

# **PROJECT**

## **PERSONAL EXPENSE TRACKER APPLICATION**

### **DONE BY**

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## **1. INTRODUCTION**

### **1.1 Project Overview**

Personal Expense Tracker is a web application that allows you to track the daily expense of the user and help them to keep track of their expenses daily, monthly, weekly, and yearly basis. It will also create a digital record for the user's income and various expenses spent by the user is calculated. It also gets the input from the user as how much income earned and the date of the income earned and further creates a transaction entry and sums up all the total income. Further we can give voice commands and it is responsive. It will be very helpful for the users to manage their needs and they can spend in a better way by keeping track of the application daily basis.

### **1.2 Purpose**

The main purpose of personal expense tracker application is used to keep track of expenses based on the user's income and how much they spent and also, they can keep track of their expenses Daily, Monthly, Weekly and yearly basis.

## **2. LITERATURE SURVEY**

### **Paper 1 – Expense**

#### **Tracker**

**Publisher:** International Journal for Research in Applied Science & Engineering Technology (IJRASET)

The Expense Tracker is a Web application that facilitates the users to keep track their expenses. This application records all the expenses of the users and the user can view them anytime. The application provides monthly and year-wise expenditures which will let the user know where he is spending the most. It also provides graphical visualizations which helps the user to perform detailed analysis on the expenditure.

#### **Pros**

- Using paper is not easy to manage the expenses. This application eliminates the

usage of paper and excel sheets to keep track the user's expenses.

- It saves time and requires less human effort.
- The user just needs to enter the income and the expenses, everything will be taken care by the application.

### **Cons**

- There is not limit on the amount that can be used by the user
- The application does not send any notification regarding the usage of the amount by the user.

## **Paper 2 - Expense: A Smart Approach to Track Everyday ExpensePublisher:**

IEEE

Expense 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. Optical Character Recognition (OCR) is used to extract the information from the bills or receipts. It is also capable of tracking savings from user's saving accounts by reading the SMS's automatically from the message application of the android device.

The application consists of four sections such as debit, credit, balance, and history. Debit section records the expenses of the user. The input can be given either manually by the user or the system will take automatically by scanning. When users open the credit interface, the system reads all the messages from the user's messaging inbox. The input can be given manually or it can be taken by the system automatically.

This application allows users to set the budget for a month or year. When the limit exceeds, it sends a notification to the user. Balance section shows the monthly and yearly balance. History section contains calendar. By selecting a particular date, it shows the expenses on that day.

### **Pros**

- It is an automated system to store the expense of the user and the expenses are stored in the database category wise.
- This application extracts the textual information from the receipts and saves the amount and description for further processing.
- It also monitors user's income by tracking the received SMSs from the user's saving accounts. By calculating income and expense it produces the user's balance in monthly and yearly basis.
- It eliminates the usage of paper and excel sheets to keep track the user's expenses. It

saves time and requires less human effort.

### **Cons**

- This application is useful only for Android users.
- It does not provide graphical visualizations which could be helpful for detailed analysis of the expenditure.

### **Paper 3 – Expense Tracker**

**Publisher:** International Research Journal of Modernization in Engineering Technology and Science (IRJMETS)

The Expense Tracker is a mobile application that allows the users to download in their mobile phones and can be used to track and update their daily costs. So that they can keep track of their earnings. The user can know easily on how much the amount they have spent on the various things for household, clothing and house rentals and we can easily depict the cost to the user using pie charts. Based on this we can keep track of daily expenses that we spent in a single day. Moreover, this is an automated solution for tracking the expenses.

### **Pros**

- The application does not require many users and only requires them to enter the expense amount, date, category, merchant, and other optional parameters
- It helps the android users in any situation by keeping track of their expenses every day.
- App also sends customized tips in the form of push notifications which helps users to manage expenses.

### **Cons**

- This application is made only for android users.
- There is no limit for the amount that is been used by the user.

### **Paper 4 - Daily Expense Tracker**

**Publisher:** International Journal of Research in Engineering and Science (IJRES)

Daily Expense Tracker is a web application that allows you to track the daily expense of the user and help them to keep track of their expenses daily, monthly, weekly, and yearly basis. It will also create a digital record for the user's income and various expenses

spent by the user is calculated. It also gets the input from the user as how much income earned and the date of the income earned and further creates a transaction entry and sums up all the total income. Further we can give voice commands and it is responsive. It will be very helpful for the users to manage their needs and they can spend in a better way by keeping track of the application daily basis.

Daily Expense Tracker application can be accessed from any browsers like Google chrome, Mozilla Firefox and it allows for portable work environment. We can also digitally maintain the records with visual representation and graphically view them using bar graphs and pie charts on how much amount is being spent and can also eliminate the physical entries by using voice commands.

Daily expense Tracker is an AI powered engine providing voice recognition which is very helpful for the users to do the work in easiest way. The application is divided into three major components that is income, expense and create transaction section. Create transaction component allows user to choose from two categories whether it is a Expense or an Income and choose from list of types of income or expense enter the amount and date and create entry. After the creation of transaction pie charts are created in the income or expense section based on type of transaction. All of these features can also be updated or deleted using users voice commands.

### **Pros**

- It is an AI powered engine so that is easy to store all the expenses of the user in a database.
- It eliminates the user by typing manually instead it is very helpful using voice recognition.
- It saves time and user friendly and requires less human effort.
- It is a platform independent web application. Users can use this application either in their mobile phones or desktops. Both Income and Expenses pie chart will be created when we add any item and distributed according to the user need.
- If any user does not know how to add or delete then we can simply give voice commands.

### **Cons**

- There is no option to scan the barcode on the price tag which may decreasing the

efforts of entering the data.

- There is no notification system when the user expenses exceed the income to warn the situation.

## **2.1 References**

1. <https://www.ijraset.com/files/serve.php?FID=33797>
2. <https://ieeexplore.ieee.org/document/8628070>
3. [https://www.irjmets.com/uploadedfiles/paper/issue\\_4\\_april\\_2022/21604/final/fin\\_irjmets1651132467.pdf](https://www.irjmets.com/uploadedfiles/paper/issue_4_april_2022/21604/final/fin_irjmets1651132467.pdf)
4. <https://www.ijres.org/papers/Volume-9/Issue-12/Ser-4/L09127073.pdf>

## **2.2 Problem Statement Definition**

The Expense Tracker is a mobile application that allows the users to download in their mobile phones and can be used to track and update their daily costs. So that they can keep track of their earnings. The user can know easily on how much the amount they have spent on the various things for household, clothing and house rentals and we can easily depict the cost to the user using pie charts. Based on this we can keep track of daily expenses that we spent in a single day. Moreover, this is an automated solution for tracking the expenses.

