

A Project Report on

# *Expense Tracker*

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## Acknowledgement

It was a great experience working on the documentation of “**Expense Tracker**”. We express our gratitude towards those who were constantly involved with us during our project.

The phenomenon remains same that no project ever can be executed proficiently and efficiently without sharing the meticulous ideas, technical expertise and innovative thoughts put forwarded by technical and nontechnical veterans.

Whenever a technical project is developed, eventually it requires conducive technical environment and technical guidance to get involved in the assigned project enthusiastically. We also grateful to “KSSBM” for being extremely friendly and co-operative during entire course of our project report. Their continuous help and support made the project documentation much easy.

There is no exact word to express our regards and legitimate gratitude to one of our esteemed techno personality, without them this project could not get an entrance towards the execution. Our Project mentor is the pioneer who availed this magnificent option to us to move ahead.

They always inspired and guided us for the right track to be followed for all the system analysis section of this project.

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# CHAPTER 1

## INTRODUCTION

### 1.1 Organization Profile

**HARSHIDA TRADERS**

Supplier & Stockists to all your  
hardware requirements

C/5 Swastik Apartment,

Paldi, Ahmedabad-07

Contact - 09824077881

[harshidatraders@gmail.com](mailto:harshidatraders@gmail.com)

Harshida Traders had initially come into force as a mere start up delivering the machine hardware equipment's and spare parts in 1988 with only three people as staff members.

Later it became a Proprietorship firm and started delivering its products locally as well as regionally in states of Gujarat and Maharashtra. Today after nearly 30 years of its establishment, it delivers products to many such Private Ltd., Public Ltd., and Trading brands.

Harshida Traders supplies Injection Moulding, Blow Moulding, Brass Fittings and Extruder Machine Spare Parts. We are specialist in material and imported parts redevelopment as per drawings and sample.

Harshida Traders are also stockists of various Jhalani Tools, Vickers, Yuken, Roxorth, Sauer Danfoss, Hydraulic Products and all types of Acrylic Sheets.

As a part of our new venture, we are planning to initiate a software related to the expense tracking system in upcoming time.

## 1.2 System Details

### 1.2.1 Existing System

The current scenario is that People are doing so much expenses on daily routine life and they don't even know how much they save it and how much they spend it. Some people usually try to maintain a Book in which they written all their expenses and income to get final monthly budget of their family. For monthly Bills like electricity, Telephone etc. they need to maintain files to store the documents of it. Sometimes it's difficult to remember all things for a person. For this purpose, generally, people try to record or to note down all their records in the books but the major difficulty arises when people trying to note down their expenses as they have done too much expenses and even they cannot remember their daily expenses they have spent. So, they cannot estimate their real expenses and they cannot decide where they can save more money as they write down all the expenses but it takes too much time for them to differentiate their expenses by categories. Same problem arises when people are not present at home means they are on journey or meetings there they cannot go everywhere with their books to write down expenses and after completion of journey it is next to impossible to write down all expenses with details & all with perfect figures of expenses.

### 1.2.2 Proposed System

Although the traditional approach is still prevailing around the nation, but speaking about other countries, they have already implemented such digital approach. Through such medium of digitalization, person's burden also decreases, and they adapt a new method. In our System there will be charts which will give clear understanding regarding the Expenses. we are trying to make System in which all users only have to select category and they have to enter the amount system will calculate the expenses by each category and for interaction with user, system will provide feature in which user can give directly onetime input for expenses which occurs daily and the expense will count for whole month. Additionally, system will provide note feature for expenses and also e-document system where user can contain all their necessary document within the system. Through such medium of digitalization, person's burden also decreases, and they adapt a new method. In our System there will be charts which will give clear understanding regarding their expenses for current month for each category & it will also give the yearly graph



## 1.3 Scope of System

In our Expense Tracking System, it will manage all kind of expenses related to food, entertainment, clothes, travelling, food etc. All the daily life expenses will be managed by our System...It will also handle the budget of a person. Expenses can be classified into the following types: -

1. Daily Expenses
2. Onetime Expenses
3. Frequent Expenses

It will also handle the Travelling Budget of a person. A Person just must enter his/her budget for a Trip and the expenses he/she did on that trip. The System will notify a person if it goes out of the budget he/she had entered. By this a person can put a control on his/her expenses. It will also store the copy of all the necessary documents i.e. Electricity Bills, Telephone Bills, Vehicle documents etc. It will also Store the information, expenses and documents of the investments user does or is planning to do. It will also notify users about their upcoming Insurance plans and loans.

It will also have a E-Wallet System in which user can store their passwords of all necessary accounts. After entering and analysing, it will display the information in the form of some pictorial representation such as charts or graphs category wise. It will also differentiate the expenses in the span of a week, a month or a year. Through this comparison becomes easy and the user can have a clear idea as to in which area he/she has occurred more expenses.

## 1.4 Objective

Expense tracker is a complete end-to-end solution for the users to cover and manage all their daily expenses.

The basic objective of developing this project is: -

### From User's Point of View: -

- Helps in maintaining the document of the expenses that occur daily or in a span of a month or a year.
- Helps to maintain all the documents.
- At the end of the week or month, the user can draw attention towards the expenses which are more frequent.
- The system will also allow the user to manage his expenses unit wise i.e. creating categories.
- User can also compare their expenses of different categories of their last week/month/year budget and expense and can estimate their future budget.
- The E-Wallet functionality of our system will also enable the users to maintain a copy of all necessary documents and files all at one place with better surety and security.
- Such feature will also serve as a document proof in cases of emergency.
- E-wallets are also handy and a go-to option and there are no chances of theft or misplacement.

## CHAPTER 2

# REQUIREMENT GATHERING

### 2.1 Stake Holders of System

#### i. System Owner: -

The system project is taken under HARSHIDA TRADERS as they are the owner of the system. The owner can enter into the system and can look up to all the activities of the user.

#### The Role of System Owner Is: -

- Adding, removing or updating user account information.
- Responsibility for security.
- Installing and configuring new hardware and software.
- Troubleshooting any reported problems.

#### ii. System End Users: -

This system can be used by any person. It's useful in each field to manage their expenses. Housewives, Businessmen, Employees, Students etc. can use this system.

End Users can add their expenses. Get notified if they do more expense than their initial budget. They also get to know about their monthly and yearly expenses through the charts so that they can get a better idea. It will also notify about insurance and upcoming loans.

#### iii. System Analyst: -

The Analysis of the System is Conducted by Fenil Shah, Shivani Desai, Drashti Bhatt who are the System analysts. The system analyst work will be to solve the problems related to the system.

#### The Role of System Analyst Is: -

- Analyst will identify the problem of the system and try to find solution related to it.
- They will Plan a system Flow From the ground.
- Whenever a development process is conducted, the system analyst is responsible for designing components and providing the information.

#### iv. System Adviser: -

The System adviser is Dr. Kalyani Patel whose role is to monitor the System analysts and developers to guide them in their System.

#### v. System Builder: -

The entire system is designed and build by system analyst.

#### The Role of System Builder Is: -

- Lead and provide technical guidance in process development.
- Test systems, identify bugs, debug and resolve the issues.
- Prepare design, perform testing and create documents for the application changes.

## 2.2 Requirement Gathering Technique Used

- One-on-one interviews

The most common technique for gathering requirements is to sit down with the clients and ask them what they need. The discussion should be planned out ahead of time based on the type of requirements you're looking for. There are many good ways to plan the interview, but generally you want to ask open-ended questions to get the interviewee to start talking and then ask probing questions to uncover requirements.

- Group interviews

Group interviews are like the one-one interview, except that more than one person is being interviewed — usually two to four. These interviews work well when everyone is at the same level or has the same role. Group interviews require more preparation and more formality to get the information you want from all the participants.

- Questionnaires

Questionnaires are much more informal, and they are good tools to gather requirements from stakeholders in remote locations or those who will have only minor input into the overall requirements. Questionnaires can also be used when you must gather input from dozens, hundreds, or thousands of people.

- Observation

The observation covers the study of users in its natural habitat. By watching users, a process flow, pain points, awkward steps and opportunities can be determined by an analyst for improvement. Observation can either be passive or active. Passive observation is providing better feedback to refine requirements on the same hand active observation works best for obtaining an understanding over an existing business process. Above all are the techniques for Requirement Gathering. In our system we are adapting a technique of **Observation**.

## 2.3 Consolidated List of Requirement

- Situation 1: -

It is not convenient to note down all the expenses in a paper. Also, those writings are not that helpful when we need to refer them at any point of time.

**Solution: -** *So in the era of technology it is necessary to carry the reports of expenses easily so we are providing mobile application which will bring all the expenses as categories.*

- Situation 2: -

We Observe that there are certain different types of expenses as par the need of person & business needs also differs.

**Solution: -** *To overcome on this system will provide extreme differentiated categories of different expenses where user have to select category & have to add amount only.*

- Situation 3: - Expenses differ by the amount of time also like expenses for grocery, transportation etc. are occurs daily in routine life so it is difficult to give input daily.

**Solution: -** *So that in our system there will be feature from which user have to give single time input for recurring or monthly expenses & system will find the value of expense for the whole month.*

- *Recurring expense*
- *Frequent in month*
- *One-time expense*

- Situation 4: -

In certain situation user want to find expenses for whole month or user may want to compare expenses of two months or user want to find certain amount of expenses for categories.

**Solution: -** *In user system we will provide Graphical representation which will show user.*

- *Expenses for month by categories.*
- *Income graph by different Months.*
- *Expenses graph by month.*
- *Graph which shows total amount of expenses by each category.*

- Situation 5: -

Many times, users forget to fill the instalment of loan or bills on particular time period.

**Solution: -** *System will give reminders to users for payment of loan instalment or for certain bills at regular interval of time as per the need of users.*

- Situation 6: -

Many times, users may forget different passwords or expenses which differ from regular expenses.

**Solution: -** *In our system user can also add notes so that they can remember all passwords or they can save their notes.*

- Situation 7: -

What if the user doesn't understand the flow of application? What if he has queries or doubts regarding the application?

**Solution: -** *We will provide constant and reliable 24/7 customer support through the ChatBot mechanism*

## 2.4 Project Definition

Although the traditional approach is still prevailing around the nation, but speaking about other countries, they have already implemented such digital approach. Through such medium of digitalization, person's burden also decreases, and they adapt a new method.

- In our expense tracking system, it will allow user to store the expenses by its category i.e. food, clothing, travelling etc.
- It will also store the copy of all the necessary documents i.e. Electricity Bills, Telephone Bills, Vehicle documents etc.
- It will give a Chart at the end of the month and it will display in which category user do more expenses and in which they do less.
- It will also Store the information, expenses and documents of the investments user do.
- It will also notify users about their upcoming Insurance and loans.
- It will also have the E-wallet system in which user can store the passwords of all the necessary accounts.



