Computer Engineering, 8th Semester of Gujarat Technological University, Ahmadabad during the academic year 2022-2023.

Prof. Hiral Prajapati
Internal Guide

Prof. Ajay Upadhaya
Head of the Department

INTERNSHIP ALLOTMENT

Date: - 20/01/2023

TO WHOMSOEVER IT MAY CONCERN

This is to state that **Vaibhav Adesara**, student representing **Sal engineering and technical institute** is assigned Industry Internship as per GTU norms.

We wish him/her all the best to perform in this internship which is to be conducted from 27th Jan 2023 to 3rd May 2023

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DECLARATION

We hereby declare that the Internship report submitted along with the Internship entitled **JAVA Trainee** submitted in partial fulfilment for the degree of Bachelor of Engineering in Computer to Gujarat Technological University, Ahmedabad, is a Bonafede record of original project work carried out by me at Unnati informatics LLP under the supervision of Prof. HIRAL PRAJAPATI and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

Sign of Student

_____

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ACKNOWLEDGMENT

I would like to express my deepest gratitude to all the individuals who have made my internship a truly rewarding experience. Their guidance, support, and encouragement have been invaluable in shaping my professional growth and enhancing my understanding of the industry. I am indebted to each and every one of them for their contributions to my development.

First and foremost, I extend my heartfelt appreciation to my supervisor Prof. HIRAL PRJAPARI, for their unwavering guidance and mentorship throughout my internship journey. Their expertise, patience, and willingness to share their knowledge have been instrumental in broadening my horizons and refining my skills. I am grateful for their constant encouragement and belief in my abilities.

I would also like to extend my thanks to the entire team at UNNATI Informatics LLP. Their warm welcome, collaboration, and willingness to involve me in meaningful projects have provided me with invaluable hands-on experience. I am especially grateful to HUZEFA SHAKIR for their exceptional support, guidance, and willingness to answer my countless questions.

In conclusion, I am immensely grateful for the opportunity to be part of this internship program. The knowledge, skills, and relationships I have gained during this time will undoubtedly shape my future endeavors. Once again, I extend my heartfelt appreciation to everyone who has played a part in making my internship a truly enriching and memorable experience.

Yours sincerely,

Vaibhav Adesara

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ABSTRACT

Personal finance management is an important part of people's lives. However, everyone does not have the knowledge or time to manage their finances in a proper manner. And, even if a person has time and knowledge, they do not bother with tracking their expenses as they find it tedious and time-consuming. Now, We don't have to worry about managing our expenses, as we can get access to an expense tracker that will help in the active management of our finances.

People tend to overspend without realizing, and this can prove to be disastrous. Using a daily expense manager can help us keep track of how much we spend every day and on what. At the end of the month, we will have a clear picture where our money is going. This is one of the best ways to get our expenses under control and bring some semblance of order to our finances.

Expense Manager is a web-based application that helps users keep track of their expenses and manage their finances efficiently. The application provides users with a platform to enter and track their expenses, set budgets, and receive alerts when they exceed their budget limits. It also generates reports and charts to help users visualize their spending patterns and make informed financial decisions.

The system has two modules: the customer module and the admin module. The customer module allows users to create an account, add and manage their expenses, set budgets, and receive alerts. The admin module allows the system administrator to manage users, Vendors, Categories, Subcategories and services, and reports. The system is built using JSP and Spring Boot technologies, with a MySQL database.

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ABBREVIATIONS

SDLC **Software Development Life Cycle**

JSP **Java Server Pages**

STS **Spring Tool Suite**

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OVERVIEW OF THE COMPANY

1.1 ABOUT COMPANY

UNNATI INFORMATICS LLP is an IT-based company in Ahmedabad.

It has envisaged providing solutions to every IT-related problem in the most cost-friendly way. With this noble vision, it has expanded globally giving innumerable IT solutions to our widely existing and growing client and customer base in India, Australia, USA, UAE, Nigeria, and Ghana.

It provides services for Software development, Web-Portal development, Website Designing, E-commerce development, SEO, Customized App Development, Data Management Software with cloud hosting facility, etc.

UNNATI INFORMATICS is receptive to new ideas and promises help and support anytime and anywhere.

1.2 DIFFERENT PRODUCT/ SCOPE OF WORK

It provides work in many fields like Biometric Authentication Systems, Digital Marketing, Project Training, Learning Management Systems, School Management Systems, Online Learning For Schools, eCommerce application, Business Development Models etc.

The Famous Products that company had made are Rangoli School, Sagarcon, Script Wallah, Shreeved School, World of 32, Lodgix, Galaxy School DIU, Devasya International School (Vastral, Nikol), Nisarg Glass, Aadhar shila Trading, Location Wizard, CYCLOP etc

Vision & Mission: To provide such software solutions that are functional, reliable, maintainable and cost-friendly to our existing and growing client and customer base. To consistently cater to their growing needs for an optimal solution, ensuring excellent support and service platform to give a hassle-free experience in achieving their dreams.

1.3 SERVICES

Unnati informatics LLP provides services in following field like Software Development, Digital Marketing, Web Development, Graphic Design Work, Website Creation, App Development etc

Achievement of Company

- 16+ Successful Years in Industry
- 5000+ Happy Clients
- 6500 Completed Projects
- 30 Certified Developers

1.4 CAPACITY OF PLANT

It has a capacity of approx 30+ employee

OVERVIEW OF DIFFERENT PLANT/UNIT/DEPARTMENT/SHOP OF THE ORGANIZATION AND LAYOUT OF THE PRODUCTION/PROCESS BEING CARRIED OUT IN COMPANY

2.1 LIST THE TECHNICAL SPECIFICATIONS OF MAJOR EQUIPMENT USED IN EACH DEPARTMENT.

Backend

- Java
- Node Js
- PHP
- Django
- .Net

Frontend

- Angular
- React

Database

- Microsoft SQL Server
- PostgreSQL
- MySQL
- mongoDB
- Oracle

Clouds & DevOps

- AWS
- GoogleCloud
- Docker
- Jenkins
- Kubernates
- Azure

Mobile

- IOS
- Android
- React Native
- Flutter

2.2 PREPARE SCHEMATIC LAYOUT WHICH SHOWS THE SEQUENCE OF OPERATION FOR MANUFACTURING OF END PRODUCT.

The production is carried out in following steps

1. Planning
2. Analysis
3. Design
4. Implementation
5. Testing and Integration
6. Maintenance

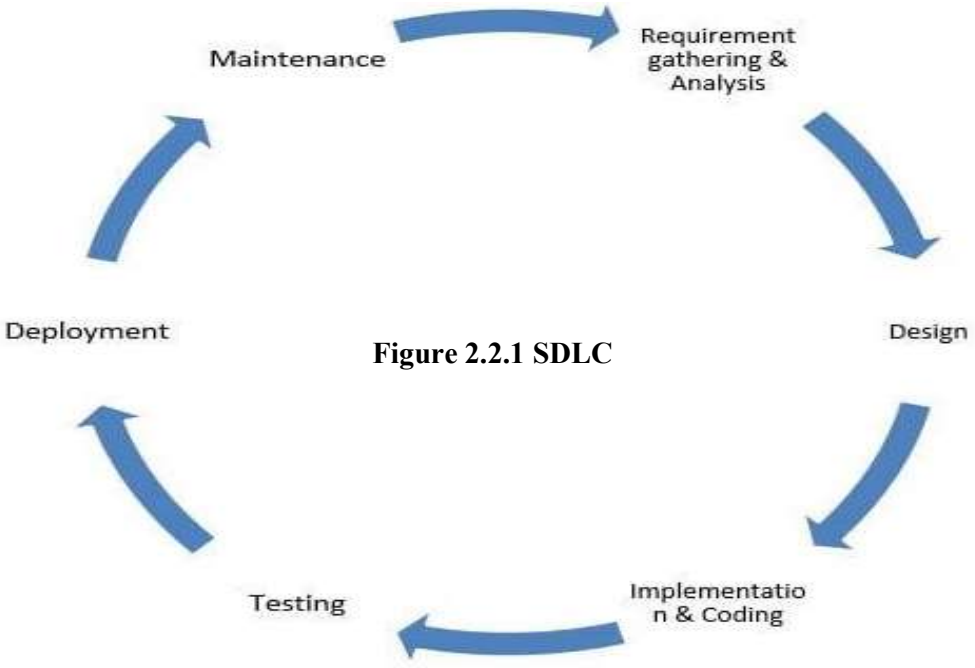


Figure 2.2.1 SDLC

2.3 EXPLAIN IN DETAILS ABOUT EACH STAGE OF PRODUCTION.

1) Requirement Gathering and Analysis

We have collected all the information regarding project. Once requirement gathering is done, an analysis is done to check the feasibility of the development of a product. Once the requirement is clearly understood, the SRS (Software Requirement Specification) document is created. This document should be thoroughly understood by the developers and also be reviewed by the customer.

2) Design

In this phase, the requirement gathered in the SRS document is used as input and software architecture that is used for implementing system development is derived. We have design all the public pages like homepage, add expense, add income page, category chart expense, login page, signup page etc through Spring Boot, JSP, JavaScript and Bootstrap.

3) Implementing or Coding

Implementation/Coding started according to the requirement. The Software design is translated into source code. All the components of the software are implemented in this phase.
Spring Boot is used for implementation. We used MVC Structure to for implementation.

4) Testing

Testing starts once the coding is complete and the modules are released for testing. In this phase, the developed software is tested thoroughly and any defects found are assigned back to get them fixed. Testers refer SRS document to make sure that the software is as per the customer's standard.

5) Deployment

Once the product is tested, it is deployed in the production environment or first UAT (User Acceptance testing) is done depending on the customer expectation.

6) Maintenance

After the deployment of a product on the production environment, maintenance of the product i.e., if any issue comes up and needs to be fixed or any enhancement is to be done is taken care by the developers.

INTRODUCTION TO PROJECT

3.1 PROJECT SUMMARY

Expense Manager is a web-based application that aims to simplify the process of tracking and managing expenses for individuals. The application provides a user-friendly interface that allows users to add, edit, and delete expenses, set budgets, view reports, and receive alerts when expenses exceed a certain threshold.

The project was developed using Java Spring Boot framework, JSP, and MySQL database. The system includes different modules such as Customer and Admin. while the Admin module provides a dashboard that allows administrators to manage users, view reports, and configure the system's settings like add, edit and inactive category, sub category, vendors.

The system's design includes various features such as user authentication and authorization, data encryption, and backup and restore capabilities. The project was implemented using Agile methodology, with a team of developers and a project manager working together to deliver a high-quality product within the given timeline and budget.

- **Customers:**

  The Customer module allows users to add their expenses, income and view reports.

- **Administration users (Administrators)**

  Admin module provides a dashboard that allows administrators to manage users, view reports, and configure the system's settings like add, edit and inactive category, sub category, vendors.

3.2 PURPOSE

This project is being developed with the primary goal is to Manage the Expenses of users and helping them to prevent them by providing limitations on their Spending Personal finance management is an important part of people's lives. However, everyone does not have the knowledge or time to manage their finances in a proper manner. And, even if a person has time and knowledge, they do not bother with tracking their expenses as they find it tedious and time-consuming. Now, you don't have to worry about managing your expenses, as you can get access to an expense the tracker that will help in the active management of your finances.

3.3 OBJECTIVE

The main objective of Expense Manager is to provide a software system that simplifies the process of tracking and managing expenses for individuals and businesses. This is achieved by automating expense categorization, generating customizable reports, and integrating with popular accounting software. The system aims to save time and effort while ensuring accuracy and compliance with financial regulations.

Another objective is to provide a user-friendly interface that is accessible to all users, regardless of their technical expertise. The system is designed to be easy to use and navigate, with intuitive controls and clear instructions.

Overall, the objective of Expense Manager is to provide a comprehensive and reliable solution for managing expenses that meets the needs of individuals.

3.4 SCOPE

This web-App stores all your Expenses and give you where you spent more and helps to prevent your expenses with the help limit you put in this Application. It gives you a notification when your expenses cross the limit.

3.5 TECHNOLOGY AND LITERATURE REVIEW

Literature Review/Background Study

Expense management is a crucial aspect of financial management for individuals and businesses alike. Proper management of expenses ensures that individuals and businesses are able to track their spending and stay within their budgets, which is essential for financial stability and growth. However, manual expense tracking and management can be time-consuming and error-prone, leading to inefficiencies and inaccuracies in financial reporting.

To address these challenges, software solutions have been developed to automate the process of expense management. These solutions typically offer features such as expense categorization, receipt scanning, report generation, and integration with accounting software. Some solutions also offer mobile apps for on-the-go expense tracking.

One study published in the Journal of Business and Management in 2015 evaluated the impact of expense management software on organizational efficiency and financial performance. The study found that the implementation of expense management software led to significant improvements in the efficiency of expense reporting and reimbursement processes, as well as increased visibility and control over expenses. The study also found that the use of expense management software resulted in a reduction in errors and fraud, leading to improved financial performance.

Another study published in the Journal of Accounting and Finance in 2017 evaluated the use of mobile expense management apps in small businesses. The study found that the use of mobile apps for expense management led to increased convenience and efficiency, as well as improved accuracy in expense tracking. The study also found that the use of mobile apps led to increased compliance with financial policies and regulations.

Overall, the literature suggests that expense management software solutions can have a significant impact on organizational efficiency and financial performance, particularly when combined with mobile apps for on-the-go expense tracking. These solutions can help individuals and businesses save time and reduce errors in expense reporting and reimbursement processes, leading to improved financial stability and growth.

Technology

The front end used in our project is JSP(jQuery, HTML, JavaScript, CSS) and the back end used is JAVA framework SpringBoot and Database is MySQL. We will follow the Iterative model for developing this Project and whole Project will be developed using the SDLC scenario.

JSP

JSP stands for JavaServer Pages. It is a technology used to create web pages dynamically by embedding Java code into HTML. JSP pages are compiled into servlets and run on a web server. JSP pages are commonly used for web applications, especially those that require interaction with a database or other back-end system. JSP provides a way to separate the presentation layer (HTML) from the business logic (Java code), making it easier to maintain and update the application. JSP also provides a number of built-in tags and functions that simplify the creation of dynamic content, such as loops, conditionals, and database queries.

JavaScript

JavaScript supports the development of both client and server components of webbased applications. On the client side, it can be used to write programs that are executed by a web browser within the context of the web page. On the server side, it can be used to write web server programs that can be process information submitted by a web browser and then update the web browser display accordingly.

SpringBoot (JAVA Framework)

Spring Boot is a popular open-source Java framework used to build web applications and microservices. It is based on the Spring Framework and provides a simplified way to develop production-ready web applications by providing default configurations and conventions that help developers quickly get started with their projects.

Spring Boot includes a number of features that simplify application development, such as embedded web servers, auto-configuration, and dependency management. It also provides a wide range of extensions and plugins to integrate with other technologies, such as databases, messaging systems, and security frameworks.

Spring Boot uses annotations to configure the application, reducing the need for XML configuration files. It also provides a command-line interface that allows developers to quickly create new projects and run tests.

SQL

- SQL (Structured Query Language) is a special-purpose programming language designed for managing data held in a relational database management system (RDBMS).
- Originally based upon relational algebra and tuple relational calculus, SQL consists of a data definition language and a data manipulation language.
- The scope of SQL includes data insert, query, update and delete, schema creation and modification, and data access control. Although SQL is often described as, and to a great extent is, a declarative language (4GL), it also includes procedural elements.

- Data Definition: Defining tales and structure in the database.
- Data manipulation: Used to manipulate the data within those schema objects.

3.6 PROJECT PLANNING

Project Planning is concerned with identifying and measuring the activities, milestones and deliverables produced by the project. Project planning is undertaken and completed sometimes even before any development activity starts. Project planning consists of following essential activities:

- Scheduling manpower and other resources needed to develop the system.
- Staff organization and staffing plans.
- Risk identification, analysis, and accurate planning.
- Estimating some of the basic attributes of the project like cost, duration and efforts.

The effectiveness of the subsequent planning activities is based on the accuracy of these estimations. Project management involves planning, monitoring and control of the people, process and the events that occurs as the software evolves from a preliminary concept to an operational implementation. Cost estimation is a relative activity that is concerned with the resources required to accomplish the project plan.

3.6.1 Project Development Approach and Justification

A Software process model is a simplified abstract representation of a software process, which is presented from a particular perspective. A process model for software engineering is chosen based on the nature of the project and application, 14 the methods and tools to be used, and the controls and deliverables that are required. All software development can be characterized as a problem-solving loop which in four distinct stages is encountered:

- Requirement analysis
- Design

- Coding
- Testing
- Deployment

3.6.2 Project Effort and Time, Cost Estimation

Effort Estimation

Each company determines the output it expects from its team members. Let us call the average output of a team member per man-hour as the unit output. Assume that one has to deliver an end-to-end login module's functionality for an application. The time spent on the login functionality should include the corresponding time required for gathering the requirements, doing a requirement analysis, architecture inputs, form design, object/class design, implementing the business rules, data validation and storage, framework (i.e., code for login module's constants, enumerations, utilities), testing, debugging, deployment up to user acceptance, etc. Now, the estimator has to figure out how many man-hours it would take to complete the login module, keeping all these factors in mind.

The sequence of work and dependencies should be considered as they do cause delays in completion. For example, form design should be done first (all the way up to acceptance by the customer), then object design (up to acceptance by the architect), followed by coding (for business rules, calculations, and data validations), internal testing, and user acceptance testing. A wise estimator would always take support from other people to understand the scope of work to do a given task.

Implementing the business rules, data validation and storage, framework (i.e., code for login module's constants, enumerations, utilities), testing, debugging, deployment up to user acceptance, etc. Now, the estimator has to figure out how many man-hours it would take to complete the login module, keeping all these factors in mind. The sequence of work and dependencies should be considered as they do cause delays in completion. For example,

form design should be done first (all the way up to acceptance by the customer), then object design (up to acceptance by the architect), followed by coding (for business rules, calculations, and data validations), internal testing, and user acceptance testing. A wise estimator would always take support from other people to understand the scope of work to do a given task.

Cost Estimation

The COCOMO Model Like all estimation models for software, the COCOMO models require sizing information. Three different sizing options are available as part of the model hierarchy: object points, function points, and lines of source code. Like function points, the object point is indirect software that is computed using counts of the number of

1) Screens (at the user interface),
2) Reports,
3) Components likely to be required to build the application.

Once complexity is determined, the number of screens, reports, and components are weighted according to Table above. The object point count is then determined by multiplying the original number of object instances by the weighting factor in table above and summing to obtain a total object point count.

When component-based development or general software reuse is to be applied, the percent of reuse (%reuse) is estimated and the object point count is adjusted: NOP = (object points) X [(100 - %reuse) / 100]. Where NOP is defined as new object points. To derive an estimate of effort based on the computed NOP value, a “productivity rate” must be derived. PROD=NOP / person-month.

For different levels of developer experience and development environment maturity. Once the productivity rate has been determined, an estimate of project effort can be derived as

Estimated effort = NOP/PROD.

There are three types of software project: Organic project, Semi-detached project, Embedded project.

Cost required to develop project=effort*rs/month

Effort Estimation (E):

In Organic=2.4 (KLOC) 1.05 PM

In semidetached=3.0(KLOC) 1.12 PM In Embedded=3.6(KLOC) 1.20 PM

Duration Estimation (D):

In Organic=2.5(effort) 0.38 months

In semidetached=2.5(effort) 0.35 months In Embedded=2.5((effort) 0.32 months Person Estimation: P=E/D

Advantages of COCOMO:

- COCOMO is factual and easy to interpret.
- One can clearly understand how it works.
- Accounts for various factors that affect cost of the project.
- Works on historical data and hence is more predictable and accurate.

Disadvantages

- COCOMO model ignores requirements and all documentation.
- It ignores customer skills, cooperation, knowledge and other parameters.
- It oversimplifies the impact of safety/security aspects.

- It ignores hardware issues It ignores personnel turnover levels It is dependent on the amount of time spent in each phase.

3.6.3 Roles and Responsibilities

This phase defines the role and responsibilities of each and every member involved in developing the system. To develop this system there was only one group with two members working on the whole application. Each member was responsible for each and every part of developing the system. Each of the group members has sufficient knowledge in several programming languages.

1. **Project Manager:** Responsible for overall project planning, management, and coordination. This includes defining project goals, timelines, budgets, and allocating resources to ensure the project is completed successfully.

2. **Developer:** Responsible for writing the code that implements the system functionality. This includes developing and maintaining the backend and frontend components of the application.

3. **Administrators:** These are the individuals who will manage the system, add, Edit, or remove Categories, Sub Categories, Vendors and manage the overall functionality of the system. They will have access to all the features of the system and will be responsible for maintaining the system.

4. **Customers:** These are the end-users of the system who will use the application to manage their expenses. They will be able to create an account, track their expenses, view reports, and manage their budget.

3.7 PROJECT SCHEDULING (GANTT CHART)

Fig 3.7.1 Gantt Chart

SYSTEM ANALYSIS

4.1 STUDY OF CURRENT SYSTEM

- Currently there are many systems in the market which provides services for managing expenses and incomes of users etc.
- It provides the services for adding expenses and watch all expenses added previously.
- It provides the services for adding incomes and watch all incomes added previously.

4.2 PROBLEM AND WEAKNESS OF CURRENT SYSTEM

There are no any social authentications for easy logins in the existing system. In the existing system user can only add the expenses by typing it manually, where there is no any option for the addition of image from camera or gallery which is the major disadvantage of the existing system. No any notifications will be given which is of no use in the existing system. No any explicit system for budget calculation.

