Team ID	PNT2022TMID11679
Project Name	Personal Expense Tracker Application
Team members	Nithesh Priyan T - Team Leader Gokulraj P Shreeram D U Pranav Ram K S

CHAPTER-1

INTRODUCTION

The introduction briefs about evolution of fabric defect detection in industries and recent approaches.

1.1 Project Overview

In simple words, personal finance entails all the financial decisions and activities that a Finance app makes your life easier by helping you to manage your finances efficiently. A personal finance app will not only help you with budgeting and accounting but also give you helpful insights about money management.

Personal finance applications will ask users to add their expenses and based on their expenses wallet balance will be updated which will be visible to the user. Also, users can get an analysis of their expenditure in graphical forms. They have an option to set a limit for the amount to be used for that particular month if the limit is exceeded the user will be notified with an email alert.

1.2 Purpose

When you track your spending, you know where your money goes and you can ensure that your money is used wisely. Tracking your expenditures also allows you to understand why you're in debt and how you got there. This will then help you design a befitting strategy of getting out of debt.

Budgeting ensures you're not spending more than you're making, allowing you to plan for short- and long-term expenses. It's an easy, helpful way for people with all types of income and expenses to keep their finances in order.

CHAPTER-2

LITERATURE SURVEY

Literature review was carried out to gain knowledge and improve the skills needed to complete this project. This chapter shows the different techniques that have been implemented.

2.1 Existing Problem

An expense tracker is a software or application that helps to keep an accurate record of your money inflow and outflow. Many people in India live on a fixed income, and they find that towards the end of the month they don't have sufficient money to meet their needs.

2.2 References

[1] http://expense-manager.com/how-expense software/

[2] https://www.splitwise.com/terms

[3] http://code.google.com/p/socialauthandroid/wiki/Facebook

[4] http://code.google.com/p/socialauth-android

[5] Developer.android.com

[6] http://www.appbrain.com/app/expensemanager/ com.expensemanager

[7] https://www.xpenditure.com/en?

[8] http://expense-manager.com/how-expense software/

[9] Donn Felker, "Android Application Development for Dummies", published by For Dummies, 2010.

[10] Ed Burnette, "Hello, Android: Introducing Google's Mobile Development Platform", published by Pragmatic Bookshelf, 2009.

Lee, "Beginning Android Application Development", Published by WroxPress, 2011.

2.3 Problem Statement Definition

It is tough to keep track of all the financial decisions and activities that a person makes. Traditional expense tracking methods are inconvenient and unreliable. In order to get a quick overview about your total incomes and expenses and control spending , its convenient to digitize the process by having a personal expense tracker.
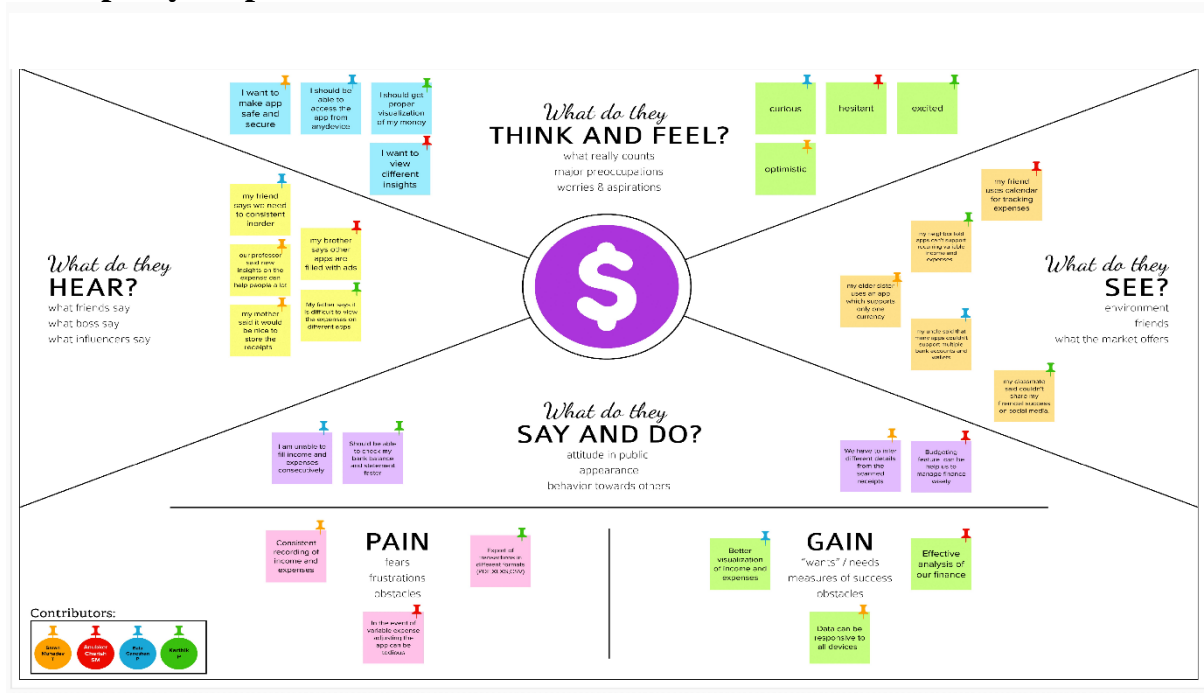
Who does the problem affect?	Working individuals, students and budget conscious consumers.
What are the boundaries of the problem?	Limited features to provide for expense tracking.
What is the issue?	To be vigilant about the expense spent increases financial stress. Being indecisive about the finances may result in less financial security and exceed the budget.
When does this issue occur?	When people are not able to track their expenses properly.
Where is the issue occurring?	In daily life of employees as well as students.
Why is it important that we fix the problem?	Fixing this issue will help users to better plan their budget and lead to financial well-being.