## CHAPTER 3

# PROJECT MANAGEMENT & PLANNING

### 3.1 Feasibility Study

#### 3.1.1 Technical Feasibility

The technical feasibility assessment is focused on gaining an understanding of the present technical resources of the organization and their applicability to the Expected needs of the proposed system. It is an evaluation of the hardware and software and how it meets the need of the proposed system

This expense tracking system is run on any android or iOS device via web so that we easily say that totally technical feasibly for client.

#### 3.1.2 Economical Feasibility

The purpose of an Economic Feasibility Study (EFS) is to demonstrate the net benefit of a proposed project for accepting or disbursing electronic funds/benefits, taking into consideration the benefits and costs to the agency, other state agencies, and the public.

It is important to identify cost and benefit factors, which can be categorized as follows:

- Development cost and
- Operating costs

This is an analysis of the costs to be incurred in the system and the benefits derivable out of the system. This Expense Tracking System has a nil development cost & no such resources are required.

Operating costs is also nil hence we can say that the system is economically feasible.

#### **Time based study:**

This is an analysis of the time required to achieve a return on investments. The future value of the project is also a factor.

### 3.1.3 Operational Feasibility

Operational feasibility refers to the measure of solving problems with the help of a new proposed system. It helps in taking advantage of the opportunities and fulfils the requirements as identified during the development of the project. It takes care that the management and the users support the project. The operational feasibility assessment focuses on the degree to which the proposed development projects fits in with the existing business environment and objectives about development schedule, delivery date and existing business processes.

The existing system in the market only focusses nearly on the basic expense tracking fundamentals. The user only inputs his/her expenses & the system only displays their expenses. But proposed system also includes new feature of E-wallet which sums up all the requirements of user including tracking of his/her expenses & maintain important document at one go.

## 3.2 Hardware & Software Requirement

### Software Requirement

#### PROGRAMMING LANGUAGE

- PHP
- IONIC 2
- HTML

#### FRONT END

- PHP
- IONIC 2

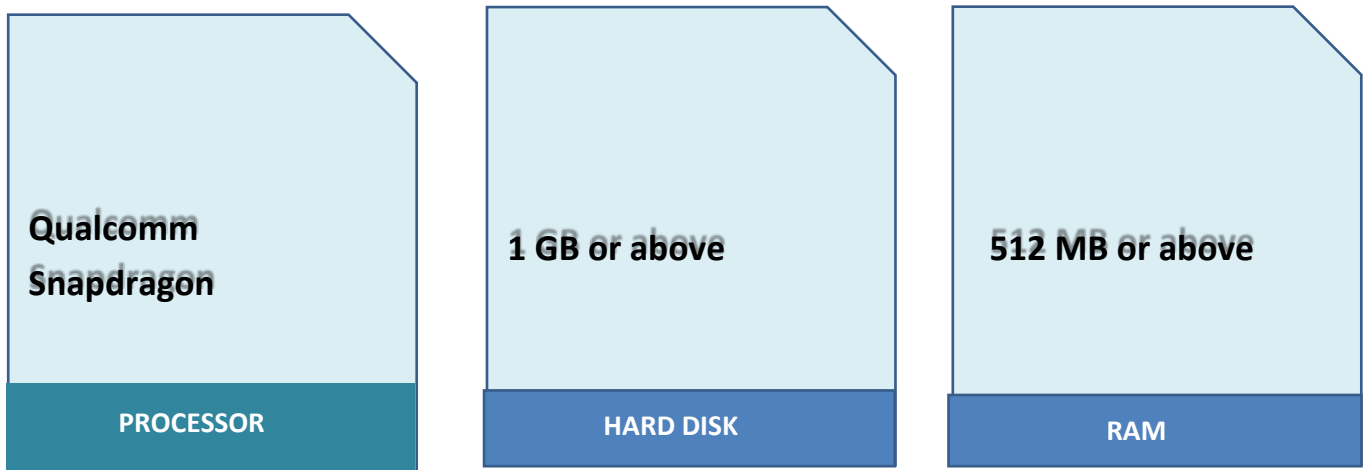
#### BACK END

- MySQL
- node.js

#### TOOLS

- Visual Studio Code

## Hardware Requirement



## Minimum Version of Android:

1. Android : Android 4.4.2 and Above all

### 3.3 Project Planning

#### 3.3.1 Work breakdown structure

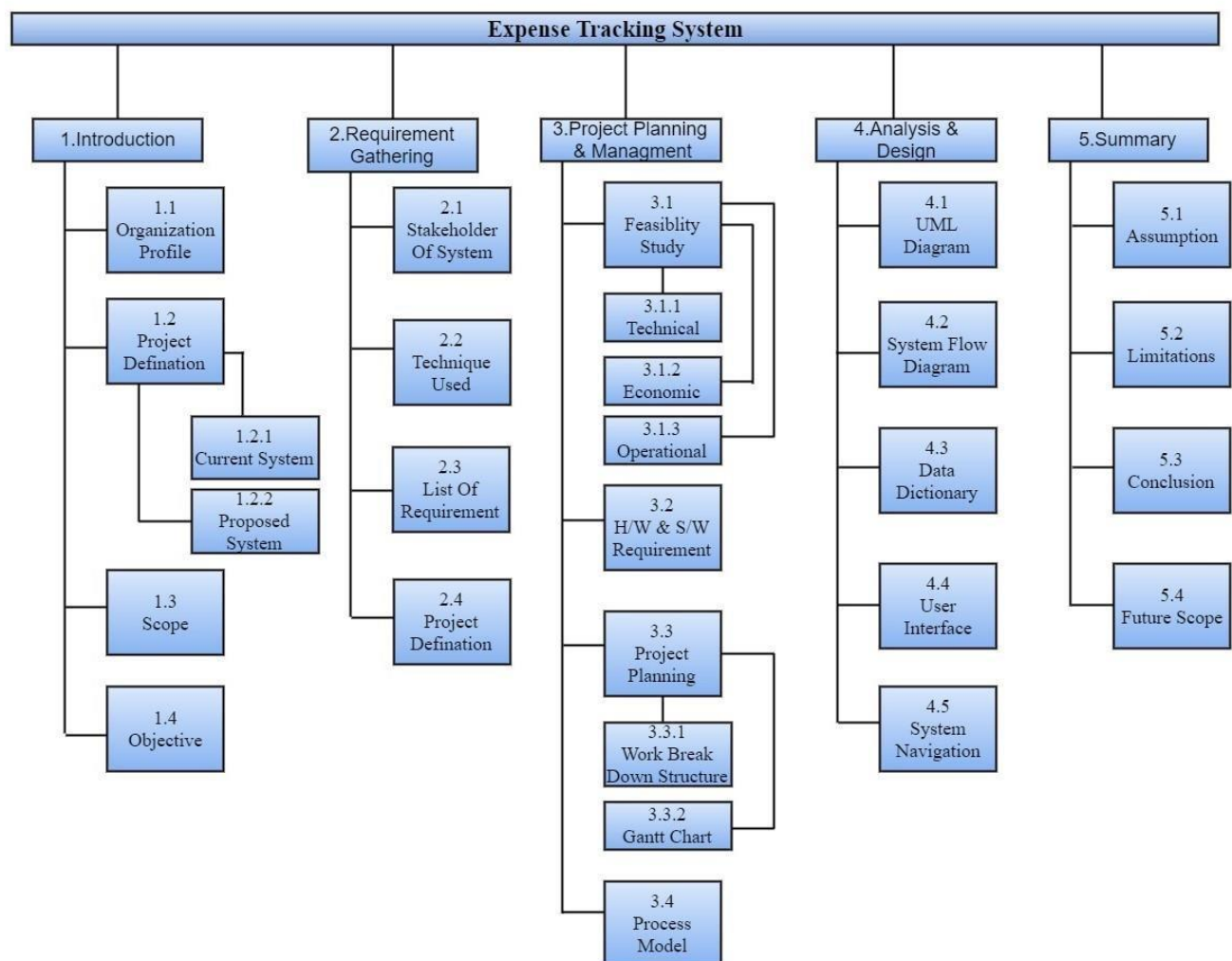


Figure 3.1: Work Breakdown Structure

### 3.3.2 Gantt Chart

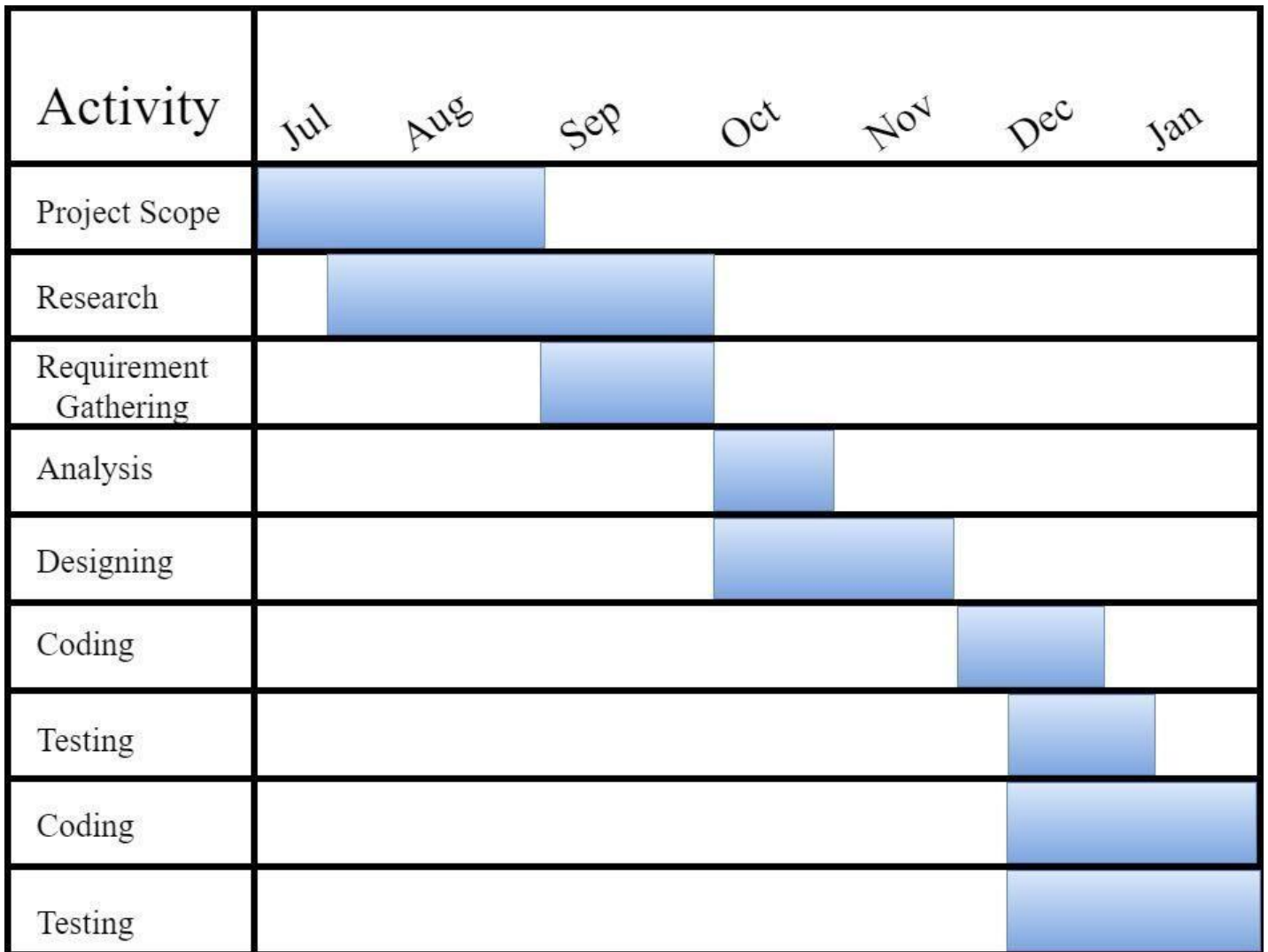


Figure 3.2: Gantt Chart

### 3.4 Process Model

For our system we have used the Incremental model of the SDLC life cycle. The incremental build model is a method of software development where the model is designed, implemented and tested incrementally (a little more is added each time) until the product is finished. It involves both development and maintenance. The product is defined as finished when it satisfies all of its requirements. This model combines the elements of the waterfall model with the iterative philosophy of prototyping.