4.3 REQUIREMENTS OF NEW SYSTEM

In the proposed system we are going to add additional features on such as we are going to integrate image attachment from system. system for budget calculation is included where notifications will be sent to the user if they exceed the expenditure of that month or that day. Users can also enter the receivables which they are supposed to receive. Expenses Viewing list is enabled where user can view the expenses list which they have entered earlier. If the user spends so much of amount on a particular item then users get notification on what items they spend more and also some recommendation to reduce their expenditure.

4.4 SYSTEM FEASIBILITY

4.4.1 Does the system contribute to the overall objectives of the organization?

Our project is capable to be implemented at an organization level. And, having objectives that outline an organization's focus can help customers or users to manage & analysis their Expenses. These objectives should align with customer's requirements. In this article, we discuss why the objectives of customers are important, how to organize these objectives, the goals of customers objectives and elements of good objectives.

4.4.2 Can the system be implemented using the current technology and within the given cost and schedule constraints.

We have implemented this project using the existing version of all the technologies used in it. We have no invested a single coin in this project. We have tried to cover all the user requirements to provide the maximum comfort to them, so we can achieve the long-term objectives with the maximum unique features. As requirements are gathered an overall version of system functions and features begins to materialize.

At project inception, software engineers ask a set of questions that establish:

- Basic understanding of problem.
- The people who want to use various services.

4.5 ACTIVITY OF NEW SYSTEM

4.5.1 Use-Case:

- In software and systems engineering, a use case is a list of steps, typically defining interactions between actor and a system, to achieve a goal.
- The actor can be a human, an external system, or time.

- In systems engineering, use cases are used at a higher level than within software engineering, often representing missions or stakeholder goals.
- The detailed requirements may then be captured in Systems Modeling Language or as contractual statements.
- As an important requirement technique, use cases have been widely used in modern software engineering over the last two decades.
- Use case driven development is a key characteristic of process models and frameworks.
- With its iterative and evolutionary nature, use case is also a good fit for agile development.

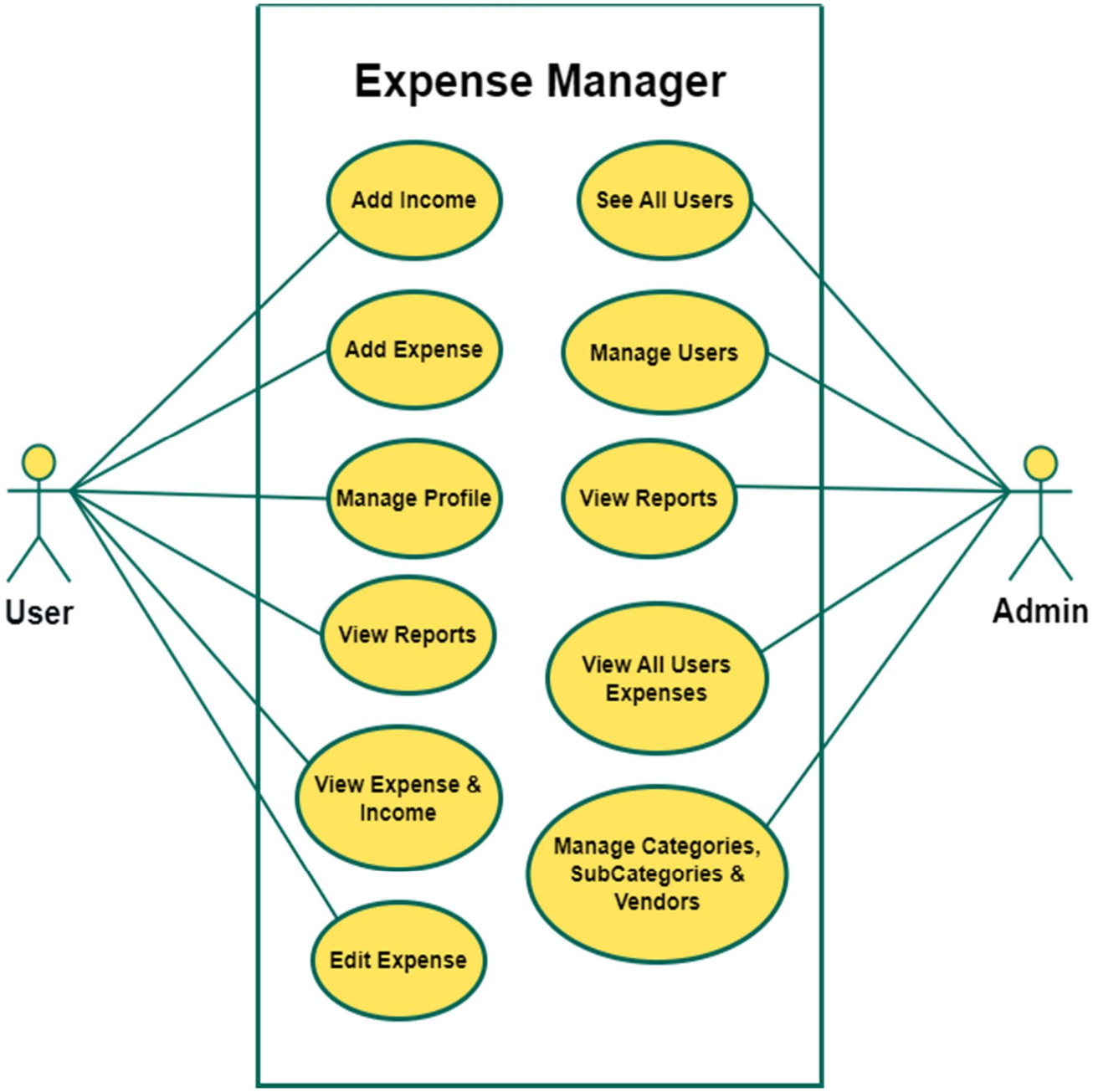


Figure 4.5.1 Use-Case System

4.5.2 Activity Diagram

Admin

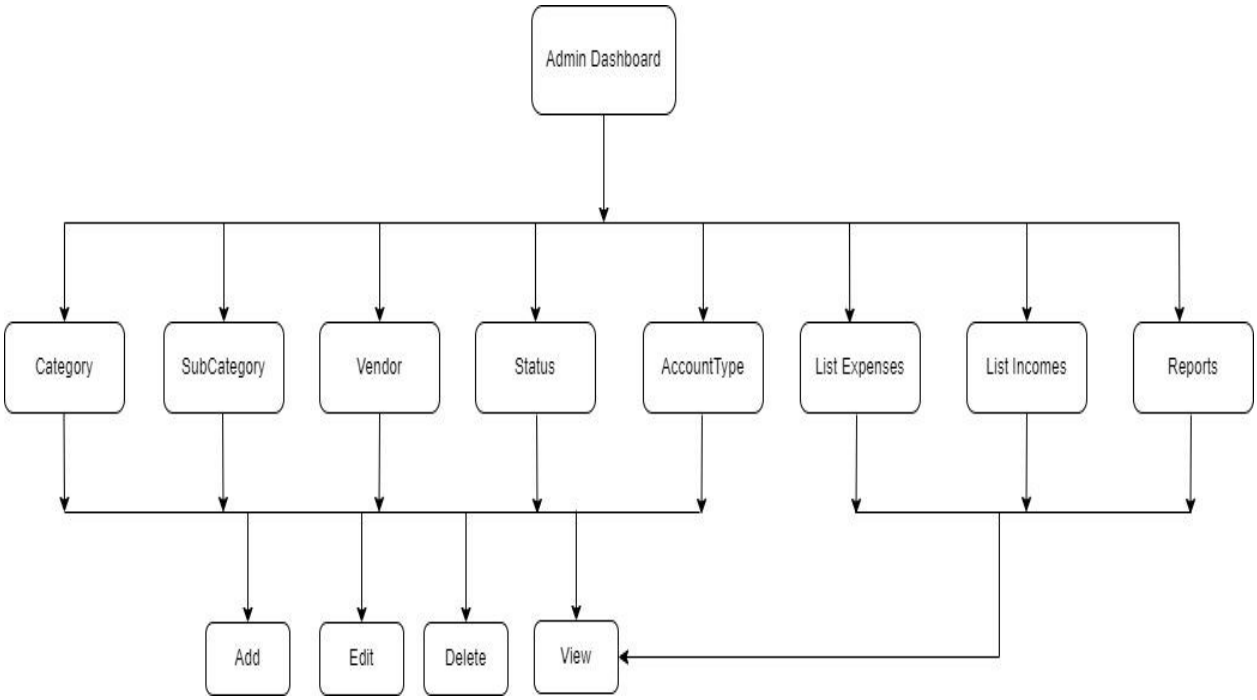


Figure 4.5.2 Activity Diagram (Admin)

User

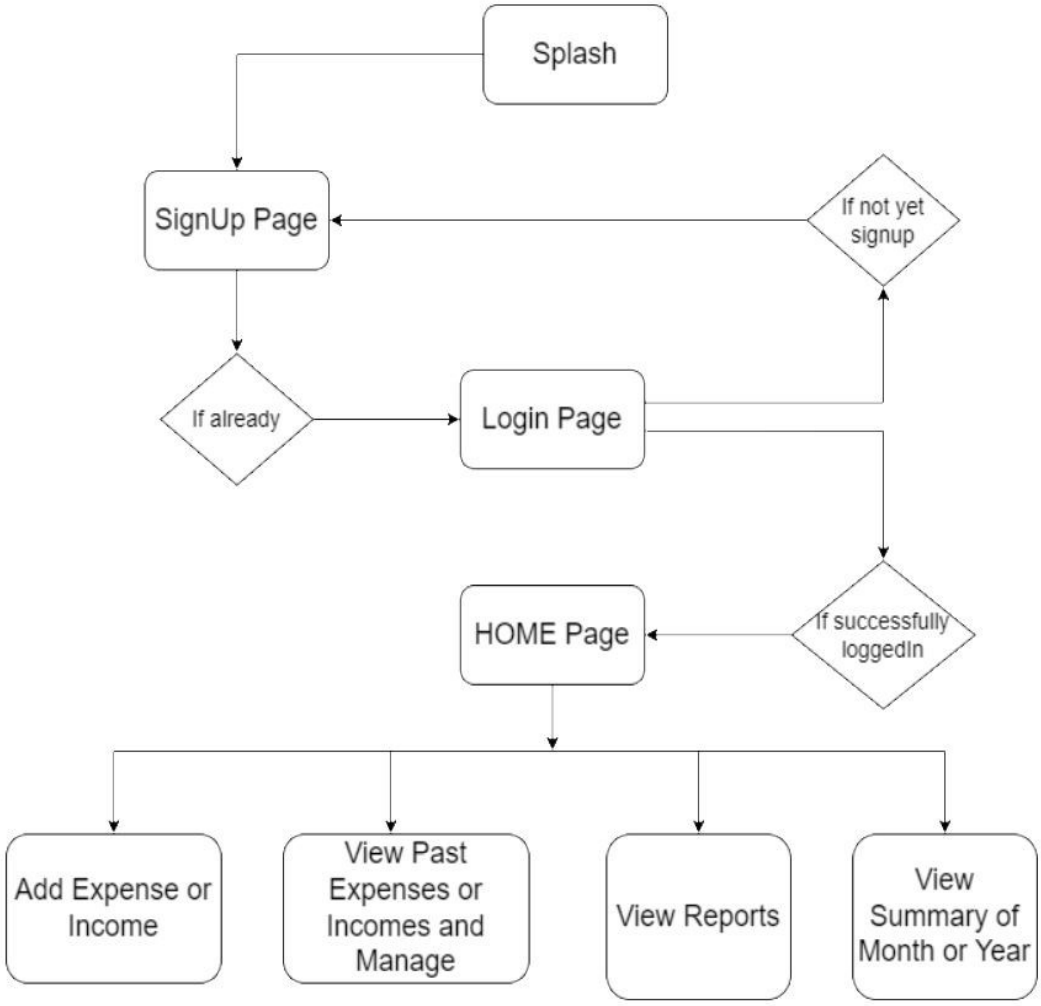


Figure 4.5.3 Activity Diagram (User)

4.5.5 Sequence Diagram

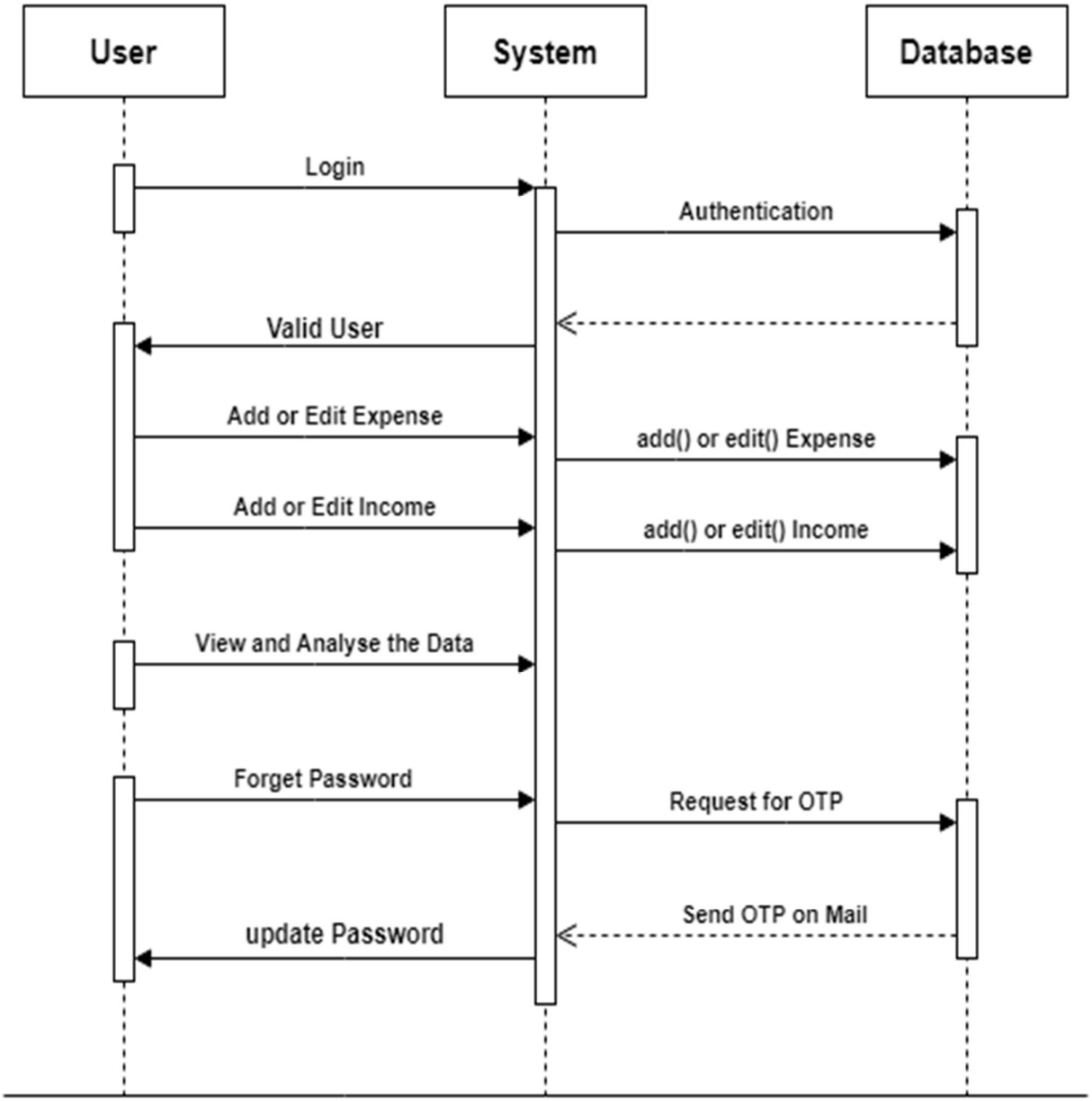


Figure 4.5.4 Sequence Diagram

4.5.6 E-R Diagram

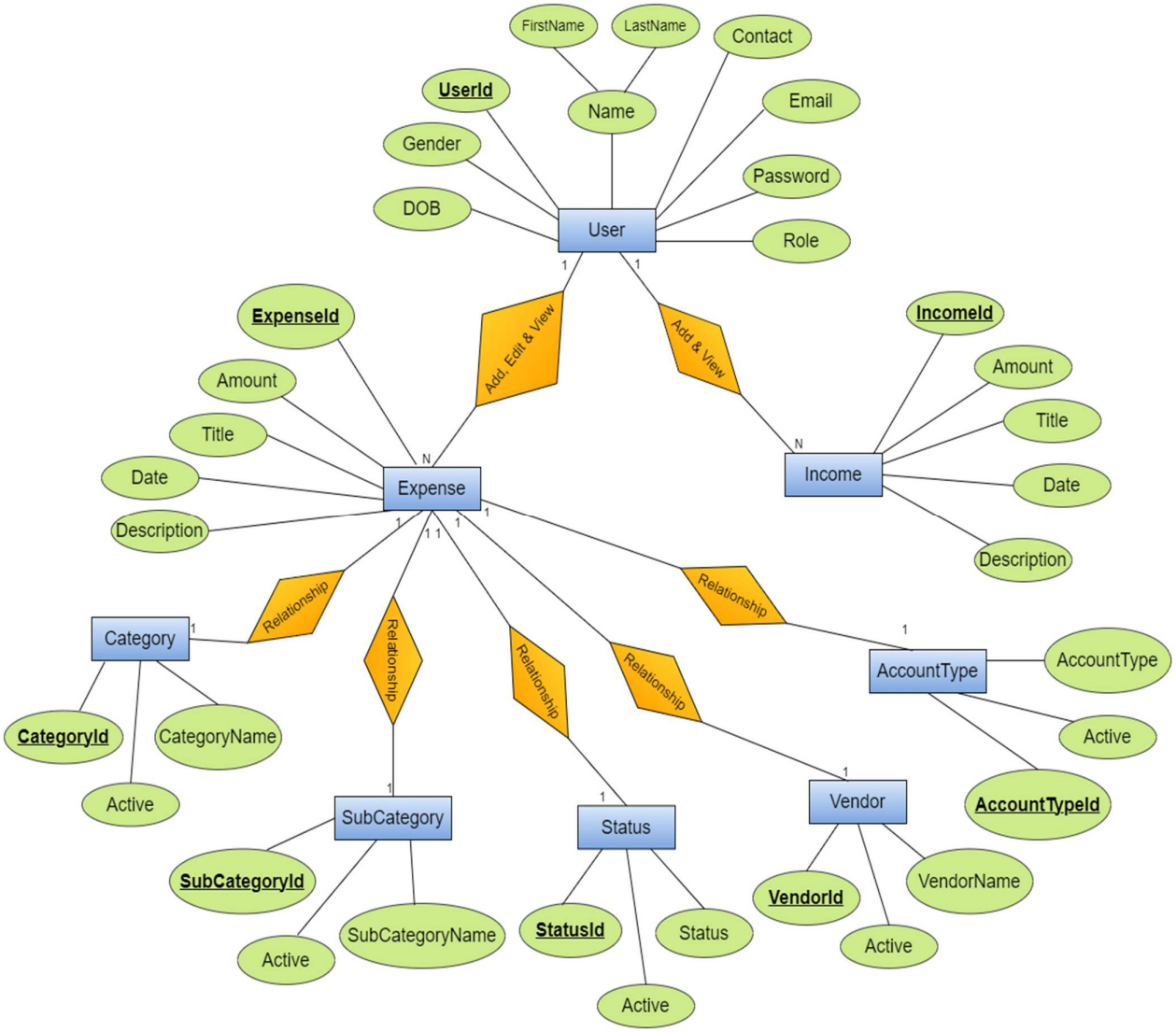


Figure 4.5.5 E-R Diagram

4.5.7 Class Diagram

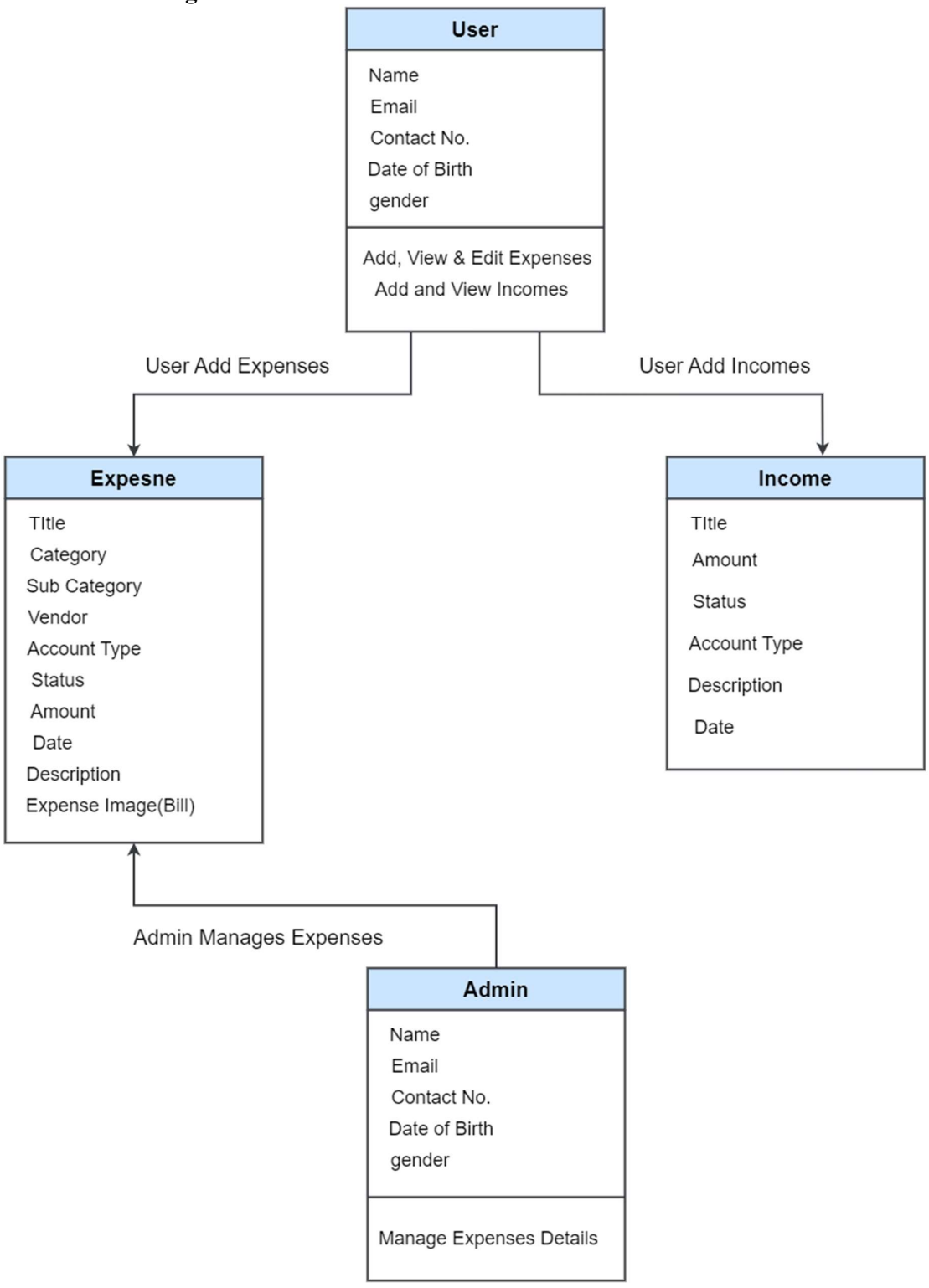


Figure 4.5.6 Class Diagram

4.6 FEATURES OF THE NEW SYSTEM

- **User-friendly interface:** The new system should have an intuitive and easy-to-use interface that allows users to manage their expenses without any difficulty.
- **Expense tracking:** The system should allow users to track their expenses, categorize them, and set budgets for different categories.
- **Receipt management:** The system should enable users to upload or scan their receipts and automatically categorize them.
- **Real-time analytics:** The system should provide real-time analytics of expenses to help users understand their spending patterns and identify trends.
- **Customizable reports:** The system should allow users to generate customizable reports and export them in various formats.
- **Multiple user accounts:** The system should support multiple user accounts, with different levels of access and permissions.
- **Security:** The system should ensure the security of user data, with encryption and secure authentication methods.