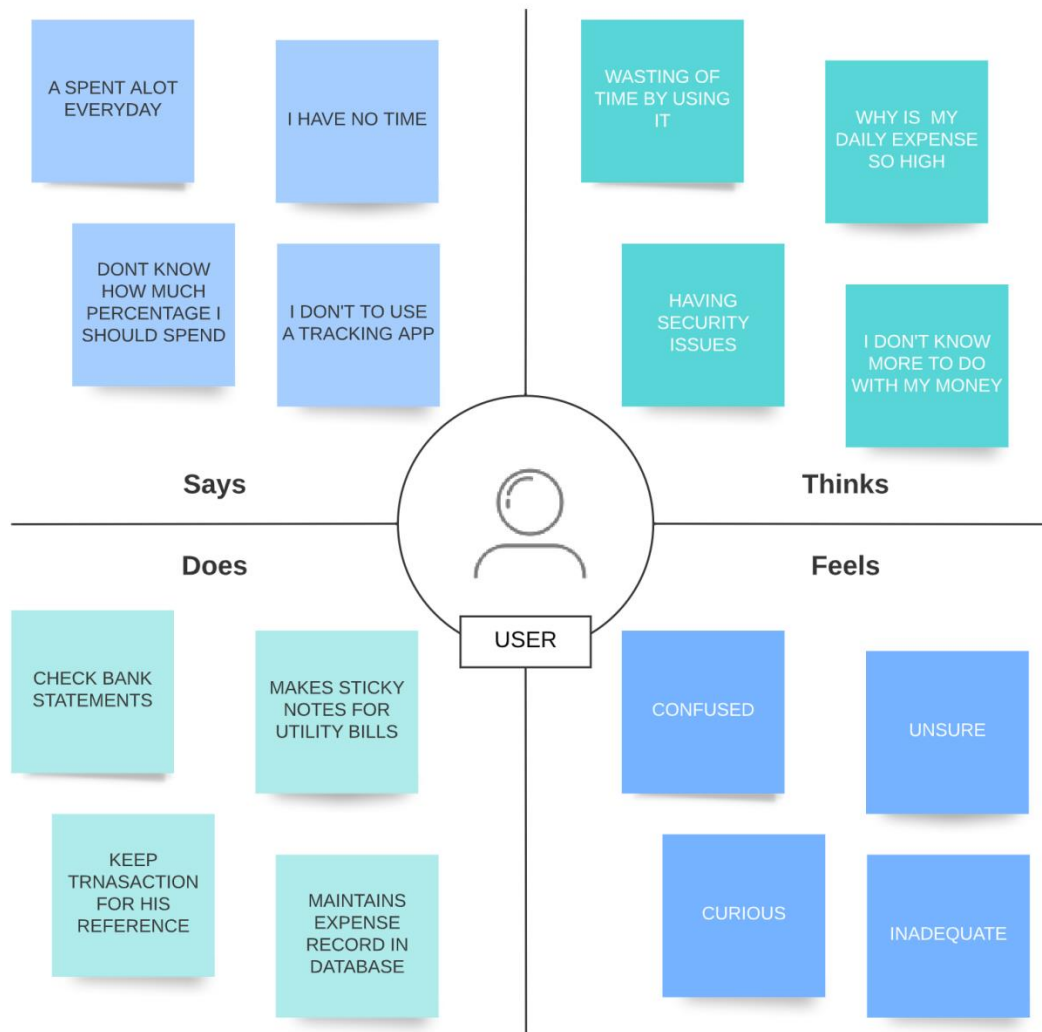
## **3. IDEATION & PROPOSED SOLUTION**

### **3.1 Empathy Map Canvas**

An empathy map is used to gain deeper insights on the customer's interaction with the system. It gives an idea on what the user feels and experiences while using the system, what fears the user has respective to the system, etc. It also specifies how supportive the system environment is and what the users are likely to hear from the people around them regarding the usage of the system.

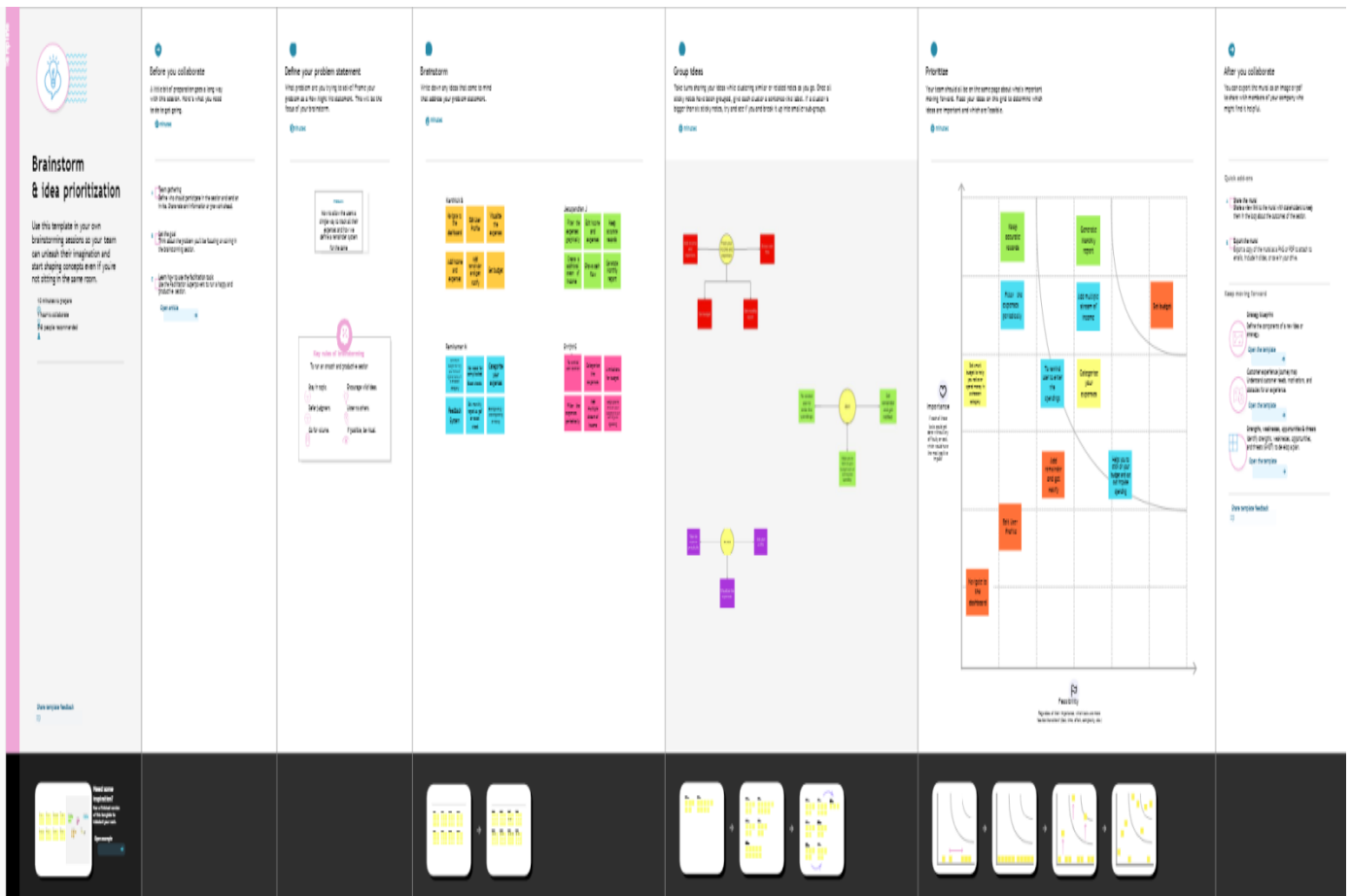


# EMPATHY MAP



### 3.2 Ideation & Brainstorming

Ideation and Brainstorming are performed to generate ideas and solutions. Brainstorming is a group activity unlike ideation.



### 3.3 Proposed Solution

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	<p>Earlier, our parents use to track all their expenses by writing down in a small notebook and calculating it on their own Even still many of them follow the same to maintain their financial expenses even some of them do not care of their expenses and spendings.</p> <p>Not only in our homes, Expenses are need to be tracked in many large scales and small-scale sectors such as in many schools, colleges, marketing companies, departmental stores, etc</p> <p>So, in order to optimize their work and make peoples life easier our expense tracker, application will be much helpful for financial management,</p> <p>The outcome of the application will be much useful for them to acknowledge the daily expenses and track the monthly expenses from their income with a limit to spend. They can easily track and view their expenses with a statistical data.</p> <p>In short, tracking our financial expenses is a great deal especially in this scenario so making those tracking easier is the job of this application</p>
2.	Idea / Solution description	<p>Due to the busy and hectic lifestyle people tend to overlook their budget and end up spending an excessive amount of money since they usually did not plan their budget wisely. user cannot predict future expenses. While they can write down their expenses in a excel spreadsheet, their lack of knowledge in managing finances will be a problem</p>

3.	Novelty / Uniqueness	<p>This application tracks your every expenses anywhere and anything without using the paperwork.</p> <p>Just click and enter your expenditure .to avoid a data loss, quick settlements and reduce human error. To provide the pie chart or graph lines in this application.</p>
4.	Social Impact / Customer Satisfaction	<p>Using this application one can track their personal expenses and frame a monthly annual budget.</p> <p>If your expense exceeded than specified limit, the application will show you an alert in form of a pie chart.</p>
5.	Business Model (Revenue Model)	<p>Business people can use subscription/premium feature of this application to gain revenue</p>
		<p>tracking personal expense is understood thereby serving as a good business model.</p>
6.	Scalability of the Solution	<p>IBM cloud will automatically allocate the storage for the users.</p>

### **3.4 Problem Solution fit**

The Problem-Solution Fit means that the solution that is realized can solve the problem that the customer faces

Problem Solution fit	Project Title: Personal Expense Tracker Application	Team ID: PNT2022TMID20155
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Define CS, fit into CC	<div>CS</div> <div><b>1. CUSTOMER SEGMENT(S)</b> Who is your customer?  1. People who earn and spend money. 2. People who lead family. 3. People who needs to track their daily expenses.</div>	<div>CS</div> <div><b>6. CUSTOMER CONSTRAINTS</b> 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.  1. Affordable, stable network connection. 2. Authorized Login. 3. Difficult accessibility.</div>	<div>AS</div> <div><b>5. AVAILABLE SOLUTIONS</b> 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 &amp; cons do these solutions have? i.e. pen and paper is an alternative to digital notetaking  1. User friendly interface, avoiding misleading ads. 2. Keeping track of user'</div> <div>Explore AS, differentiate</div>
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## 4. REQUIREMENT ANALYSIS

### 4.1 Functional requirement

The suggested solution's functional requirements are listed below.