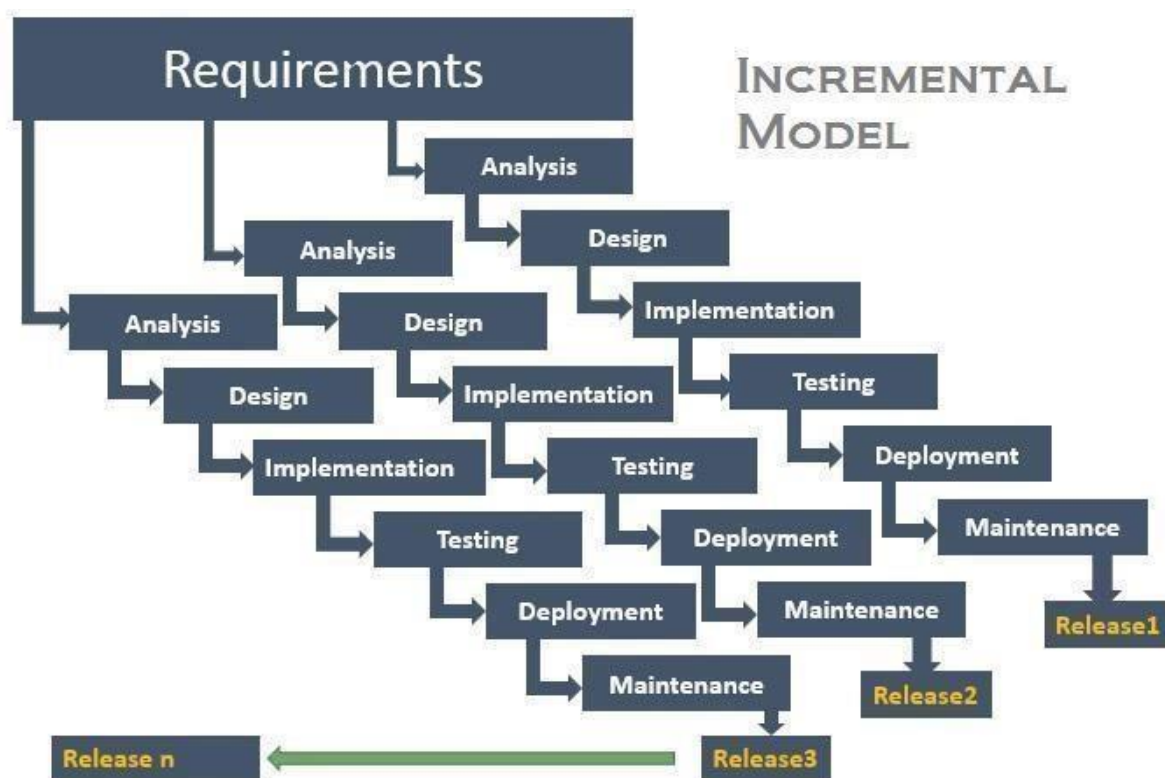


Figure 3.3 : Incremental Model

**Advantages of Incremental model:**

- Generates working software quickly and early during the software life cycle.
- This model is more flexible – less costly to change scope and requirements.
- It is easier to test and debug during a smaller iteration.
- In this model customer can respond to each built.
- Lowers initial delivery cost.
- Easier to manage risk because risky pieces are identified and handled during it'd iteration.

**Disadvantages of Incremental model:**

- Needs good planning and design.
- Needs a clear and complete definition of the whole system before it can be broken down and built incrementally.
- Total cost is higher than waterfall.

**When to use the Incremental model:**

- This model can be used when the requirements of the complete system are clearly defined and understood.
- Major requirements must be defined; however, some details can evolve with time.
- There is a need to get a product to the market early.
- A new technology is being used
- Resources with needed skill set are not available
- There are some high-risk features and goals.