4.7 MODULES AND THEIR DESCRIPTION OF SYSTEM

4.7.1 Signup/ Login Module

Login

After SignIn or Clicking on Login link in SignIn Page should open a Login Page and allow user to log in to the system. This Login screen would be central place to allow different types of users logging in to the system i.e., Customer and Admin users. This would redirect them to respective landing page.

Signup

Customers should be able to register themselves using sign up screen. This should be a separately designed page where users would be redirected when they click on Create New Account link in Login Dialog. Customers should straightaway be able to login to the system once they create their account with Expense Manager.

4.7.2 Customer ‘s Module

Dashboard

- Account creation: The module should allow customers to create their accounts on the system by providing their personal information, such as name, email, and phone number.
- Profile management: The module should enable customers to manage their profiles, update their personal information, and change their passwords.
- Expense tracking: The module should allow customers to track their expenses, add new expenses, and categorize them.
- Budget management: The module should provide customers with a budget management feature, enabling them to set budgets for different categories and track their spending against them.
- Receipt management: The module should enable customers to upload or scan their receipts and attach them to the corresponding expenses.
- Analytics and reporting: The module should provide customers with analytics and reporting features, allowing them to view their spending patterns, generate reports, and export data.
- Payment management: The module should allow customers to manage their payments, including setting up payment methods, scheduling payments, and tracking payment history.
- Support: The module should provide customers with support features, including a knowledge base, FAQs, and a support ticket system.
- Security: The module should ensure the security of customer data, with encryption and secure authentication methods.

Setup Service

- Account setup: The service should assist users in setting up their accounts on the Expense Manager platform, guiding them through the process of entering their personal information, creating login credentials, and setting up their preferences.

- Once Security: The service should ensure the security of user data, with robust encryption methods, secure data storage, and regular security audits.

- Maintenance and updates: The service should provide regular maintenance and updates to the Expense Manager platform, ensuring it remains up-to-date with the latest security patches, feature enhancements, and bug fixes.

4.7.3 Admin Module

The admin module in the expense manager project is responsible for managing the system's overall functionality and ensuring its smooth operation. The module's primary objective is to ensure that the system's services are effectively delivered to users and that any issues that arise are resolved quickly.

User Management

- The module should allow the admin to manage the user accounts of Expense Manager, including creating new users, modifying user roles and permissions, and deactivating ordeleting user accounts.

Category and Sub Category management

- The module should enable the admin to manage the categories and subcategories for expenses and income, including creating new categories and Subcategories, modifying existing ones, and deleting categories and Subcategories that are no longer needed.

Vendor management

- The module should enable the admin to manage the Vendors for expenses including creating new Vendors, modifying existing ones, and deleting Vendors that are no longer needed.

Reporting and analytics

- The module should provide the admin with detailed reports and analytics on the expenses and income of Expense Manager, such as expense summaries, income statements, and budget variance reports.

4.8 SELECTION OF HARDWARE AND SOFTWARE CHARACTERISTICS

Hardware Requirements

- Minimum 2.27Ghz processor
- RAM: 4GB minimum Software Requirements.
- A stable network connection is essential for users to access the Expense Manager application and database. The network should have sufficient bandwidth to support concurrent user access and file transfers.

Software Requirements

- JAVA Development Kit to Compile JAVA programming language
- STS (Spring Tool Suite) or Eclipse Enterprise Edition (For live preview)
- Spring Boot Framework
- MySQL Database
- Tomcat Server

SYSTEM DESIGN

5.1 SYSTEM DESIGN & METHODOLOGY

Systems design is the process of defining the architecture, components, modules, interfaces, and data for a system to satisfy specified requirements. The System Design Description report provides summary or detailed information about a system design represented by a model. Systems design is therefore the process of defining and developing systems to satisfy specified requirements of the user.

5.2 DATABASE DESIGN

Database design is the process of producing a detailed data model of a database. This logical data model contains all the needed logical and physical design choices and physical storage parameters needed to generate a design in a Data Definition Language, which can then be used to create a database. A fully attributed data model contains detailed attributes for each entity.

Expense Manager (expenseapp) – DataDictionary

Table 5.2.1: accounttype

Table Name	accounttype			
Field Name	**Data Type**	**Length**	**Nullable**	**Comments**
accountTypeId	Int		No	Its Primary Key.
accountType	Varchar	30	Yes	
deleted	Tinyint	1	Yes	

Table 5.2.2: Category

Table Name	category			
Field Name	**Data Type**	**Length**	**Nullable**	**Comments**
categoryId	Int		No	Its Primary Key.
categoryName	Varchar	30	Yes	
deleted	Tinyint	1	Yes	

Table 5.2.3: expense

Table Name	expense			
Field Name	**Data Type**	**Length**	**Nullable**	**Comments**
expenseId	Int		No	Its Primary Key.
title	Varchar	30	Yes	
categoryId	Int		Yes	Its Foreign key of category Table
subCategoryId	Int		Yes	Its Foreign key of subcategory Table
vendorId	Int		Yes	Its Foreign key of vendor Table
accountTypeId	Int		Yes	Its Foreign key of accounttype Table
statusId	Int		Yes	Its Foreign key of status Table
ammount	Int		Yes	
date	Varchar	30	Yes	
description	Varchar	100	Yes	
userId	Int		Yes	Its Foreign key of user Table
billURL	Varchar	1024	Yes	

Table 5.2.4: income

Table Name	income			
Field Name	**Data Type**	**Length**	**Nullable**	**Comments**
incomeId	Int		No	Its Primary Key.
title	Varchar	30	Yes	
date	Varchar	30	Yes	
userId	Int		Yes	Its Foreign key of user Table
accountTypeId	Int		Yes	Its Foreign key of accounttype Table
description	Varchar	150	Yes	
statusId	Int		Yes	Its Foreign key of status Table
ammount	Int		Yes	

Table 5.2.5: Status

Table Name	category			
Field Name	**Data Type**	**Length**	**Nullable**	**Comments**
statusId	Int		No	Its Primary Key.
statusShow	Varchar	30	Yes	
deleted	Tinyint	1	Yes	

Table 5.2.6: Subcategory

Table Name	subcategory			
Field Name	**Data Type**	**Length**	**Nullable**	**Comments**
categoryId	Int		No	Its Primary Key.
categoryName	Varchar	30	Yes	
categoryId	Int		No	Its Foreign key of Category Table
deleted	Tinyint	1	Yes	

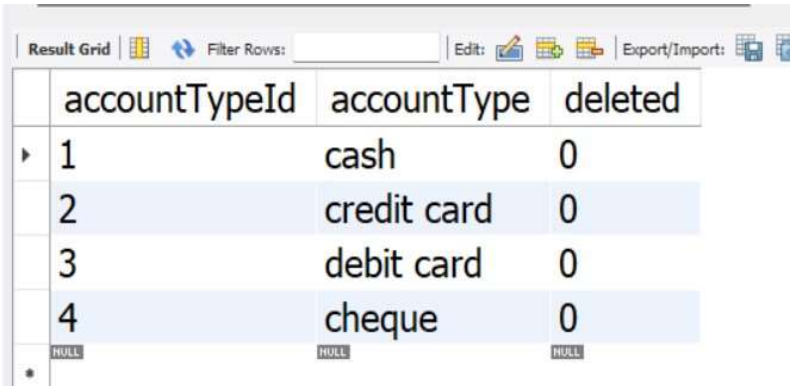
Table 5.2.7: User

Table Name	user			
Field Name	**Data Type**	**Length**	**Nullable**	**Comments**
userId	Int		No	Its Primary Key.
firstName	Varchar	30	Yes	
lastName	Varchar	30	Yes	
email	Varchar	50	Yes	
password	Varchar	80	Yes	
role	Int		Yes	
otp	Varchar	10	Yes	
gender	Varchar	6	Yes	
dob	Varchar	20	Yes	
contactNum	Varchar	20	Yes	
joinDate	Varchar	20	Yes	
imageURL	Varchar	1024	Yes	

Table 5.2.8: vendor

Table Name	vendor			
Field Name	**Data Type**	**Length**	**Nullable**	**Comments**
vendorId	Int		No	Its Primary Key.
vendorName	Varchar	30	Yes	
deleted	Tinyint	1	Yes	

Screenshots

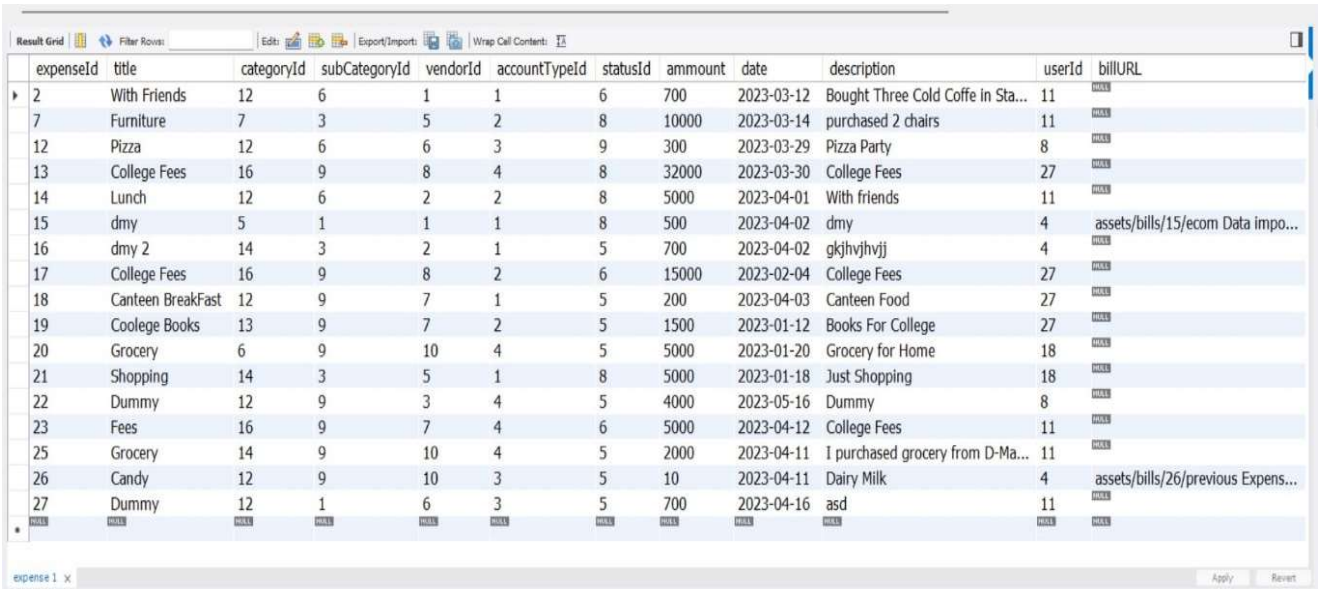


accountTypeId	accountType	deleted
1	cash	0
2	credit card	0
3	debit card	0
4	cheque	0
NULL	NULL	NULL

Figure 5.2.1 accounttype DB

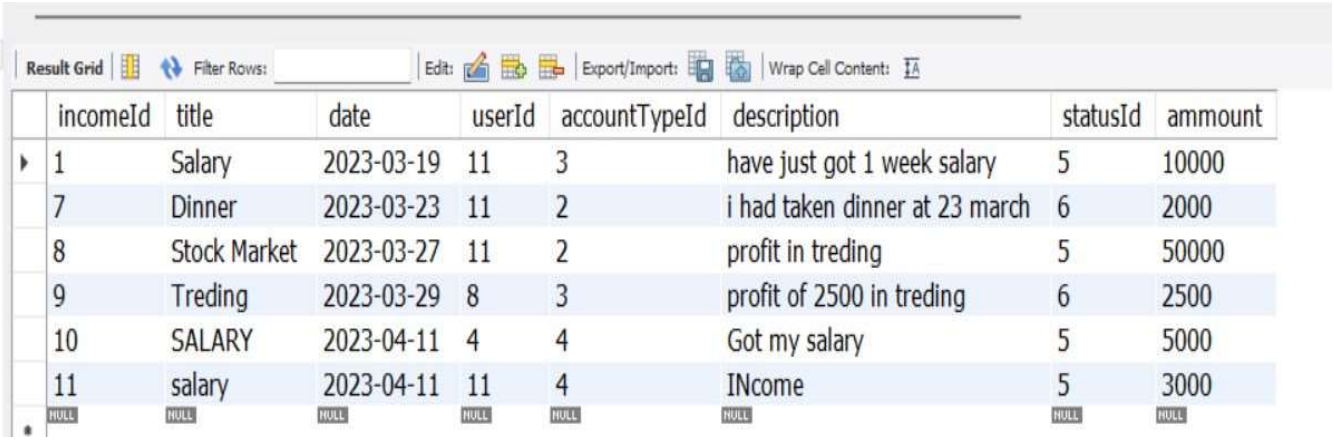
categoryId	categoryName	deleted
2	Dinner	0
3	BreakFast	0
4	Coffee	0
5	Automobile	0
6	Groceary	0
7	House	0
8	Electronics	0
9	Repairing	0
10	Medical	0
11	Clothes	0
12	Food	0
13	Stationery	0
14	House Hold	0
15	Books for ma...	0
16	Other	0
17	D-Mart	1
18	ddddddddddd...	1
NULL	NULL	NULL

Figure 5.2.2 Category DB



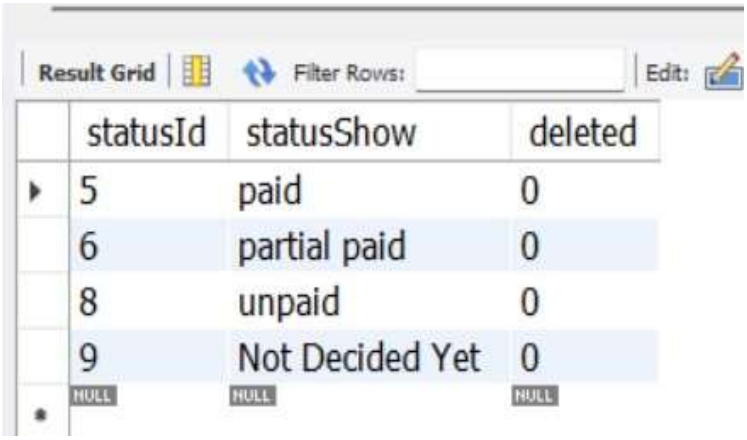
expenseId	title	categoryId	subCategoryId	vendorId	accountTypeId	statusId	ammount	date	description	userId	billURL
2	With Friends	12	6	1	1	6	700	2023-03-12	Bought Three Cold Coffe in Sta...	11	
7	Furniture	7	3	5	2	8	10000	2023-03-14	purchased 2 chairs	11	
12	Pizza	12	6	6	3	9	300	2023-03-29	Pizza Party	8	
13	College Fees	16	9	8	4	8	32000	2023-03-30	College Fees	27	
14	Lunch	12	6	2	2	8	5000	2023-04-01	With friends	11	
15	dmy	5	1	1	1	8	500	2023-04-02	dmy	4	assets/bills/15/ecom Data impo...
16	dmy 2	14	3	2	1	5	700	2023-04-02	gkjhvjhvjj	4	
17	College Fees	16	9	8	2	6	15000	2023-02-04	College Fees	27	
18	Canteen BreakFast	12	9	7	1	5	200	2023-04-03	Canteen Food	27	
19	Coolege Books	13	9	7	2	5	1500	2023-01-12	Books For College	27	
20	Grocery	6	9	10	4	5	5000	2023-01-20	Grocery for Home	18	
21	Shopping	14	3	5	1	8	5000	2023-01-18	Just Shopping	18	
22	Dummy	12	9	3	4	5	4000	2023-05-16	Dummy	8	
23	Fees	16	9	7	4	6	5000	2023-04-12	College Fees	11	
25	Grocery	14	9	10	4	5	2000	2023-04-11	I purchased grocery from D-Ma...	11	
26	Candy	12	9	10	3	5	10	2023-04-11	Dairy Milk	4	assets/bills/26/previous Expens...
27	Dummy	12	1	6	3	5	700	2023-04-16	asd	11	

Figure 5.2.3 Expense DB



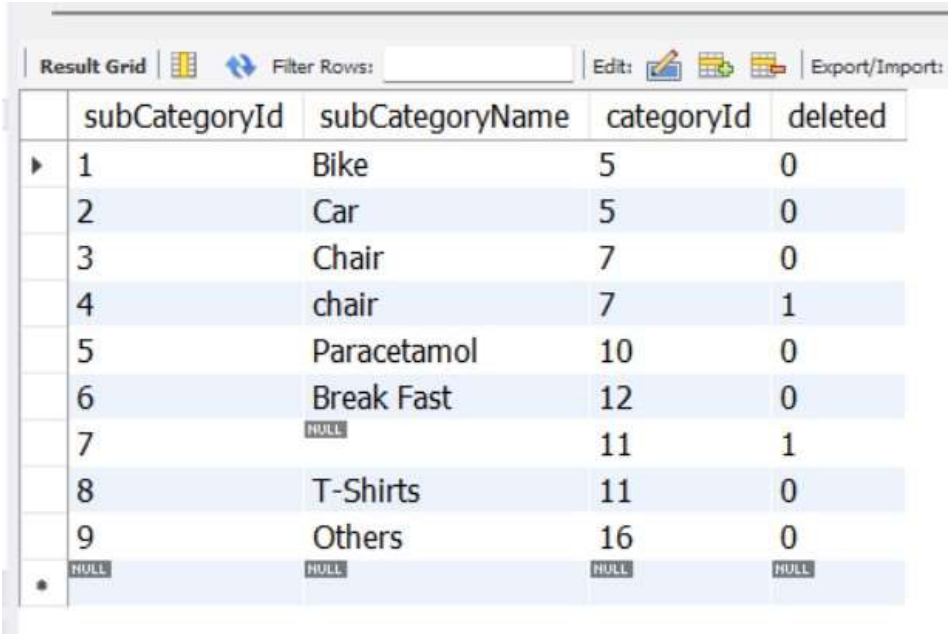
incomeId	title	date	userId	accountTypeId	description	statusId	ammount
1	Salary	2023-03-19	11	3	have just got 1 week salary	5	10000
7	Dinner	2023-03-23	11	2	i had taken dinner at 23 march	6	2000
8	Stock Market	2023-03-27	11	2	profit in treding	5	50000
9	Treding	2023-03-29	8	3	profit of 2500 in treding	6	2500
10	SALARY	2023-04-11	4	4	Got my salary	5	5000
11	salary	2023-04-11	11	4	INcome	5	3000

