

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 Expense

Publisher: 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
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.

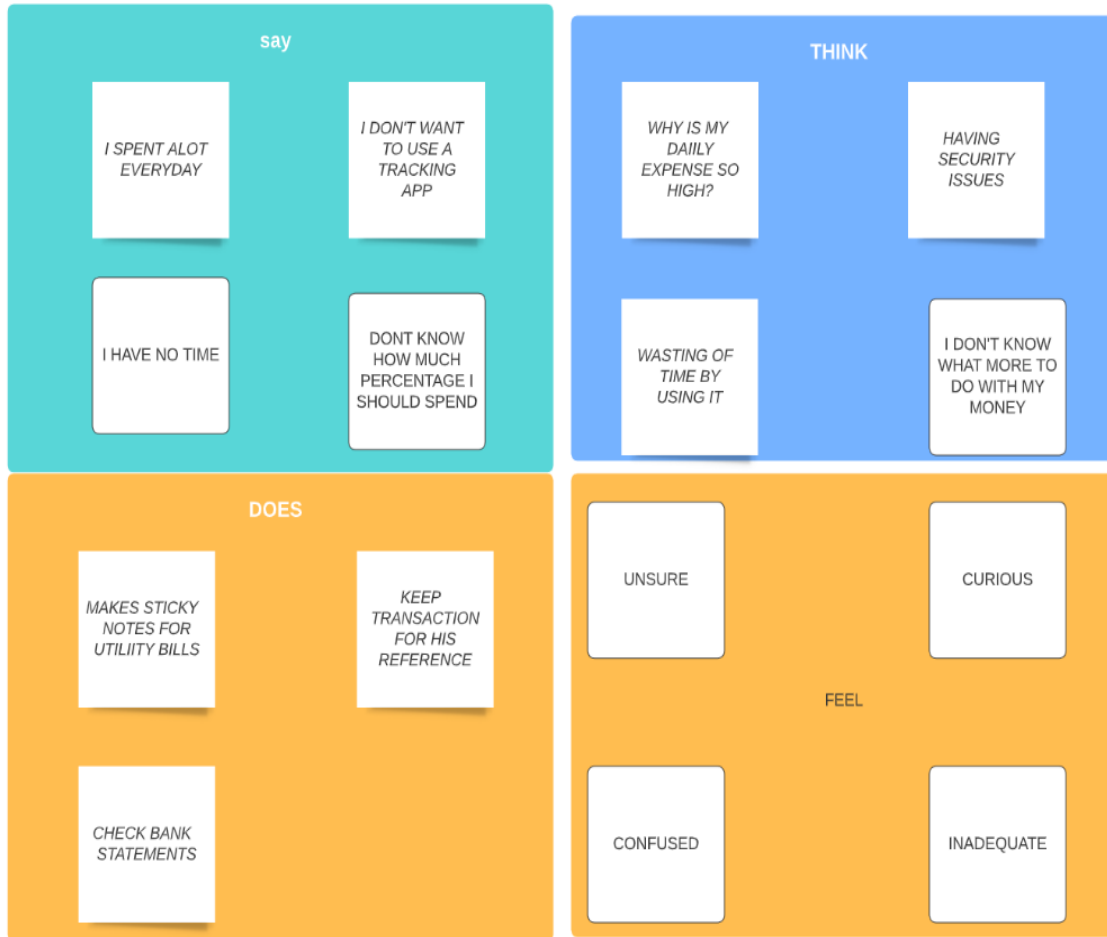
3. IDEATION & PROPOSED SOLUTION

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

Vinsmoke Shiva | September 16, 2022



Aliststair Cockburn의 오리지널 아이디어

3.2 Ideation & Brainstorming

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

Brainstorm & Idea prioritization

Use this template to your team brainstorming session to your team can connect their imagination and start making concrete ideas if you're not using the same team.

- 1. Brainstorming
- 2. Prioritize
- 3. Implement

Before you collaborate

- 1. Brainstorming: Brainstorming is the first step in the process of creating ideas. It's a time when you can connect your imagination and start making concrete ideas if you're not using the same team.
- 2. Prioritize: Prioritizing is the second step in the process. It's a time when you can connect your imagination and start making concrete ideas if you're not using the same team.
- 3. Implement: Implementing is the third step in the process. It's a time when you can connect your imagination and start making concrete ideas if you're not using the same team.

Define your problem statement

Define your problem statement. It's a time when you can connect your imagination and start making concrete ideas if you're not using the same team.

Brainstorm

Brainstorming is the first step in the process of creating ideas. It's a time when you can connect your imagination and start making concrete ideas if you're not using the same team.

Group ideas

Grouping ideas is the second step in the process. It's a time when you can connect your imagination and start making concrete ideas if you're not using the same team.

Prioritize

Prioritizing is the third step in the process. It's a time when you can connect your imagination and start making concrete ideas if you're not using the same team.

After you collaborate

After you collaborate, it's a time when you can connect your imagination and start making concrete ideas if you're not using the same team.

Brainstorming session

Brainstorming session

Brainstorming session

Brainstorming session

Brainstorming session

Brainstorming session

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	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
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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)	Business people can use subscription/premium feature of this application to gain revenue
		tracking personal expense is understood thereby serving as a good business model.

6.	Scalability of the Solution	IBM cloud will automatically allocate the storage for the users.
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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		Personal Expense Tracker Application-Team ID - PNT2022TMID20253	
Define CS, fit into CC	1. CUSTOMER SEGMENT(S) CS Who is your customer? The main customers for our project are: <ul style="list-style-type: none"> • Businessman • Home makers • Professionals 	6. CUSTOMER CONSTRAINTS CC What constraints prevent your customers from taking action or limit their choices of solutions? <ul style="list-style-type: none"> • Most of them don't have a reminder to warn them of their expenses and help to overcome the high expenses. • Managing money is tedious in their day-to-day activities. • Network connections 	5. AVAILABLE SOLUTIONS AS Which solutions are available to the customers when they face the problem of need to get the job done? What have they tried in the past? What pros & cons do these solutions have? <ul style="list-style-type: none"> • Pen & Paper tracking. • Notion expense tracking. • Tracking using Google sheet.
	Focus on J&P, tap into C	2. JOBS-TO-BE-DONE / PROBLEMS J&P Which jobs to be done (or problems) do you address for your customers? If there could be more than one, explore different sides. <ul style="list-style-type: none"> • To add and update the daily expenses. • Alerts user when they exceed the budget limit. • Solve unexpected expenses and financial anxiety. • Lack of awareness. 	9. PROBLEM ROOT CAUSE RC What is the least 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. <ul style="list-style-type: none"> • Manual work consumes time and error prone • It often leads them to spend extra, and it will lead them to a financial crisis
Identify strong TR & EM		3. TRIGGERS TR What triggers customers to act? i.e., seeing their neighbors installing solar panels, leading about a more efficient solution in the news. <ul style="list-style-type: none"> • People interested in managing the money and who likes to keep a track on it. 	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. <ul style="list-style-type: none"> • Helps in periodical budgeting for different categories. • Alerts when expenses go beyond budget limit. • This helps users to save money and avoid unnecessary activities.
	4. EMOTIONS: BEFORE / AFTER EM How do customers feel when they face a problem at a job and afterwards? <ul style="list-style-type: none"> • Before: Fear, Hopeless, Depressed • After: Confident, Aware 		Explore AS, differentiate
			Extract online & offline CH of BE

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.