## CHAPTER 4

### ANALYSIS AND DESIGN

#### 4.1 UML (Unified Modeling Language)

##### 4.1.1 Use Case Diagrams:-



Figure 4.1 Use Case – User & Admin

### 4.1.2 Activity Diagrams:-

User Activity Diagram

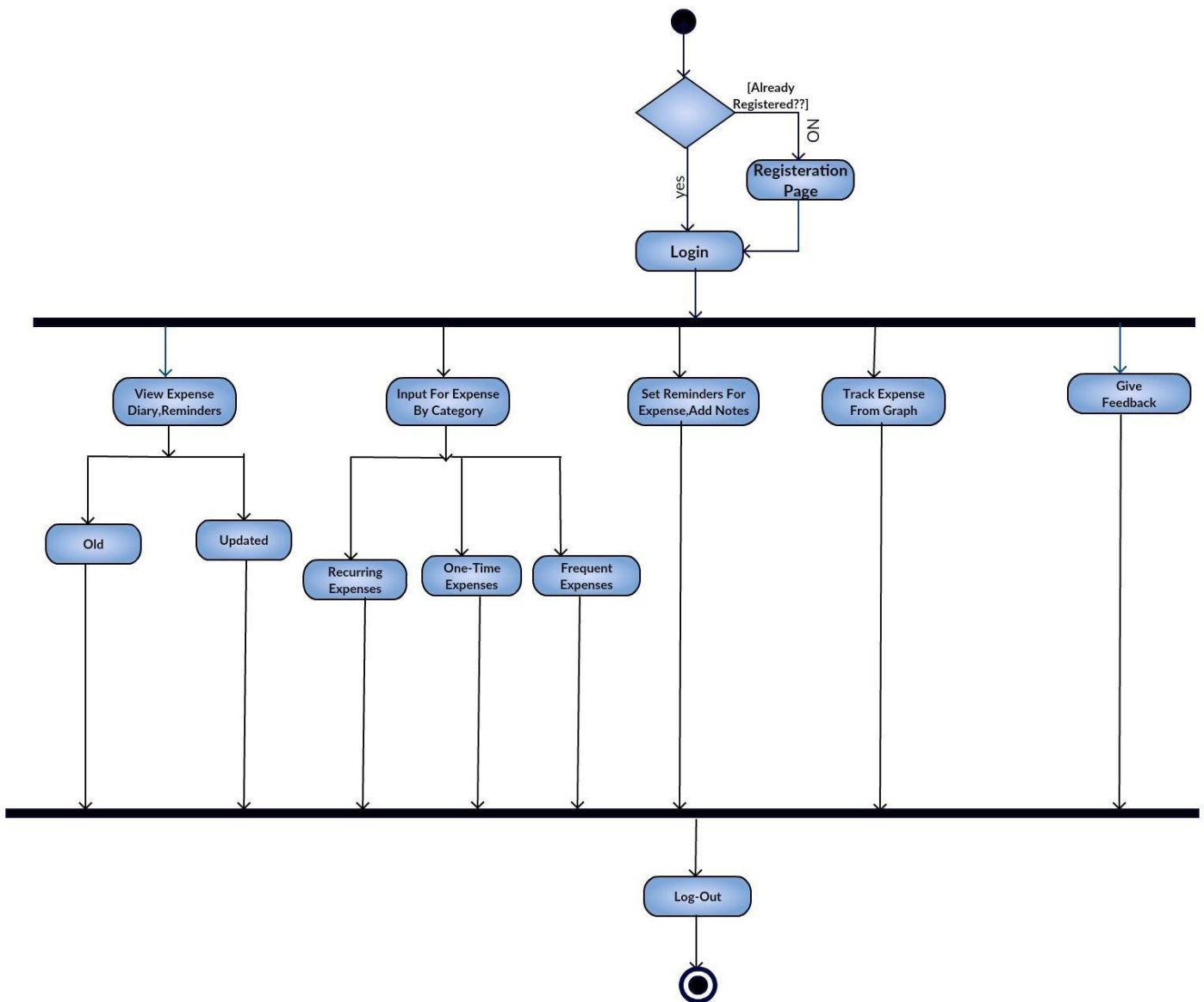


Figure 4.2 Activity Diagram - User

Admin Activity Diagram

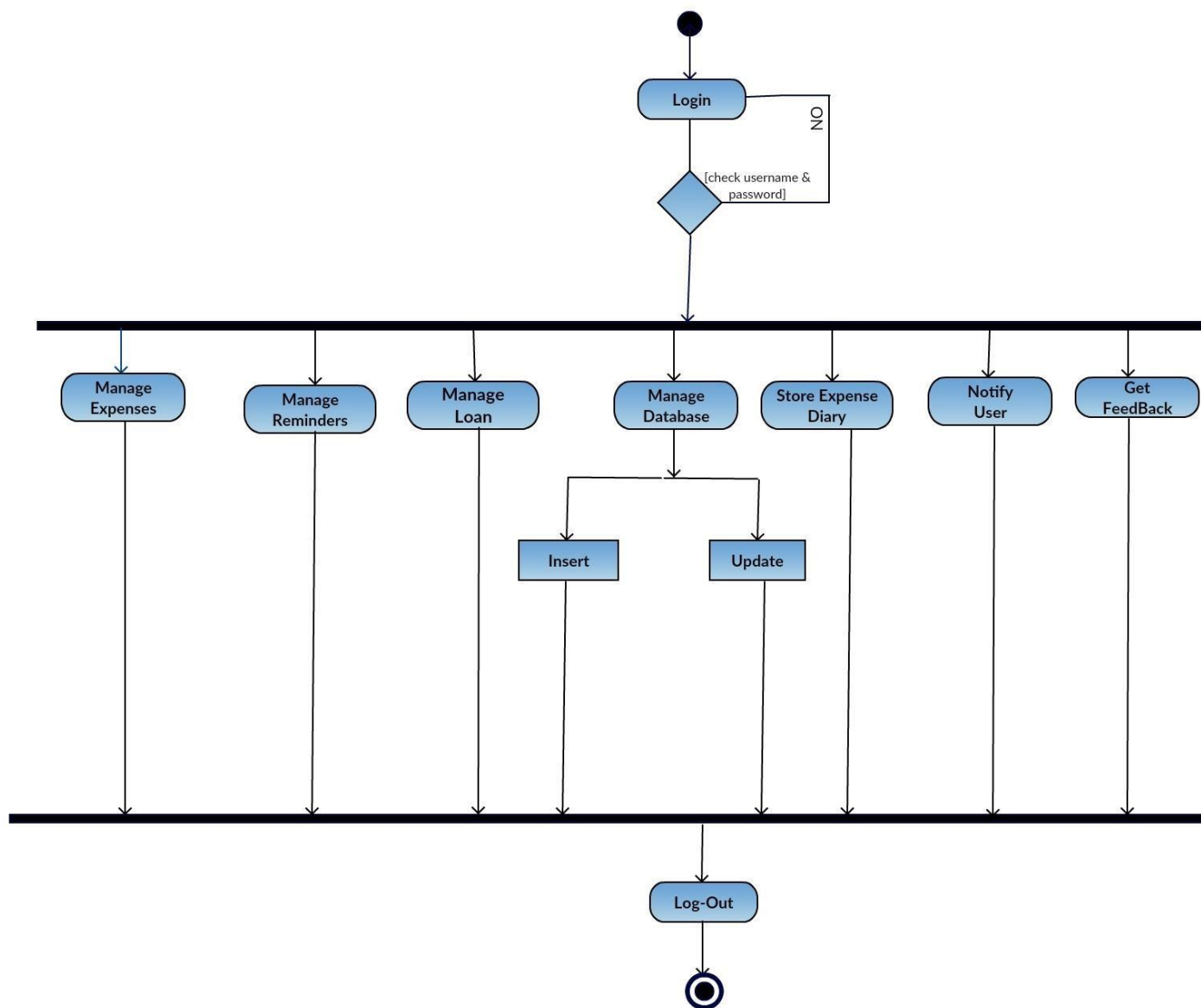


Figure 4.3 Activity Diagram - Admin

## 4.1.3 Class Diagram :-

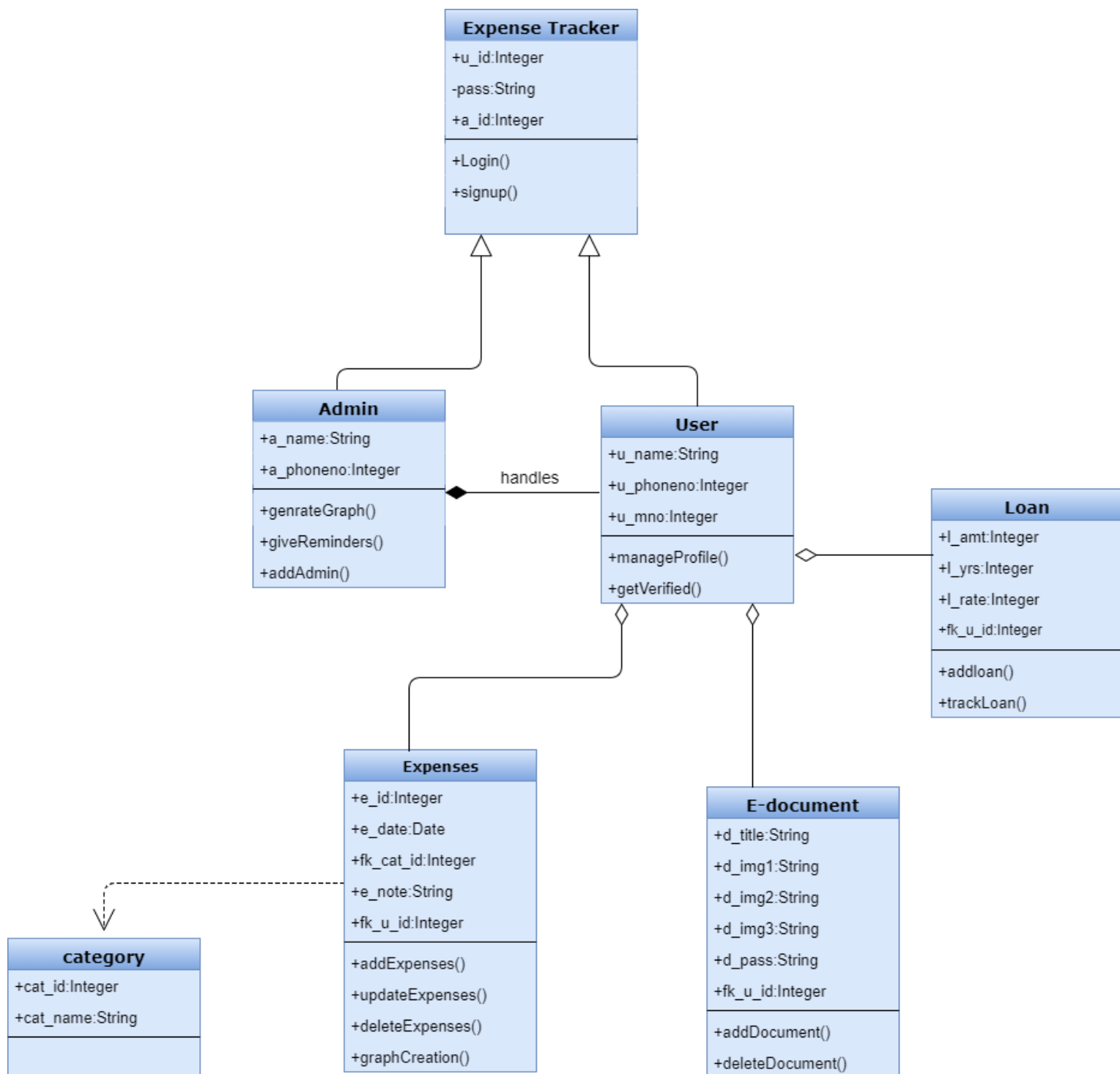


Figure 4.4 Class Diagram

## 4.1.4 Sequence Diagram :-

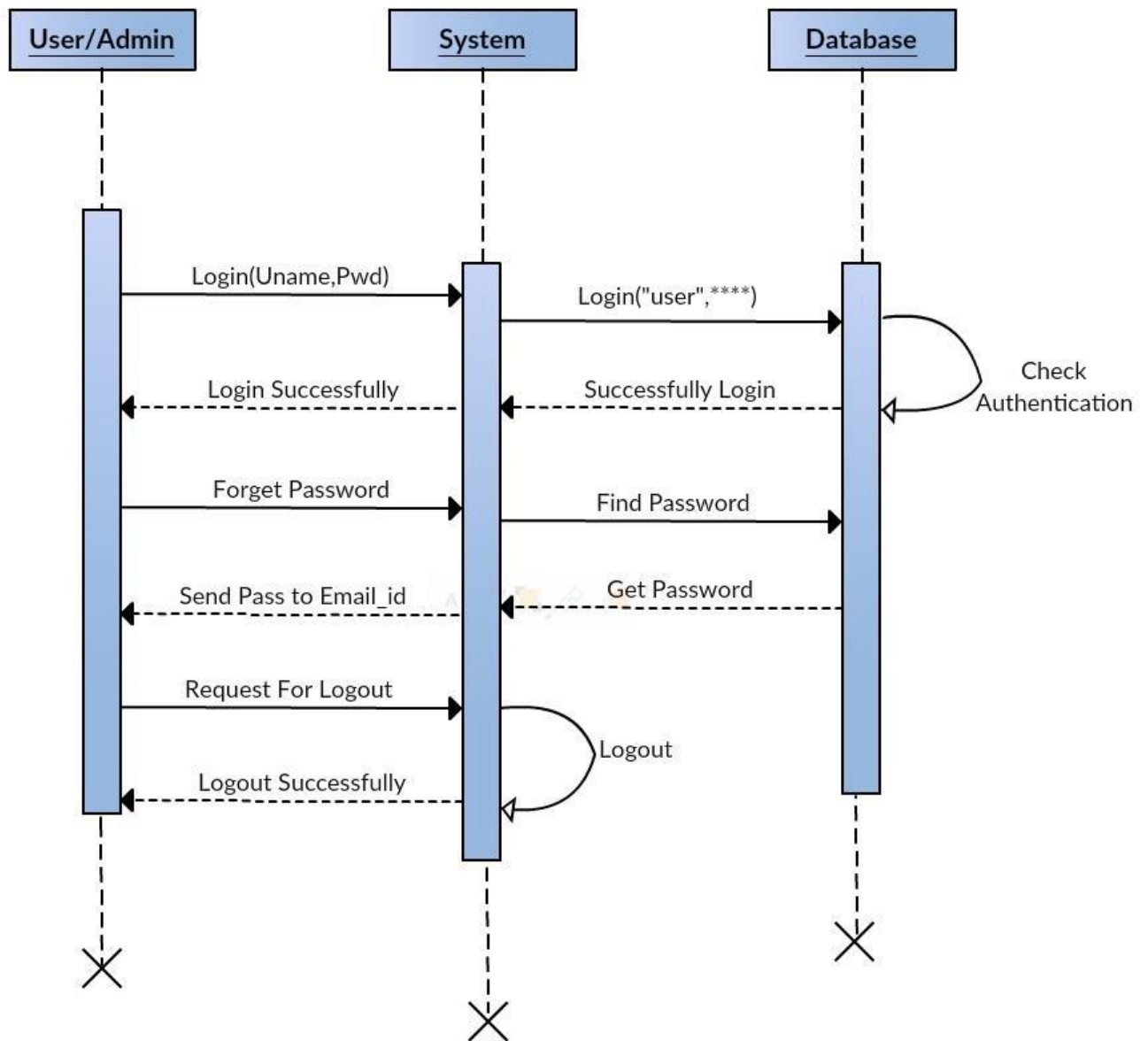


Figure 4.5 Sequence Diagram - Login

## Expense Tracker

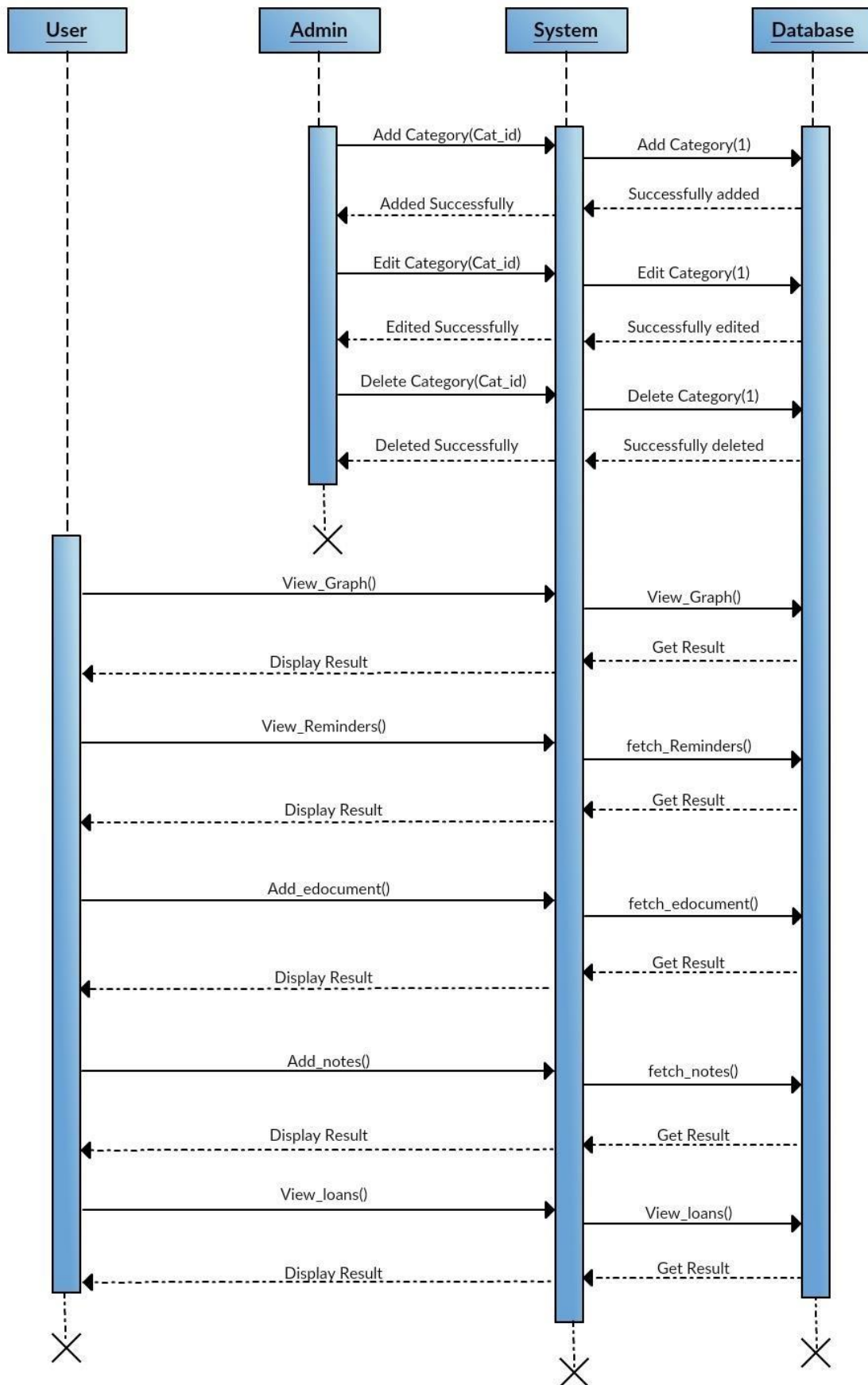


Figure4.6 Sequence Diagram

#### 4.1.5 Deployment Diagram :-

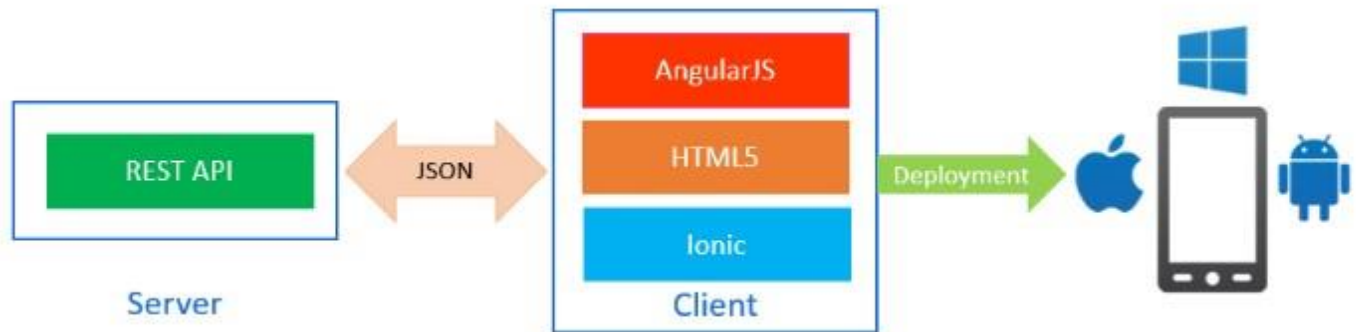


Figure 4.7 Deployment Diagram

## 4.2 System Flow Diagram

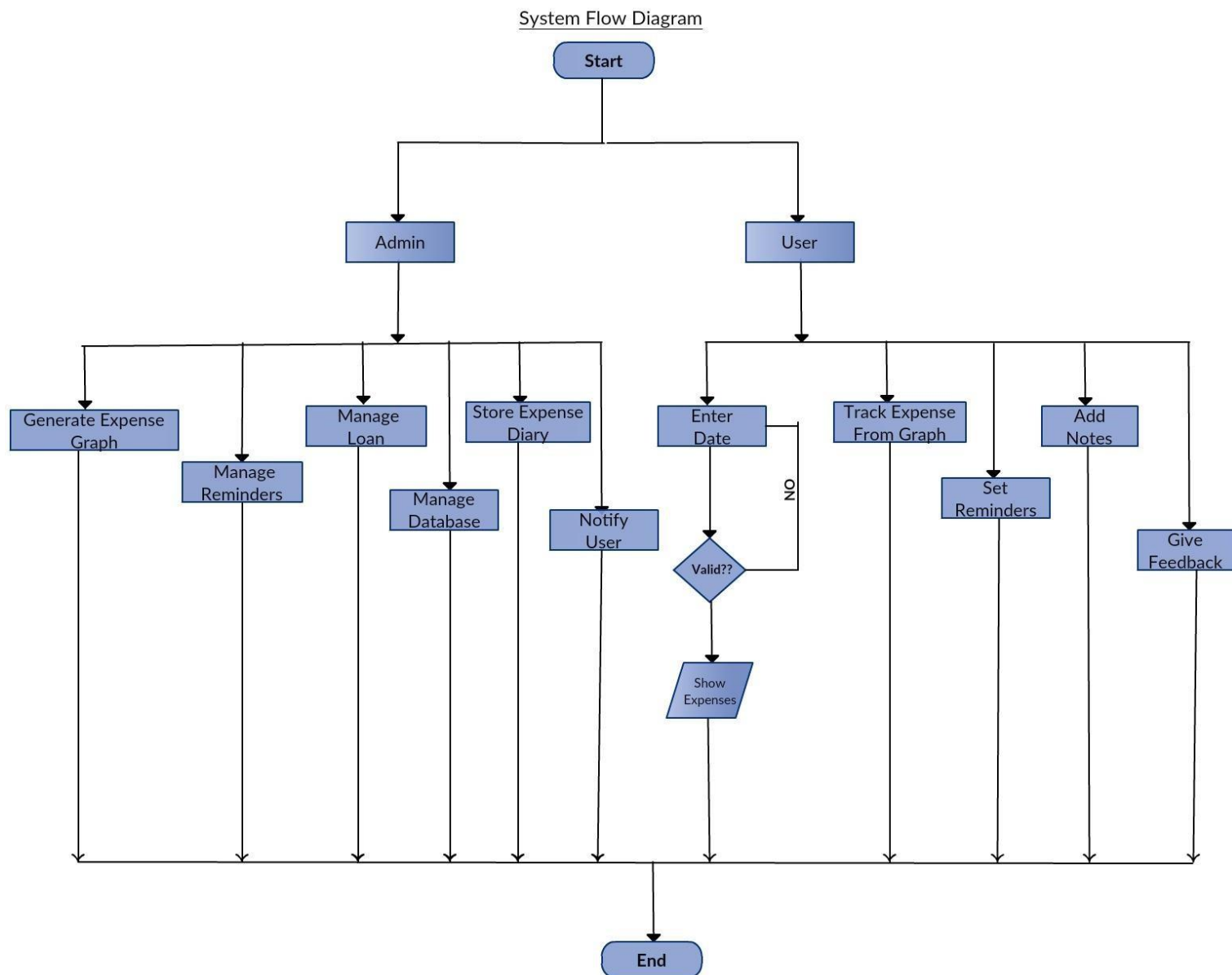


Figure 4.8 System Flow Diagram



### 4.3 Data Dictionary

Table 4.1 Category Table

Name	Data Type	Size	Null	Constraints	Description
cat_id	INT		FALSE	PRIMARY KEY	Unique identification of categories
cat_name	VARCHAR	20	FALSE		Name of categories

Table 4.2 Sub Category Table

Name	Data Type	Size	Null	Constraints	Description
scat_id	INT		FALSE	PRIMARY KEY	Unique identification of expenses
scat_name	VARCHAR	20	FALSE		Name of expenses
fk_cat_id	INT		FALSE	FOREIGN KEY	Category table

Table 4.3 User Table

Name	Data Type	Size	Null	Constraints	Description