Figure 5.2.4 income DB



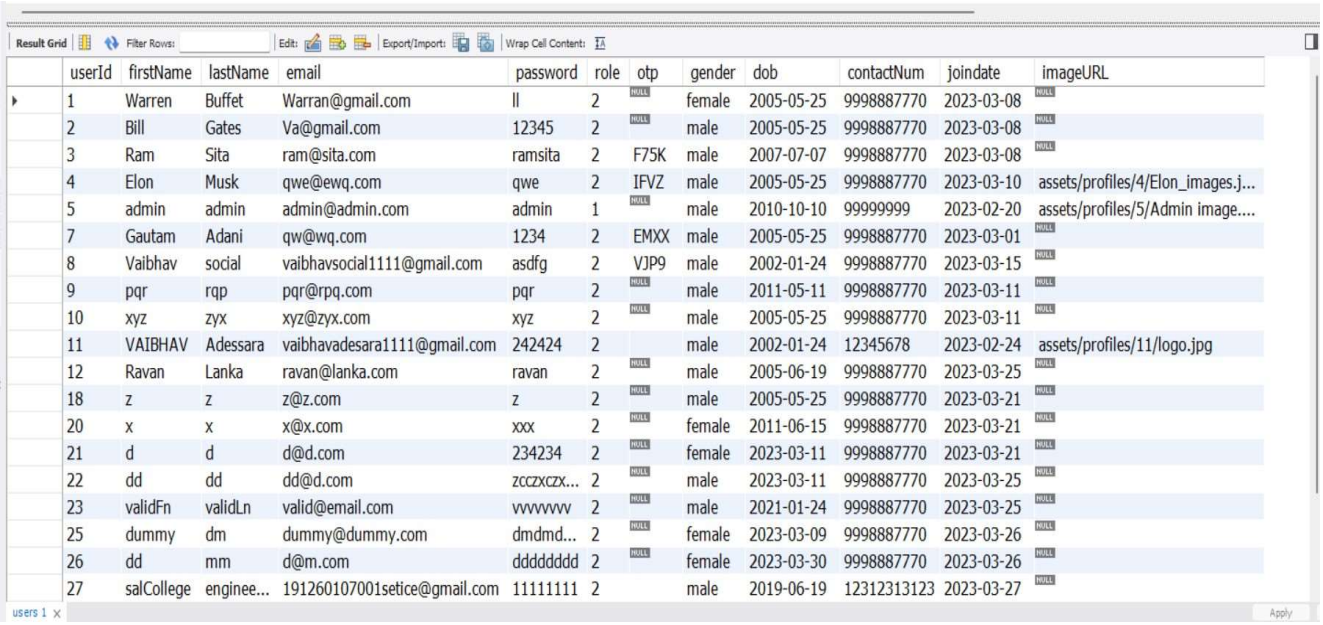
statusId	statusShow	deleted
5	paid	0
6	partial paid	0
8	unpaid	0
9	Not Decided Yet	0
NULL	NULL	NULL

Figure 5.2.5 status DB



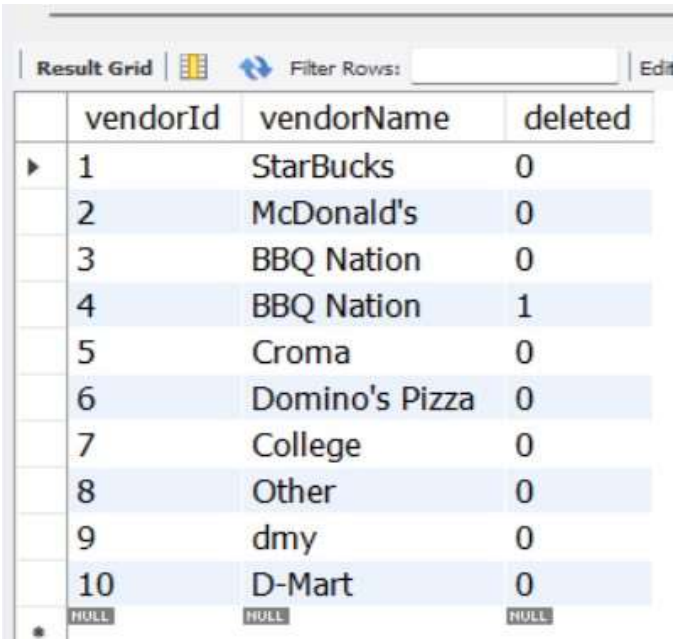
subCategoryId	subCategoryName	categoryId	deleted
1	Bike	5	0
2	Car	5	0
3	Chair	7	0
4	chair	7	1
5	Paracetamol	10	0
6	Break Fast	12	0
7	NULL	11	1
8	T-Shirts	11	0
9	Others	16	0
NULL	NULL	NULL	NULL

Figure 5.2.6 subcategory DB



userId	firstName	lastName	email	password	role	otp	gender	dob	contactNum	joindate	imageURL
1	Warren	Buffet	Warran@gmail.com	ll	2	NULL	female	2005-05-25	9998887770	2023-03-08	NULL
2	Bill	Gates	Va@gmail.com	12345	2	NULL	male	2005-05-25	9998887770	2023-03-08	NULL
3	Ram	Sita	ram@sita.com	ramsita	2	F75K	male	2007-07-07	9998887770	2023-03-08	NULL
4	Elon	Musk	qwe@ewq.com	qwe	2	IFVZ	male	2005-05-25	9998887770	2023-03-10	assets/profiles/4/Elon_images.j...
5	admin	admin	admin@admin.com	admin	1	NULL	male	2010-10-10	99999999	2023-02-20	assets/profiles/5/Admin image....
7	Gautam	Adani	qw@wq.com	1234	2	EMXX	male	2005-05-25	9998887770	2023-03-01	NULL
8	Vaibhav	social	vaibhavsocial1111@gmail.com	asdfg	2	VJP9	male	2002-01-24	9998887770	2023-03-15	NULL
9	pqr	rqp	pqr@rpq.com	pqr	2	NULL	male	2011-05-11	9998887770	2023-03-11	NULL
10	xyz	zyx	xyz@zyx.com	xyz	2	NULL	male	2005-05-25	9998887770	2023-03-11	NULL
11	VAIBHAV	Adessara	vaibhavadesara1111@gmail.com	242424	2		male	2002-01-24	12345678	2023-02-24	assets/profiles/11/logo.jpg
12	Ravan	Lanka	ravan@lanka.com	ravan	2	NULL	male	2005-06-19	9998887770	2023-03-25	NULL
18	z	z	z@z.com	z	2	NULL	male	2005-05-25	9998887770	2023-03-21	NULL
20	x	x	x@x.com	xxx	2	NULL	female	2011-06-15	9998887770	2023-03-21	NULL
21	d	d	d@d.com	234234	2	NULL	female	2023-03-11	9998887770	2023-03-21	NULL
22	dd	dd	dd@d.com	zcczxczx...	2	NULL	male	2023-03-11	9998887770	2023-03-25	NULL
23	validFn	validLn	valid@email.com	vvvvvvvv	2	NULL	male	2021-01-24	9998887770	2023-03-25	NULL
25	dummy	dm	dummy@dummy.com	dmdmd...	2	NULL	female	2023-03-09	9998887770	2023-03-26	NULL
26	dd	mm	d@m.com	ddddddd	2	NULL	female	2023-03-30	9998887770	2023-03-26	NULL
27	salCollege	enginee...	191260107001setice@gmail.com	11111111	2		male	2019-06-19	12312313123	2023-03-27	NULL

Figure 5.2.7 users DB



vendorId	vendorName	deleted
1	StarBucks	0
2	McDonald's	0
3	BBQ Nation	0
4	BBQ Nation	1
5	Croma	0
6	Domino's Pizza	0
7	College	0
8	Other	0
9	dmy	0
10	D-Mart	0
NULL	NULL	NULL

Figure 5.2.8 vendor DB

5.3 SYSTEM PROCEDURAL DESIGN

5.3.1 Design Pseudo code or algorithm for method or operation

Admin Side

Step 1: Enter the URL to open the system

Step 2: Click on Login Button for Login

Step 3: Provide user name and password

Step 4: If username and password both is correct then it will login successfully.

Step 5: It shows Admin page

Step 6: Admin can able to perform Many operations and Also Access to all pages.

Step 7: Admin contain service request which include UserId status (New, pending, Completed).

User Side

Step 1: Enter the URL to open the system

Step 2: Click on Login Button for Login

Step 3: Provide user name and password

Step 4: If username and password both is correct then it will login successfully.

Step 5: It shows home page

Step 6: User can see, add and edit their Expense & Income and also able to see report and can Analyse of their expenses.

Step 7: Logout User.

5.3.2 Flow Chart

Admin

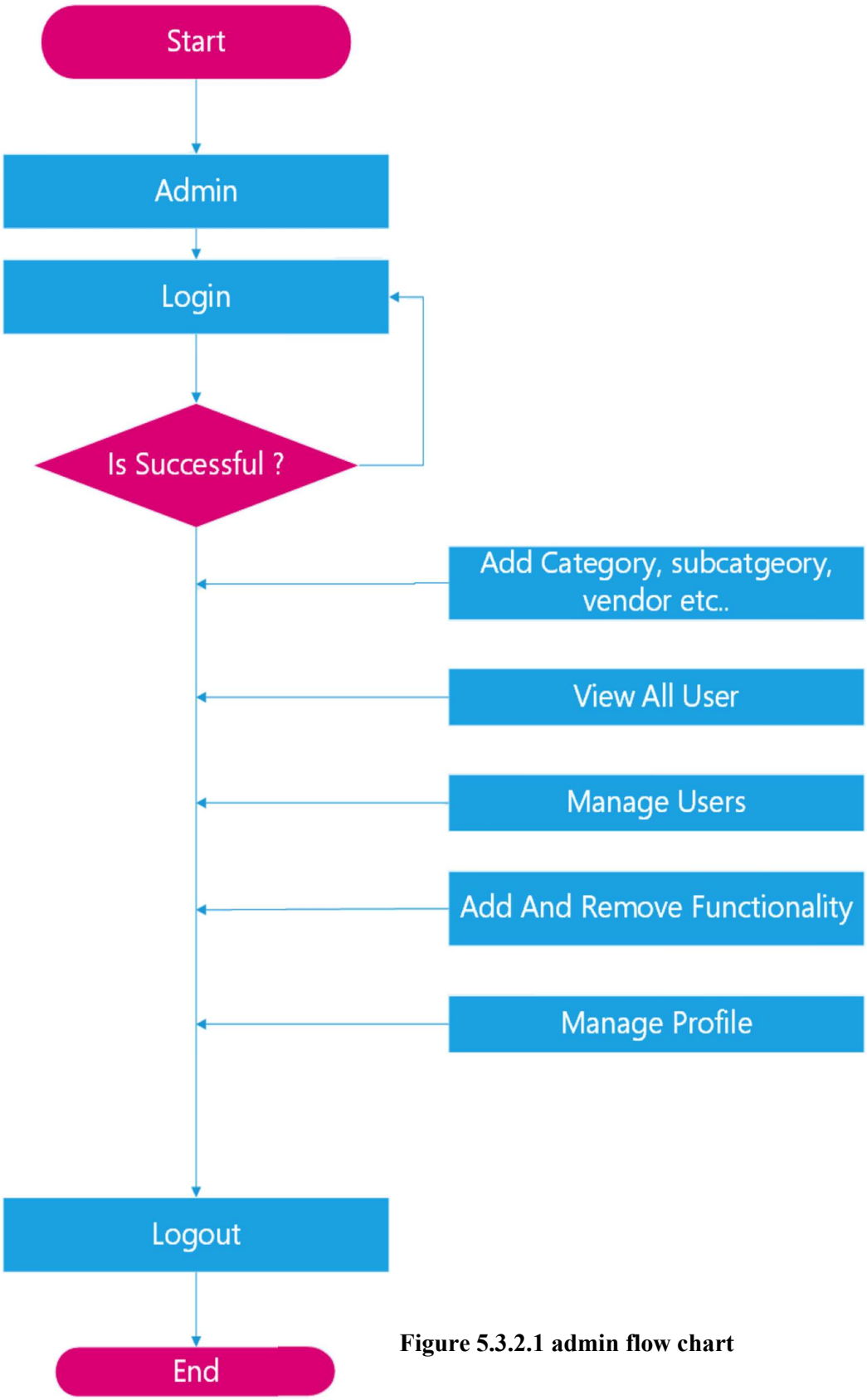


Figure 5.3.2.1 admin flow chart

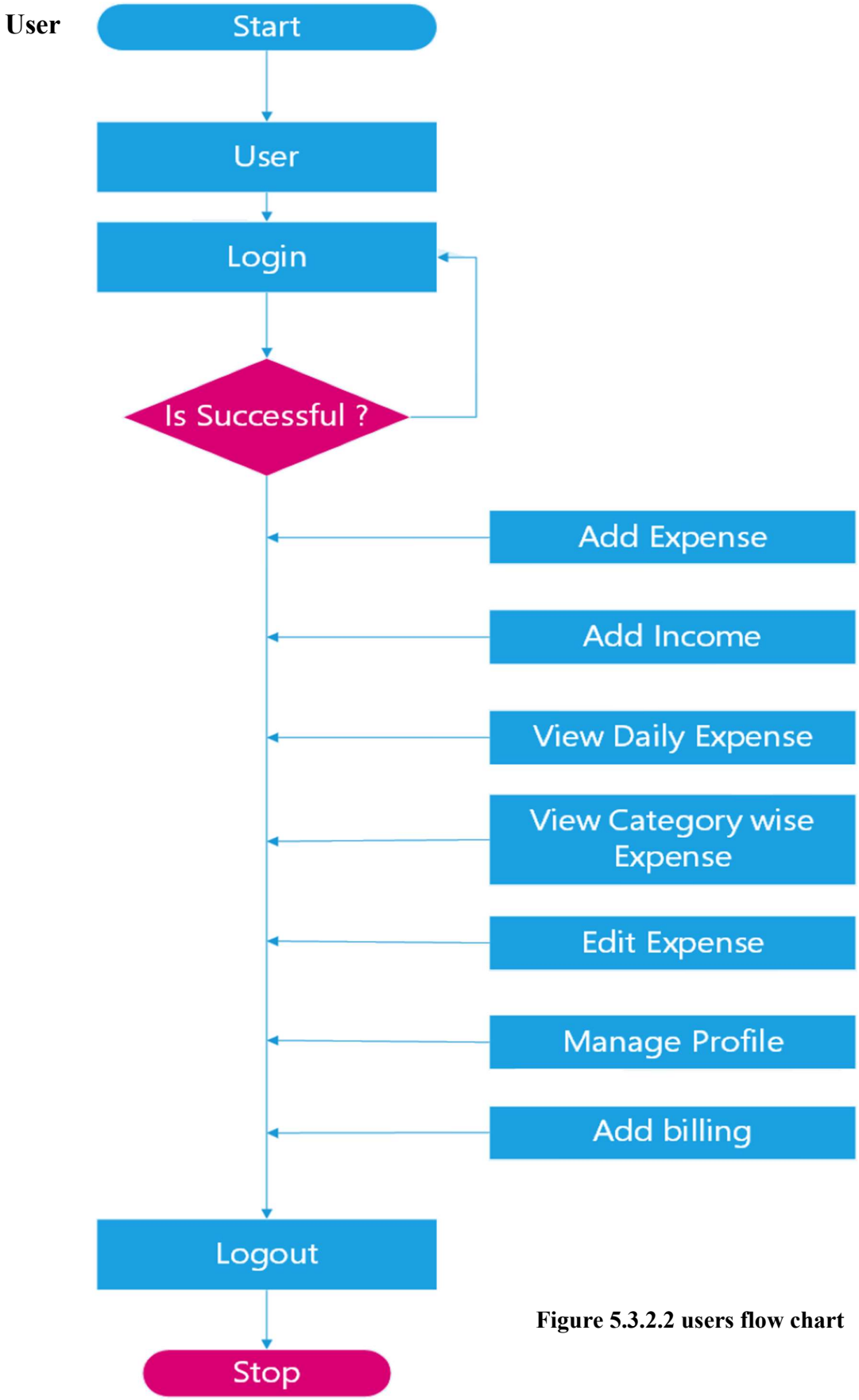


Figure 5.3.2.2 users flow chart

5.3.3 State chart Diagram

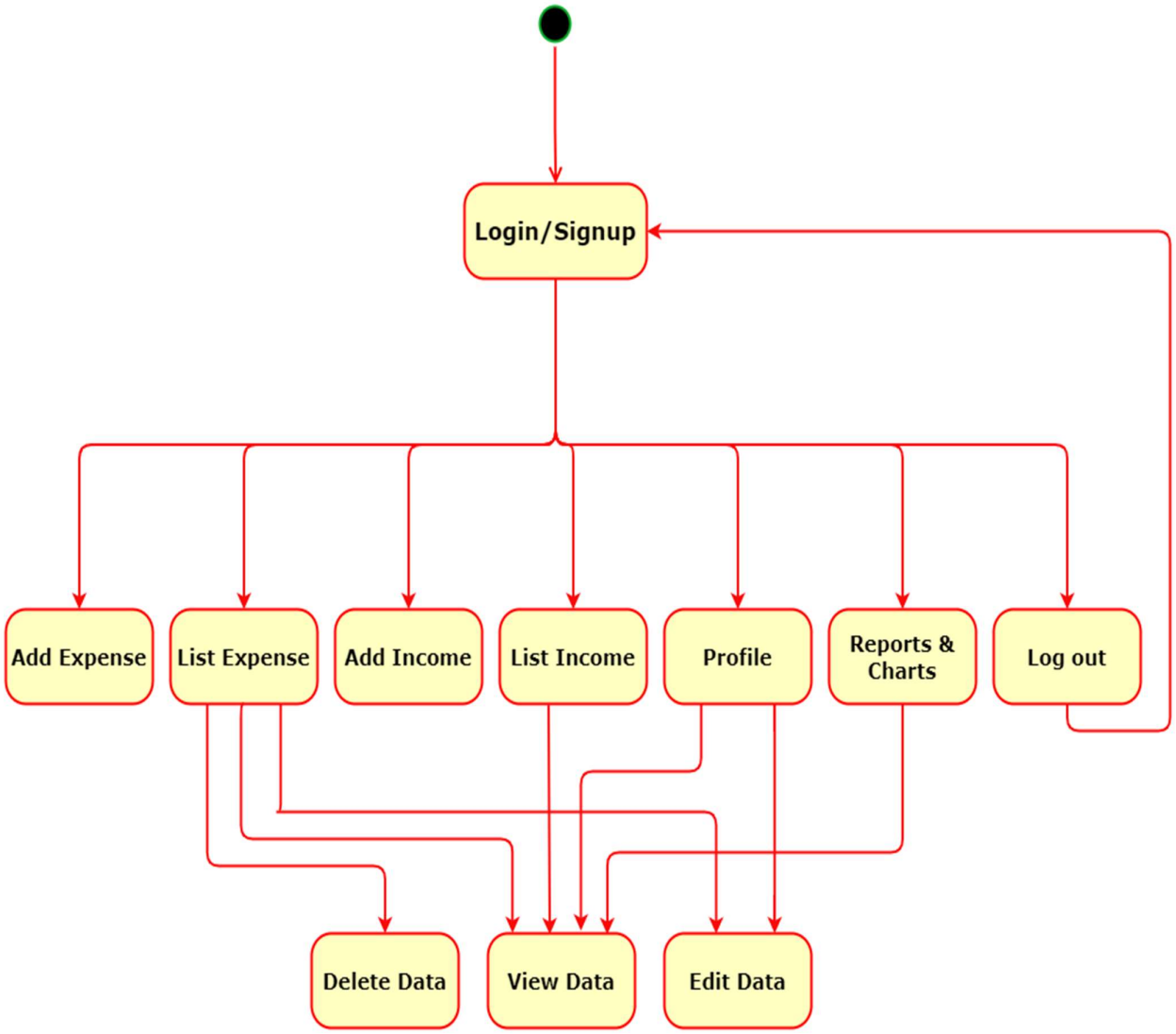


Figure 5.3.3.1 State Chart Diagram

IMPLEMENTATION

6.1 IMPLEMENTATION PLATFORM

- Our project is suitable to all type of users like single and multi-users.
- Multi users are allowed to operate the website at the same time.
- We provide the interface which is user friendly.
- We have GUI (graphical user interface) by which all type of users can easily access the application.
- One user at a time and also multi users can access the website at the same time and use all the services.
- If we don't provide the GUI in the website then user won't like our website.
- For better performance and reliability, we have to include GUI in the website.
- So, for the more security and performance we have to use the GUI

6.2 TECHNOLOGY SPECIFICATION

User Authentication

- Identification and authentication are used to establish a user's identity.
- Each user is required to log in to the system.

Password Protection

- Every user who is to be allowed to access the portal is given his own username and password and given his own access rights so that only authorized and authenticated users can access the project.

Confidentiality

- We provide confidentiality to all the users.
- In that one user cannot access the data of the other users.
- For that we provide one key to each user to secure its data.

Scalability

- We provide the scalable website to make sure that every user can access the website in a proper order.
- User likes those type of website which are in one particular order that user cannot wait for the usage of the services.