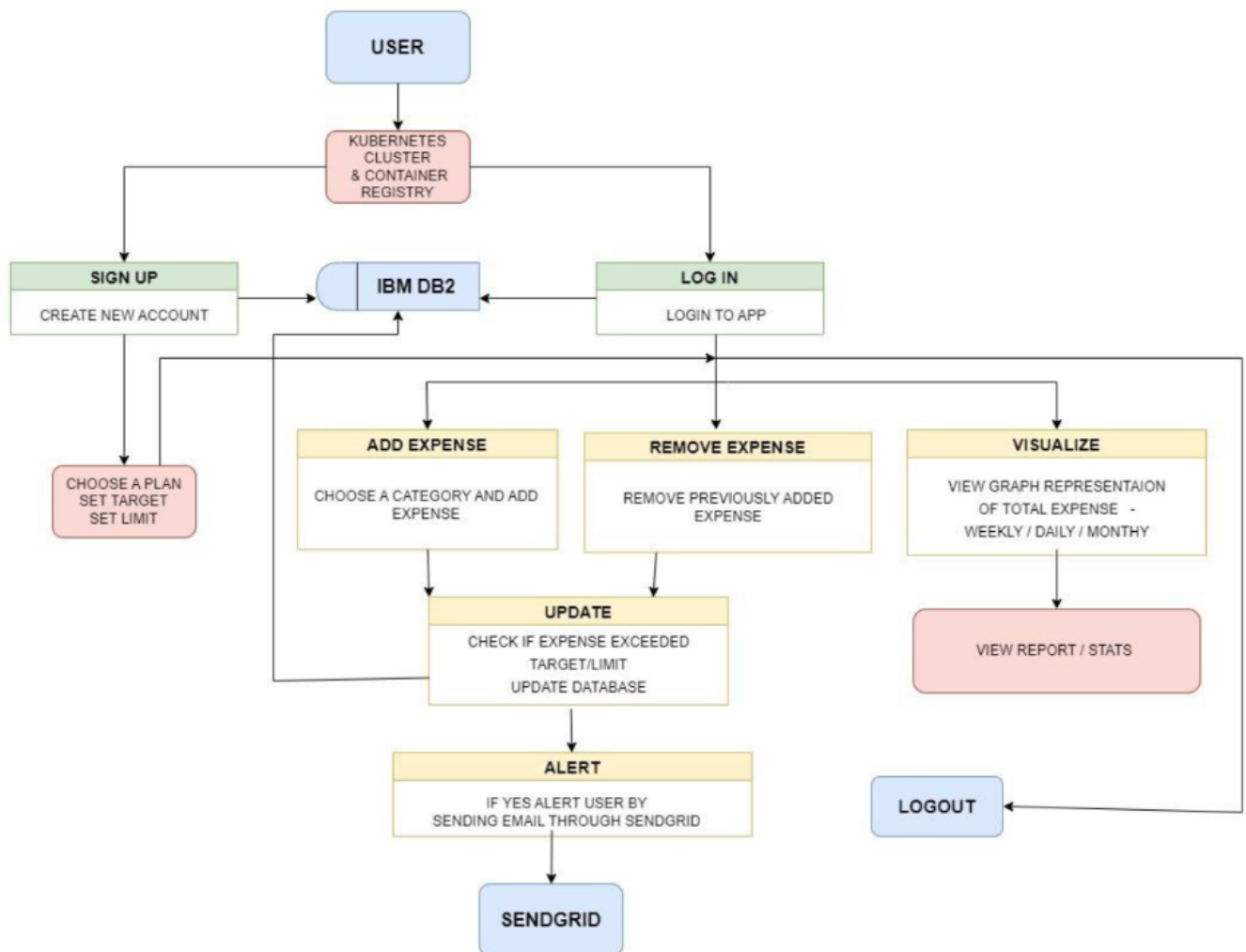
NFR No.	Non-Functional Requirement	Description
NFR-1	Usability	The Application keeps an accurate record of the user's income and expenses.
NFR-2	Security	A detailed accounting of the user's income and expenses.
NFR-3	Performance	Because of lightweight database support, the system's throughput is increased.

NFR-4	Availability	The application must be completely operational always.
NFR-5	Scalability	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.

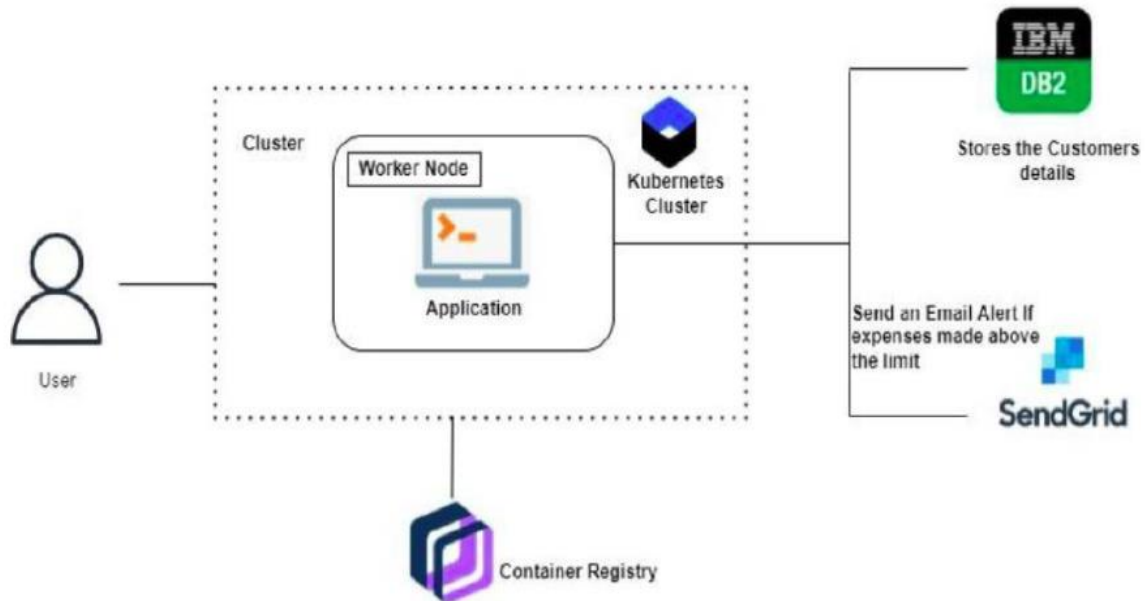


Table 1:Component & Technologies:

S.No	Characterictics	Description	Technology
1	User Interface	How user interacts with application e.g.Web UI, Mobile App, Chatbot etc.	HTML, CSS, JavaScript in Python Flask
2	User Login	The user can login either through their gmail account or an account in the app server	Google Oauth for Google Signin. Hashed password in DB
3	Graph Visualisation	Rendering plots and graphs based on the userspending data	Seaborn, Mathplotlib
4	Database	Data Type, Configurations etc.	NoSQL database can be used as it promotes flexible structuring of data
5	Cloud Database	Database Service on Cloud	IBM DB2 is used to store the userdetails and the data entries
6.	SendGrid	a cloud-based SMTP provider that allows you tosend email without having to maintain email servers	SendGrid is used to trigger mail to useremails when a particular condition is met
7.	Google OAuth	OAuth 2.0 allows users to share specific data withan application while keeping their usernames, passwords, and other information private.	Enables login through gmail account, thus making the application accessible

Table 2: Application Characteristics

S No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Flask is a micro web framework written in Python. It is classified as a microframework because it does not require particular tools or libraries.	Python Flask Framework
2.	Security Implementations	Passwords cant be stored as plaintext so it is hashed and salted	BCrypt
3.	Scalable Architecture	Containerized application is deployed to rapidly increase scale on demand	Docker
4.	Availability, Performance	Kubernetes is an open-source container orchestration system for automating software deployment, scaling, and management. Availability and Performance enhances user experience	Kubernetes

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 access the dashboard with Facebook
		USN-4	As a user, I can register for the application through a Google account.	I can register & 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 time 24*7.
Administrator	Application	USN-8	As an administrator, I can upgrade or update the application.	I can fix any 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	Create an account for the users to get access to all the features	
Sprint-1	User Wallets	USN-2	Wallets hold the users money	
Sprint-1	User Category Management	USN-3	Users can customize their income and expense categories	
Sprint-2	User Income	USN-4	Users can attach their income to the wallets	
Sprint-2	User Expenses	USN-5	Users can deduct their amount from the wallets	
Sprint-3	Analytics	USN-6	Users can get a visualization on their income and expenses	
Sprint-3	Multilingual Support	USN-7	Users should be able to use the application in their languages	
Sprint-4	Debt and Investment Calc	USN-8	Users can calculate their returns and risks	