- Sophie, who is a homemaker, finds it hard to control her desire to shop. To stop herself from overindulging in impulsive purchases, she needs to track her expenses and hold herself accountable.
- Sam is a high school student who usually gets a limited allowance from his parents. Tracking his expenses and good budgeting technique allows him to spend on his regular expenses as well as on himself.
- Percy, who is a novice budgeter, finds it tedious to track and manage the expenses amongst his busy schedule. Prioritizing his expenses will help him to curtail his unnecessary expenditures.

CHAPTER 3

IDEATION & PROPOSED SOLUTION

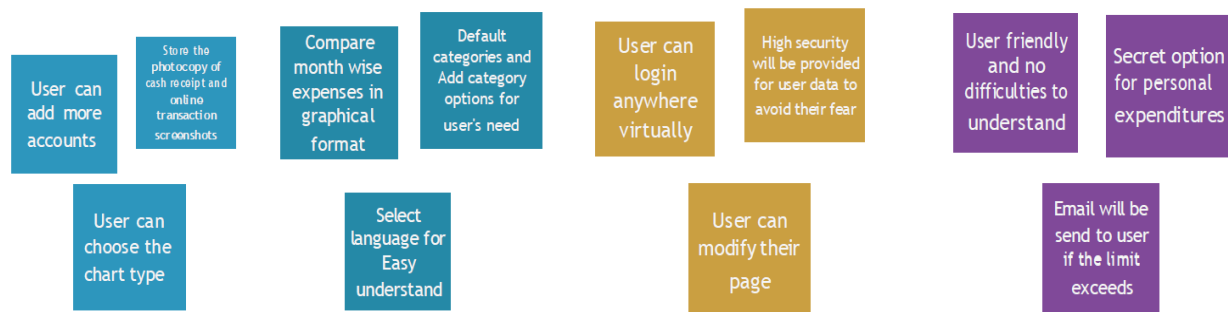## 3.1 Empathy Map Canvas

3.2 Ideation & Brainstorming

3.2.a Brainstorm

3.2.b Group Ideas
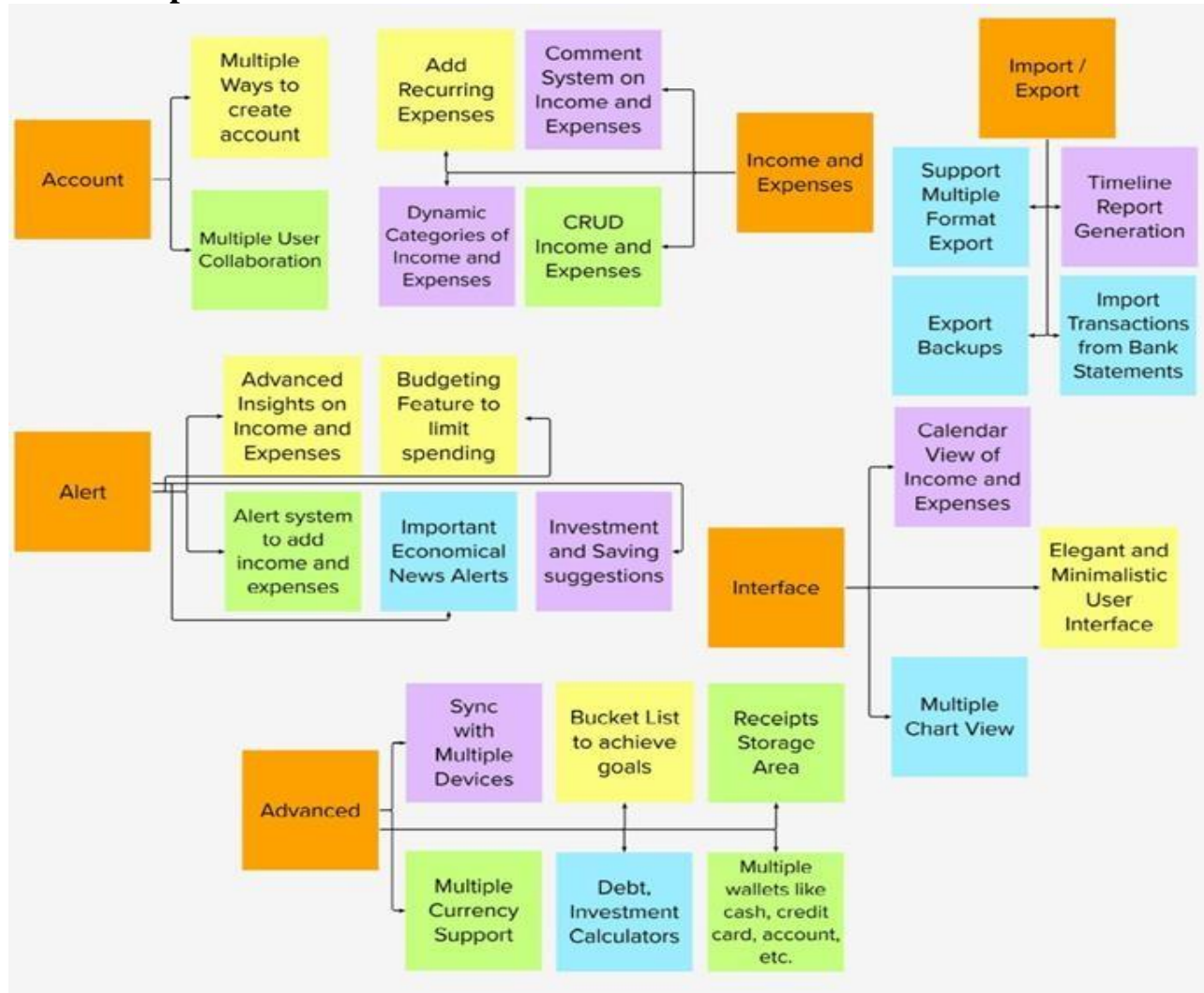
3.2.c Prioritize

Importance

If each of these tasks could get done without any difficulty or cost, which would have the most positive impact?