6.3 RESULTS

Login

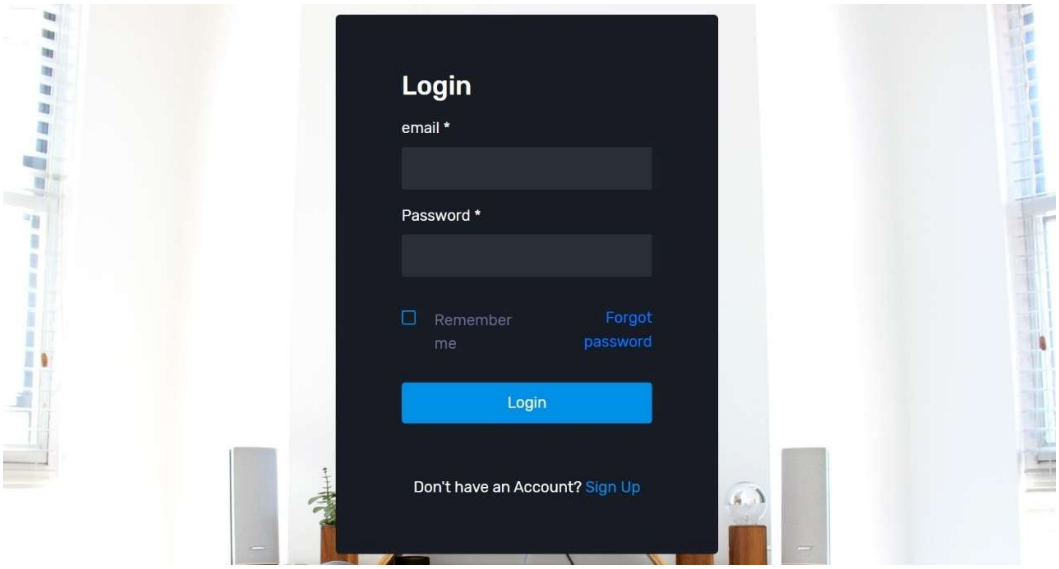


Figure 6.3.1 Login

Forgot Password

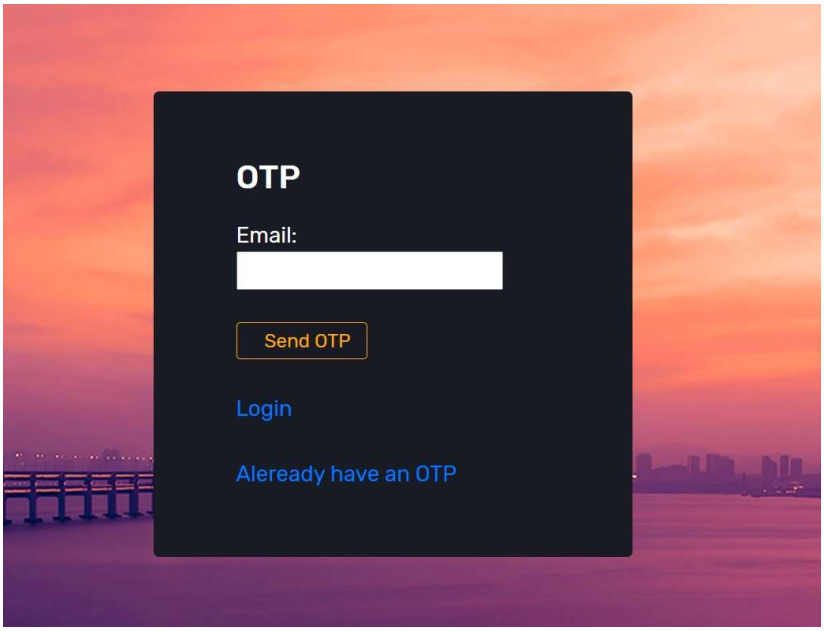


Figure 6.3.2 Forgot Password

Update Password

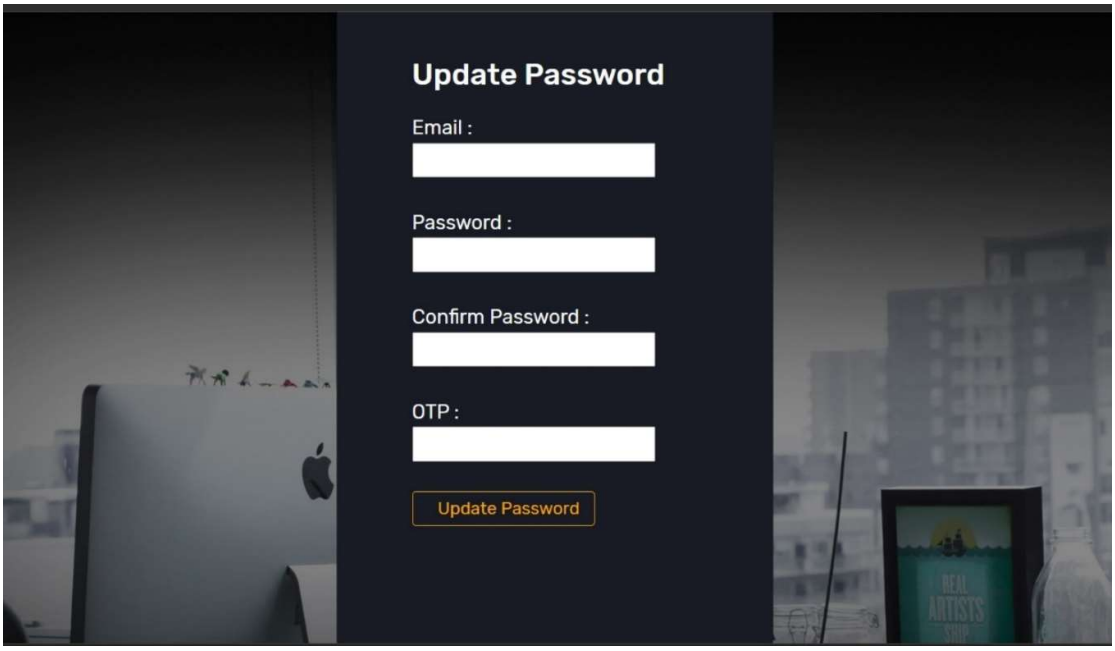


Figure 6.3.2 Update Password

Customer Create Account (Sign UP Page)

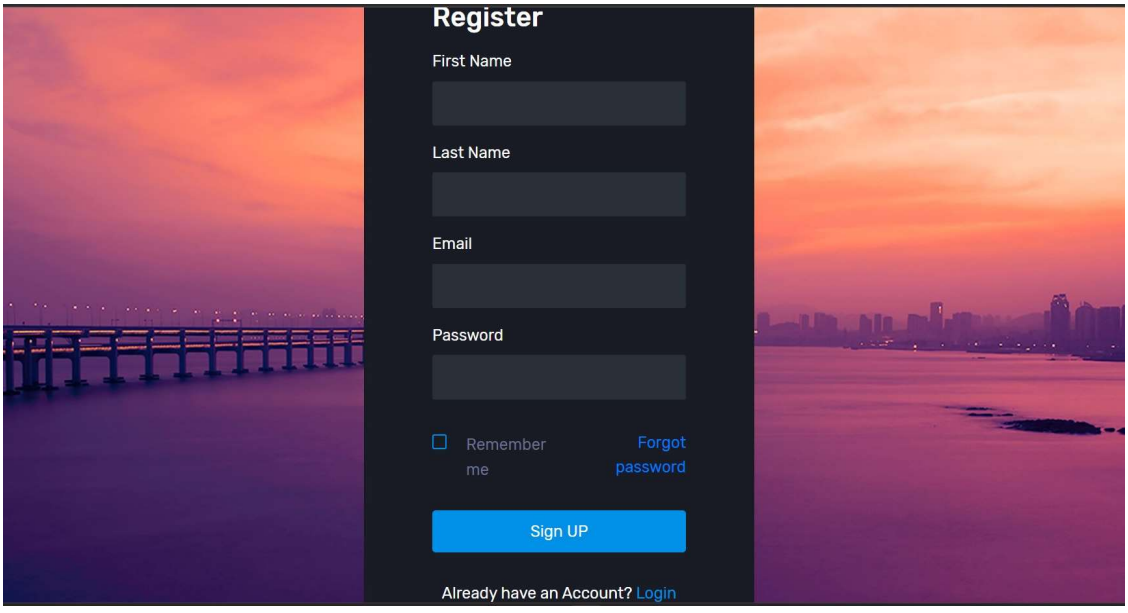
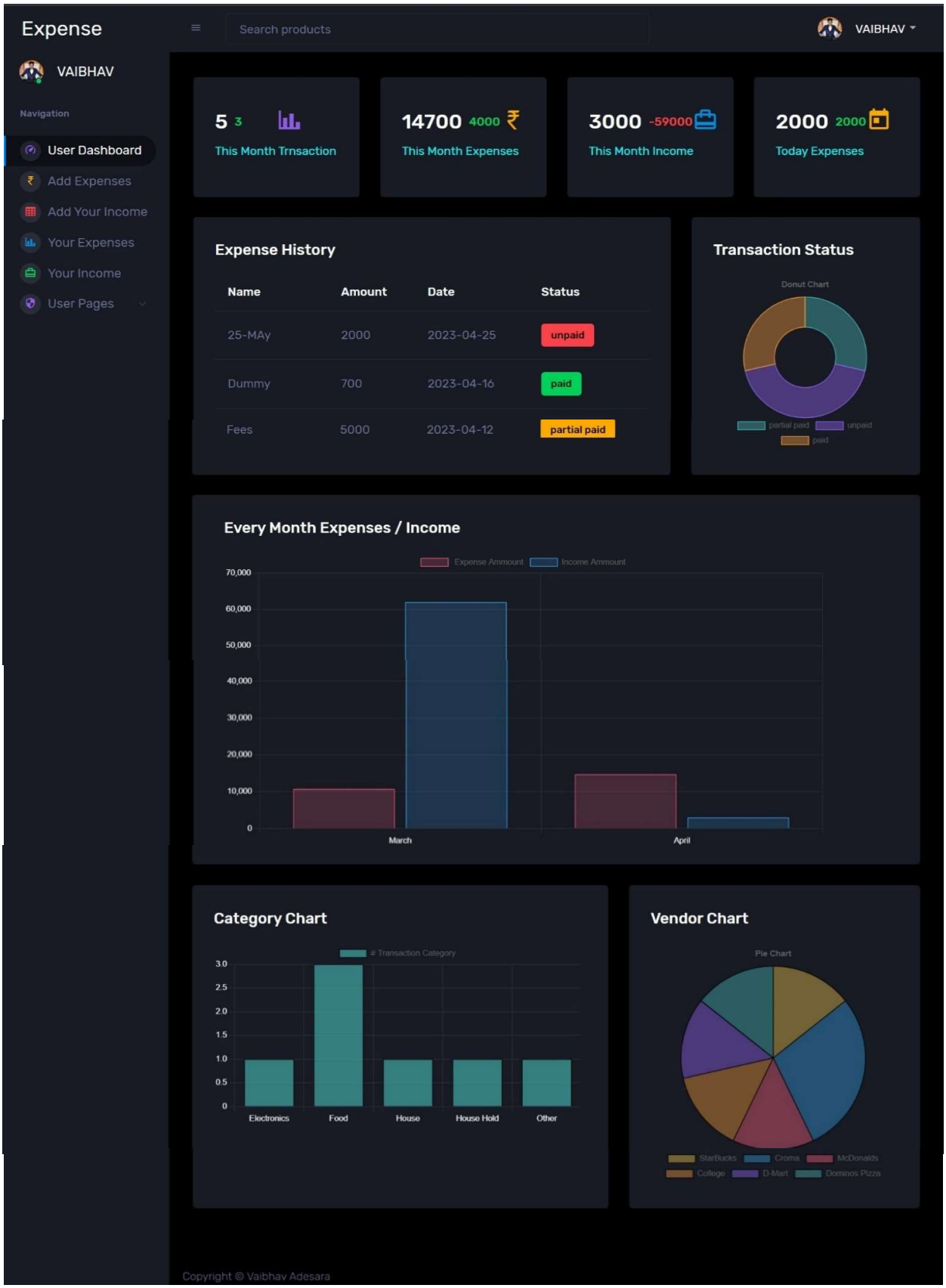


Figure 6.3.3 Customer Create Account

User Dashboard (Home Page)