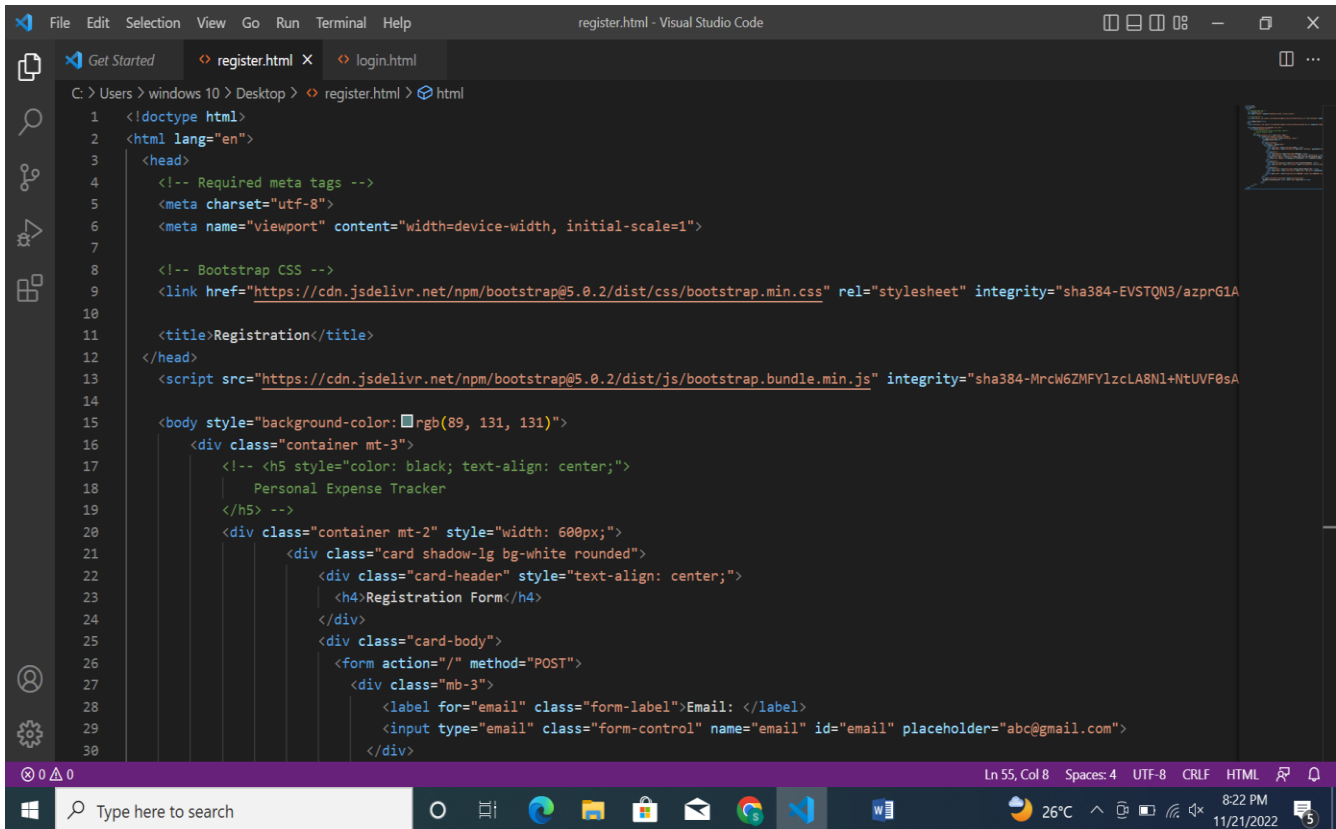
6.2 Sprint Delivery Schedule

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



```
1 <!doctype html>
2 <html lang="en">
3 <head>
4 <!-- Required meta tags -->
5 <meta charset="utf-8">
6 <meta name="viewport" content="width=device-width, initial-scale=1">
7
8 <!-- Bootstrap CSS -->
9 <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/css/bootstrap.min.css" rel="stylesheet" integrity="sha384-EVSTQN3+azprG1A
10
11 <title>Registration</title>
12 </head>
13 <script src="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/js/bootstrap.bundle.min.js" integrity="sha384-MrcW6ZMFY1zcLA8N1+NtUVF0sA
14
15 <body style="background-color: rgb(89, 131, 131)">
16 <div class="container mt-3">
17 <!-- <h5 style="color: black; text-align: center;">
18 | Personal Expense Tracker
19 </h5> -->
20 <div class="container mt-2" style="width: 600px;">
21 <div class="card shadow-lg bg-white rounded">
22 <div class="card-header" style="text-align: center;">
23 | <h4>Registration Form</h4>
24 </div>
25 <div class="card-body">
26 <form action="/" method="POST">
27 <div class="mb-3">
28 <label for="email" class="form-label">Email: </label>
29 <input type="email" class="form-control" name="email" id="email" placeholder="abc@gmail.com">
30 </div>
```

You are sign x | MSN India x | Welcome to x | IBM x | IBM-Proje x | Documenta x | Registration x | Login x | +

File | C:/Users/windows%2010/Desktop/register.html

Gmail YouTube Maps

Registration Form

Email:

Password:

Please make sure that the password meets the following requirements:

- 1. Minimum of 8 characters
- 2. Contains an upper case and a special character

Confrim Password:

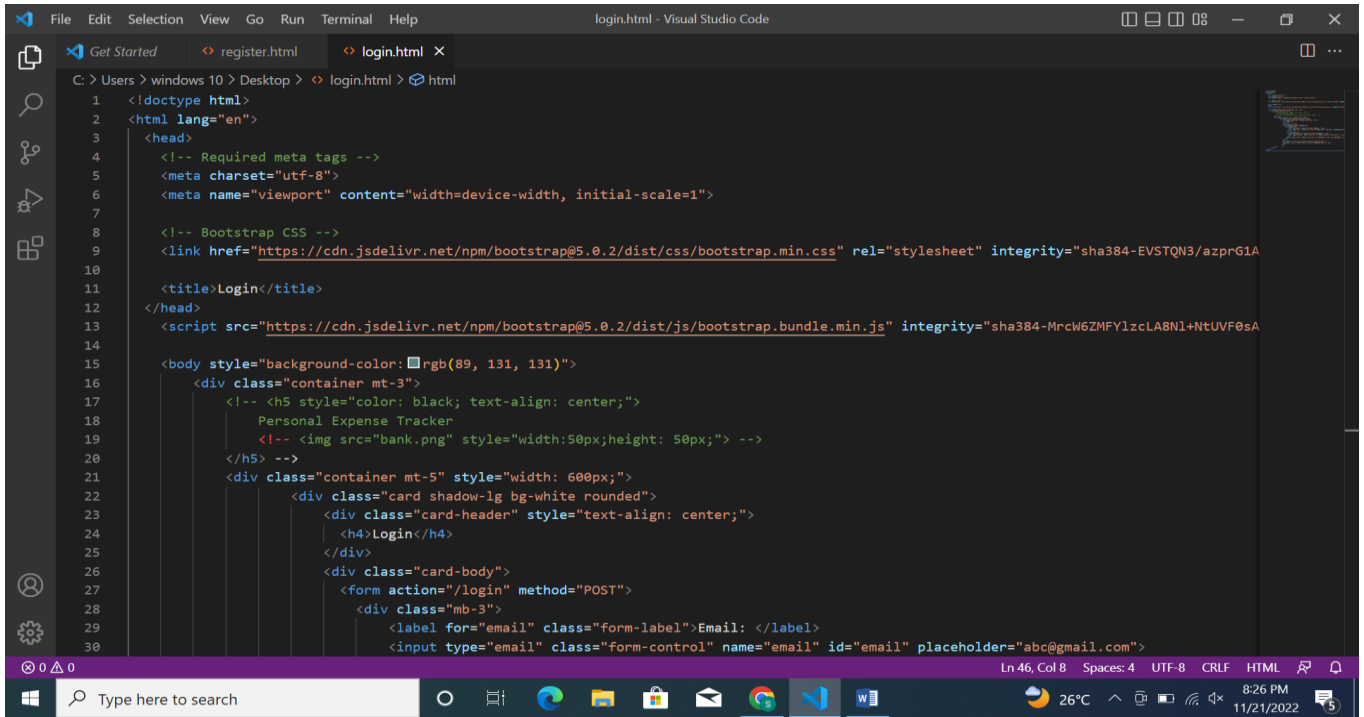
Initial Wallet Amount (Rs):

