

# **PROJECT**

## **PERSONAL EXPENSE TRACKER APPLICATION**

**DONE BY**

**TEAM ID:**

**PNT2022TMID18464**

**TEAM MEMBERS:**

**1. PREM S R**

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## **Project Report Format**

### **1. INTRODUCTION**

- 1.1. ProjectOverview
- 1.2. Purpose

### **2. LITERATURE SURVEY**

- 2.1. Existingproblem
- 2.2. References
- 2.3. Problem StatementDefinition

### **3. IDEATION & PROPOSEDSOLUTION**

- 3.1. EmpathyMap Canvas
- 3.2. Ideation& Brainstorming
- 3.3. ProposedSolution
- 3.4. ProblemSolution fit

### **4. REQUIREMENT ANALYSIS**

- 4.1. Functional requirement
- 4.2. Non-Functional requirements

### **5. PROJECT DESIGN**

- 5.1. Data Flow Diagrams
- 5.2. Solution& Technical Architecture
- 5.3. User Stories

### **6. PROJECT PLANNING & SCHEDULING**

- 6.1. SprintPlanning & Estimation
- 6.2. SprintDelivery Schedule
- 6.3. Reportsfrom JIRA

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

- 7.1. Feature1
- 7.2. Feature2
- 7.3. Database Schema(if Applicable)

### **8. TESTING**

- 8.1. Test Cases
- 8.2. User Acceptance Testing

### **9. RESULTS**

- 9.1. Performance Metrics

### **10. ADVANTAGES & DISADVANTAGES**

### **11. CONCLUSION**

### **12. FUTURE SCOPE**

### **13. APPENDIX**

Source CodeGitHub & Project Demo Link

# 1. Introduction

- When it comes to tracking expenses, you can make your system as simple as collecting receipts and organizing them once a month.
- You might get a little more information from other expense tracking systems (listing them in a spreadsheet, using money management software or even choosing an online application), but all methods have one thing in common: you have to get in the habit of thinking about your expenses.
- It's very easy to misplace a receipt or forget about any cash you spent. You may even think that a cup of coffee or a trip to the vending machine isn't worth tracking — although those little expenses can add up amazingly fast.
- There are all sorts of opportunities to throw a kick into your plan to track expenses. You have to get in the habit of doing so, to reduce those lapses, and make sure that the data you're basing financial decisions on is solid.
- This project will request the clients to add their expenses and in view of their costs ,wallet status will be refreshed which will be noticeable to the client.

## Motivation

- 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. While this problem can arise due to low salary, invariably it is due to poor money management skills
- Using a daily expense tracker can help you keep track of how much you spend every day and on what. At the end of the month, we will have a clear picture of where our money is going
- This project will request the clients to add their expenses and in view of their costs ,wallet status will be refreshed which will be noticeable to the client

## Project Workflow

- The user interacts with the application.
- Application 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
- Setting up Application Environment

- Create Flask project Work with IBM Cloud CLI, Docker CLI, Sendgrid Implementation of Web Application
- Create UI to Interact with the application Connect IBM DB2 with Python Integration of Sendgrid Service with Python
- Deployment of Cloud Application
- Containerize the application Upload Image in IBM container directory Deploy on Kubernetes Cluster

## Objective

- Help the people to track their expenses.
- Alert users when they exceed the limit of their budget.
- A personal finance app will not only help you with budgeting and accounting but also give you helpful insights about financial management

## 1.1 Project Overview

Software Required:

Python, Flask , Docker

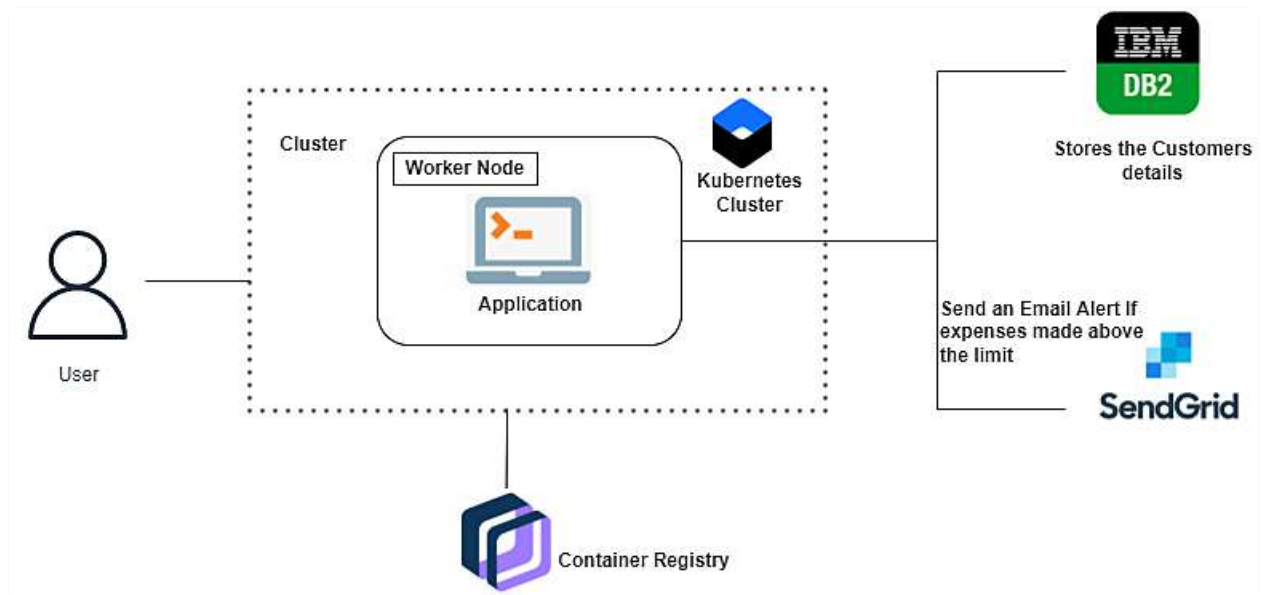
System Required:

8GB RAM,Intel Core i3,OS-Windows/Linux/MAC ,Laptop or Desktop

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.

**Technical Architecture:**



## 1.2.Purpose

In this python Flask project, we will create an expense tracker that will take details of our expenses. While filling the signup form a person will also need to fill in the details about the income and the amount he/she wants to save. Some people earn on a daily basis, so their income can also be added on a regular basis. Details of expenses will be shown in the form of a pie chart on a weekly, monthly, and yearly basis. Installation of Flask is a must to start with the Personal Expense Tracker Application project. Personal finance management is an important part of people's lives. However, everyone does not have the knowledge or time to manage their finances in a proper manner. And, even if a person has time and knowledge, they do not bother with tracking their expenses as they find it tedious and time-consuming. Now, you don't have to worry about managing your expenses, as you can get access to an expense tracker that will help in the active management of your finances. Also known as expense manager and money manager, 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. While this problem can arise due to low salary, invariably it is due to poor money management skills

## 2. Literature Survey

### Paper 1 – **ExpenseTracker**

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 - **eExpense: A SmartApproach to TrackEveryday Expense**

Publisher: IEEE

- 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. 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 consistsof four sections such as debit, credit, balanceand 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 sectioncontains 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 receiptsand saves the amount and description for further processing.
- It also monitors user's income by tracking the received SMS's 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 sheetsto 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 providegraphical 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 a large number of 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 records 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 also 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 also 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 also 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 doesn't know how to add or delete then we can simply give voice commands.

## Cons

1. There is no option to scan the barcode on the price tag which may decreasing the efforts of entering the data.
2. There is no notification system when the user expenses exceeds the income to warn the situation.