FR No.	Functional Requirement	Sub Requirement
FR-1	User Registration	This is a form that collects information from the user.
FR-2	Login	User needs to enter their username and password here.
FR-3	Expenses	The user must be able to add their expenses and set limit of their expenses in the application.
FR-4	Expense Tracker	The expenses should be represented graphically.
FR-5	Email Alert	The application sends an email if the expense exceeds the limit

### 4.2 Non-Functional requirements

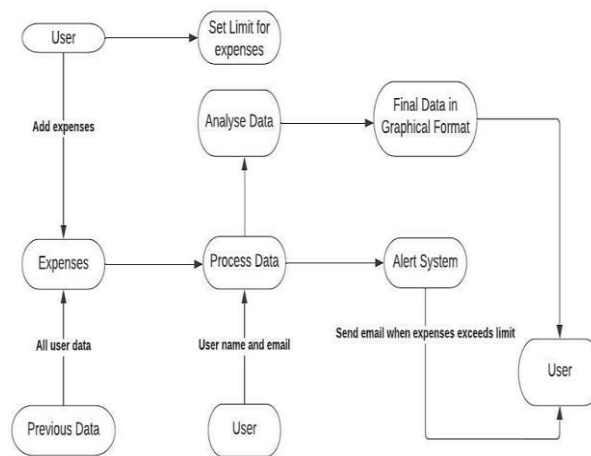
The non-functional requirements of the proposed solution are as follows.

NFR No.	Non-Functional Requirement	Description
NFR-1	<b>Usability</b>	The Application keeps an accurate record of the user's income and expenses.
NFR-2	<b>Security</b>	A detailed accounting of the user's income and expenses.
NFR-3	<b>Performance</b>	Because of lightweight database support, the system's throughput is increased.
NFR-4	<b>Availability</b>	The application must be completely operational always.
NFR-5	<b>Scalability</b>	The application must always function in its entirety.

## 5. PROJECT DESIGN

### 5.1 Data Flow Diagrams

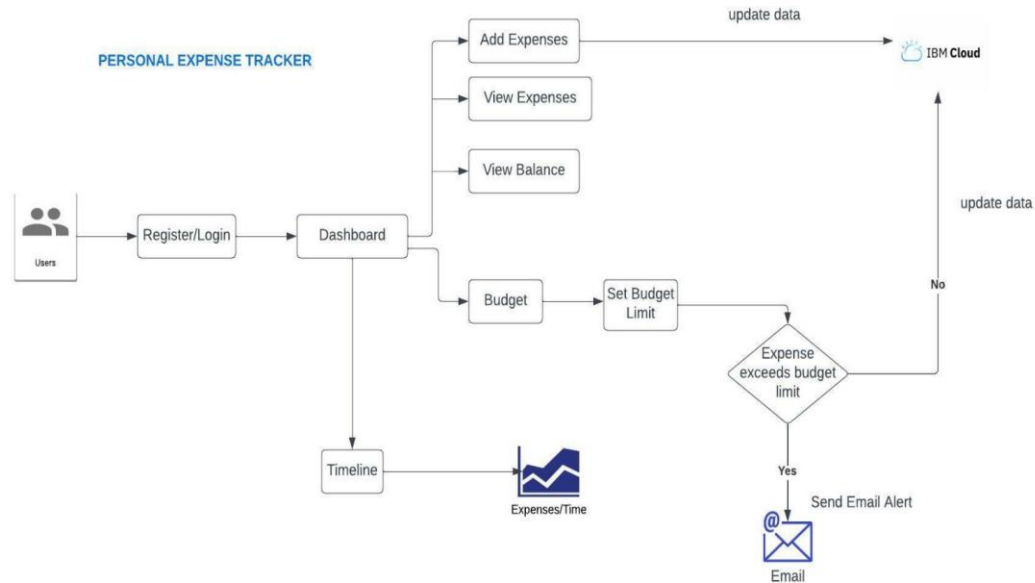
A Data Flow Diagram (DFD) is a traditional visual representation of the information flows within a system. A neat and clear DFD can depict the right amount of the system requirement graphically. It shows how data enters and leaves the system, what changes the information, and where data is stored.





## 5.2 Solution & Technical Architecture

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



**Table 1 : Components & Technologies:**

S No	Component	Description	Technology
1.	User Interface	The user can interact with the application with the use of a Chatbot.	HTML, CSS, JavaScript / React Js etc.
2.	Application Logic-1	This application has a sign-in/sign-up feature that allows users to access the main dashboard after signing up.	Python/Node JS

3.	Application Logic-2	The dashboard has fields for saving money, adding expenses, and adding revenue.	IBM Watson STT service
4.	Application Logic-3	The user will receive notifications if the expense cap is exceeded and get an expense report in form of a graph	IBM Watson Assistant
5.	Database	The MySQL database contains income and expense information.	MySQL, NoSQL, etc.
6.	Cloud Database	The user data are saved in a secure manner while using a cloud-based database service.	IBM DB2, etc
7.	File Storage	The user's financial data is stored on IBM Block Storage.	IBM Block Storage or Other Storage Service or Local Filesystem
8.	External API-1	It makes internal resources accessible to users or apps from the outside world.	IBM Weather API, etc.

**Table 2: Application Characteristics:**

S No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Flask Framework in Python is used to implement this Application.	Python-Flask
2.	Security Implementations	The user's financial information is extremely secure. IBM cloud's Container Registry can be used to accomplish this.	Container Registry, Kubernetes Cluster
3.	Scalable Architecture	This application 'Expense Tracker' has lifetime access. When a user's income is high, this product will be in more demand.	Container Registry, Kubernetes Cluster
4.	Availability	The user will have access to this application at any time.	container Registry, Kubernetes Cluster
5.	Performance	The performance will be high because there will be no network traffics in the application.	Kubernetes Cluster

### 5.3 User Stories

An informal, generic explanation of a software feature written from the viewpoint of the end user is known as a user story. Its objective is to explain how a software feature will benefit the user.

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

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria
Customer (Mobile user & web user)	Registration	USN-1	As a user, I can register for the application by entering my email, and password, and confirming my password.	I can access my account/dashboard
		USN-2	As a user, I will receive a confirmation email once I have registered for the application	I can receive confirmation & Click confirm
		USN-3	As a user, I can register for the application through Facebook	I can register with Facebook
		USN-4	As a user, I can register for the application through a Google account.	I can register & access the dashboard with Google Account
	Login	USN-5	As a user, I can log into the application by entering my email & password	I can access the application.
	Dashboard	USN-6	As a user, I can see the expenditure details and the daily expense.	I can view the expenses and the expense details
Customer Care Executive		USN-7	As a customer care executive, I can solve the problem that customers face.	I can provide support to customers 24*7.
Administrator	Application	USN-8	As an administrator, I can upgrade or update the application.	I can fix bugs raised by customers and upgrade the application

## 6. PROJECT PLANNING & SCHEDULING

### 6.1 Sprint Planning & Estimation

The purpose of sprint planning is to define what can be delivered in the sprint and how that work will be achieved. Sprint planning is done in collaboration with the whole team.