Figure 6.3.5 User Dashboard



User side Add Expense

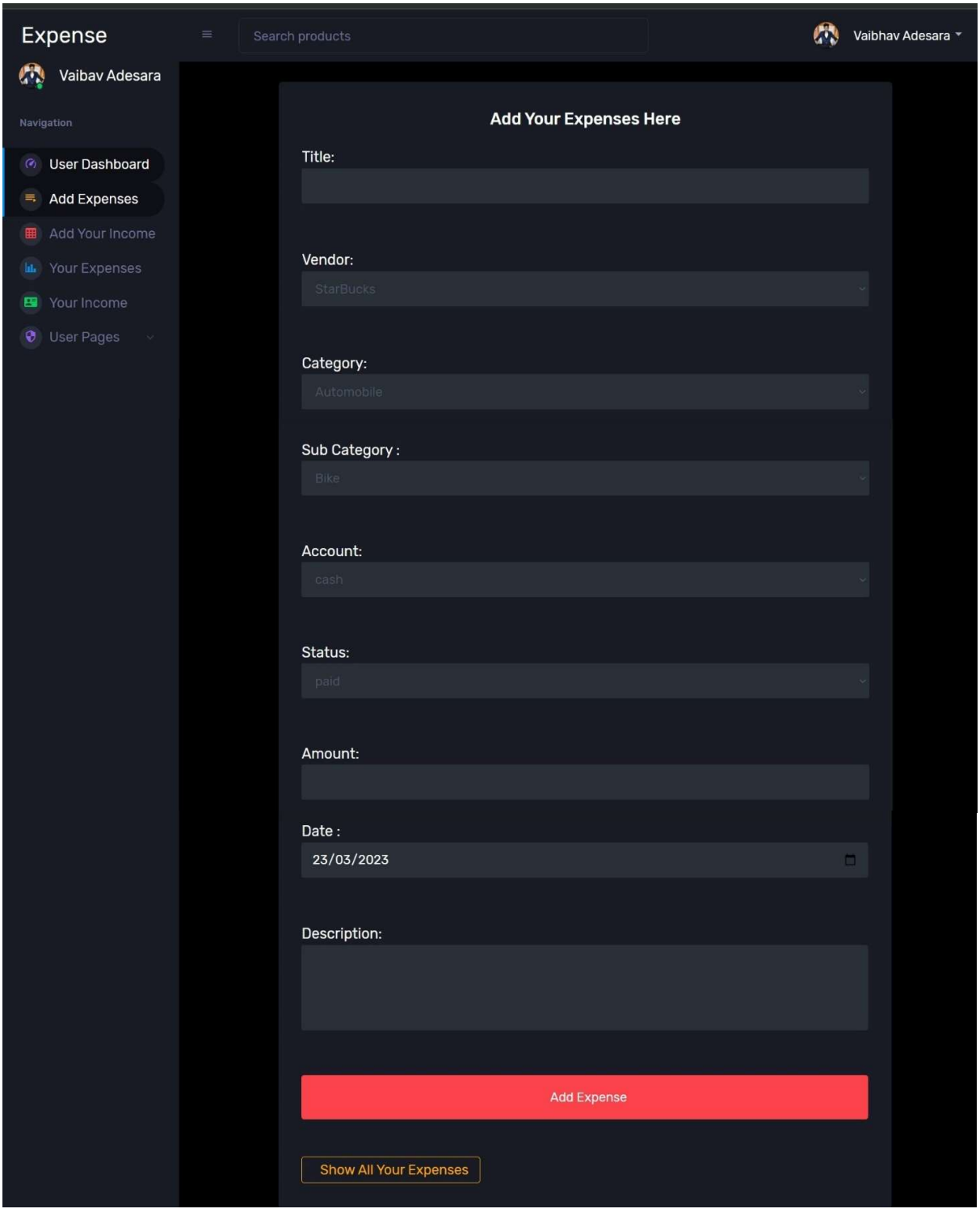


Figure 6.3.6 User side Add Expense

List Expense

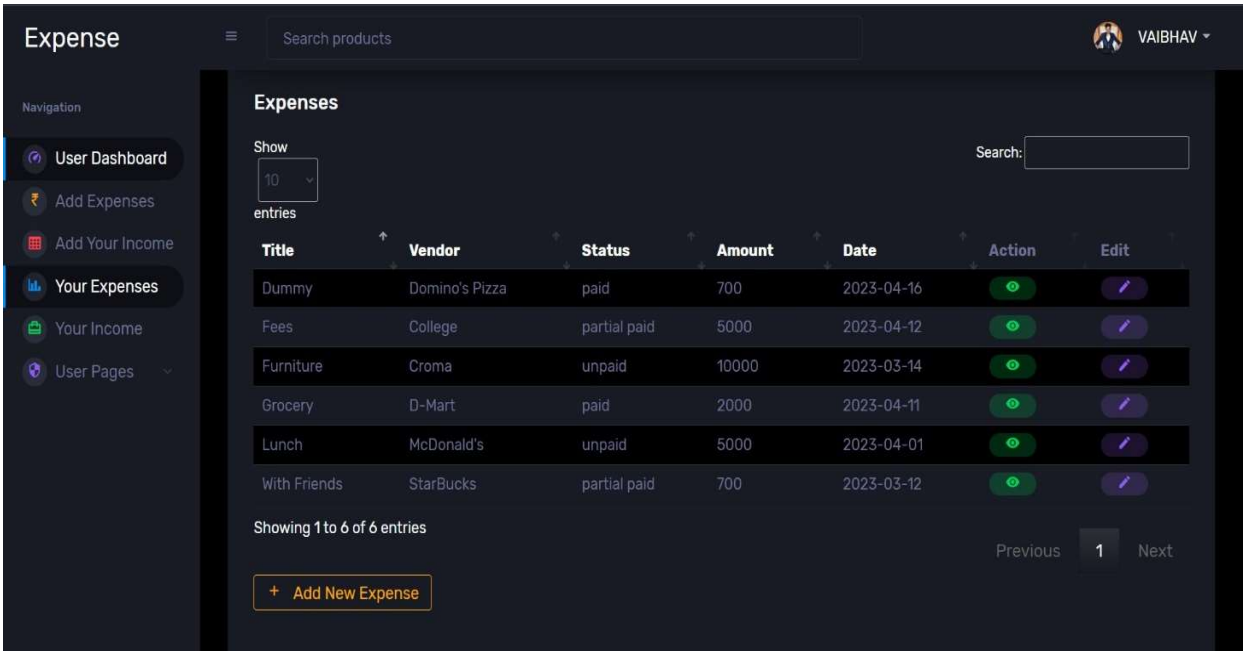


Figure 6.3.7 users Expenses List

More Expense Detail of particular Transaction

Figure 6.3.8 Particular Expense All details

Edit Expense

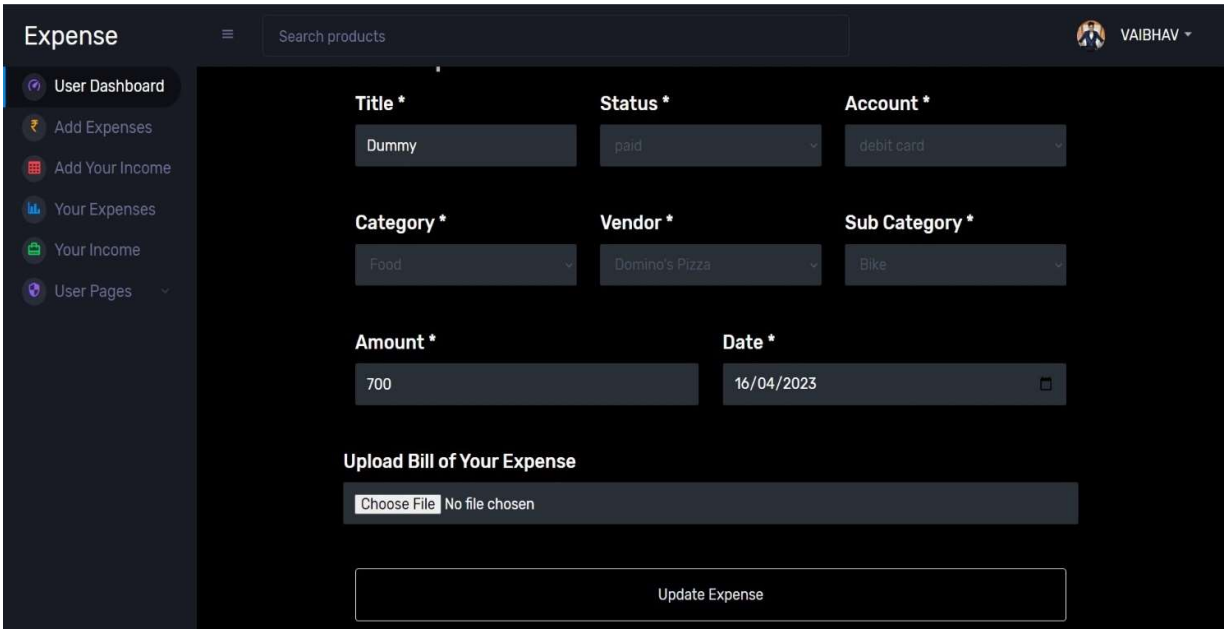


Figure 6.3.9 Edit Expense

All income data of Users

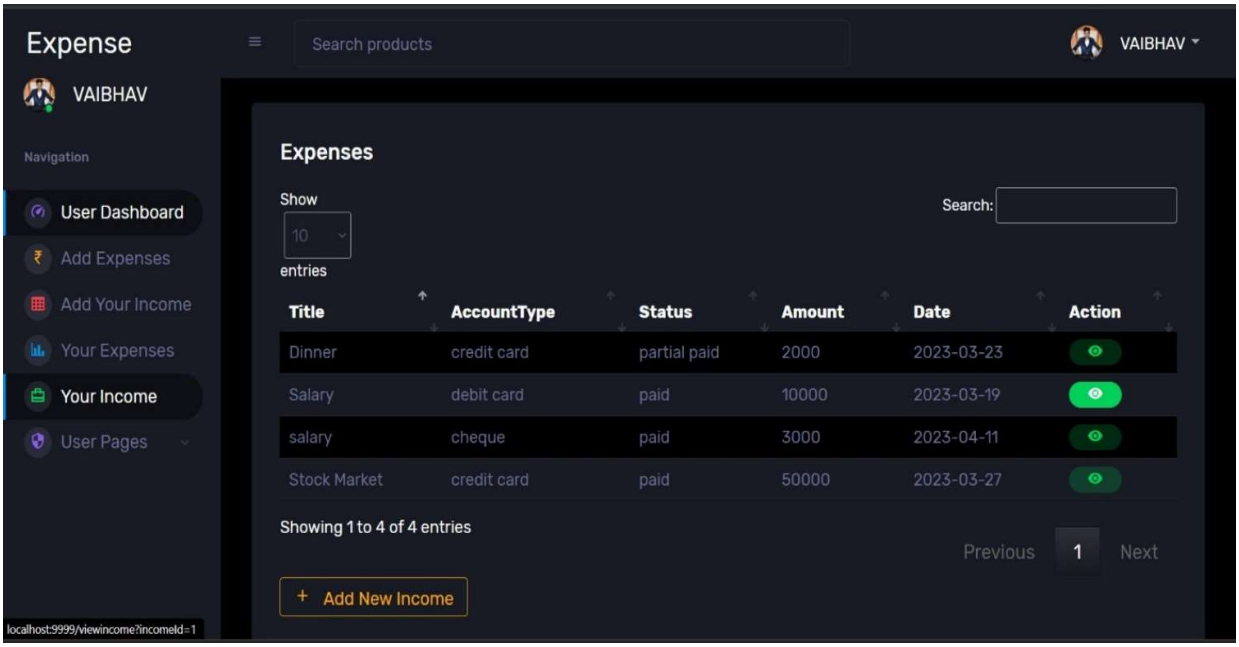


Figure 6.3.10 All income data of Users

Add user Income

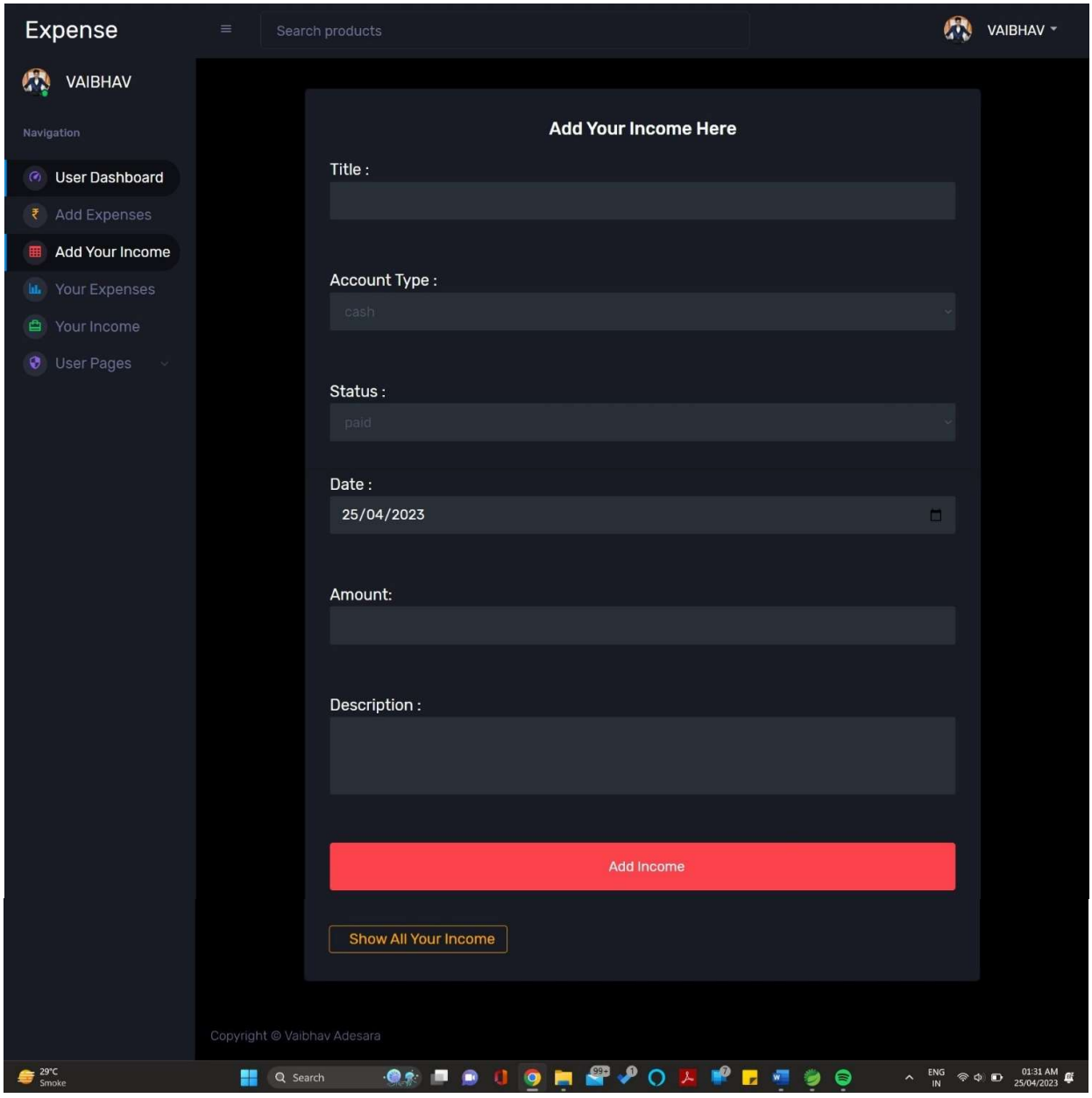


Figure 6.3.10 Add user income

View income details

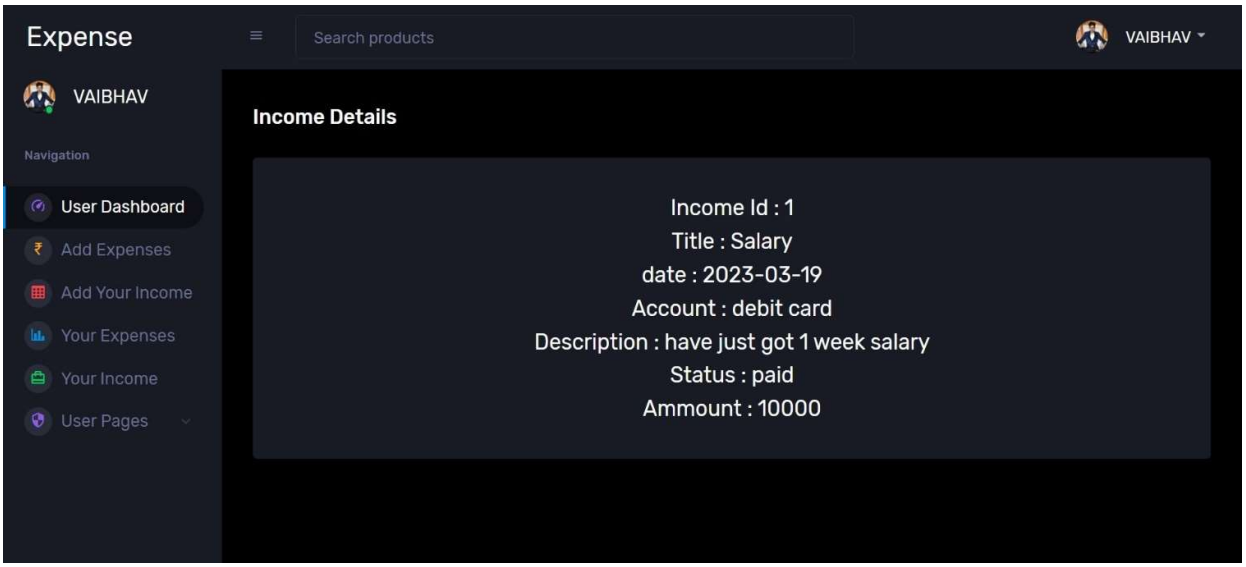


Figure 6.3.12 All income data of Users

Edit Users Profile

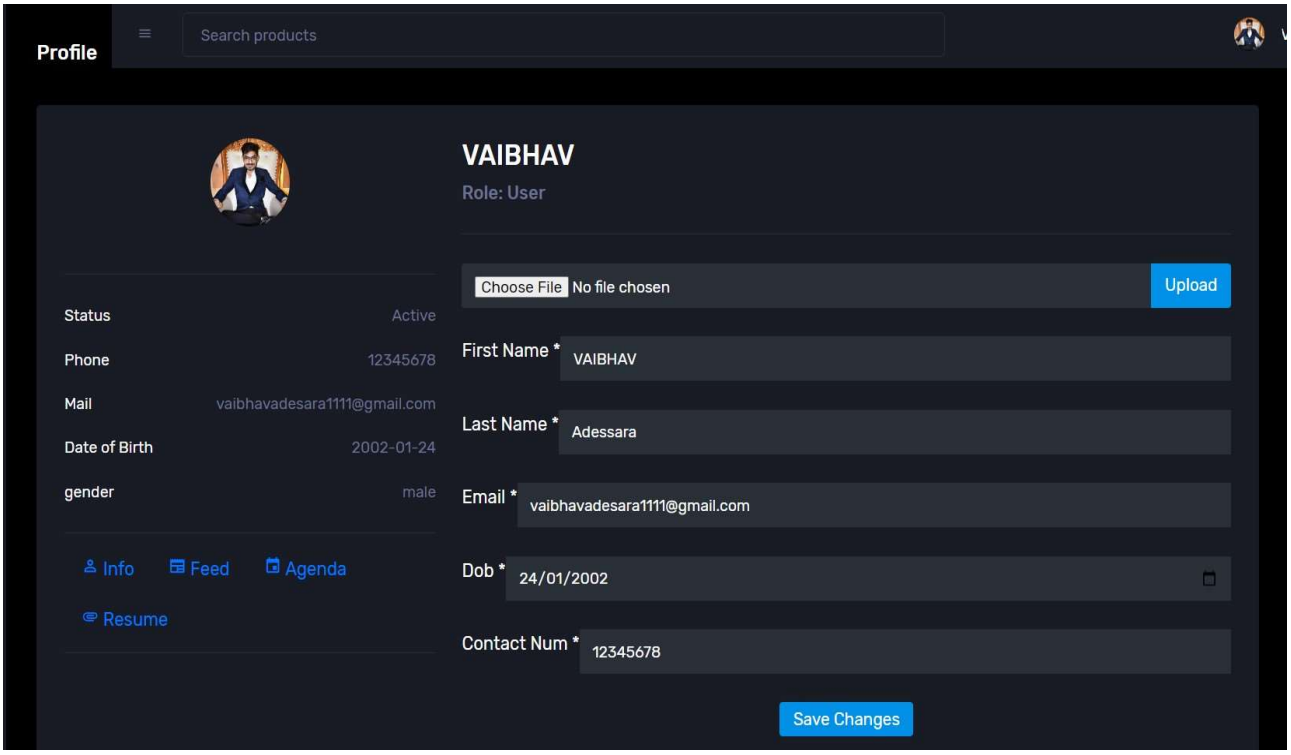
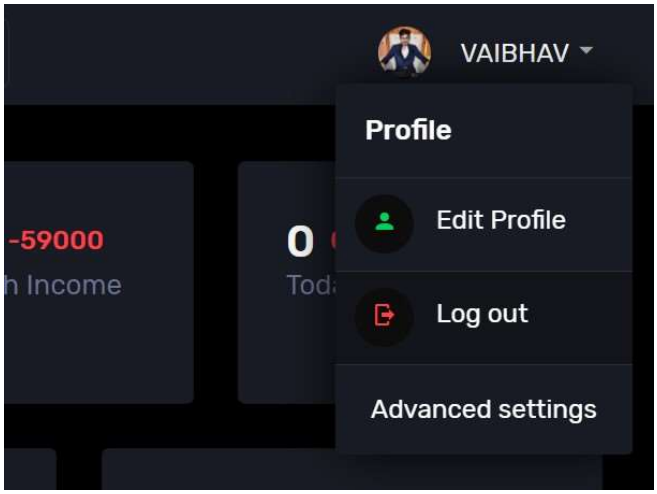


Figure 6.3.13 Edit Users Profile

Log Out

1).



2).