Feasibility

User can choose the chart type

Secret option for personal expenditures

Store the photocopy of cash receipt and online transaction screenshots

TIP

Participants can use their cursors to point at where sticky notes should go on the grid. The facilitator can confirm the spot by using the laser pointer holding the H key on the keyboard.

3.3 Proposed Solution

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Expense tracking is essential in successful financial management. By knowing where our money goes, we can effectively sort out our financial priorities based on our budget. This will help us save for our financial goals and achieve the lifestyle we want.
2.	Idea / Solution description	To develop a personal finance application which allows users to add their expenses and based on their expense wallet balance will be updated and displayed. Also, users can get an analysis of their expenditure in graphical forms. They have an option to set a limit for the amount to be used for that particular month and if the limit is exceeded the users will be notified with an email alert.
3.	Novelty / Uniqueness	➢ Integration of email alerting system ➢ Representation of expenditure analysis in graphical forms ➢ Categorisation and disclosure of business expenses ➢ Set boundaries on monthly expenses
4.	Social Impact / Customer Satisfaction	➢ Customers can maintain control of their finances and promote better financial habits like saving and investing. ➢ Customers can regularly track their expense wallet. ➢ By tracking personal expenses and keeping meticulous records, customers have everything ready come tax time.
5.	Business Model (Revenue Model)	The application can be used in every household where the significance of
		tracking personal expense is understood thereby serving as a good business model.
6.	Scalability of the Solution	➢ The application can be scaled around every earning individual who wants to keep good track of his financial expenses. ➢ Also, scalability can extend around people ➢ working especially in Business sectors ➢ who pay higher grade of taxes.

3.4 Problem Solution fit

Define CS, fit into CC

1. CUSTOMER SEGMENT(S) — CS
Who is your customer?
i.e. working parents of 0-5 y.o. kids

- Customers are those who spend money without keeping track of it.
- Those who spend money lavishly.
- Provides a whole lot of different categories of expenditure types to avoid mismatch of expenditure.

6. CUSTOMER CONSTRAINTS — CC
What constraints prevent your customers from taking action or limit their choices of solutions? i.e. spending power, budget, no cash, network connection, available devices.

- Most of the solution available in the internet hosts a lot of adds limiting its usability.
- The solution proposed here has a feature to view the expense graphically.
- Also it has email alert feature which sends email if the expense exceeds the given limit.

5. AVAILABLE SOLUTIONS — AS
Which solutions are available to the customers when they face the problem

or need to get the job done? What have they tried in the past? What pros & cons do these solutions have? i.e. pen and paper is an alternative to digital notetaking.

- eExpense is a mobile application that runs on the Android smartphones. Using this application, users can save their expense by scanning the bills and the receipt copies. This application is useful only for Android users and It does not provide graphical visualizations.

Explore AS, differentiate

Focus on J&P, tap into BE, understand RC

2. JOBS-TO-BE-DONE / PROBLEMS — J&P
Which jobs-to-be-done (or problems) do you address for your customers? There could be more than one, explore different sides.

- Expense tracking is essential in successful financial management. By knowing where our money goes, we can effectively sort out our financial priorities based on our budget. This will help us save for our financial goals and achieve the lifestyle we want.
- The objective of this application is to enable customers to keep track of their expenses.
- They also get an option to view the expenses as a graphical representation given the period of 1 year, 6 months etc.

9. PROBLEM ROOT CAUSE — RC
What is the real reason that this problem exists? What is the back story behind the need to do this job?
i.e. customers have to do it because of the change in regulations.

- Inability to live a life with scheduled financial expenses, thereby falling into debt traps.
- By spending lavishly and not tracking expenses, it's easy to go overboard, beyond income.
- Frustrated of trying to live a economically balanced life.

7. BEHAVIOUR — BE
What does your customer do to address the problem and get the job done?

i.e. directly related: find the right solar panel installer, calculate usage and benefits; indirectly associated: customers spend free time on volunteering work (i.e. Greenpeace)

- User can save all their expenses.
- Set up a monthly limit on the expense done.
- Send an email alert if the expense exceeds the limit.
- Keep track of their expenses and view expenses in a graphical format for detailed analysis.

Focus on J&P, tap into BE, understand RC

3. TRIGGERS — TR
What triggers customers to act? i.e. seeing their neighbour installing solar panels, reading about a more efficient solution in the news.

- Understanding the fact that the customers can save a lot of money by these expense apps.
- Customers can keep track of their expenses.
-

4. EMOTIONS: BEFORE / AFTER — EM
How do customers feel when they face a problem or a job and afterwards?
i.e. lost, insecure > confident, in control - use it in your communication strategy & design.