Use the below template to create product backlog and sprint schedule

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story
Sprint-1	Registration	USN-1	As a user, I can register for the application by entering my email, password, and confirming my password.	
Sprint-1		USN-2	As a user, I will receive confirmation email once I have registered for the application	
Sprint-2		USN-3	As a user, I can register for the application through Facebook	
Sprint-1		USN-4	As a user, I can register for the application through Gmail	
Sprint-1	Login	USN-5	As a user, I can log into the application by entering email & password	
Sprint-3	Dashboard	USN-6	As a user, I can view the expenditure details and can add new expenses on the dashboard	
Sprint-3	Limits	USN-7	As a user, I can set my monthly expense limit and I will receive an email when the expense exceeds limit	
Sprint-4	Reports	USN-8	As a user, I can view the expenditure details in the graphical form	

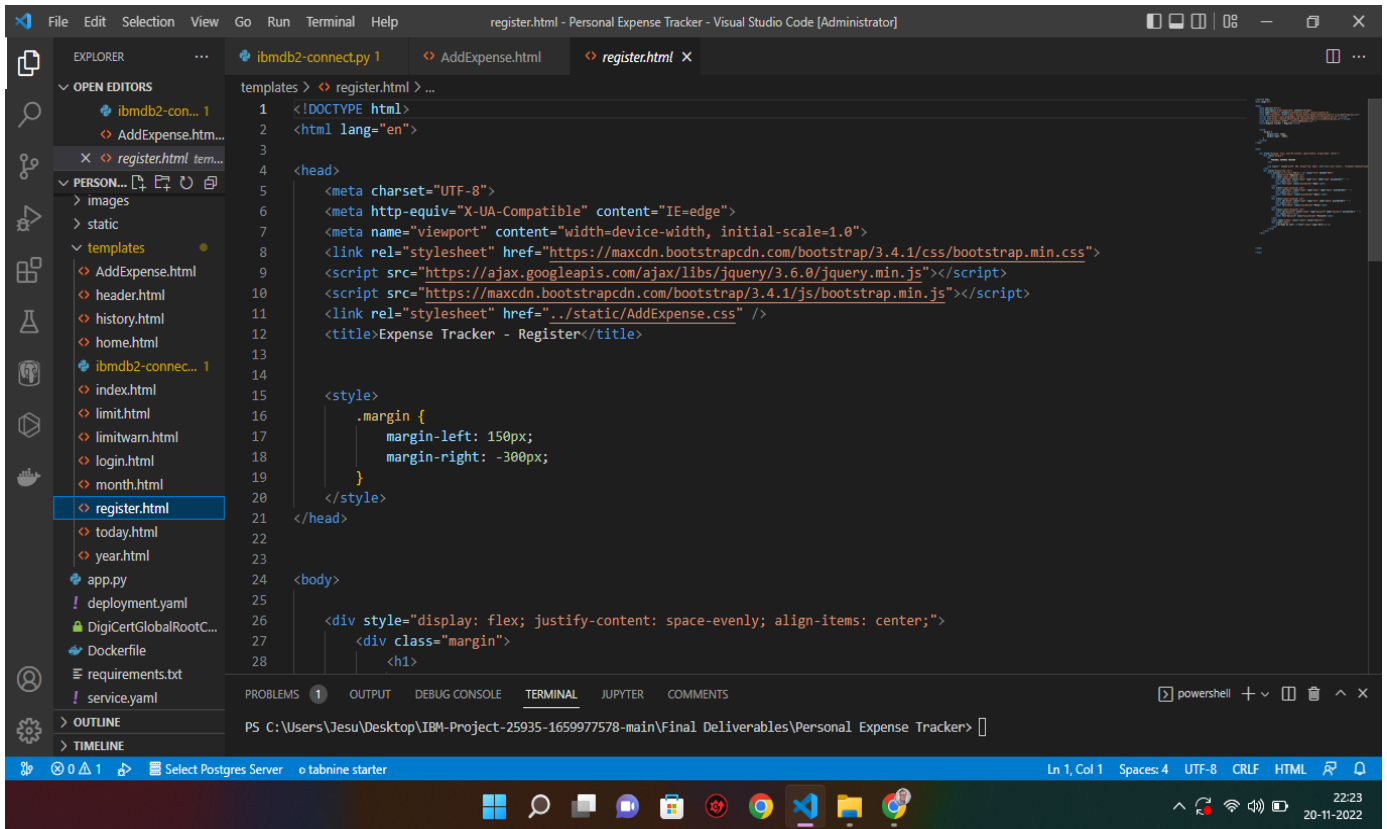
### 6.2 Sprint Delivery Schedule

Agile sprints typically last from one week to one month. The goal of sprints is to put pressure on teams to innovate and deliver more quickly, hence the shorter the sprint, the better.

Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Plan
Sprint-1	20	6 Days	24 Oct 2022	29 Oct 2022
Sprint-2	20	6 Days	31 Oct 2022	05 Nov 2022
Sprint-3	20	6 Days	07 Nov 2022	12 Nov 2022
Sprint-4	20	6 Days	14 Nov 2022	19 Nov 2022

## 7. CODING & SOLUTIONING (Explain the features added in the project along with code)

### 7.1 REGISTER PAGE



The screenshot shows the Visual Studio Code editor interface. The Explorer panel on the left displays the project structure, including a 'templates' folder containing 'register.html'. The main editor area shows the content of 'register.html', which is an HTML file for a registration page. The code includes a DOCTYPE declaration, HTML lang attribute, a head section with meta tags for charset, X-UA-Compatible, and viewport, and links to Bootstrap CSS and jQuery. It also includes a style block for a margin and a body section with a flex container and a centered h1 element.

```
1 <!DOCTYPE html>
2 <html lang="en">
3
4 <head>
5   <meta charset="UTF-8">
6   <meta http-equiv="X-UA-Compatible" content="IE=edge">
7   <meta name="viewport" content="width=device-width, initial-scale=1.0">
8   <link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/3.4.1/css/bootstrap.min.css">
9   <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.6.0/jquery.min.js"></script>
10  <script src="https://maxcdn.bootstrapcdn.com/bootstrap/3.4.1/js/bootstrap.min.js"></script>
11  <link rel="stylesheet" href="../static/AddExpense.css" />
12  <title>Expense Tracker - Register</title>
13
14
15
16  <style>
17    .margin {
18      margin-left: 150px;
19      margin-right: -300px;
20    }
21  </style>
22
23 </head>
24
25 <body>
26
27   <div style="display: flex; justify-content: space-evenly; align-items: center;">
28     <div class="margin">
29       <h1>
```

The bottom of the image shows the Windows taskbar with various application icons and the system clock displaying 22:23 on 20-11-2022.

# PERSONAL EXPENSE TRACKER



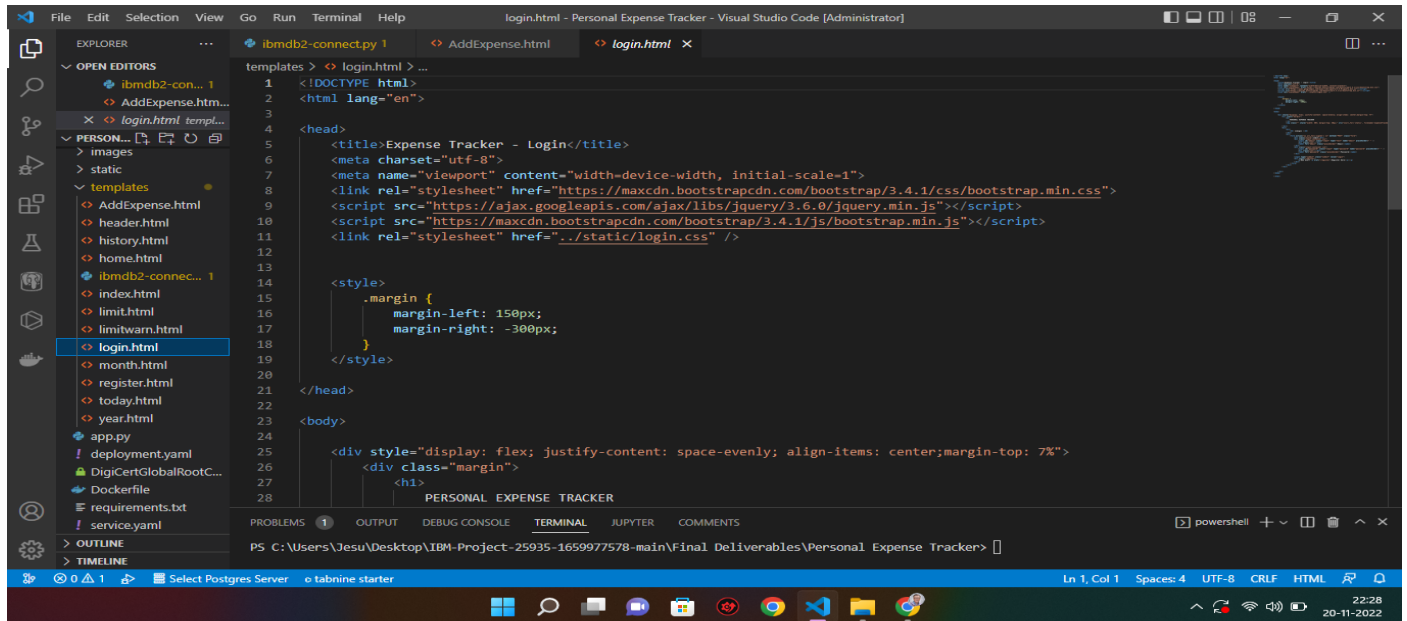
## Register

Register

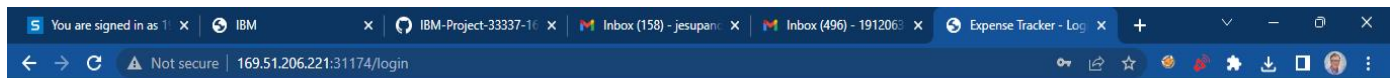
Already an user? [Login Here](#)