user_id	INT		FALSE	PRIMARY KEY	Unique identification of user (Auto Incr)
user_name	VARCHAR	20	FALSE		Name of user
user_mob	VARCHAR	13	FALSE		Contact number
user_image	VARCHAR	100	TRUE		Display photo

user_email	VARCHAR	30	FALSE		User Email id
user_passlog	VARCHAR	20	FALSE		Password of system login
user_dpass	VARCHAR	20	TRUE		Password of EDocument

Table 4.4 Loan Table

Name	Data Type	Size	Null	Constraints	Description
loan_id	INT		FALSE	PRIMARY KEY	Unique identification of loan
fk_user_id	INT		FALSE	FOREIGN KEY	User Table (Auto Incr)
loan_amt	DOUBLE		FALSE		Principal Amount
loan_rate	DOUBLE		FALSE		Rate of Interest
loan_years	DOUBLE		FALSE		Number of years
loan_emi	DOUBLE		TRUE		Number of EMI's

Table 4.5 Notes Table

Name	Data Type	Size	Null	Constraints	Description
notes_id	INT		FALSE	PRIMARY KEY	Unique identification of notes
fk_user_id	INT		FALSE	FOREIGN KEY	User table (Auto Incr)
notes_desc	VARCHAR	450	FALSE		Content of notes
notes_date	DATE		FALSE		Date of the note
colour_name	VARCHAR	25	TRUE		Search by colour

Table 4.6 Expense Table

Name	Data Type	Size	Null	Constraints	Description
e_id	INT		FALSE	PRIMARY KEY	Unique identification of expenses
fk_user_id	INT		FALSE	FOREIGN KEY	User table (Auto Incr)
fk_scat_id	INT		FALSE	FOREIGN KEY	Expense Name table
e_date	DATE		FALSE		Date on which expense was made
e_amt	DOUBLE		FALSE		Amount spent on expense
colour_name	VARCHAR	25	TRUE		Colour by expense can be identified