- They feel a lot clear about the income and expenses made

10. YOUR SOLUTION — SL
If you are working on an existing business, write down your current solution first, fill in the canvas, and check how much it fits reality.
If you are working on a new business proposition, then keep it blank until you fill in the canvas and come up with a solution that fits within customer limitations, solves a problem and matches customer behaviour.

- Design a flask based personal expense tracker application.
- Email Alert feature which sends expense alerts using sendgrid framework
- An option to view expenses in a graphical format.

8. CHANNELS of BEHAVIOUR — CH
8.1 ONLINE
What kind of actions do customers take online? Extract online channels from #7

- Expense trackers online come with a lot of ads which on clicking steals data like account number if provided

8.2 OFFLINE
What kind of actions do customers take offline? Extract offline channels from #7 and use them for customer development.

- Make sure they are aware of the tax rules by reading the available books to make them tax read.

CHAPTER-4

REQUIREMENT ANALYSIS

4.1 Functional Requirements

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	Registration through Application Registration through Gmail
FR-2	User Confirmation	Confirmation via Email Confirmation via OTP
FR-3	User monthly expense tentative data	Data to be registered in the app
FR-4	User monthly income data	Data to be registered in the app
FR-5	Alert/ Notification	Alert through E-mail Alert through SMS
FR-6	User Budget Plan	Planning and Tracking of user expense vs budget limit

4.2 Non Functional Requirements

Following are the non-functional requirements of the proposed solution.

FR No.	Non-Functional Requirement	Description
NFR-1	Usability	Effectiveness, efficiency and overall satisfaction of the user while interacting with our application.
NFR-2	Security	Authentication, authorization, encryption of the application.
NFR-3	Reliability	Probability of failure-free operations in a specified environment for a specified time.
NFR-4	Performance	How the application is functioning and how responsive the application is to the end-users.
NFR-5	Availability	Without near 100% availability, application reliability and the user satisfaction will affect the solution.
NFR-6	Scalability	Capacity of the application to handle growth, especially in handling more users.

CHAPTER-5

PRODUCT DESIGN

5.1 Data Flow Diagrams

A Data Flow Diagram (DFD) is a traditional visual representation of the information flows within a system. A neat and clear DFD can depict the right amount of the system requirement graphically. It shows how data enters and leaves the system, what changes the information, and where data is stored.
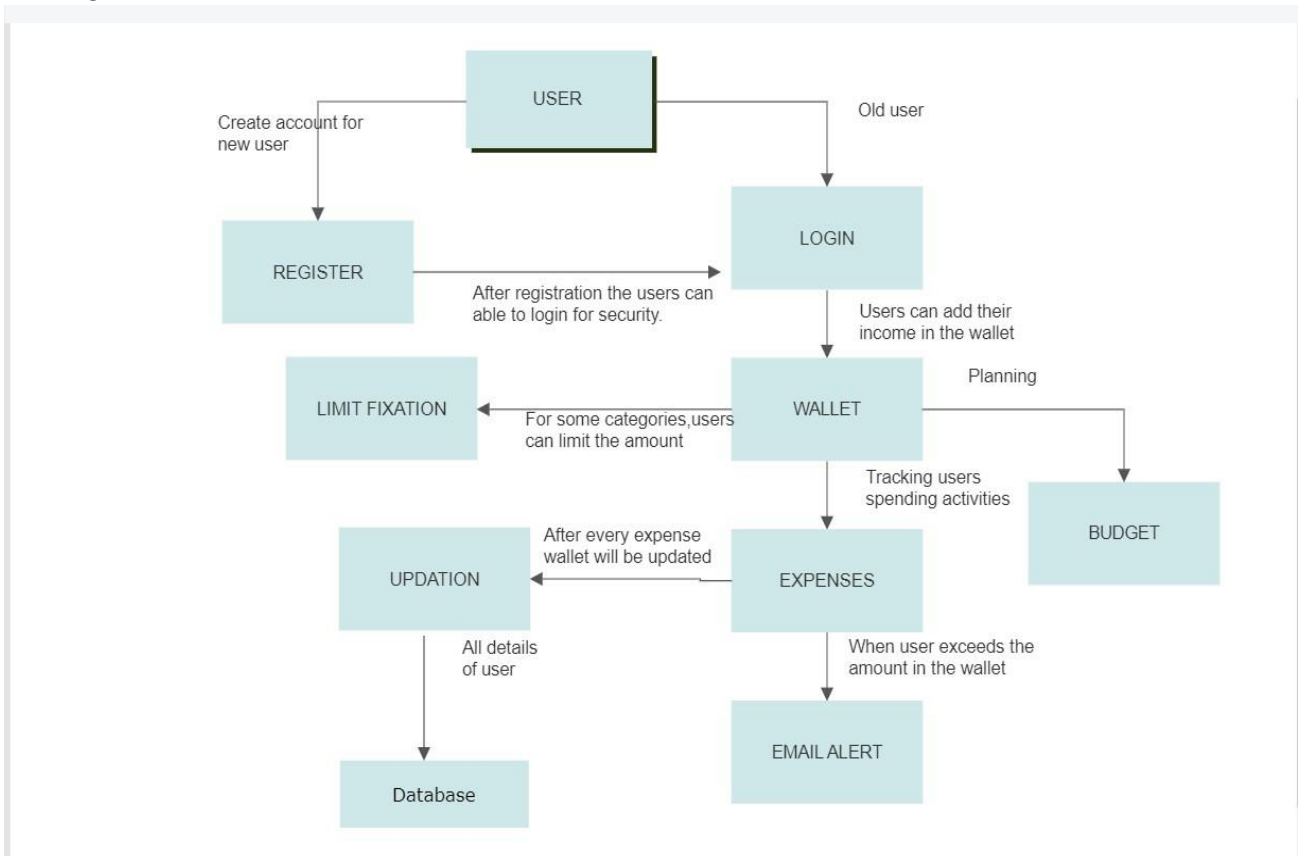
5.2 Technical Architecture