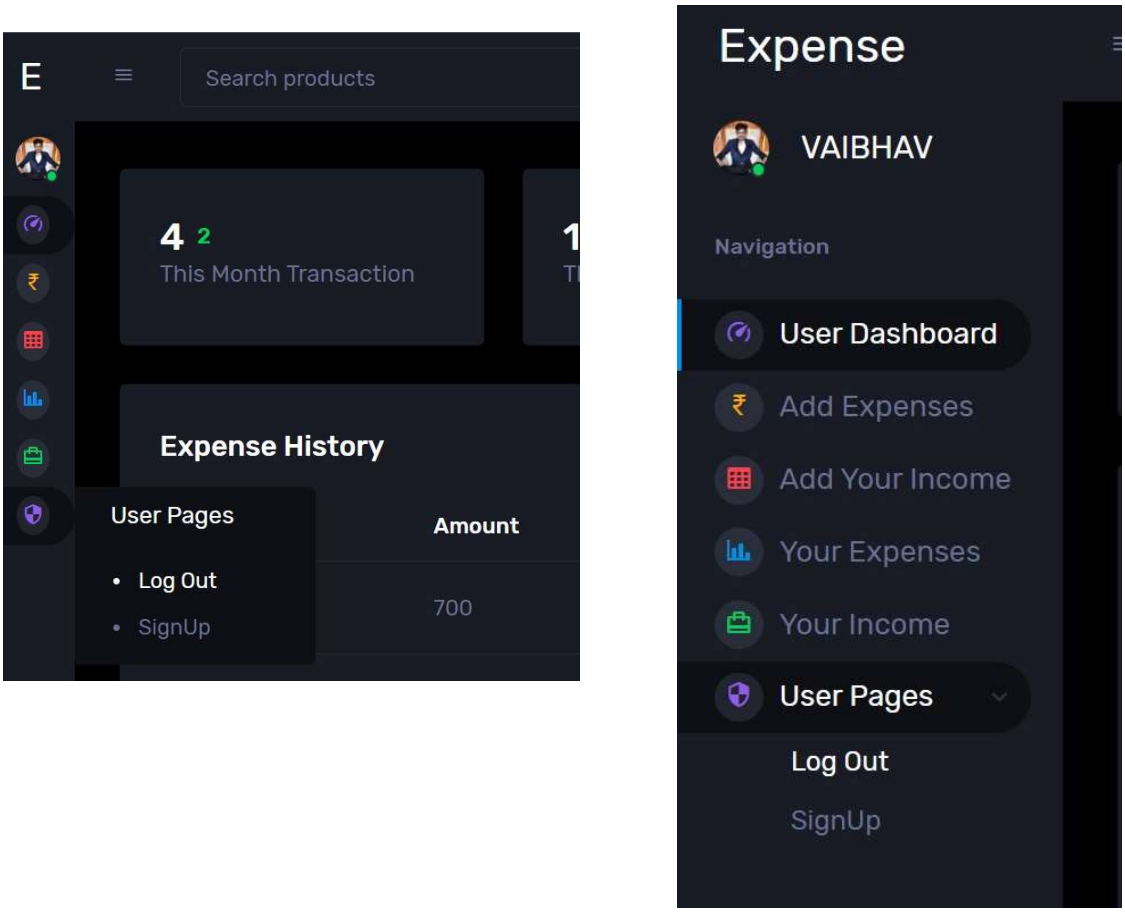


Figure 6.3.14 Logout

Admin Dashboard

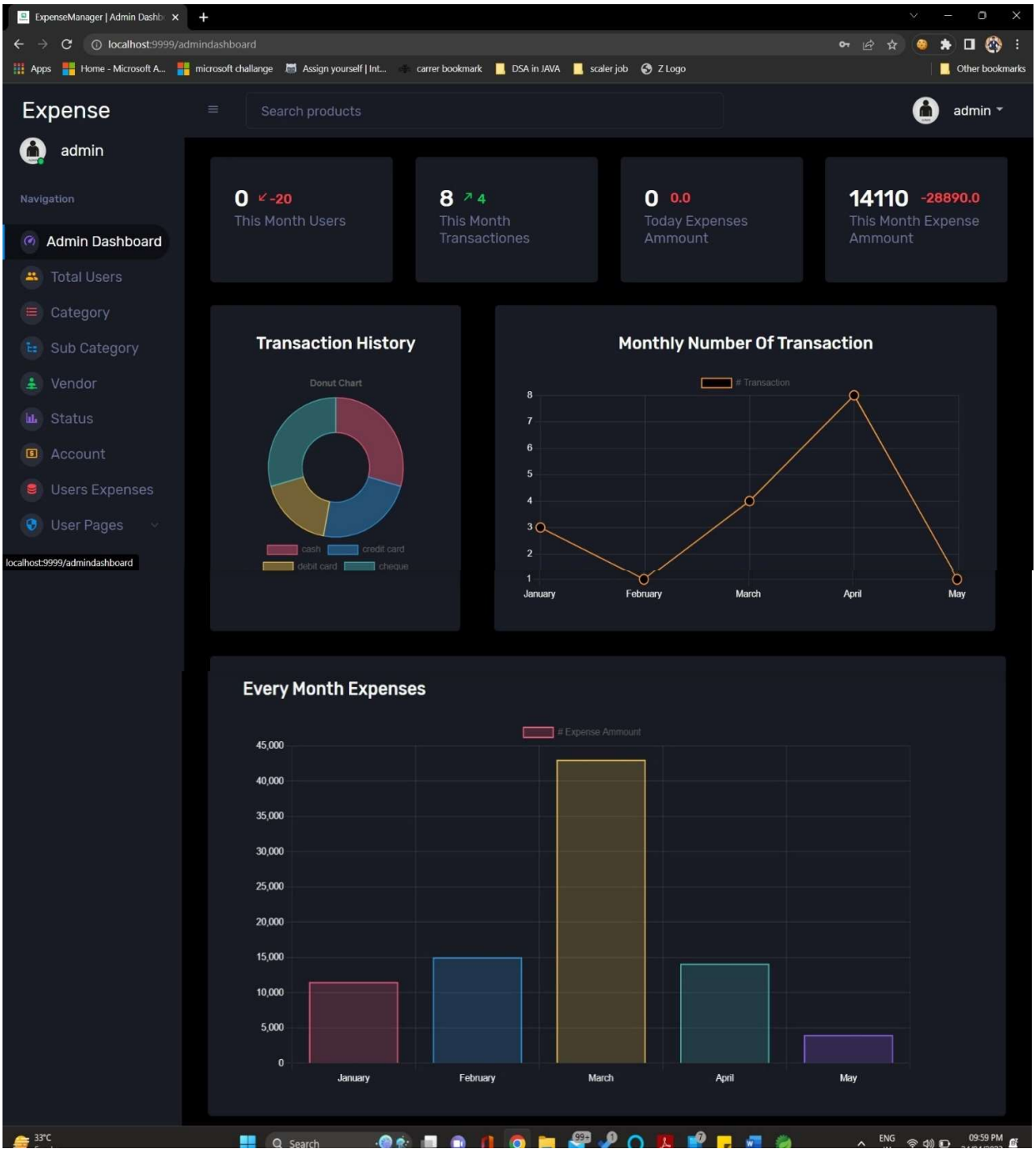


Figure 6.3.15 Admin Dashboard

List Users

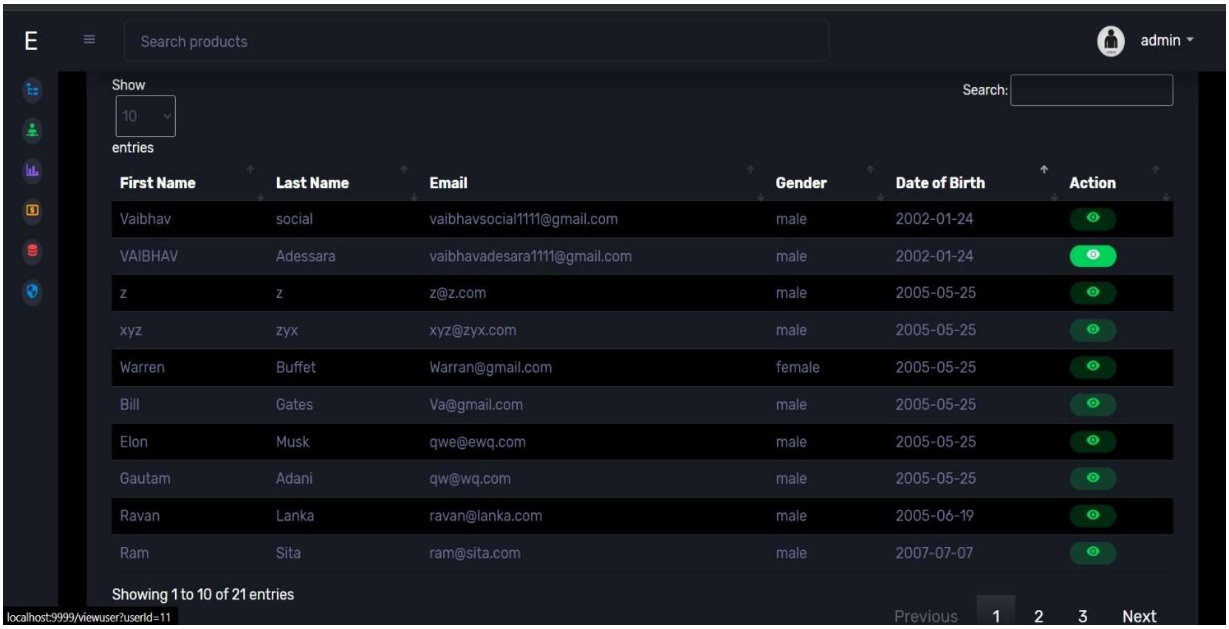


Figure 6.3.16 Service History

Specific User Details

Figure 6.3.17 Specific User Details

List All Categories

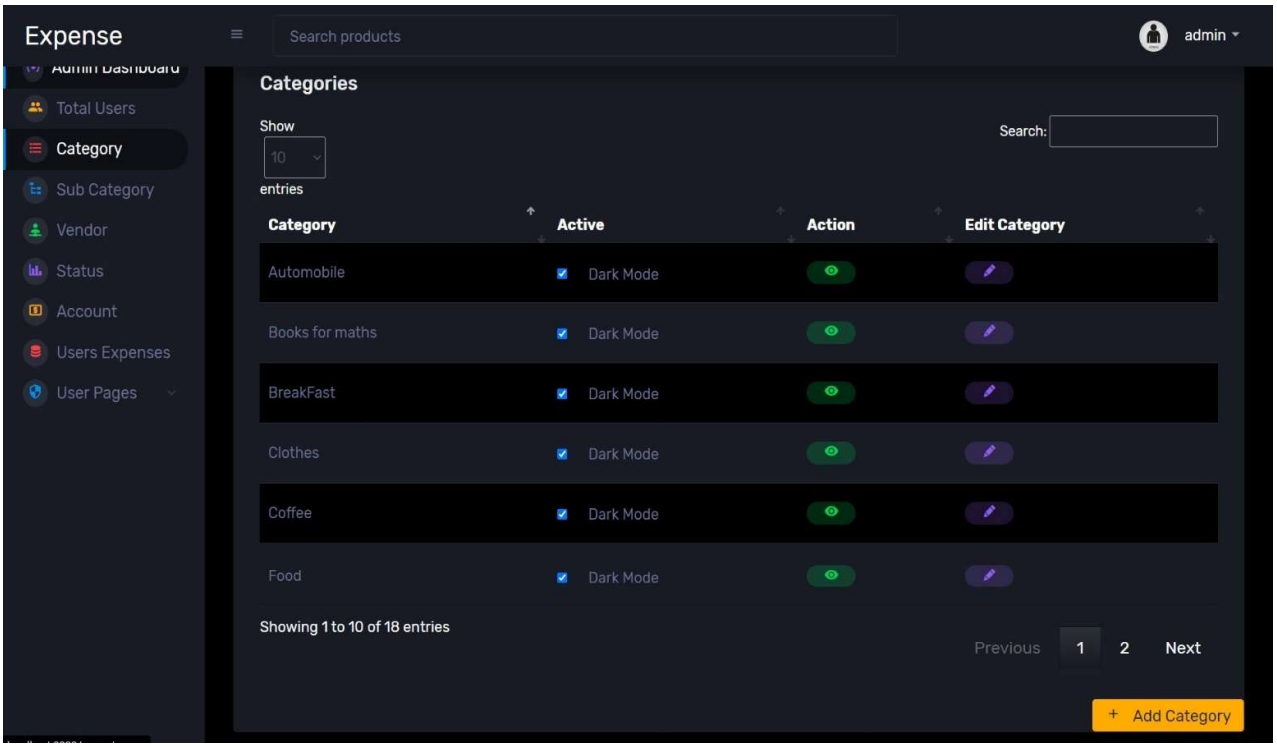


Figure 6.3.18 List All Categories

Add New Category

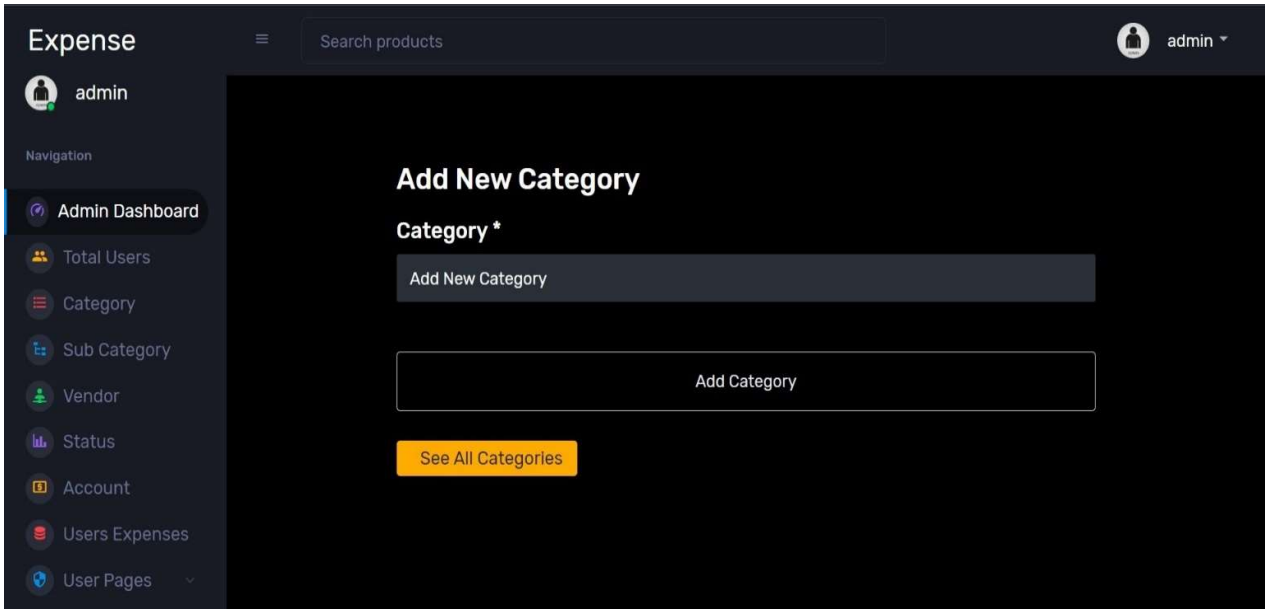


Figure 6.3.19 Add New Category

Edit Category

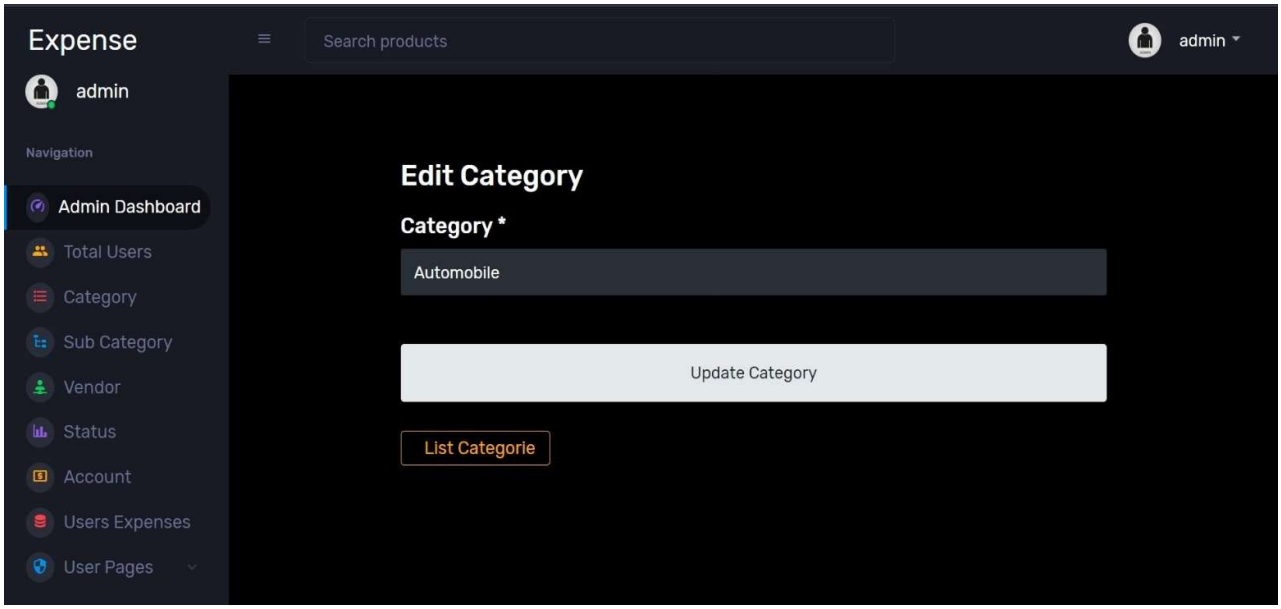


Figure 6.3.20 Edit Category

List All Sub Categories

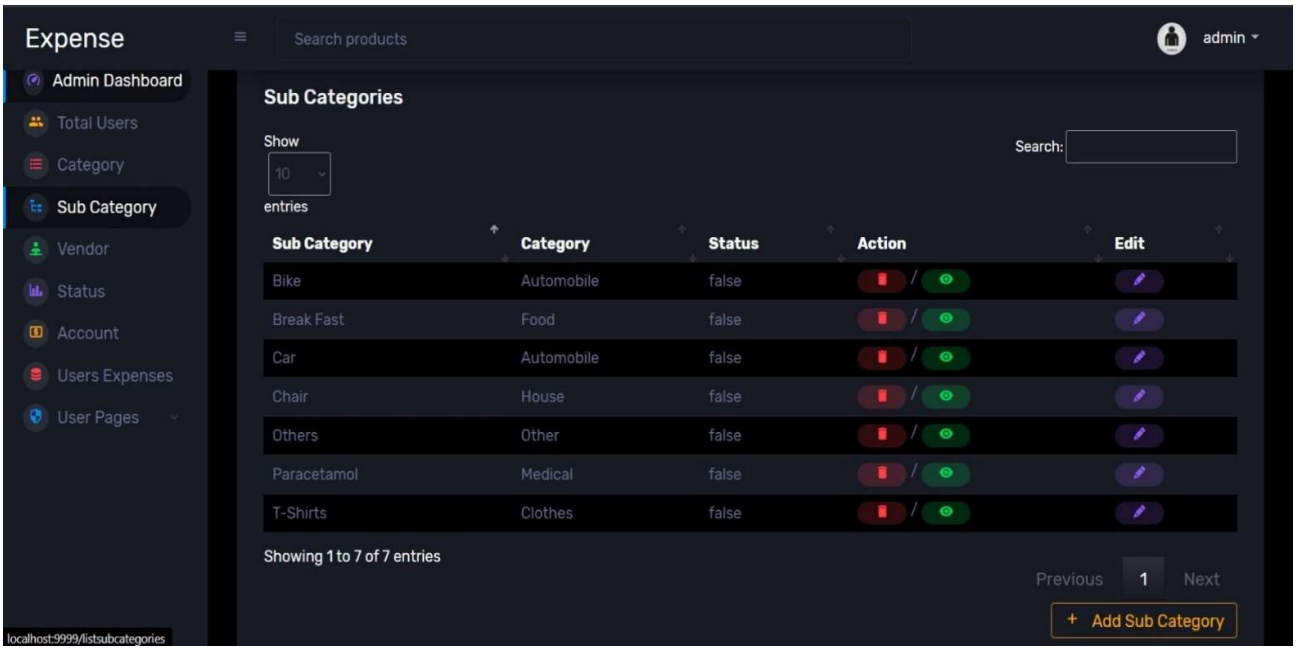


Figure 6.3.21 List All Sub Categories

Add New Category

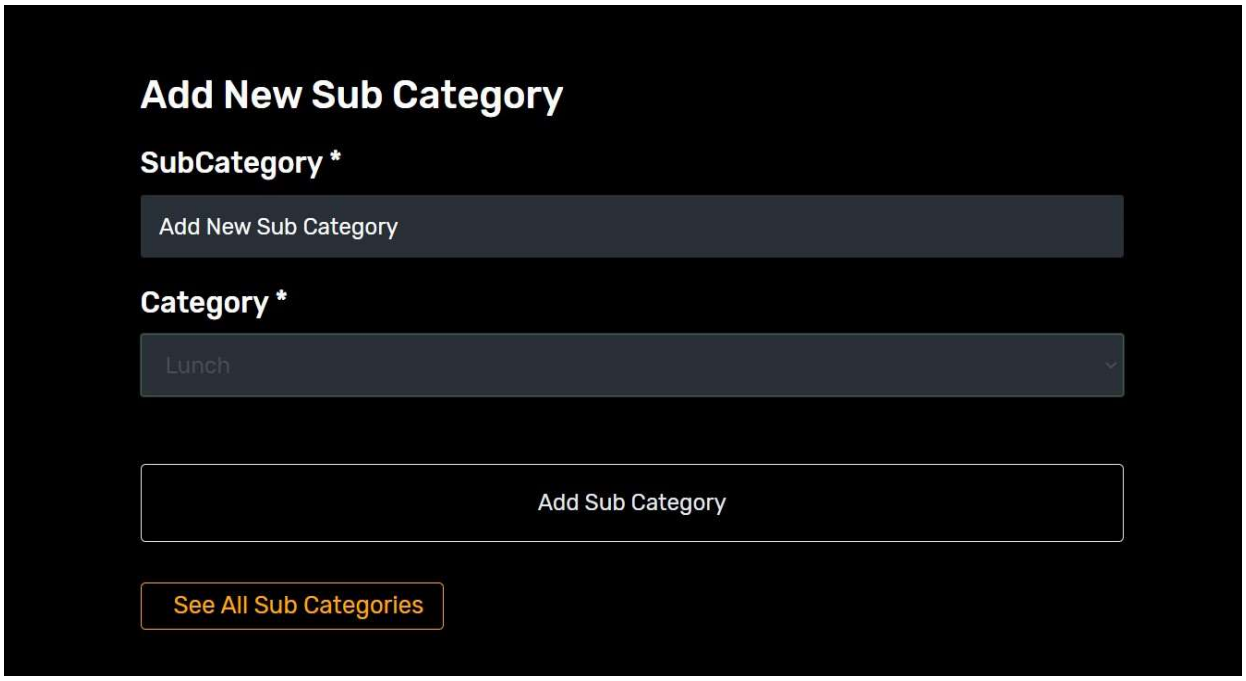


Figure 6.3.22 Add New Category

View Sub Category Detail

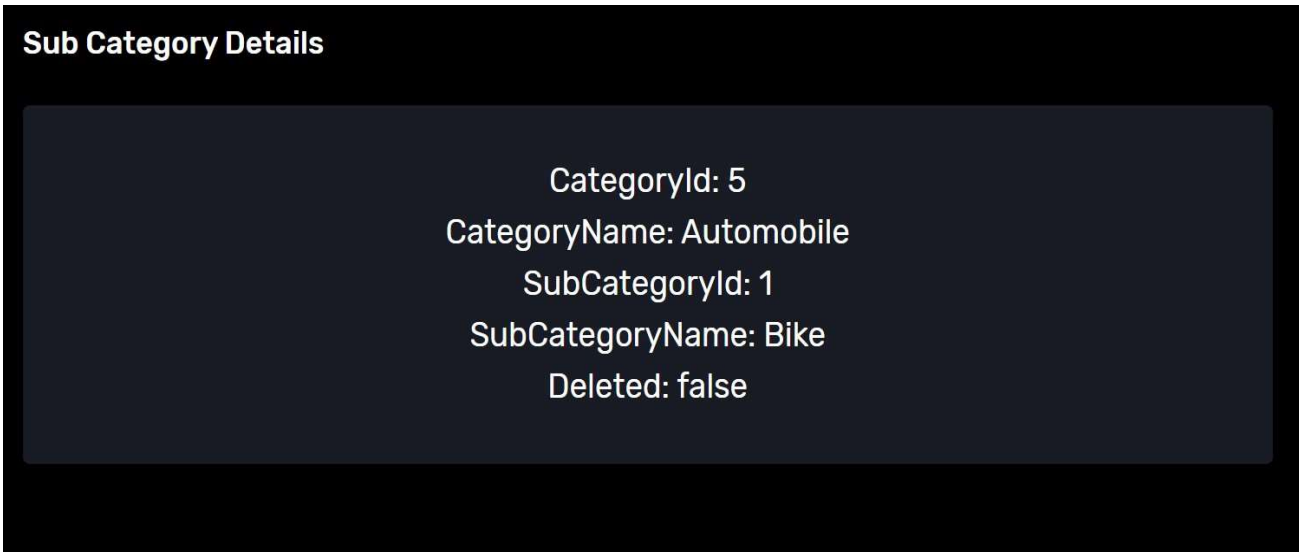


Figure 6.3.23 View Sub Category

Edit Sub Category

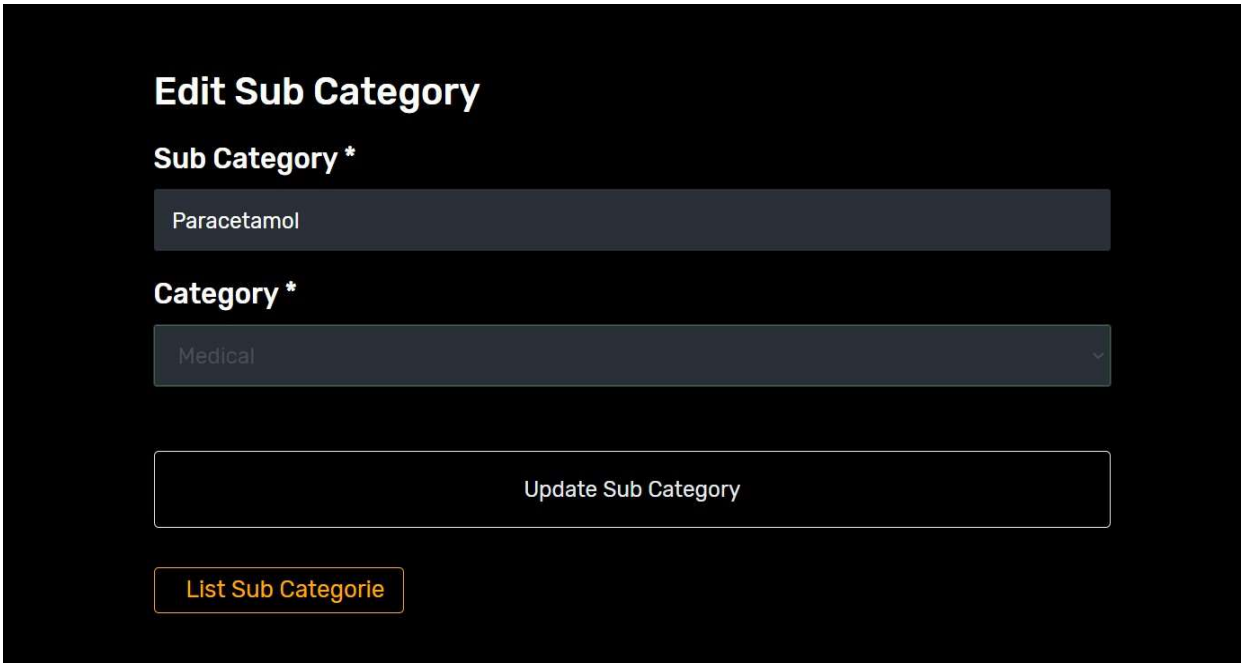


Figure 6.3.24 Edit Sub Category

List Vendors

Figure 6.3.25 List Vendors

Add Vendor

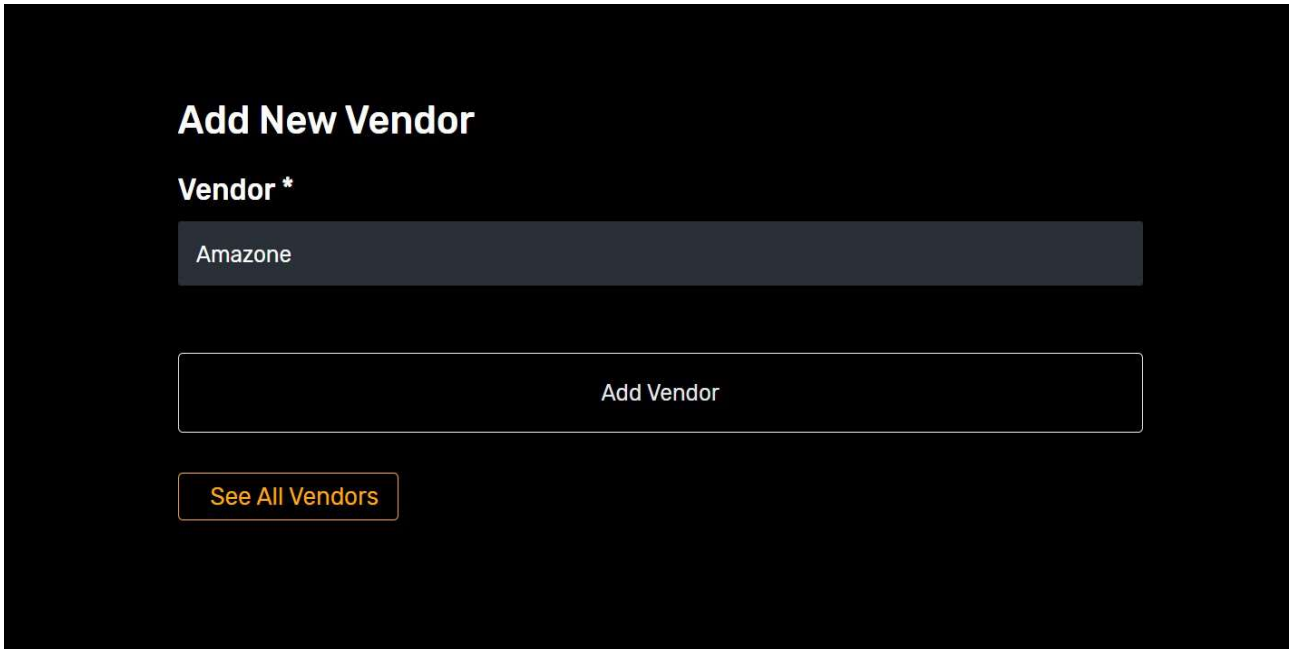


Figure 6.3.26 Add Vendor

Edit Vendor

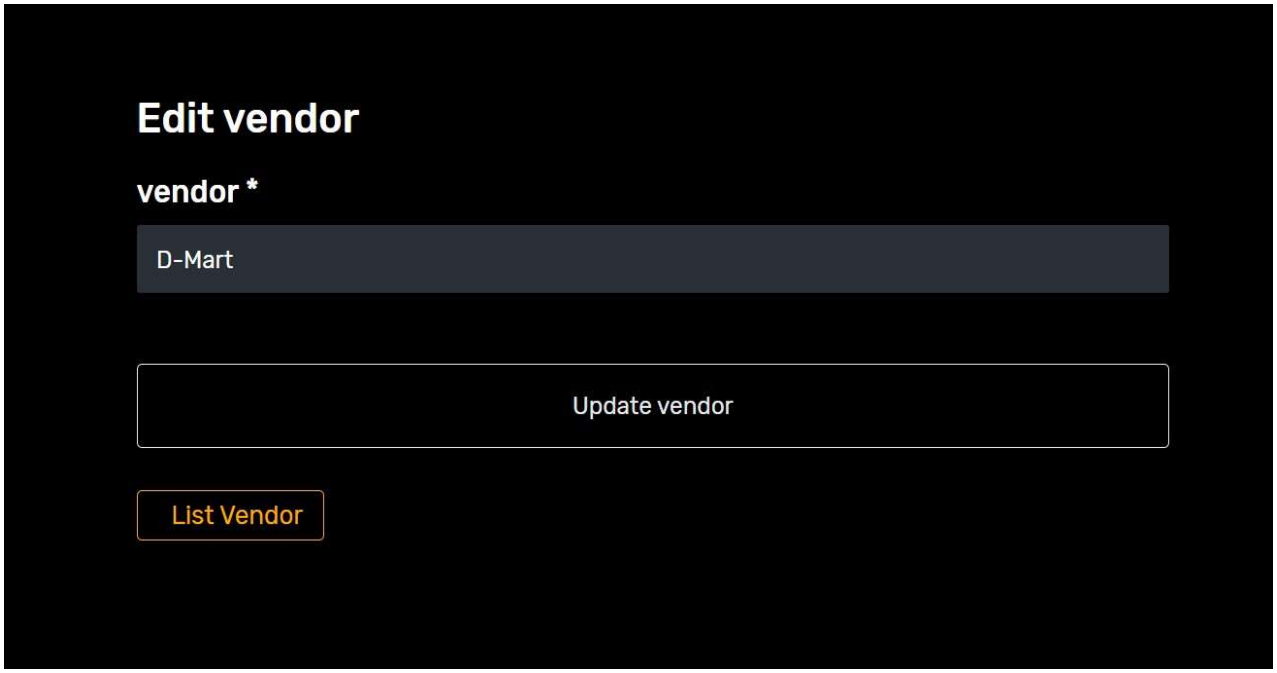


Figure 6.3.27 Edit Vendor

List Status

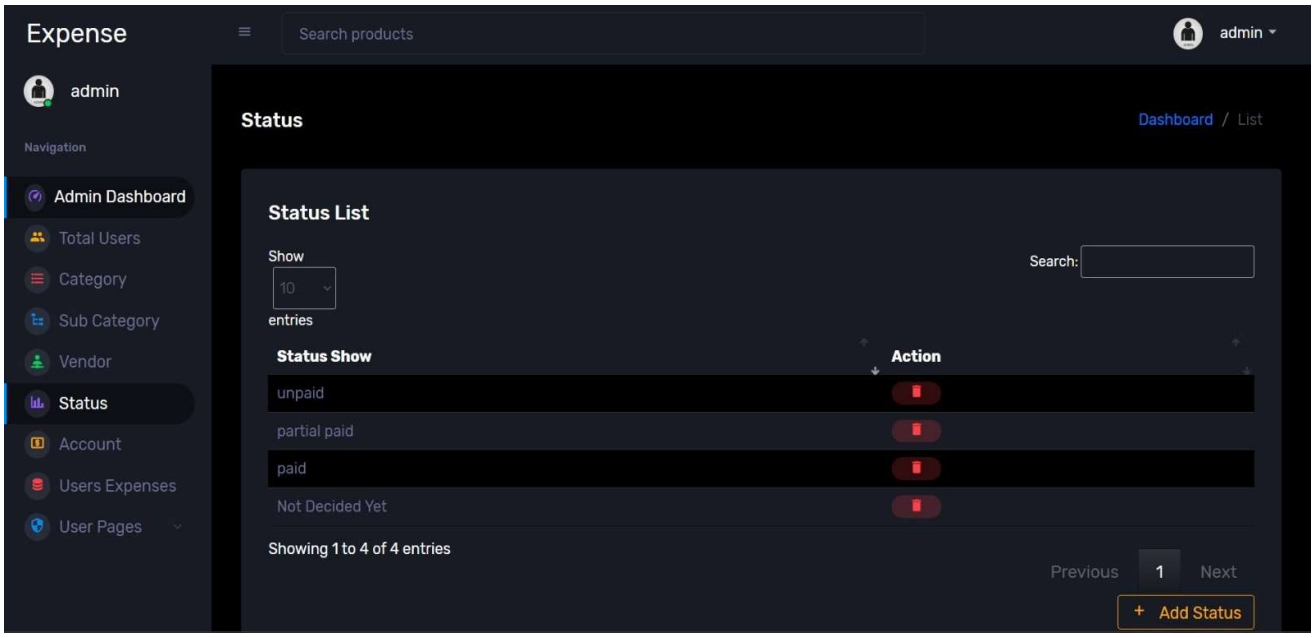


Figure 6.3.28 List Status

List Account Type

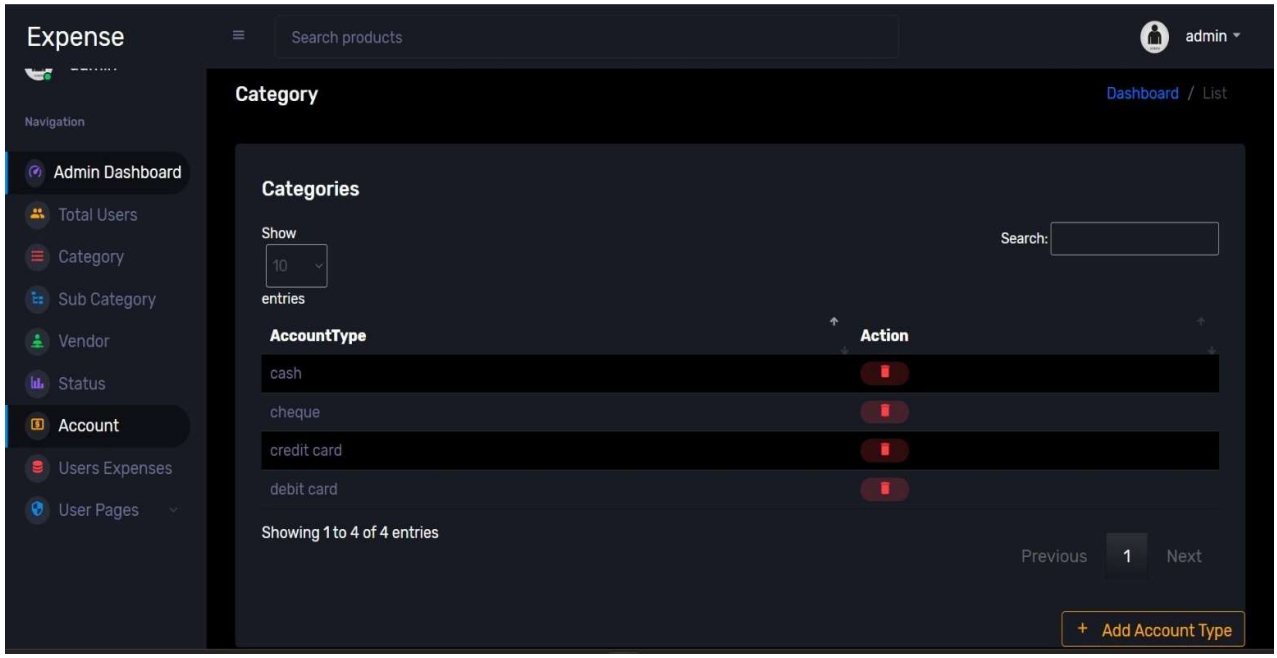


Figure 6.3.29 List Account Type

Add Account Type Payment

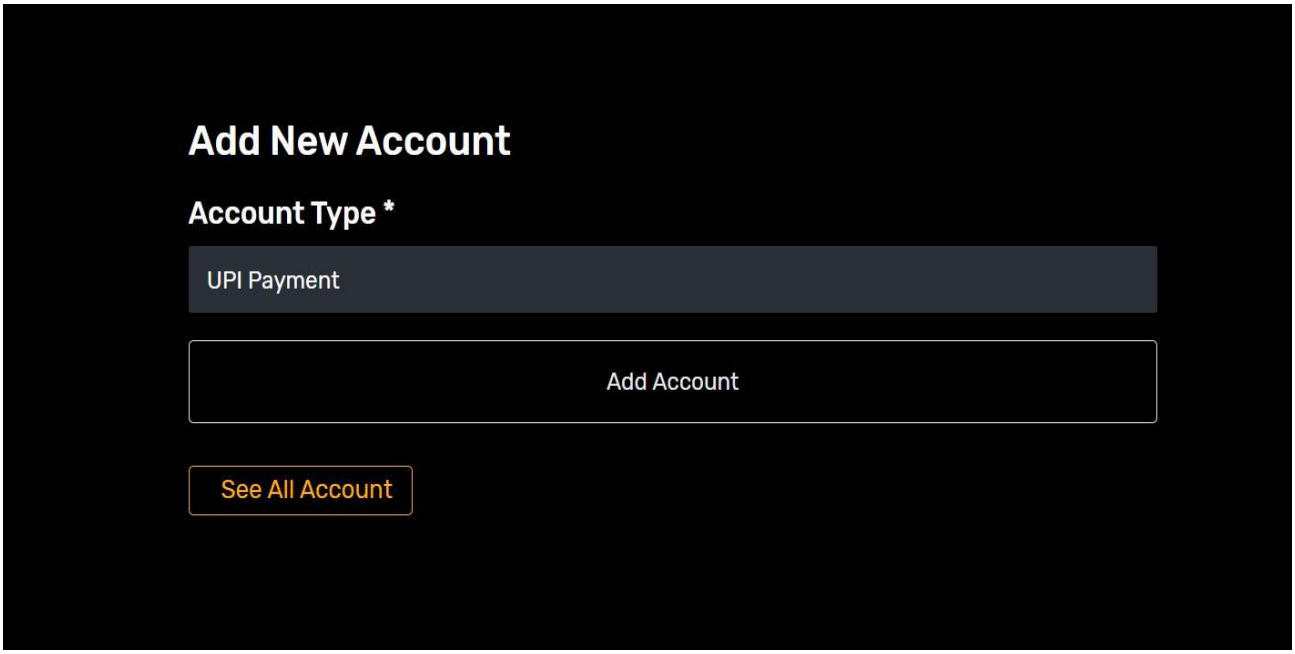


Figure 6.3.30 Add Account Type

All User's Expense List Admin Side

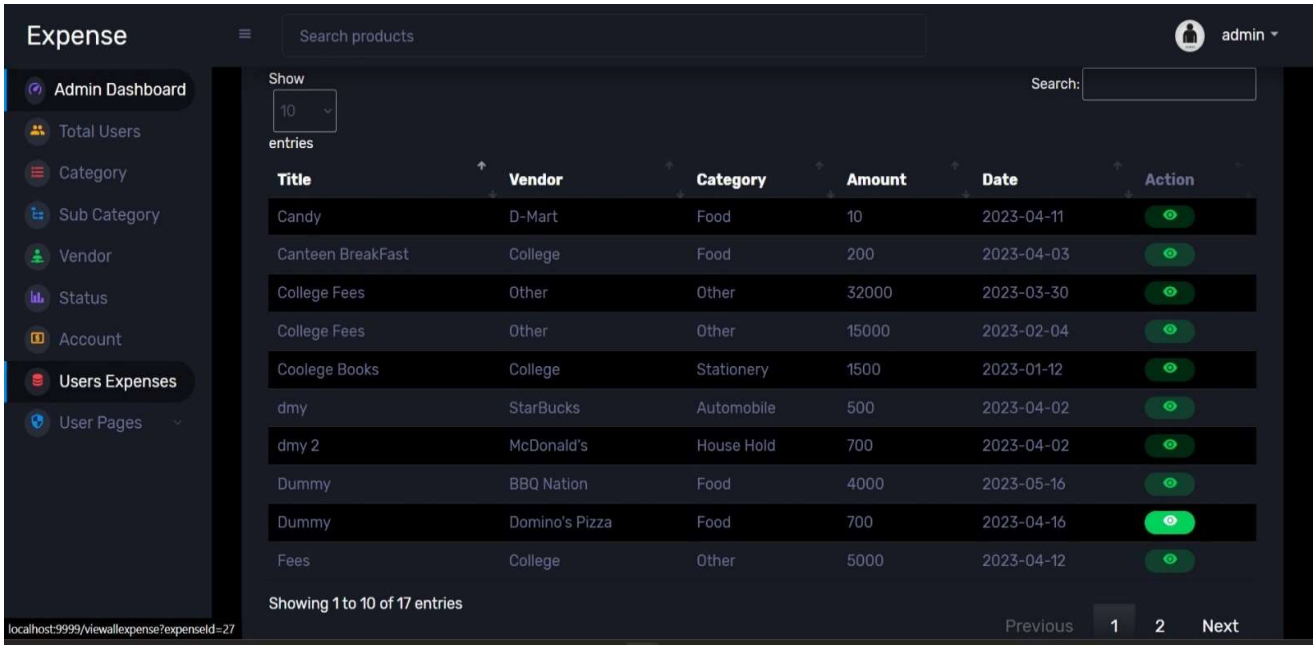


Figure 6.3.31 All Users Expenses

Specific Expense Details

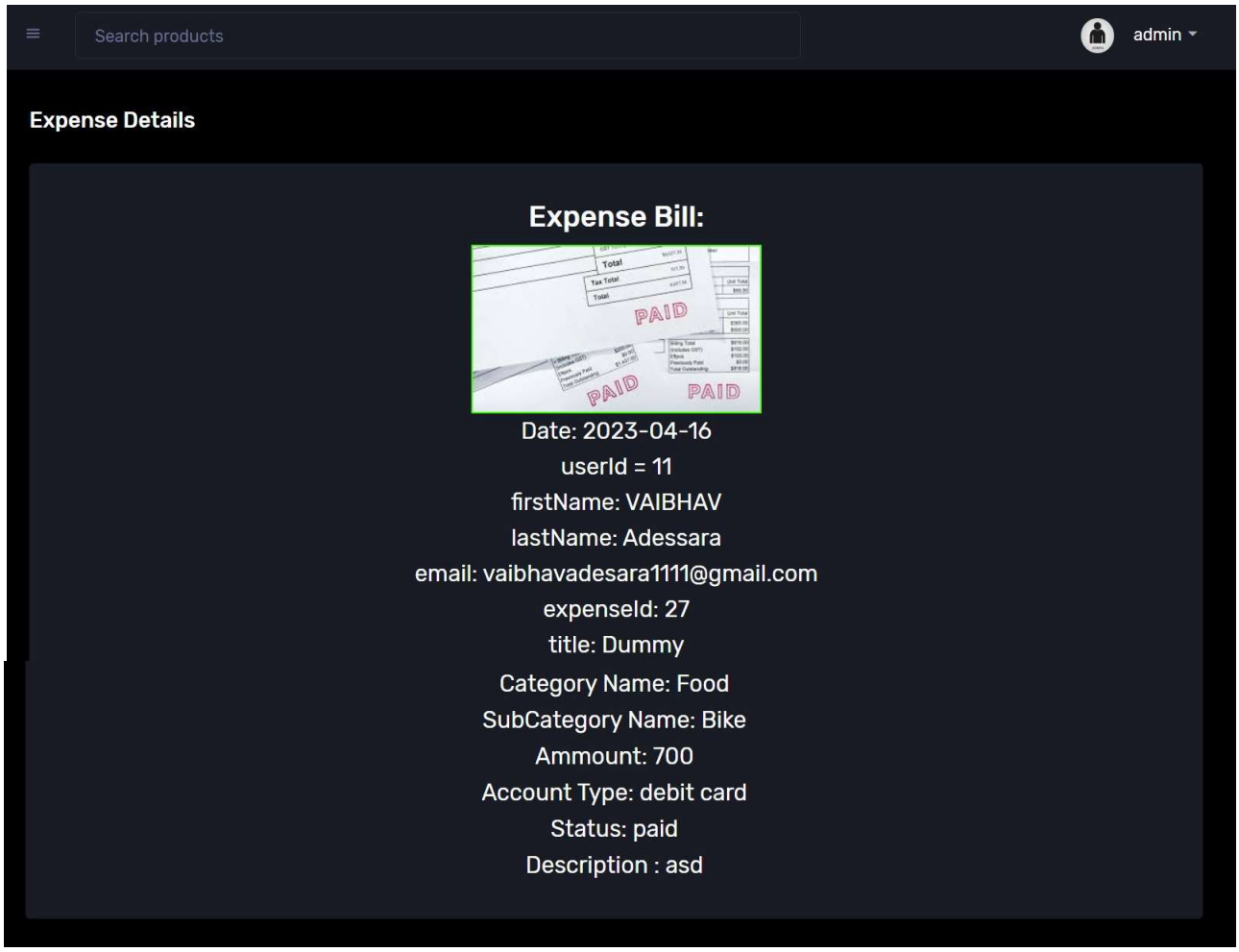


Figure 6.3.32 Specific Expense Details

TESTING

7.1 TESTING PLAN/ STRATEGY

In this project we have done the manual testing to verify that all our functionality works properly or not. The testing process is carried out when we had completed the implementation of all the functionality So here the testing had been done at the end of the internship.

In this project, we have done the functional testing that check each functionality works properly or not. All the testing procedure is carried out manually. All the testing procedure is carried out form 2nd june to 3rd June.

First of all, we create the test cases for each functionality and what should be our expected output should be note down. Then we check all the functionality and check the actual output and compare with expected output. If match then we can pass the test case else we have to gave the remarks that what changes should have to done.

7.2 TEST RESULTS AND ANALYSIS

7.2.1 Test Cases

Test ID	Test Condition	Expected Output	Actual Output	Remark
1	Customer Authentication Functionality	Login, Logout, Create Account should be done properly.	Done Properly with all the Authentication functionality.	No
2	Email Should be Sent after we submit the email to get otp for forget password	Send the Email with details like email, otp.	Perfectly Send the Email with OTP	No
3	Expense Service	User can add expense with all the proper details.	All the details should be saved properly and perfectly and expense service function work properly.	No
4	Income Service	User can add income with all the proper details.	All the details should be saved properly and perfectly and income service function work properly.	No
5	User Dashboard	User can see all expense and income history. User can edit/view/delete expense, income and edit profile.	All the User Dashboard pages are properly displayed with all the details.	No
6	Admin Screens	Admin can manage all the service and managed all the users, category, subcategory, vendor, accounttype.	Admin managed all the things properly	No

CONCLUSION AND DISCUSSION

8.1 OVERALL ANALYSIS OF INTERNSHIP

During the internship first of all they gave the basic knowledge of our languages and then they gave the project. In project first of all we have to design the webpages according they have given as per the SRS (Software Requirements Specification) then we have to design the databases for our website. After designing the database, we have to integrate all the webpages with the database and lastly, we have to do testing of our website. I uploaded my whole code in Git-Hub with timestamps and Details of every Feature which I had done during my internship. Git-Hub link: - https://github.com/vaibhav-24hr/expenseapp_23