Table 4.7 Reminder Table

Name	DataType	Size	Null	Constraints	Description
rem_id	INT		FALSE	PRIMARY KEY	Unique identification of reminder
fk_user_id	INT		FALSE	FOREIGN KEY	User table (Auto Incr)
rem_date	DATE		FALSE		Date of reminder
rem_title	VARCHAR	50	FALSE		Title of reminder
rem_desc	VARCHAR	100	FALSE		Content of reminder

Table 4.8 Feedback Table

Name	DataType	Size	Null	Constraints	Description
feedback_id	INT		FALSE	PRIMARY KEY	Unique identification of feedback
fk_user_id	INT		FALSE	FOREIGN KEY	User table (Auto Incr)
feedback_msg	VARCHAR	200	FALSE		Message to be written
feedback_date	DATE		FALSE		Date on which feedback was given
feedback_rating	INT		FALSE		Rating of the service from total of 5

Table 4.9 E-Document Table

Name	DataType	Size	Null	Constraints	Description
doc_id	INT		FALSE	PRIMARY KEY	Unique identification of reminder
fk_user_id	INT		FALSE	FOREIGN KEY	User table (Auto Incr)
doc_date	DATE		FALSE		Date of document
doc_title	VARCHAR	50	FALSE		Title of document
doc_img1	VARCHAR	200	FALSE		Upload Image 1
doc_img2	VARCHAR	200	FALSE		Upload Image 2
doc_img3	VARCHAR	200	FALSE		Upload Image 3

## 4.4 User Navigation

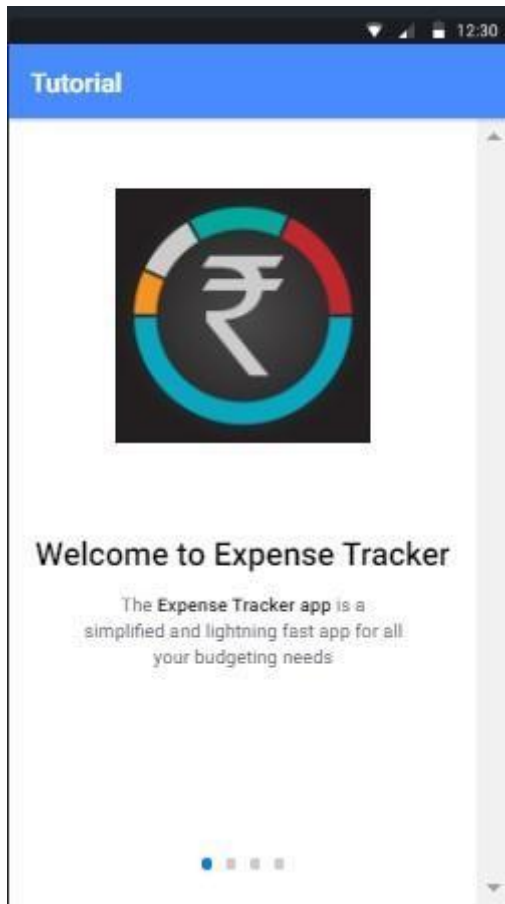


Figure 4.9.1 Tutorial (1)



Figure 4.9.2 Tutorial (2)



Figure 4.9.3 Tutorial (3)

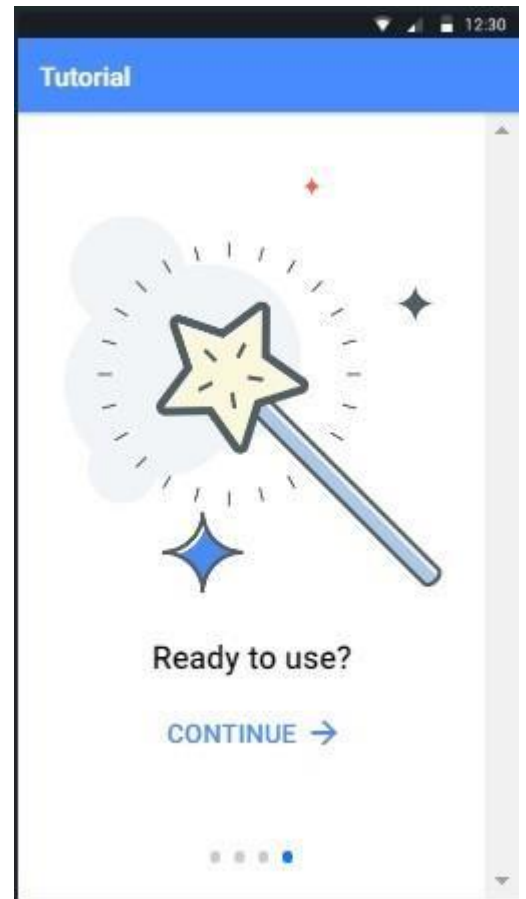


Figure 4.9.4 Tutorial (4)