The Deliverable shall include the architectural diagram as below and the information as per the table1 & table 2
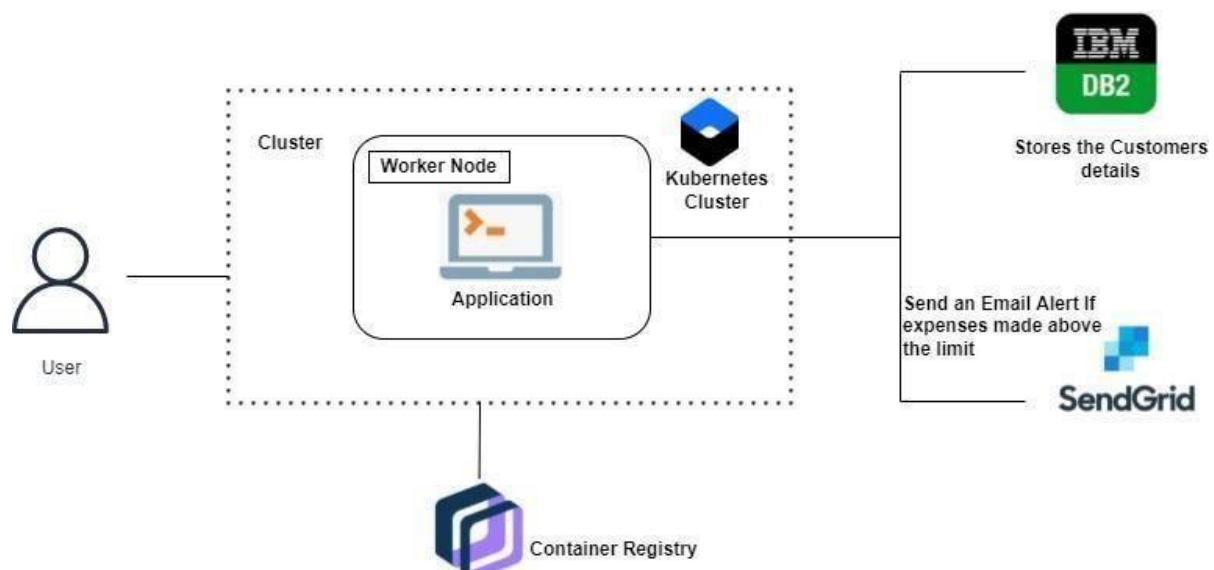
5.3 User Stories

Use the below template to list all the user stories of the product.

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Customer (Mobileuser & web user)	Registration	USN-1	As a user, I can register for the application by entering my email, password, and confirming my password.	I can access my account / dashboard	High	
		USN-2	As a user, I will receive confirmation email once I have registered for the application	I can receive confirmation email & click confirm	High	
		USN- 3	As a user, I can register for the application through Facebook	I can register & access the dashboard with Facebook Login	Low	
	Login	USN -4	As a user, I can log into the application by entering email & password	I can access the application	High	
	Dashboard	USN -5	As a user I can enter my income and expenditure details.	I can view my daily expenses	High	
Customer Care Executive		USN 6	As a customer care executive I can solve the log in issues and other issues of the application.	I can provide support or solution at any time 24*7	Medium	
Administrator	Application	USN -7	As a administrator I can upgrade or update the application.	I can fix the bug which arises for the customers and users of the application	Medium	

CHAPTER 6

## PROJECT PLANNING & SCHEDULING

6.1 Sprint Planning & Estimation

Use the below template to create product backlog and sprint schedule.

Sprint	Functional requirement (Epic)	User story number	User story/task	Story points	priority	Team members
Sprint-1	Registration	USN-1	Register for the application by entering email,password, and confirming password.	2	High	Nithesh Priyan T
Sprint-1		USN-2	As a user will receive confirmation email once have registered for the application	1	High	Gokulraj P
Sprint-2		USN-3	Register for the application through Facebook	2	Low	Pranav Ram K S
Sprint-1		USN-4	User register for the application through Gmail	2	Medium	Shreeram D U
Sprint-1	Login	USN-5	User log into the application by entering email & password	1	High	Nithesh Priyan T
Sprint-3	Dashboard	USN-6	Expenditure details on the application	3	High	Gokulraj P
Sprint-3	Limits	USN-6	User can set monthly expense limit so that receive a mail on exceeding	4	High	Pranav Ram K S
Sprint-4	Reports	USN-6	View the graphical form of expenses category wise	5	Medium	Shreeram D U

6.2 Sprint Delivery Schedule

Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date(Planned)	Story Points Completed(as on Planned End Date)
Sprint - 1	20	6 Days	26 Oct 2022	29 Oct 2022	20
Sprint - 2	20	6 Days	02 Nov 2022	05 Nov 2022	20
Sprint - 3	20	6 Days	09 Nov 2022	12 Nov 2022	20
Sprint - 4	20	6 Days	16 Nov 2022	19 Nov 2022	20