## 7.2 LOGIN PAGE



```
1 <!DOCTYPE html>
2 <html lang="en">
3
4 <head>
5   <title>Expense Tracker - Login</title>
6   <meta charset="utf-8">
7   <meta name="viewport" content="width=device-width, initial-scale=1">
8   <link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/3.4.1/css/bootstrap.min.css">
9   <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.6.0/jquery.min.js"></script>
10  <script src="https://maxcdn.bootstrapcdn.com/bootstrap/3.4.1/js/bootstrap.min.js"></script>
11  <link rel="stylesheet" href="../static/login.css" />
12
13  <style>
14    .margin {
15      margin-left: 150px;
16      margin-right: -300px;
17    }
18  </style>
19
20 </head>
21
22 <body>
23
24  <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 70px">
25    <div class="margin">
26      <h1>
27        PERSONAL EXPENSE TRACKER
28      </h1>
29    </div>
30  </div>
31
32 </body>
33 </html>
```



## PERSONAL EXPENSE TRACKER



### Login

Email

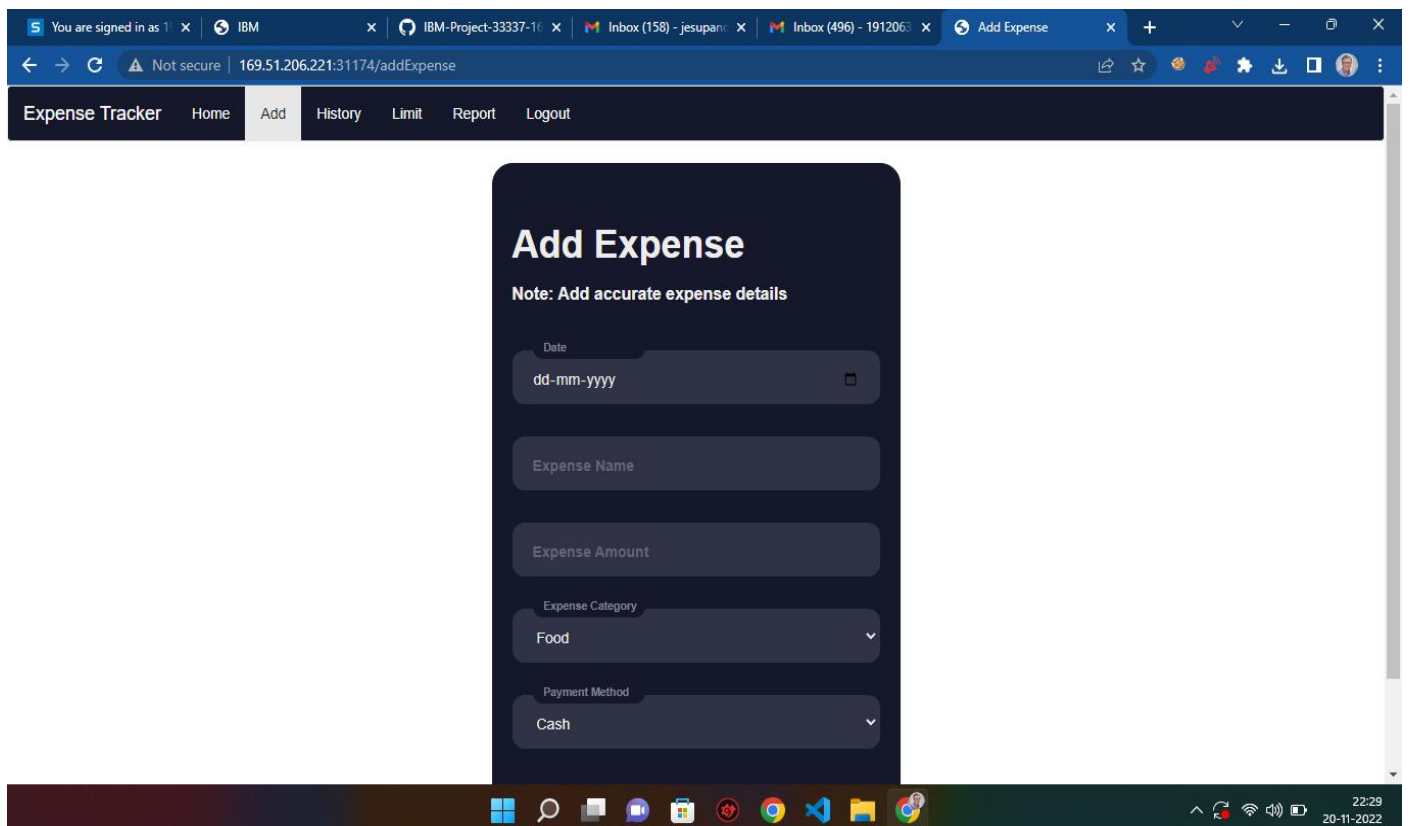
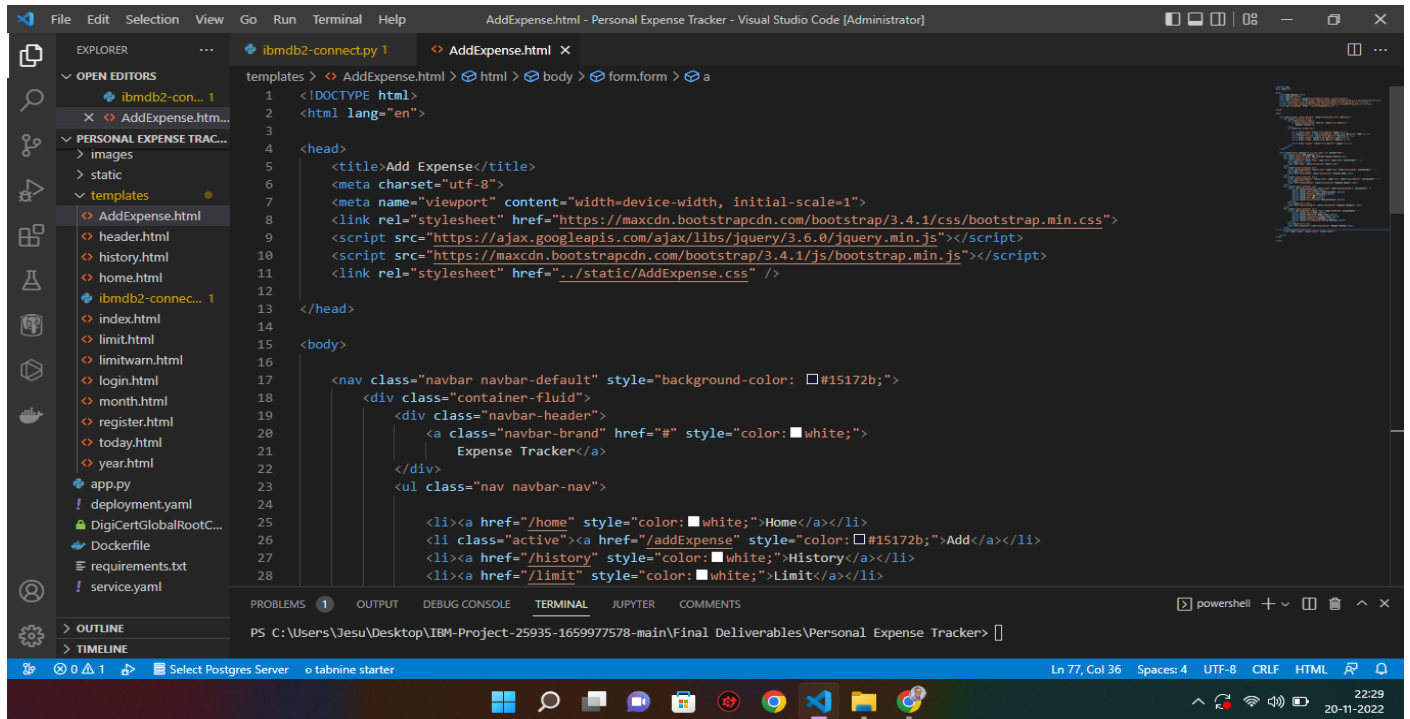
Password