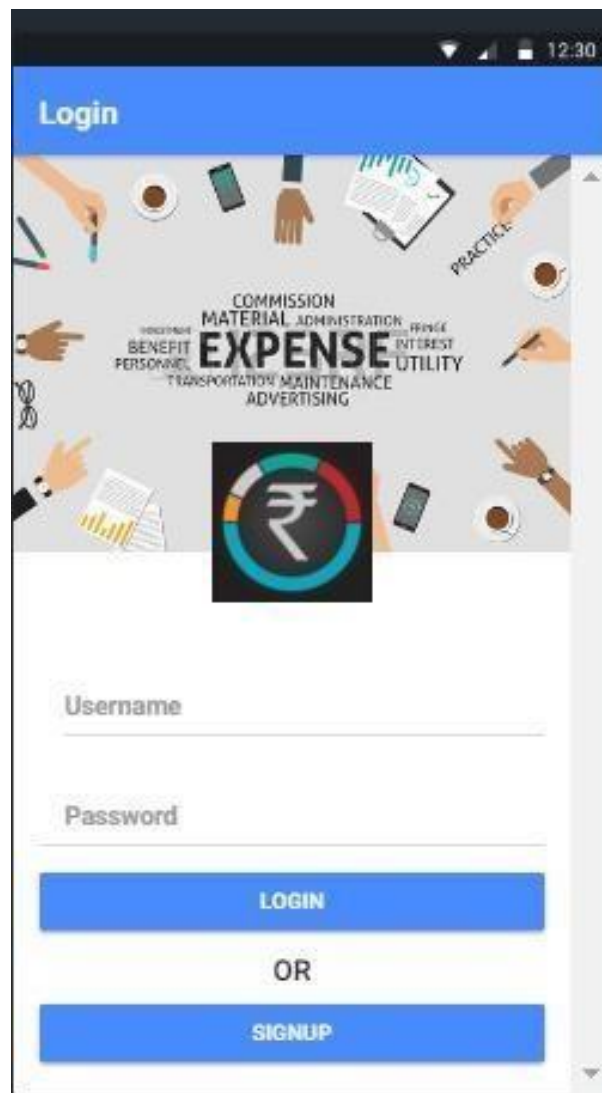


Figure 4.10 Login page

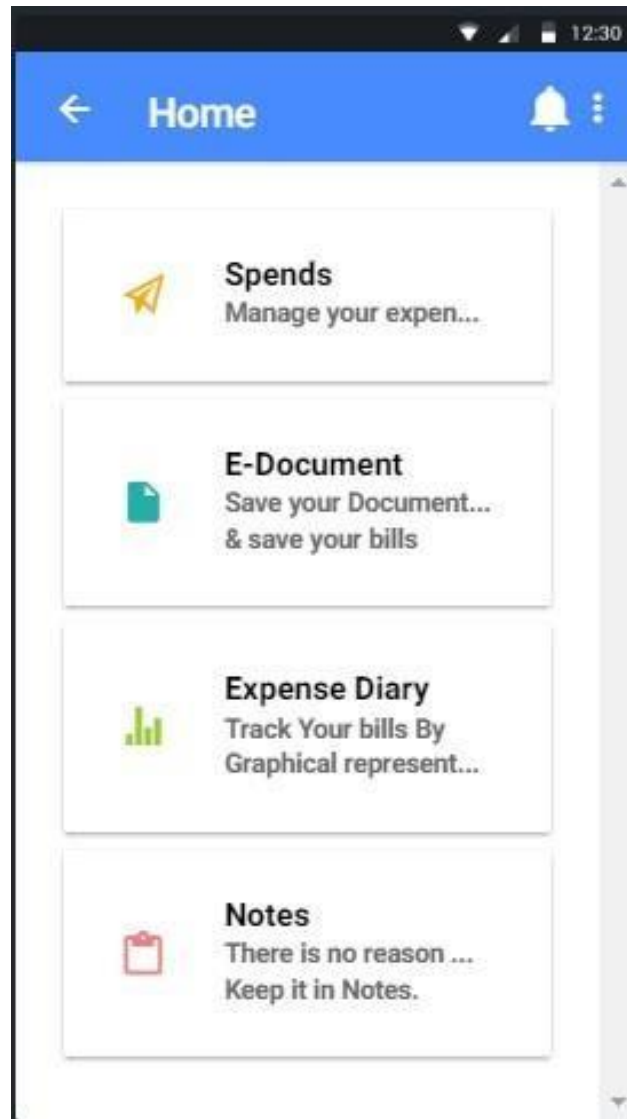


Figure 4.11 Home page



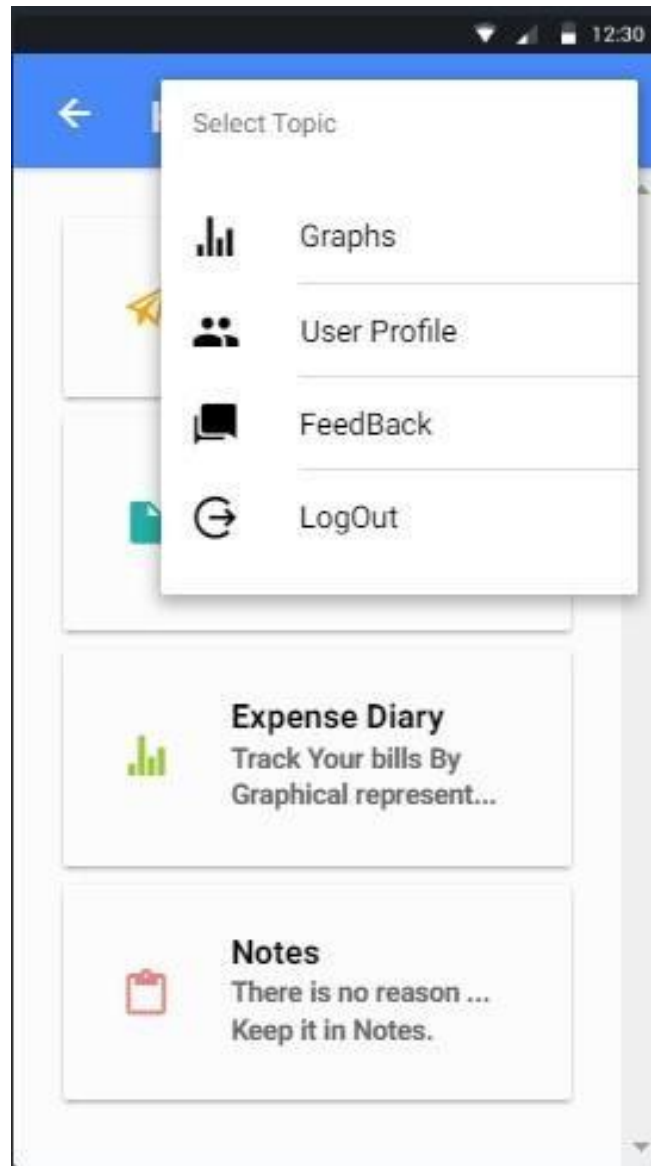


Figure 4.12 Navigation page

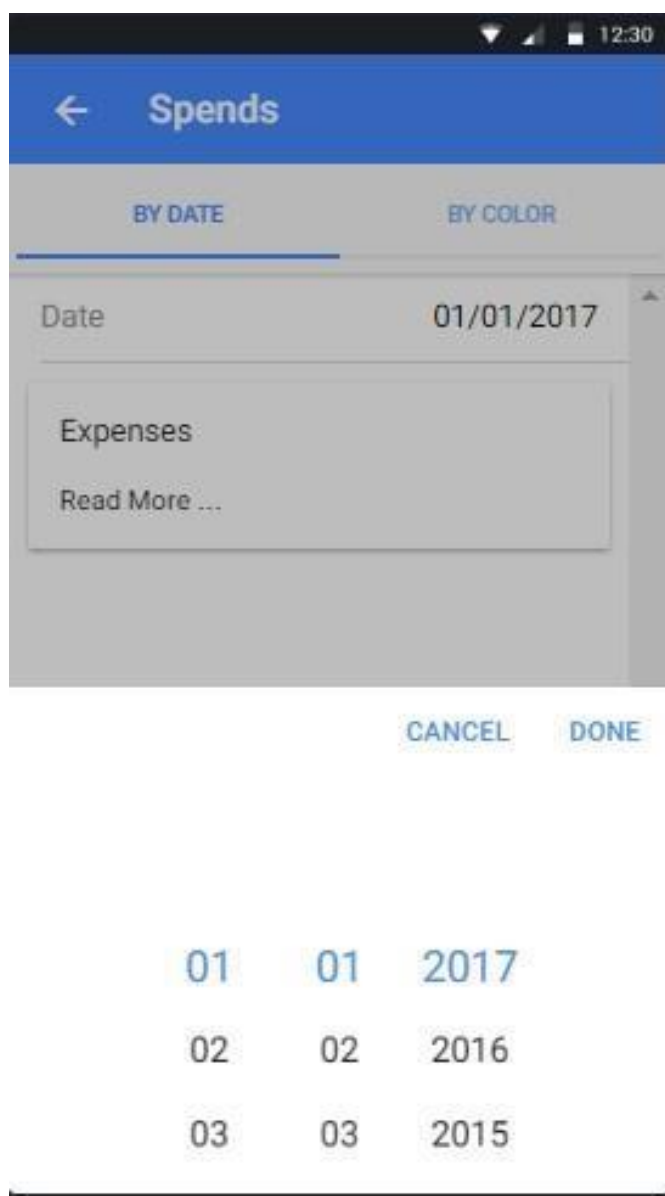


Figure 4.13 Spends page(i)

(Filter by Date)

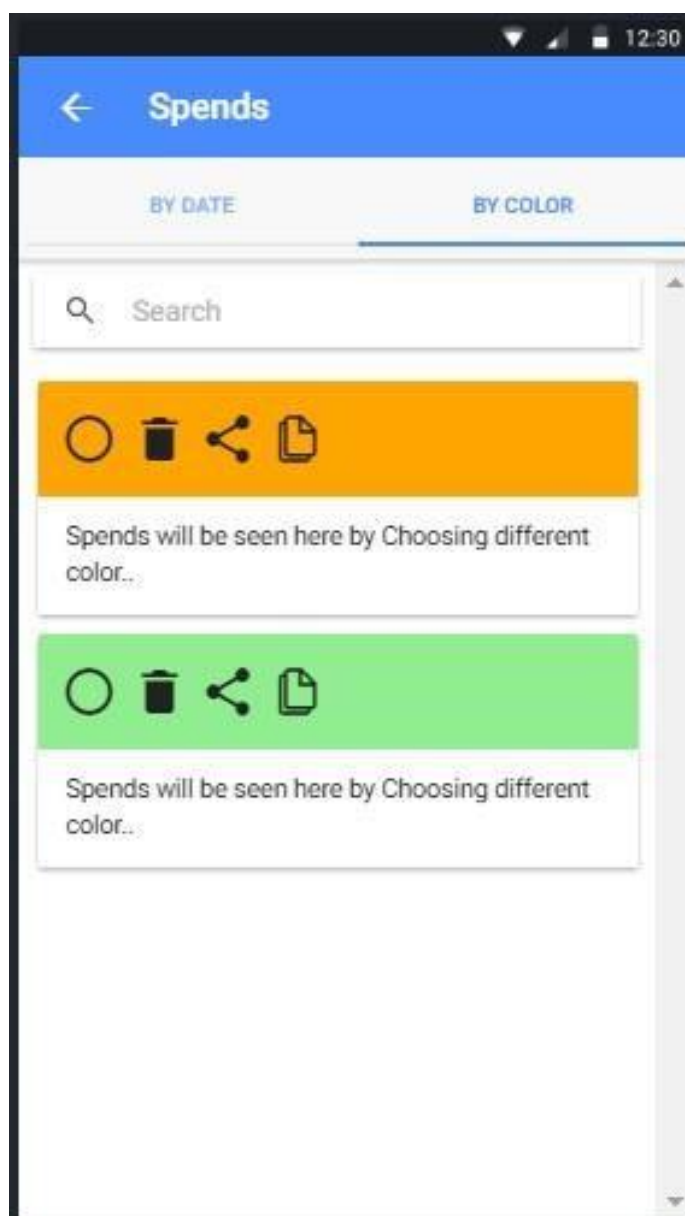


Figure 4.14 Spends page(ii)

(Filter by Colour)

The screenshot shows a mobile application interface for adding recurring spends. At the top, there is a blue header bar with a back arrow and the title "Add Recurring Spends". Below the header, there is a form with the following elements:

- An "Enter Amount" input field with a checkmark icon to its right.
- A "Date" input field showing "01/01/2017".
- A blue button labeled "SELECT CATEGORY".
- A section titled "Days.." containing seven blue buttons for the days of the week: M, TU, W, TH, F, SA, and SU.
- An orange button at the bottom labeled "TAP TO ADD NOTE".

The interface is displayed on a mobile device screen, with a status bar at the top showing the time as 12:30 and various icons.

Figure 4.15 Add Recurring Spends(i)