6.3 Reports from JIRA
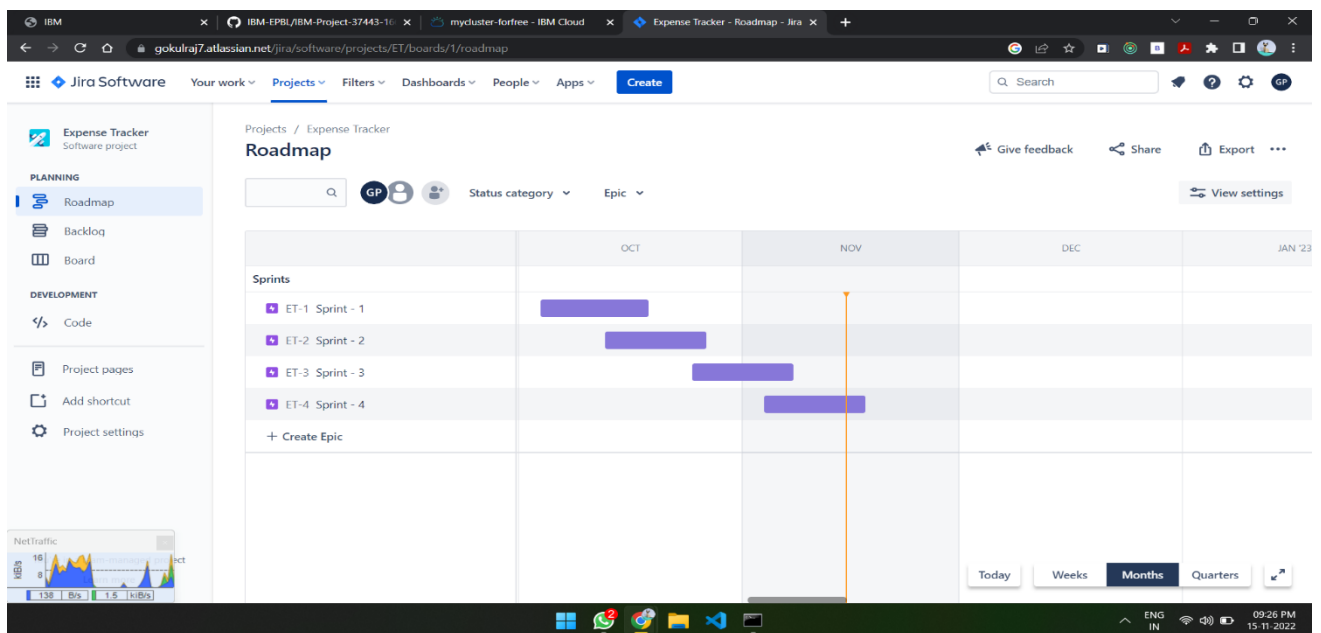
CHAPTER 7

7.1 Feature 1

1. Expense and revenue tracking.
2. Managing transaction receipts and records.
3. Paying taxes in time.
4. Processing payment and invoices.
5. Create in-depth reports.

CHAPTER-8

TESTING

8.1 Test Cases

Registration Page

LOGIN

ADD EXPENSE

CHAPTER 9
RESULTS

9.1Performance Metrics

An application can be a very powerful tool for businesses if once the app becomes a success. However, the success of an app is measured through numbers, metrics, and analytics. Developing an app takes quite a lot, so once you've dedicated much time, money, and effort to the process, it's mandatory to measure mobile app performance.

CHAPTER-10
ADVANTAGES & DISADVANTAGES

10.1 Advantages

- Improved customer service
- Cloud-based solution
- Order Fulfillment
- Harness Customer Loyalty and Retention

10.2 Disadvantages

- System Clash
- Reduced Physical Audits
- No solution to improve or eliminate bottlenecks in the service cycle

CHAPTER-11

CONCLUSION

Taking proper care of our record is crucial in every business, no matter how big or little, we must understand. We must educate ourselves about the idea of effective inventory management and its applications because we can see that managers do not fully grasp it. A company's inventory management system is one of the reasons for its failure. Many customs to combat failure are present, and we can start from this point. Modern technologies can support us in managing and keeping an eyeon our inventory. We may learn, put new ideas into practice, and assess our company.

CHAPTER-12

FUTURE SCOPE

1) It will have various options to keep record (for example Food, Travelling Fuel, Salary etc.).

2) Automatically it will keep on sending notifications for our daily expenditure.

3) In today's busy and expensive life, we are in a great rush to make moneys, but at the end of the month we broke off. As we are unknowingly spending money on title and unwanted things. So, we have come over with the plan to follow our profit.

4) Here user can define their own categories for expense type like food, clothing, rent and bills where they have to enter the money that has been spend and likewise can add some data in extra data to indicate the expense.

APPENDIX

SOURCE CODE:

REGISTRATION PAGE

```html
<!doctype html>

<html lang="en">

  <head>
    <!-- Required meta tags -->

    <meta charset="utf-8">
    <meta name="viewport" content="width=device-width, initial-scale=1">


    <!-- Bootstrap CSS -->
    <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/css/bootstrap.min.css" rel="stylesheet" integrity="sha384-EVSTQN3/azprG1Anm3QDgpJLIm9Nao0Yz1ztcQTwFspd3yD65VohhpuuCOmLASjC" crossorigin="anonymous">


    <title>Registration</title>
  </head>
    <script src="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/js/bootstrap.bundle.min.js" integrity="sha384-MrcW6ZMFYlzcLA8Nl+NtUVF0sA7MsXsP1UyJoMp4YLEuNSfAP+JcXn/tWtIax VXM"crossorigin="anonymous"></script>


  <body style="background-color:#B2D3C2">
    <div class="container mt-3">
      <h1 style="color: black; text-align: center;">

        Personal Expense Tracker <img src="bank.png" style="width:50px;height: 45px;">
      </h1>

      <div class="container mt-2" style="width: 600px;">
          <div class="card shadow-lg bg-white rounded">
            <div class="card-header" style="text-align: center;">

              <h4>Registration Form</h4>

            </div>
            <div class="card-body">
```

```html
<form action="/" method="POST">
  <div class="mb-3">

    <label for="email" class="form-label">Email: </label>
    <input type="email" class="form-control" name="email" id="email"
placeholder="abc@gmail.com">

  </div>

  <div class="mb-3">
    <label for="passowrd" class="form-label">Password: </label>

    <input type="password" class="form-control"
name="password"id="password"></input>

    <p style="color: gray;" class="mt-3">Please make sure that the
passwordmeets the following requirements:</p>

    <ol        style="color:        gray;"><li>Minimum       of       8
characters</li><li>Containsan upper case and a special character</li></ol>

  </div>
  <div class="mb-3">

    <label        for="confirmpassword"        class="form-label">Confrim
    Password:
</label>
    <input                type="password"                class="form-control"
    name="confirmpassword"
id="confirmpassword" placeholder="********">

  </div>
  <div class="mb-3">
    <label for="wallet" class="form-label">Initial Wallet Amount (Rs):
</label>

    <input     type="number"     class="form-control"     name="wallet"
    id="wallet"
placeholder="10000.0
0">
</div>

    <button type="submit" style="background-color:#00AD83;
  border-color:#00AD83; border-radius:5px;">Register</button>

  </form>
</div>

<div class="card-footer text-muted" style="text-align:center">
 Already  an  existing  user?  <span><a  href="login">Login
 Here</a></span>

</div>
```

```
                </div>
            </div>

        </div>
    </body>

</html>
```

LOGIN PAGE

```html
<!doctype html>
<html lang="en">

  <head>

    <!-- Required meta tags -->
    <meta charset="utf-8">

    <meta name="viewport" content="width=device-width, initial-scale=1">


    <!-- Bootstrap CSS -->

    <link
href="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/css/bootstrap.min.css"
rel="stylesheet"                                    integrity="sha384-
EVSTQN3/azprG1Anm3QDgpJLIm9Nao0Yz1ztcQTwFspd3yD65VohhpuuCOmLA
```

SjC" crossorigin="anonymous">

```html
    <title>Login</title>
  </head>
    <script
src="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/js/bootstrap.bundle.min
.js"integrity="sha384-
MrcW6ZMFYlzcLA8Nl+NtUVF0sA7MsXsP1UyJoMp4YLEuNSfAP+JcXn/t
WtIaxVXM"crossorigin="anonymous"></script>


    <body style="background-color:#B2D3C2">

      <div class="container mt-3">
        <h1 style="color: black; text-align: center;">

          Personal Expense Tracker <img src="bank.png" style="width:50px;height:
          50px;">

        </h1>
<div class="container mt-5" style="width: 600px;">
<div class="card shadow-lg bg-white rounded">
              <div class="card-header" style="text-align: center;">

               <h4>Login</h4>

              </div>
              <div class="card-body">
```

```html
<form action="/login" method="POST">
  <div class="mb-3">

    <label for="email" class="form-label">Email: </label>

    <input type="email" class="form-control" name="email" id="email"placeholder="abc@gmail.com">

  </div>
  <div class="mb-3">

    <label for="passowrd" class="form-label">Password: </label>

    <input type="password" class="form-control" name="password"id="password"></input>

  </div>
  <button type="submit" style="background-color:#00AD83;	border-color:#00AD83;	border-radius:5px;">Login</button>

</form>
</div>

<div class="card-footer text-muted" style="text-align:center">

 New user? <span><a href="registration.html">Register Here</a></span>

</div>
</div>

</div>

</div>
</body>
</html>
```

ADD EXPENSE PAGE

!doctype html>

<html lang="en">

 <head>
  <!-- Required meta tags -->

  <meta charset="utf-8">
  <meta name="viewport" content="width=device-width, initial-scale=1">
  <!-- Bootstrap CSS -->

   <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/css/bootstrap.min.css" rel="stylesheet" integrity="sha384-EVSTQN3/azprG1Anm3QDgpJLIm9Nao0Yz1ztcQTwFspd3yD65VohhpuuCOmLASjC" crossorigin="anonymous">