Login

New User? [Register Here](#)



### 7.3 ADD EXPENSE PAGE

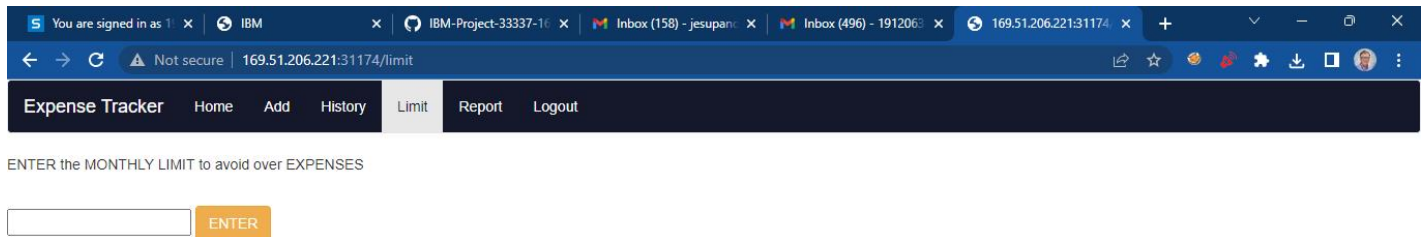
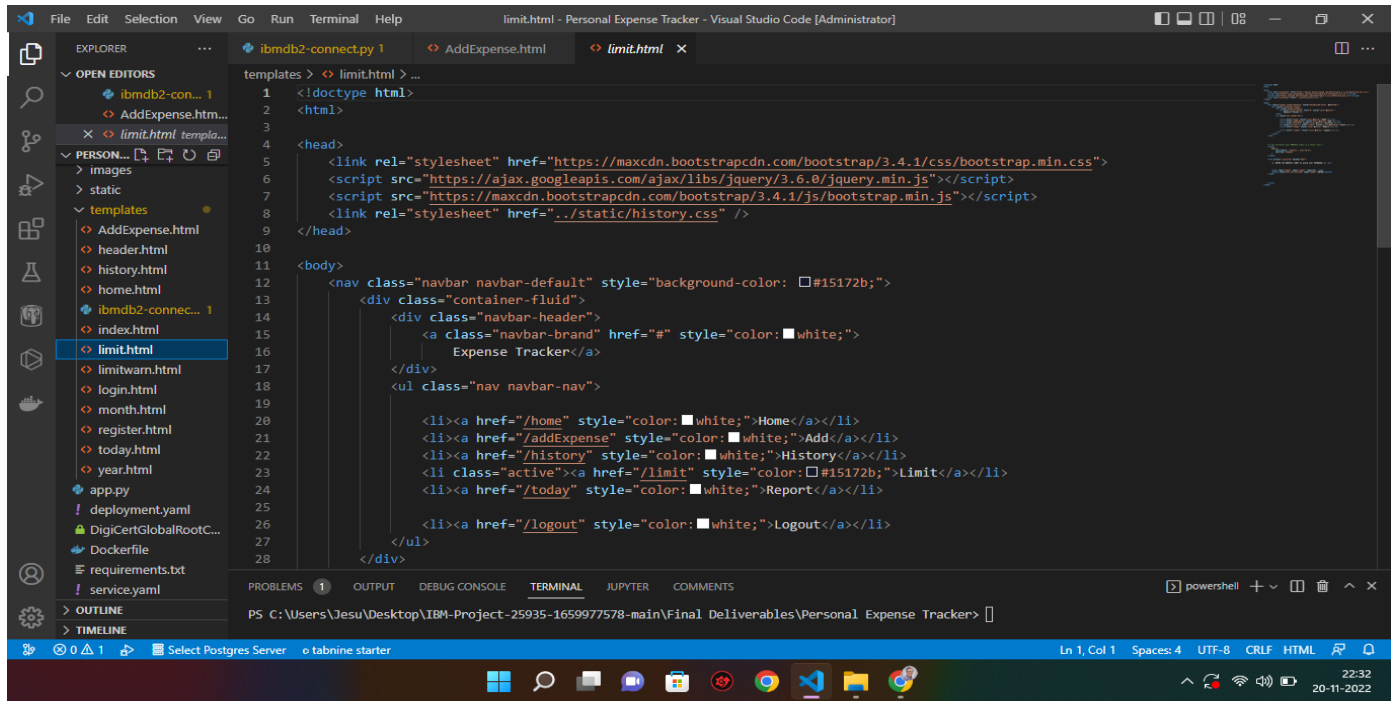


## 7.4 HISTORY

```
1 <!doctype html>
2 <html>
3
4 <head>
5   <link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/3.4.1/css/bootstrap.min.css">
6   <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.6.0/jquery.min.js"></script>
7   <script src="https://maxcdn.bootstrapcdn.com/bootstrap/3.4.1/js/bootstrap.min.js"></script>
8   <link rel="stylesheet" href="../static/history.css" />
9 </head>
10
11 <body>
12   <nav class="navbar navbar-default" style="background-color: #15172b;">
13     <div class="container-fluid">
14       <div class="navbar-header">
15         <a class="navbar-brand" href="#" style="color: white;">
16           Expense Tracker</a>
17       </div>
18       <ul class="nav navbar-nav">
19
20         <li><a href="/home" style="color: white;">Home</a></li>
21         <li><a href="/addExpense" style="color: white;">Add</a></li>
22         <li class="active"><a href="/history" style="color: #15172b;">History</a></li>
23         <li><a href="/limit" style="color: white;">Limit</a></li>
24         <li><a href="/today" style="color: white;">Report</a></li>
25
26         <li><a href="/logout" style="color: white;">Logout</a></li>
27       </ul>
28     </div>
29   </nav>
```

Date	Expense Name	Expense Amount	Expense Category	Payment Method
2022-11-10	Movie	2500	entertainment	debitCard
2022-11-10	Book	200	entertainment	debitCard
2022-11-12	Shopping	1000	entertainment	debitCard
2022-10-30	Food	1400	food	debitCard
2022-10-05	Treat	3000	food	debitCard
2022-10-07	Outing	800	entertainment	debitCard
2022-10-31	Share	25000	business	creditCard
2022-06-29	House rent	5000	rent	debitCard
2022-06-03	Snacks	900	food	debitCard
2022-07-14	Pizza	999	food	debitCard
2022-07-02	rent	4000	rent	debitCard
2022-10-06	Shopping	1000	entertainment	creditCard
2022-10-20	Outing	3000	entertainment	creditCard
2022-11-09	Shopping	1000	food	cash