8.2 DATES OF SURPRISE VISIT BY INSTITUTE MENTOR

- Mentor: - Prof. Megha maam
- Date: - 22/04/2022

8.3 DATES OF CONTINUOUS EVALUATION (CE-I AND CE-II)

- CE-1 09/03/2023
- CE-2 04/05/2023

8.4 PROBLEM ENCOUNTERED AND POSSIBLE SOLUTIONS

A problem is that we have to enhance the distance calculation between the customer and service providers by using third-party libraries or APIs. As more efficient the calculation of distance more efficient would be assigned to the service providers properly.

8.5 SUMMARY OF INTERNSHIP

During the Internship, they assigned the project name Expense Manager. So, the Expense Manager is a platform where the service providers i.e., cleaners can register themselves for providing services through the portal and would receive the services booked by the customers. The other type of users Customers can book the service requests for cleaning and get the job done by one of the service providers from the portal.

8.6 CONCLUSION

In conclusion, my internship for the Expense Manager project was a valuable learning experience and an opportunity to apply my skills in developing a practical web application. Throughout the internship, I successfully developed an Expense Manager web app using the Spring Boot framework, focusing on features like expense logging, categorization, management, reporting, and budget tracking. I also prioritized user authentication, data security, and user-friendly interface design.

I gained practical experience in utilizing Spring Boot and various technologies associated with web application development. I implemented industry best practices, followed coding standards, and conducted testing to ensure the quality and functionality of the application. Moreover, I actively incorporated user feedback to improve the user experience and meet their requirements effectively.

During the internship, I also enhanced my understanding of software development lifecycle, collaboration, and project management. I learned to prioritize tasks, meet deadlines, and communicate effectively with team members and stakeholders.

Overall, the internship provided me with valuable hands-on experience in developing a real-world application, deepening my technical skills and understanding of software development principles. It also strengthened my ability to work independently, solve problems, and adapt to new technologies and frameworks.

I am grateful for the opportunity to contribute to the Expense Manager project during my internship, and I believe the skills and knowledge gained will serve as a solid foundation for my future endeavors in software development.

8.7 LIMITATION AND FUTURE ENHANCEMENT

1. In our project Mobile Compatibility: If the Expense Manager is developed as a web app, it may have limitations in terms of mobile compatibility and responsiveness. Users may face difficulties accessing and using the app on smaller screens or mobile devices.
2. Limited Expense Tracking Options: The Expense Manager might primarily focus on tracking individual expenses and may not support more complex tracking needs, such as tracking shared expenses among multiple users or tracking expenses for specific projects or events.
3. Lack of Customization: Users may have limited flexibility in customizing the Expense Manager according to their specific needs and preferences. The ability to personalize categories, reporting formats, and budgeting features could enhance the user experience.

Future Enhancements for Expense Manager:

- By Addressing above limitation, I will try to add those Features and Expense Manager can evolve into a comprehensive and versatile tool for users to effectively manage their expenses and make informed financial decisions.

REFERENCES

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- https://javascript.info/
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