  <title>AddExpense</title>
 </head>
   <script src="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/js/bootstrap.bundle.min.js"integrity="sha384-MrcW6ZMFYlzcLA8Nl+NtUVF0sA7MsXsP1UyJoMp4YLEuNSfAP+JcXn/

```
tWtIaxVXM"crossorigin="anonymous"></script>


  <div class="container-fluid" >

    <div class="row flex-nowrap">
       <div class="col-auto col-md-3 col-xl-2 px-sm-2 px-0"
style="background-color:#B2D3C2">

         <div class="d-flex flex-column align-items-center align-items-sm-
start px-3 pt-2min-vh-100" style="color:black">

            <p class="d-flex align-items-center pb-3 mb-md-0 me-md-auto
text-white text-decoration-none">

              <span class="fs-5 d-none d-sm-inline" style="color:black;
font-weight:bold;">Personal Expense Tracker</span>

               <img src="bank.png" style="width:50px;height: 50px;">
            </p>

            <ul class="nav nav-pills flex-column mb-sm-auto mb-0 align-items-
center align-items-sm-start" id="menu">
```

```html
            <li class="nav-item mt-2">
                <a href="dashboard.html" class="nav-link align-middle px-0"
style="color:black;">

                    <span class="ms-1 d-none d-sm-inline">Home</span><img
src="house-outline.svg" style="width:20px;height:20px;margin-left: 5px;">

                </a>

            </li>
             <li class="nav-item mt-2" style="background-color:#00AD83;
height: 50px;width: 150px; border-radius: 5px;" >

                <a href="addexpense.html" class="nav-link px-0
align-middle"style="color:black;">

                    <span class="ms-1 d-none d-sm-inline">Add Expense</span><img
src="pay.png" style="width:20px;height:20px;margin-left: 5px;">

                </a>

            </li>
            <li class="nav-item mt-2">
                <a href="modifyexpense.html" class="nav-link px-0 align-middle"
style="color:black;">

                    <span class="ms-1 d-none d-sm-inline">Modify
Expense</span><imgsrc="edit_icon.svg" style="width:20px;height:20px;margin-
left: 5px;">

                </a>

            </li>
            <li class="nav-item mt-2">
                <a href="analysis.html" class="nav-link px-0
align-middle"style="color:black;">

                    <span class="ms-1 d-none d-sm-inline">View
Analysis</span><imgsrc="graph.png" style="width:20px;height:20px;margin-left:
5px;">

                </a>

            </li>
            <li class="nav-item mt-2">
                <a href="rewards.html" class="nav-link px-0 align-middle"
style="color:black;">

                    <span class="ms-1 d-none d-sm-inline">Rewards &
Goals</span><imgsrc="reward.png" style="width:20px;height:20px;margin-left:
5px;">
```

```html
          </a>
        </li>

      </ul>
    </div>

  </div>
  <div class="col py-3" style="background-color:black">
    <h3 style="color:white; text-align: center;">Add expense</h3>

<div class="container mt-3" style="width: 600px;">
 <div class="card shadow-lg bg-white rounded">
    <div class="card-header" style="text-align: center;">

          <span                      style="display:inline-flex"><h4>Expense
Made</h4><imgsrc="pay.png"      style="     margin-left:10px;      width:30px;
height:30px"></span>

        </div>

        <div class="card-body">
         <form>
          <div class="mb-3">

              <label for="amountspent" class="form-label">Amount Spent: (Rs)
</label>

              <input type="number" class="form-control" name="amountspent"
id="amountspent" placeholder="100.00">

          </div>
          <div class="mb-3">
           <label for="expensecategory" class="form-label">Expense
           Category:
</label>

              <input type="text" class="form-control" name="expensecategory"
id="expensecategory"></input>

          </div>

          <div class="mb-3">
           <label for="date" class="form-label">Date of Expense: </label>
           <input      type="date"      class="form-control"      name="date"
id="date"></input>

          </div>
```

```html
            <div class="mb-3">
            <label    for="description"    class="form-label">Description    of
            Expense:
  </labe
  l>
            <input type="text" class="form-control" name="description"
  id="description"></input>
</div>

</form>

            </div>
            <div class="card-footer text-muted" style="text-align:center">

              <button          type="submit"          style="background-
  color:#00AD83;   border-color:#00AD83;   border-radius:5px;">Submit
  Expense</button>

            </div>

          </div>
      </div>

      </div>
    </div>


  </html>
```

The python code to Connect with DB

```python
import ibm_db
dictionary= {}
def printTableData(conn):
    sql = "SELECT * FROM userdetails"
    out = ibm_db.exec_immediate(conn, sql)
    document = ibm_db.fetch_assoc(out)
    while document != False:
        dictionary.update({document['USERNAME']:
```

```python
                                        documen t['PASSWORD']})
document                =
ibm_db.fetch_assoc(out)def
insertTableData(conn,rollno,username,email,pass       word):
sql="INSERT INTO
userdetails(rollno,username,email,password)      VALUES
({},'{}','{}','{}')".format(rollno,username,ema il,password)
out = ibm_db.exec_immediate(conn,sql)
print('Number       of       affected       rows       :
',ibm_db.num_rows(out),"\n")def
updateTableData(conn,rollno,username,email,pass
word):
sql = "UPDATE  userdetails  SET  (username,email,password)=('{}','{}','{}')
WHERErollno={}".format(username,email,password,rolln o)
out       =       ibm_db.exec_immediate(conn,       sql)
print('Number       of       affected       rows       :       ',
ibm_db.num_rows(out),                     "\n")def
deleteTableData(conn,rollno):
sql = "DELETE FROM userdetails WHERE rollno={}".format(rollno)
```

```python
out = ibm_db.exec_immediate(conn, sql) print('Number of affected rows : ', ibm_db.num_rows(out), "\n")

try:

conn=ibm_db.connect("DATABASE=bludb;HOSTNAME=2f3279a5-73d1-4859-88f0-a6c3e6b4b907.c3n41cmd0nqnrk39u98g.databases.appdomain.cloud;PORT=30756;Security=SSL;SSLServerCertificate=DigiCertGlobalRootCA.crt;UID=ctb99199;PWD=GybYxLw1rHz86oSh;","","")

print("Db

connected")

except:

print("Error")

from                    flask                    import

Flask,render_template,request,url_for,session

app=Flask(_name_)

@app.route("/")

@app.route("/login",methods=['POS

T','GET'])def login():

if request.method=="POST":

printTableData(conn)

username=request.form['username']

password=request.form['password']

try: if dictionary[username] == password and username in dictionary:
```