## 7.5 USERS LIMIT



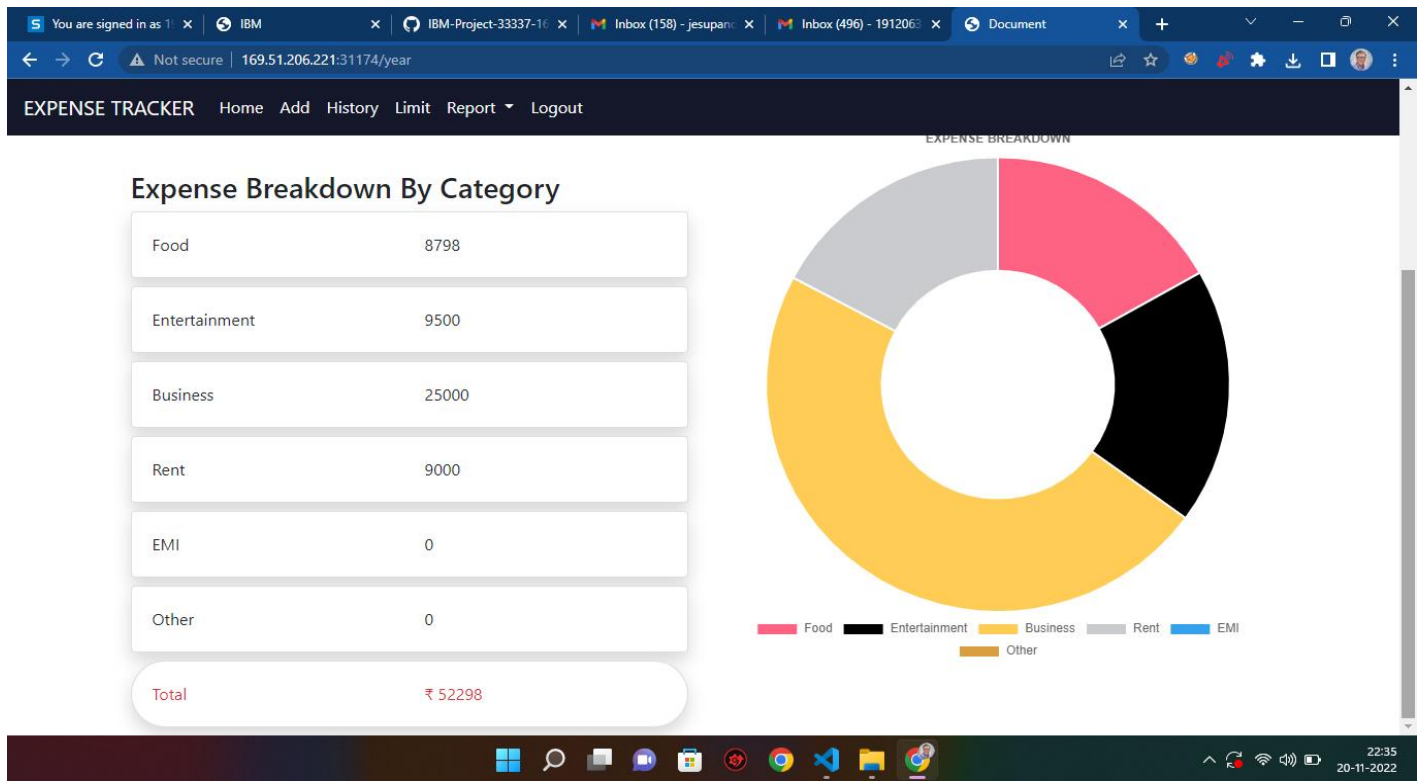
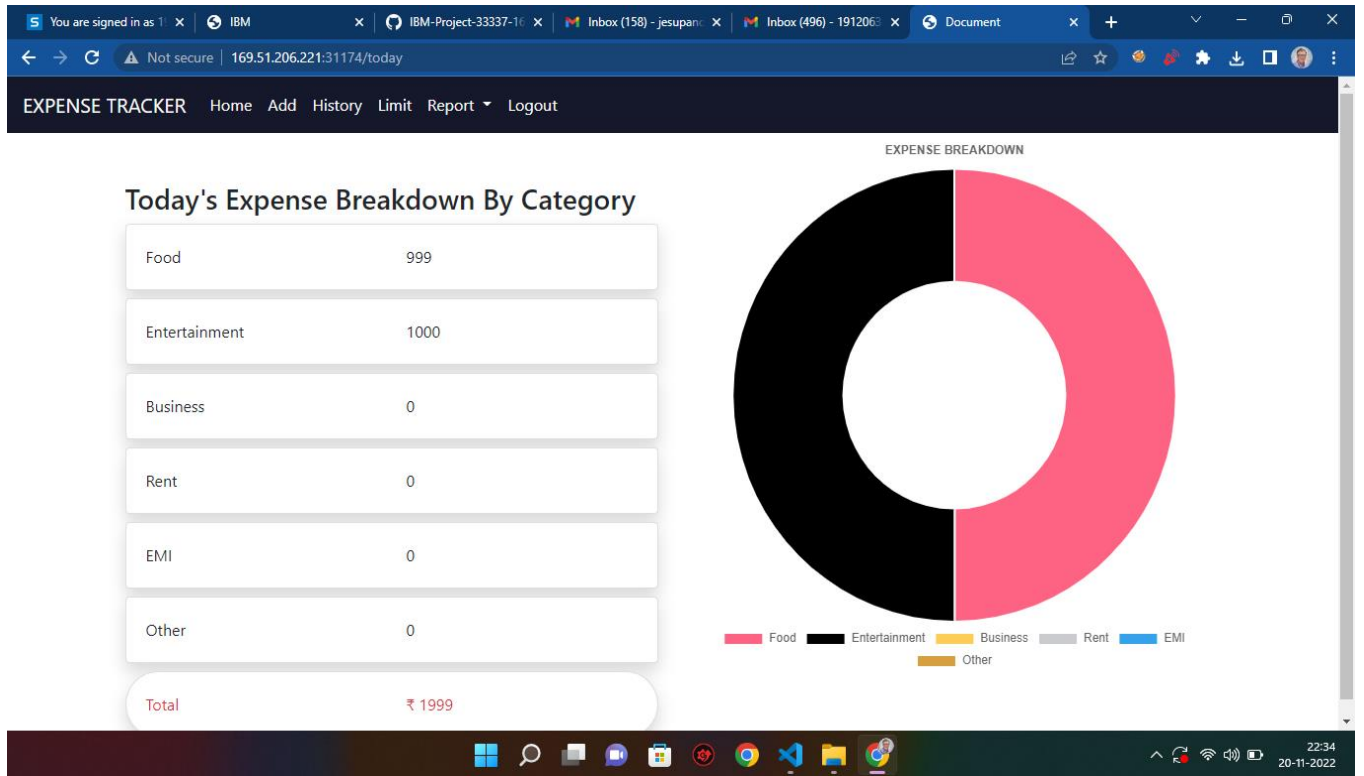
## 7.6 REPORT

Visual Studio Code interface showing the development of a Personal Expense Tracker. The Explorer panel on the left displays the project structure, including files like `ibmdb2-connect.py`, `AddExpense.html`, and `today.html`. The main editor displays the content of `today.html`, which is an HTML document using Bootstrap 4.5.3 and jQuery 3.5.1. The document includes a navigation bar with a toggle button and a collapseable content area. The terminal at the bottom shows the command prompt with the path `PS C:\Users\Jesu\Desktop\IBM-Project-25935-165977578-main\Final Deliverables\Personal Expense Tracker>`.

```
1 <!DOCTYPE html>
2 <html lang="en">
3
4 <head>
5   <link rel="stylesheet" href="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/css/bootstrap.min.css" integrity="sha384-
6   <script src="https://cdn.jsdelivr.net/npm/chart.js@3.2.1/dist/chart.min.js"></script>
7   <script src="https://code.jquery.com/jquery-3.5.1.slim.min.js" integrity="sha384-DfXdz2htPH0lsSS5nCTpuj/zy4C+OGpamoFVy
8   <script src="https://cdn.jsdelivr.net/npm/popper.js@1.16.1/dist/umd/popper.min.js" integrity="sha384-9/reFTGAW83EW2RDu2
9   <script src="https://stackpath.bootstrapcdn.com/bootstrap/4.5.2/js/bootstrap.min.js" integrity="sha384-B4gt1jrGC7Jh4AgT
10
11   <link rel="stylesheet" href="https://pro.fontawesome.com/releases/v5.10.0/css/all.css" integrity="sha384-AYmEC3Yw5cVb3Z
12
13   <title>Document</title>
14 </head>
15
16 <body>
17   <nav class="navbar sticky-top navbar-expand-lg navbar-light" style="background-color: #15172b;">
18     <a class="navbar-brand" href="#" style="color: white;">EXPENSE TRACKER</a>
19     <button class="navbar-toggler" type="button" data-toggle="collapse" data-target="#navbarSupportedContent" aria-cont
20     <span class="navbar-toggler-icon"></span>
21   </button>
22
23   <div class="collapse navbar-collapse" id="navbarSupportedContent">
24     <ul class="navbar-nav mr-auto">
25       <li class="nav-item">
```

Visual Studio Code interface showing the development of a Personal Expense Tracker. The Explorer panel on the left displays the project structure, including files like `ibmdb2-connect.py`, `AddExpense.html`, and `year.html`. The main editor displays the content of `year.html`, which is an HTML document using Bootstrap 4.5.3 and jQuery 3.5.1. The document includes a navigation bar with a toggle button and a collapseable content area. The terminal at the bottom shows the command prompt with the path `PS C:\Users\Jesu\Desktop\IBM-Project-25935-165977578-main\Final Deliverables\Personal Expense Tracker>`.

```
1 <!DOCTYPE html>
2 <html lang="en">
3
4 <head>
5   <link rel="stylesheet" href="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/css/bootstrap.min.css" integrity="sha384-
6   <script src="https://cdn.jsdelivr.net/npm/chart.js@3.2.1/dist/chart.min.js"></script>
7   <script src="https://code.jquery.com/jquery-3.5.1.slim.min.js" integrity="sha384-DfXdz2htPH0lsSS5nCTpuj/zy4C+OGpamoFVy
8   <script src="https://cdn.jsdelivr.net/npm/popper.js@1.16.1/dist/umd/popper.min.js" integrity="sha384-9/reFTGAW83EW2RDu2
9   <script src="https://stackpath.bootstrapcdn.com/bootstrap/4.5.2/js/bootstrap.min.js" integrity="sha384-B4gt1jrGC7Jh4AgT
10
11   <link rel="stylesheet" href="https://pro.fontawesome.com/releases/v5.10.0/css/all.css" integrity="sha384-AYmEC3Yw5cVb3Z
12
13   <title>Document</title>
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20     <span class="navbar-toggler-icon"></span>
21   </button>
22
23   <div class="collapse navbar-collapse" id="navbarSupportedContent">
24     <ul class="navbar-nav mr-auto">
25       <li class="nav-item">
```



## 7.7 Database Schema (if Applicable)



IBM Db2 on Cloud

Load Data Load History **Tables** Views Indexes Aliases MQTs Sequences Application objects

Find schemas or tables Refresh

**Tables** New table +

Name	Schema	Properties
<input type="checkbox"/> EXPENSE	DKH61031	...
<input type="checkbox"/> LIMIT	DKH61031	...
<input type="checkbox"/> USERS	DKH61031	...