Register

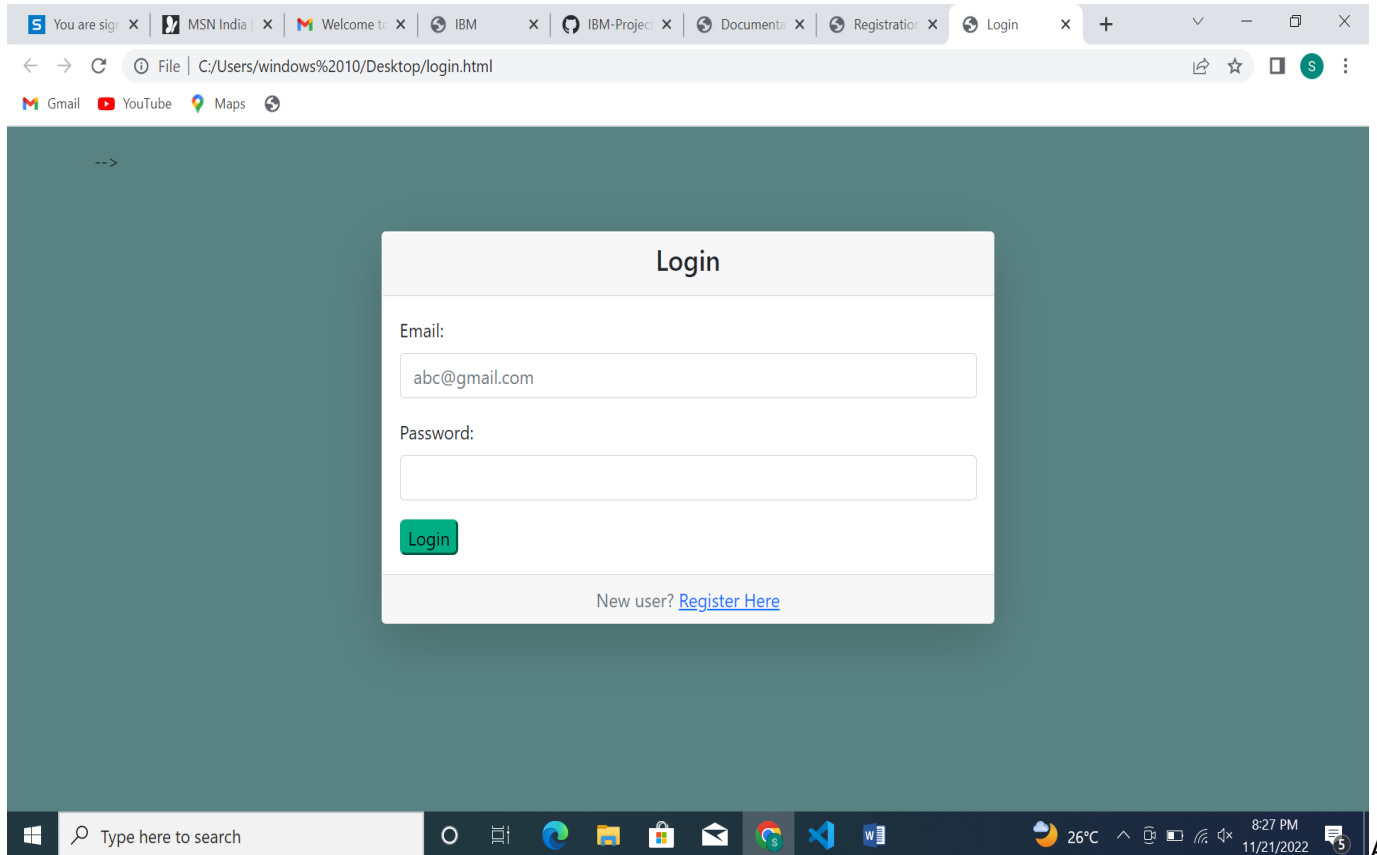
Type here to search

26°C 8:24 PM 11/21/2022

7.2 LOGIN PAGE

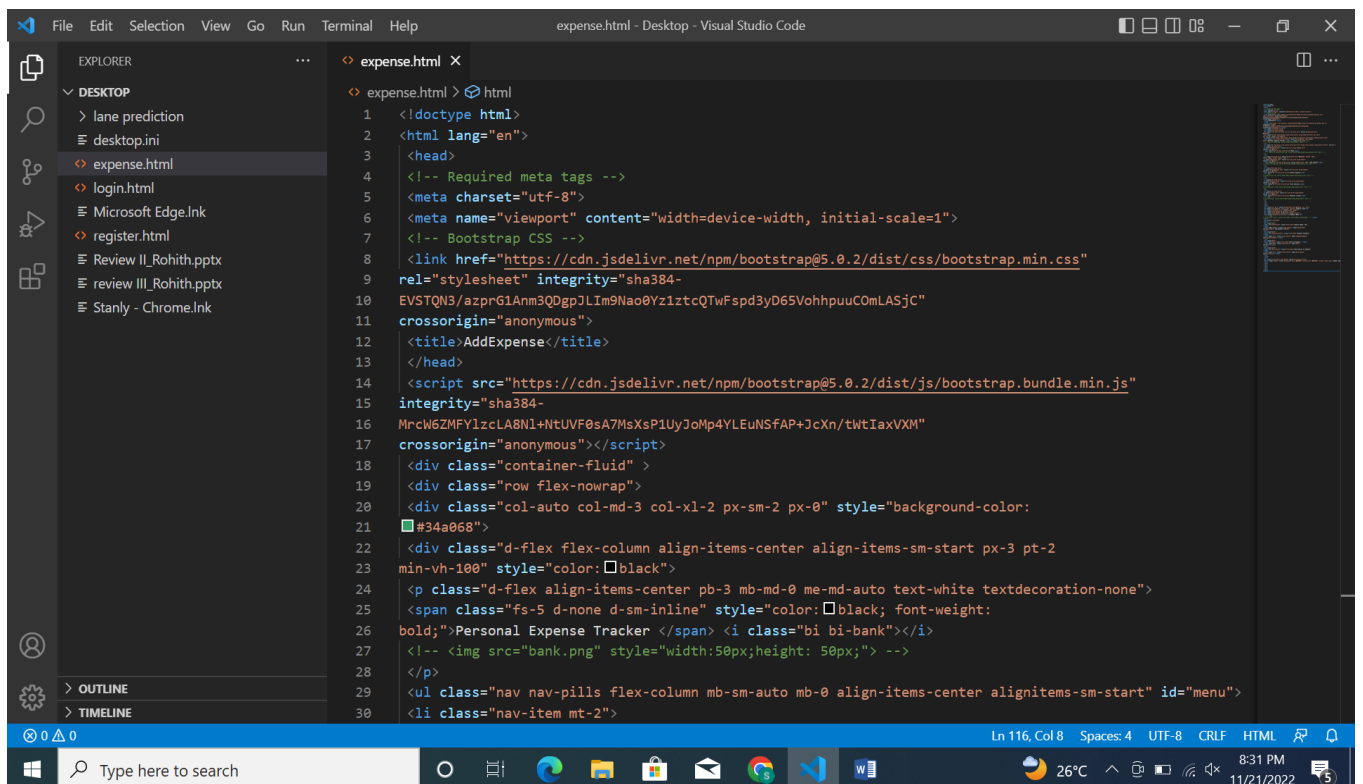


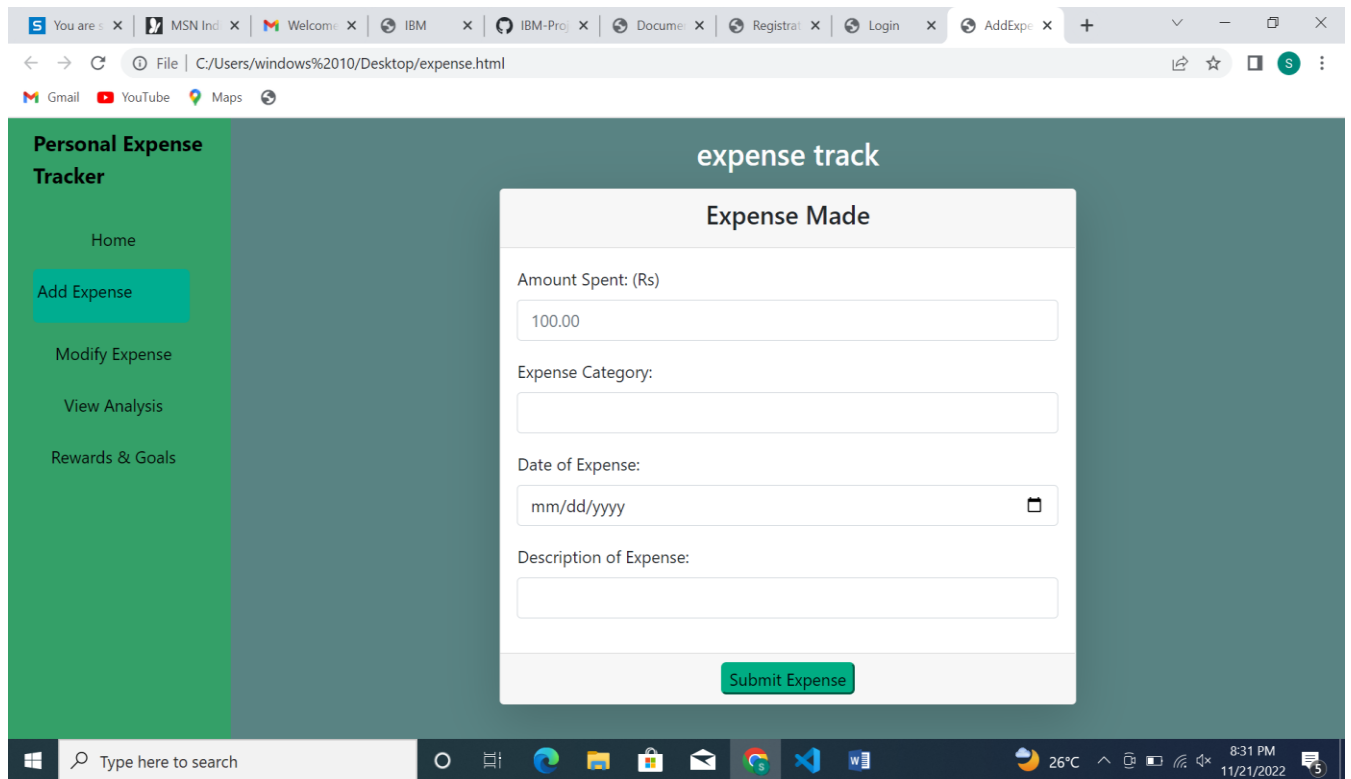
```
1 <!doctype html>
2 <html lang="en">
3 <head>
4 <!-- Required meta tags -->
5 <meta charset="utf-8">
6 <meta name="viewport" content="width=device-width, initial-scale=1">
7
8 <!-- Bootstrap CSS -->
9 <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/css/bootstrap.min.css" rel="stylesheet" integrity="sha384-EVSTQN3/azprG1A
10
11 <title>Login</title>
12 </head>
13 <script src="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/js/bootstrap.bundle.min.js" integrity="sha384-Mrcw6ZMFY1zcLA8N1+NtUVF0sA
14
15 <body style="background-color: rgb(89, 131, 131)">
16 <div class="container mt-3">
17 <!-- <h5 style="color: black; text-align: center;">
18 Personal Expense Tracker
19 <!--  -->
20 </h5> -->
21 <div class="container mt-5" style="width: 600px;">
22 <div class="card shadow-lg bg-white rounded">
23 <div class="card-header" style="text-align: center;">
24 <h4>Login</h4>
25 </div>
26 <div class="card-body">
27 <form action="/login" method="POST">
28 <div class="mb-3">
29 <label for="email" class="form-label">Email: </label>
30 <input type="email" class="form-control" name="email" id="email" placeholder="abc@gmail.com">
```