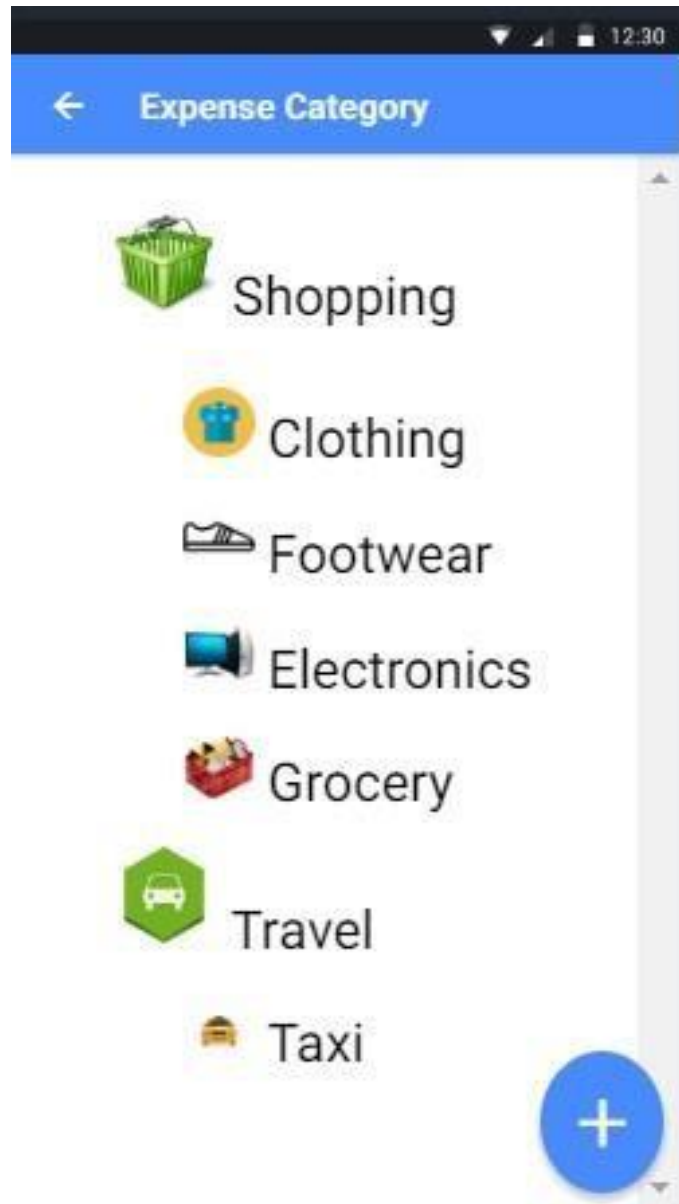


Figure 4.16 Expense Categories

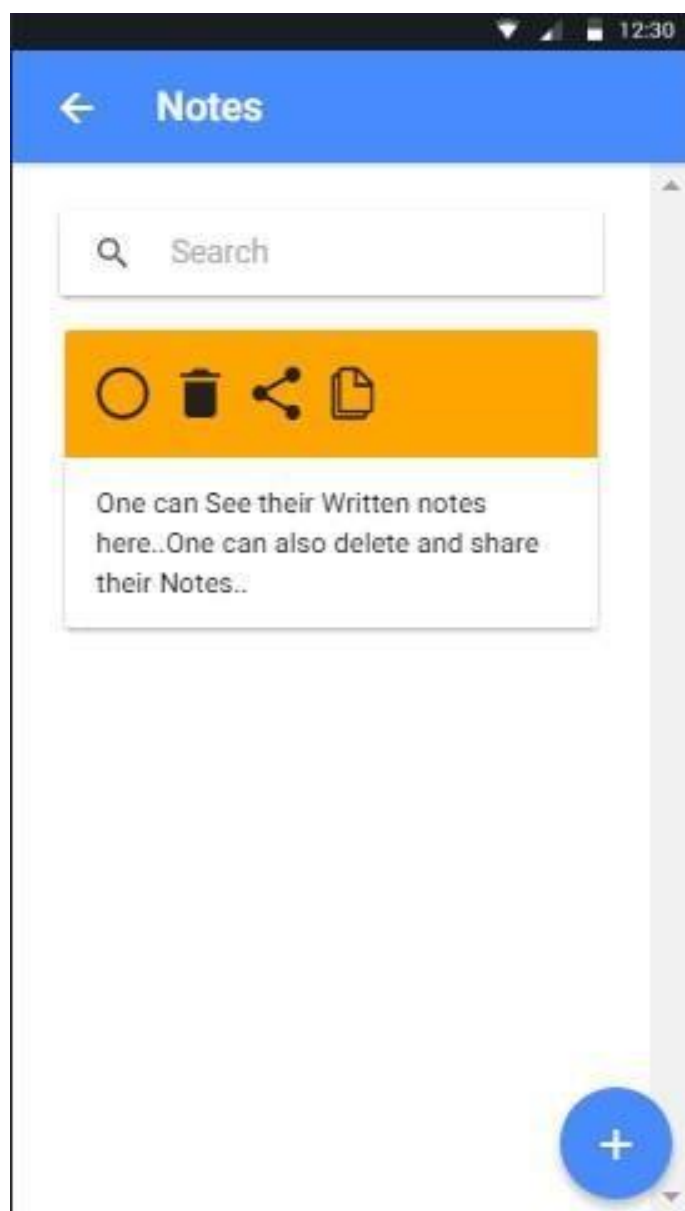
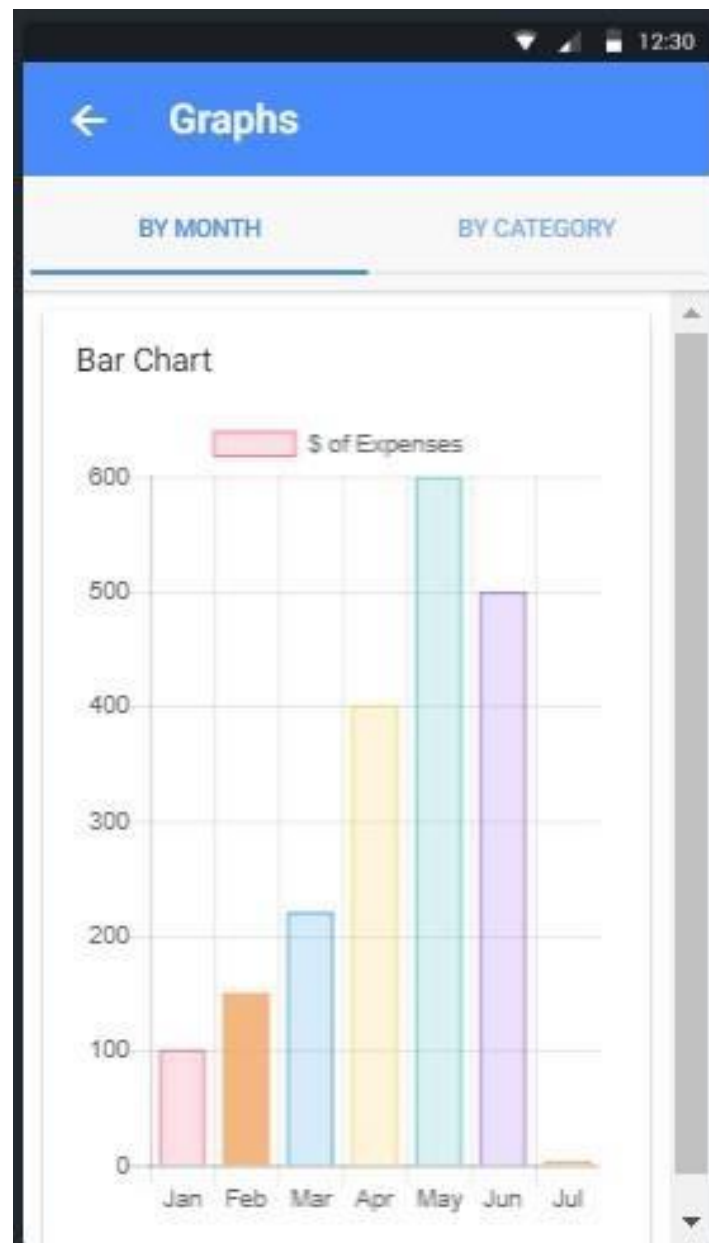


Figure 4.17 Notes Page



*Figure 4.18 Graph Generation(i)*  
(Expense representation through Bar Graph)



*Figure 4.19 Graph Generation(ii)*  
(Expense representation through Pie Chart)



## CHAPTER 5

### SUMMARY

#### 4.5 System Navigation

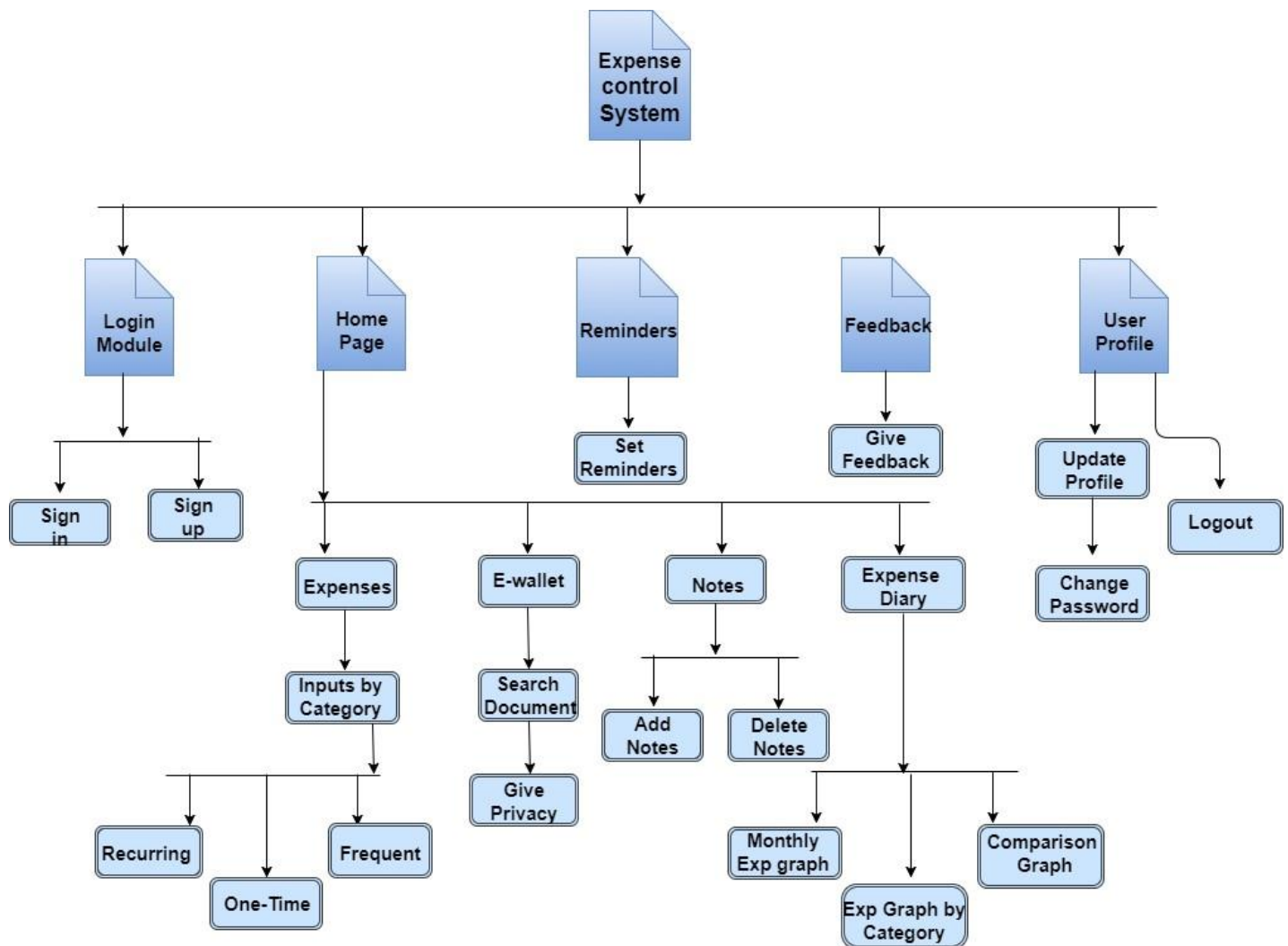


Figure 4.20 System Navigation

## 5.1 Assumptions

Before developing the application, we have made following assumptions,

1. One category can have many items.
2. One User can have only one account
3. System can generate the expense graph based on the transaction date or category type.
4. Each user can define his own category list.
5. When a user opens an Account the first time, the balance will be zero.
6. The Expenses will be defined in 3 types of category.
  - 1)Recurring spends    2) Frequent Spends    3) One-time Spends.

## 5.2 Limitations

1. As the system deals with financial scopes, the system can only be handled by authenticated users.
2. There is no provision for the users to add more than 3 images pertaining to E-Document.

## 5.3 Conclusion

**“Expense Tracker”** is all time solution for handling the daily expenses in a digitalised manner. The system not only maintains a digital dairy relating to the user’s expenses, but also keeps a track on his/hers frequent or recurring expenses. Through pictorial representation, the user can investigate and organize upon his budget and have a control over it. Also, every individual somewhere needs his/her private document at some point or the other. It is risky to carry such documents at daily basis. It is advisable to keep such documents handy and safe at the same time. Hence, we have also added the functionality of “E-Document” through which this purpose can be satisfied. The loan feature embedded in this system helps to keep a constant track on their loan activities.

Expense Tracker is the perfect application to keep track of one’s financial efficiency. It is easy to understand and the best way to record your financial data.

## 5.4 Future Scope

1. Group: Apart from keeping a personal blog, we are planning to extend this system to incorporate a shared expense group.
2. Payment Gateway: We are planning to include a service to make the direct cash payment within the application itself.
3. Loan: Different types of loan from different sources can be compared within the application so that the user can choose the best suitable policy.
4. Apart from the mobile interface, the system can also be handled as a web application.
5. Representing the interface multilingual.

## 5.5 Bibliography

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Database System Concepts [5E]	Abraham Silberschatz, Henry Forth, S.Sudarshan	-Entity Relation Diagram -Data Dictionary
<a href="https://ionicframework.com">https://ionicframework.com</a>		Ionic components
<a href="http://www.w3schools.com/css/default.asp">http://www.w3schools.com/css/default.asp</a>		CSS
<a href="http://www.w3schools.com/html/default.asp">http://www.w3schools.com/html/default.asp</a>		HTML5
<a href="http://www.w3schools.com/php/default.asp">http://www.w3schools.com/php/default.asp</a>		PHP
<a href="http://getbootstrap.com/">http://getbootstrap.com/</a>		Bootstrap Components
<a href="https://www.draw.io/">https://www.draw.io/</a>		Design diagrams
<a href="https://creately.com/">https://creately.com/</a>		Design diagrams