Total: 3, selected: 0

**Table definition**

USERS No statistics available.

Name	Data type	Nullable	Length	Scale
USERID	INTEGER	N		0
NAME	VARCHAR	N	255	0
EMAIL	VARCHAR	N	255	0
PHONE	VARCHAR	N	255	0
PASSWORD	VARCHAR	N	255	0

View data

IBM Db2 on Cloud

Load Data Load History **Tables** Views Indexes Aliases MQTs Sequences Application objects

Find schemas or tables Refresh

**Schemas**

Name	Type	Tables
<input checked="" type="checkbox"/> DKH61031	User	3

Total: 1, selected: 1

**Tables** New table +

Name	Schema	Properties
<input type="checkbox"/> EXPENSE	DKH61031	...
<input type="checkbox"/> LIMIT	DKH61031	...
<input type="checkbox"/> USERS	DKH61031	...

Total: 3, selected: 0

## 8 TESTING

### 8.3 Test Cases

Test cases are a set of actions performed on a system to determine if it satisfies software requirements and functions correctly as it claimed to perform.

## 8.4 User Acceptance Testing

Before deploying the software application to a production environment, the end user or client performs a type of testing known as user acceptance testing, or UAT to ensure whether the software functionalities serve the purpose of development.

### 1. Purpose of Document

The purpose of this document is to briefly explain the test coverage and open issues of the [PERSONAL EXPENSE TRACKER APPLICATION] project at the time of the release to User Acceptance Testing (UAT).

### 2. Defect Analysis

Section	Total Cases	Not Tested	Fail	Pass
Print Engine	10	0	0	10
Client Application	50	0	0	50
Security	1	0	0	1
Outsource Shipping	3	0	0	3

This report shows the number of resolved or closed bugs at each severity level, and how they were resolved

Resolution	Severity 1	Severity 2	Severity 3	Severity 4	Subtotal
By Design	10	3	1	2	16
Duplicate	1	0	3	0	4
External	2	3	0	1	6
Fixed	11	2	4	20	37



Not Reproduced	0	0	1	0	1
Skipped	0	0	1	1	2
Won't Fix	0	5	2	1	8
Totals	24	13	12	25	74

### 3. Test Case Analysis

This report shows the number of test cases that have passed, failed, and untested

Exception Reporting	8	0	0	8
Final Report Output	4	0	0	4
Version Control	2	0	0	2

## 9. RESULTS

### 9.1 Performance Metrics

**i. Tracking income and expenses:** Monitoring the income and tracking all expenditures (through bank accounts, mobile wallets, and credit & debit cards).

**ii. Transaction Receipts:** Capture and organize your payment receipts to keep track of your expenditure.

**iii. Organizing Taxes:** Import your documents to the expense tracking app, and it will streamline your income and expenses under the appropriate tax categories.

**iv. Payments & Invoices:** Accept and pay from credit cards, debit cards, net banking, mobile wallets, and bank transfers, and track the status of your invoices and bills in the mobile app itself. Also, the tracking app sends reminders for payments and automatically matches the payments with invoices.

**v. Reports:** The expense tracking app generates and sends reports to give a detailed insight about profits, losses, budgets, income, balance sheets, etc.,

**vi. Ecommerce integration:** Integrate your expense tracking app with your E-commerce store and track your sales through payments received via multiple payment methods.

**vii. Vendors and Contractors:** Manage and track all the payments to the vendors and contractors added to the mobile app.

**viii. Access control:** Increase your team productivity by providing access control to users through custom permissions.

**ix. Track Projects:** Determine project profitability by tracking labor costs, payroll, expenses, etc., of your ongoing project.

**x. Inventory tracking:** An expense tracking app can do it all. Right from tracking products or the cost of goods, sending alert notifications when the product is running out of stock or the product is not selling, to purchase orders.

**xi. In-depth insights and analytics:** Provide in-built tools to generate reports with easy-to-understand visuals and graphics to gain insights about the performance of your business.

**xii. Recurrent Expenses:** Rely on your budgeting app to track, streamline, and automate all the recurrent expenses and remind you on a timely basis.

## 10. ADVANTAGES & DISADVANTAGES

### Advantages:

1. **You have no control over your money** If you do not check your spending and create a budget, you will have no control whatsoever on your money. Instead, money will control you, and you will either have perpetual lack of funds or you will end up steeped in debt. A money manager app helps you decide between short-term and long-term spending.

2. **You have no financial goals** If you are spending money frivolously, you will not have money to set financial goals. However, when you have a daily expense manager, you will be able to work with limited resources and use your money in a wise manner so that you can create financial goals and ensure you meet them.

3. **You are unaware what is happening with your money** If you are clueless about how much is your inflow and how much you are spending, you will not know at the end of the month what happened to your money. An expense tracker helps you figure out what is happening to your

money, and whether you can afford something you want.

**4. You spend and save in a haphazard manner** If you do not have great financial management skills, you will not know how to categorize your expenses. However, tracking your expenses and budgeting them will help you become aware of how much you must allocate to each expense category, and if you are short, you will be able to adjust with ease.

**5. You have no clue about making your money work for you**, now, when expenses are going through the roof, it has become crucial that you learn to make your money work for you so that you can create a nest egg for the future.

**6. You do not have funds for emergencies** Remember, emergencies come when you least expect. Hence, if you do not have money stashed away for a rainy day, you will end up borrowing from family and friends. This way you could get into debt that will be difficult to pay back due to your poor money management skills

#### **Disadvantages:**

1. Your information is less secure, and probably being used and sold. If the service is free, then the product is you. Mint.com, like other financial apps, is a free service. They must pay their bills somehow, so regardless of what their privacy policy may or may not say, just assume that your spending history and trends are going to be recorded and analyzed, by someone, somewhere.

2. Now, you should not have to worry about credit card fraud or identity theft, these companies are large enough and secure enough that you'll never have to worry about something like that. Just recognize that your information, most likely anonymous, will be used and potentially even sold.

3. Personally, I have no problem with that, but if you do, then make sure you avoid these types of services. Automating everything to do with your finances can make you financially lazy. If your bills are paid automatically and your finances are track automatically, then what is there left for you to do? Not a lot, to be honest. So, you might stop caring about what you are spending and where your money is going. Eventually you may look at your Mint data and realize that you have blown your budget over the last two months, but by then it is too late. So, if you do choose to use this program, ensure that you are also being diligent in checking in on your finances. Set up a weekly or biweekly check for yourself to go through your finances and hit on all the important points.

## **11. CONCLUSION**

After making this application we assure that this application will help its users to manage the cost of their daily expenditure. It will guide them and aware them about their daily expenses. It will prove to be helpful for the people who are frustrated with their daily budget management, irritated because of amount of expenses, and wishes to manage money and to preserve the record of their daily cost which may be useful to change their way of spending money. In short, this application will help its users to overcome the wastage of money.

## **12. FUTURE SCOPE**

The further enhancement that are planned for developing the application to be user friendly and further features like login with Gmail or social media accounts using Facebook or twitter and using SSO login so that it is helpful for users to get into platform easily.

## **13. APPENDIX**

1. GitHub Link

<https://github.com/IBM-EPBL/IBM-Project-33337-1660218797>

2. Project Demo Link

[https://drive.google.com/file/d/1tEBzrraRaYR5VtYoAEZ70kChmm9FvcpF/view?usp=share\\_link](https://drive.google.com/file/d/1tEBzrraRaYR5VtYoAEZ70kChmm9FvcpF/view?usp=share_link)