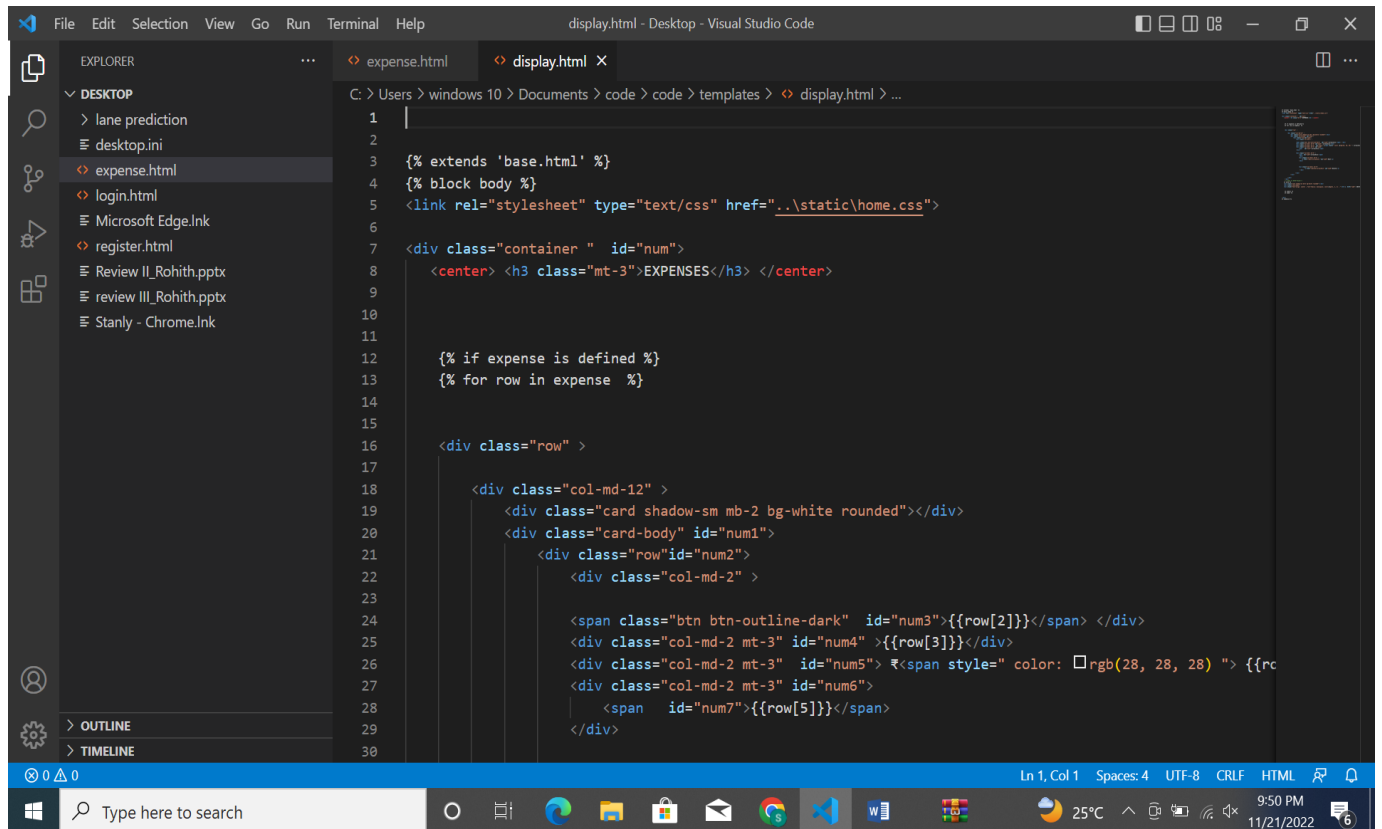
ADD 7.3

7.3 EXPENSE PAGE

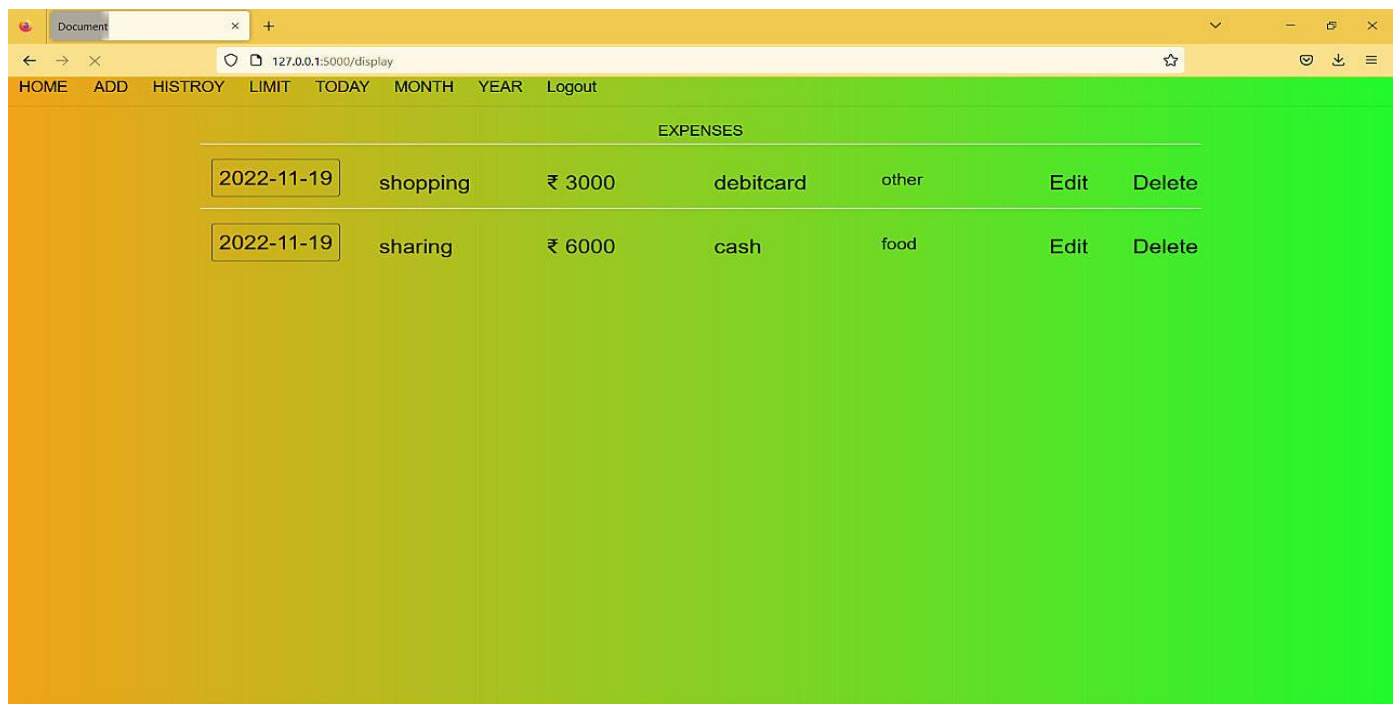




HISTORY



```
1 |
2 |
3 | {% extends 'base.html' %}
4 | {% block body %}
5 | <link rel="stylesheet" type="text/css" href="..\static\home.css">
6 |
7 | <div class="container" id="num">
8 |   <center> <h3 class="mt-3">EXPENSES</h3> </center>
9 |
10 |
11 |
12 |   {% if expense is defined %}
13 |   {% for row in expense %}
14 |
15 |
16 |   <div class="row">
17 |
18 |     <div class="col-md-12">
19 |       <div class="card shadow-sm mb-2 bg-white rounded"></div>
20 |       <div class="card-body" id="num1">
21 |         <div class="row" id="num2">
22 |           <div class="col-md-2">
23 |
24 |             <span class="btn btn-outline-dark" id="num3">{{row[2]}}</span> </div>
25 |             <div class="col-md-2 mt-3" id="num4"> <{{row[3]}}</div>
26 |             <div class="col-md-2 mt-3" id="num5"> ₹<span style=" color: rgb(28, 28, 28) "> {{row[4]}}
27 |             <div class="col-md-2 mt-3" id="num6">
28 |               <span id="num7">{{row[5]}}</span>
29 |             </div>
30 |           </div>
```



EXPENSES						
2022-11-19	shopping	₹ 3000	debitcard	other	Edit	Delete
2022-11-19	sharing	₹ 6000	cash	food	Edit	Delete

7.4 USERS LIMIT

The image shows a development environment with Visual Studio Code and a web browser. In Visual Studio Code, the file `limit.html` is open, showing the following HTML code:

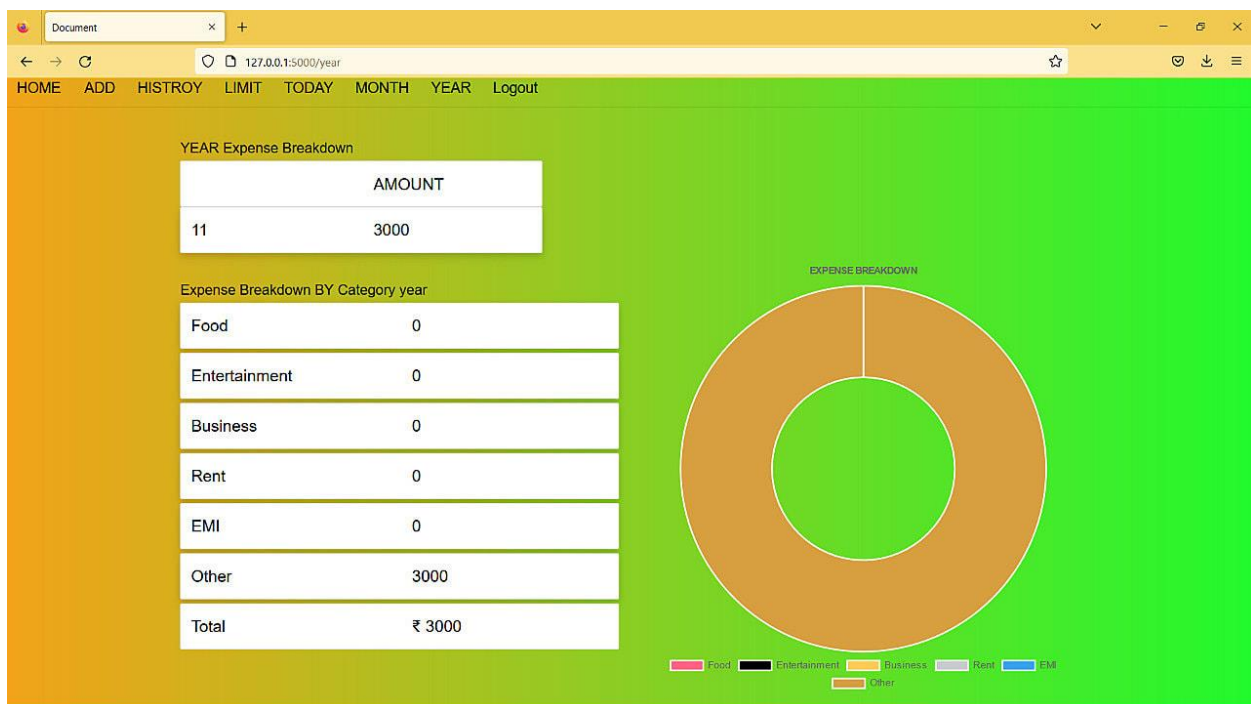
```
1 {% extends 'base.html' %}
2
3 {% block body %}
4 <link rel="stylesheet" type="text/css" href="..\static\home.css">
5
6 <p id="num"><b> Currently your MONTHLY limit is ₹ {{y}} </p></b>
7
8
9 <form action="/limitnum" method="POST" id="num1">
10
11     <p> ENTER the MONTHLY LIMIT to avoid over EXPENSES</p>
12     <div class="field" id="btn" >
13         <input type="number" name="number" required/><br><br>
14         <button class="btn btn-warning" type="submit" id="btn">Submit to set Limit</button><br>
15     </div>
16
17
18
19 </form>
20 {% endblock %}
```

The web browser displays the rendered output of this HTML file. It features a green header bar with the text "Currently your MONTHLY limit is ₹ {{y}}". Below this, there is a text input field with the placeholder text "ENTER the MONTHLY LIMIT to avoid over EXPENSES". At the bottom, there is a button labeled "Submit to set Limit".

7.5 REPORT

```
1 {% extends 'base.html' %}
2
3 {% block body %}
4 <link rel="stylesheet" type="text/css" href="..\static\css\home.css">
5
6 <div class="container" id="num2">
7
8
9 <div class="row">
10 <div class="col-md-5">
11 <h3 class="mt-5">Today Expense Breakdown</h3>
12
13
14
15 <div class="card body">
16 <div class="card-body">
17 <div class="row">
18 <div class="col-md-6">TIME</div>
19 <div class="col-md-6"> AMOUNT </div>
20 </div>
21 </div>
22 </div>
23 {% for row in texpense %}
24
25 <div class="card shadow mb-2 bg-white rounded-bottom">
26 <div class="card-body">
27 <div class="row">
28 <div id="time" class="col-md-6">{{row [0]}}</div>
29 <div id="tamount" class="col-md-6"> {{row[1] }} </div>
30 </div>
```

```
1 {% extends 'base.html' %}
2
3 {% block body %}
4 <link rel="stylesheet" type="text/css" href="..\static\css\home.css">
5
6 <div class="container" id="num1">
7
8
9 <div class="row">
10 <div class="col-md-5">
11 <h3 class="mt-5">YEAR Expense Breakdown</h3>
12
13
14
15 <div class="card body">
16 <div class="card-body">
17 <div class="row">
18 <div value = "month" class="col-md-6"> </div>
19 <div class="col-md-6"> AMOUNT </div>
20 </div>
21 </div>
22 </div>
23 {% for row in texpense %}
24
25 <div class="card shadow mb-2 bg-white rounded-bottom">
26 <div class="card-body">
27 <div class="row">
28 <div id="ttime" class="col-md-6">{{row [0]}}</div>
29 <div id="tamount" class="col-md-6"> {{row[1] }} </div>
30 </div>
```

7.6 Database Schema (if Applicable)

The screenshot shows the IBM Db2 on Cloud console interface. The 'Tables' tab is active, displaying a list of tables for the 'DKH61031' schema. The 'USERS' table is selected, and its definition is shown on the right.

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

The screenshot shows the IBM Db2 on Cloud console interface. The 'Schemas' tab is active, displaying a list of schemas. The 'DKH61031' schema is selected, and its details are shown on the left. The 'Tables' tab is also visible on the right.

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

Total: 1, selected: 1

Tables

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

Total: 3, selected: 0

8.TESTING

8.1Test 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.

8.2 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

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.

10. ADVANTAGES & DISADVANTAGES

Advantages:

1. **You have no control over your money** If you do not check your spending or 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.

Disadvantage

7. **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.
 8. **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.
 9. **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
- Disadvantage

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 tracked 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.

11. 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.

12. APPENDIX

1. GitHub Link

<https://github.com/IBM-EPBL/IBM-Project-33361-1660219144>

2. Project Demo Link

https://drive.google.com/file/d/1ze-lxJRmpnN0eXlzVDoSQqTtCthyuucn/view?usp=share_link