## 2.2 References

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

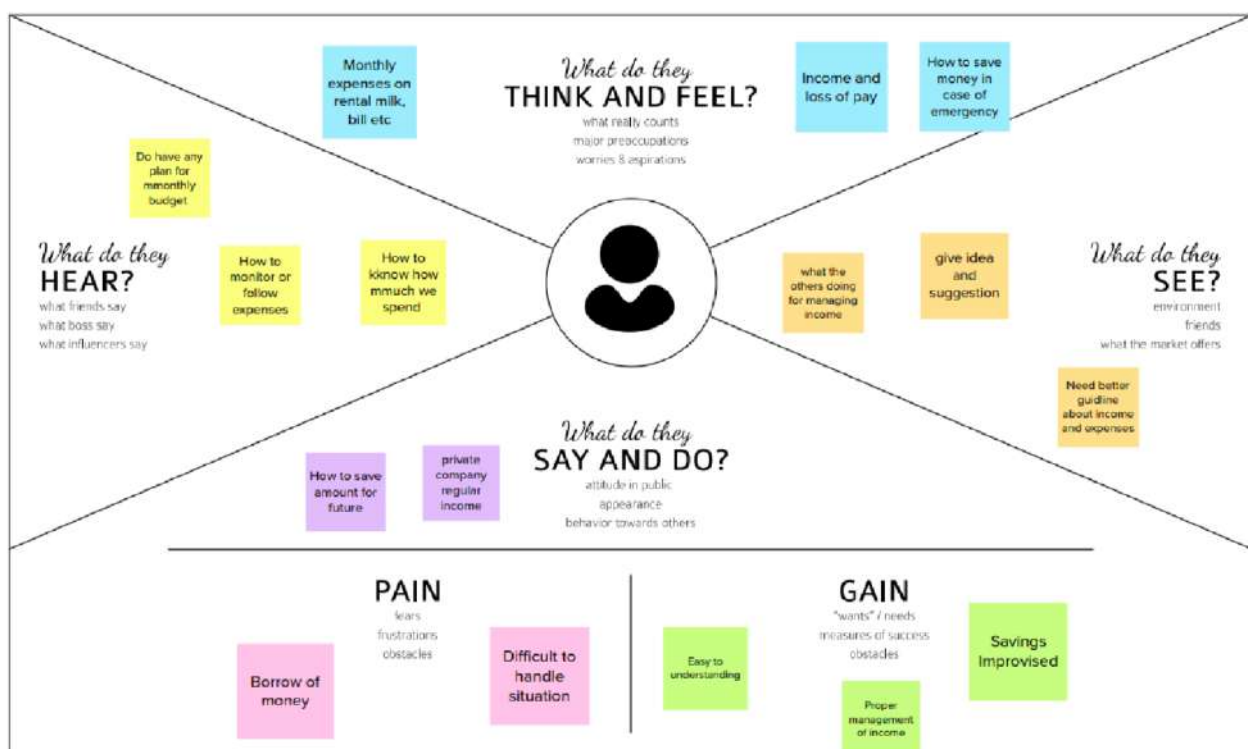
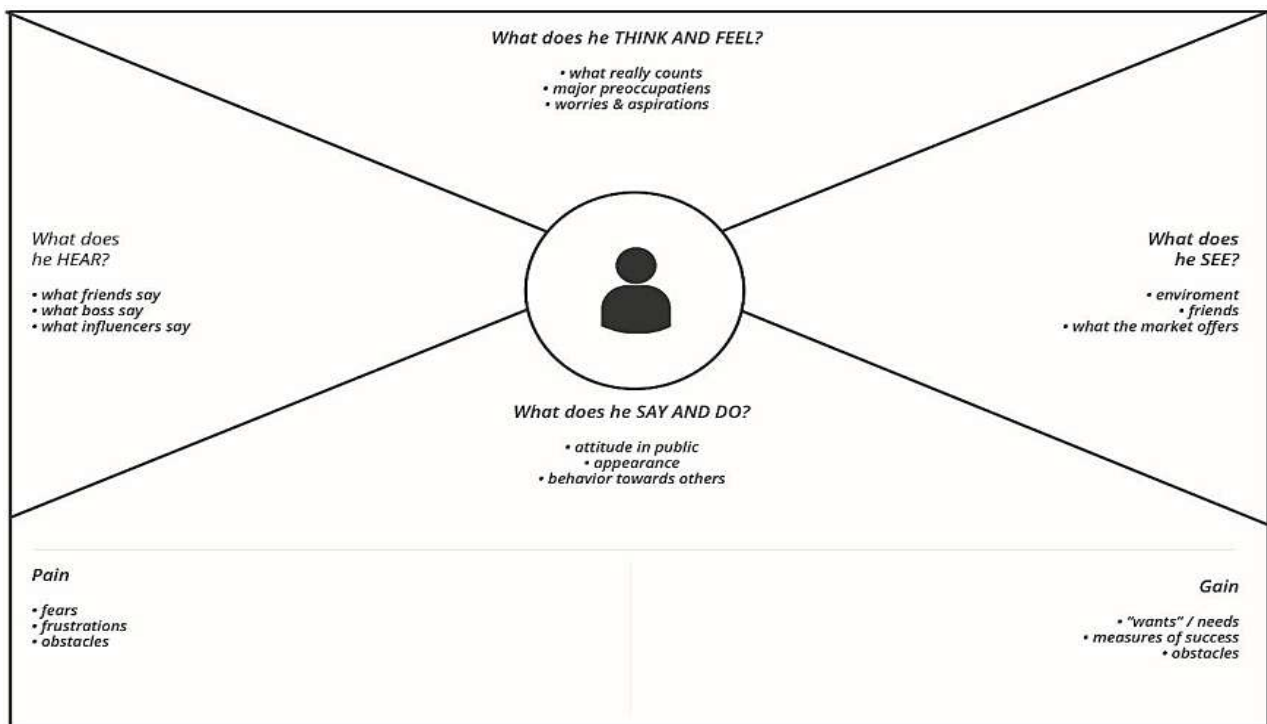
## 2.3 Problem Statement Definition

The Expense Tracker is a application that allows the user 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 a simple, easy-to-digest visual that captures knowledge about a user's behaviours and attitudes. It is a useful tool to help teams better understand their users. Creating an effective solution requires understanding the true problem and the person who is experiencing it. The exercise of creating the map helps participants consider things from the user's perspective along with his or her goals and challenges.



## 3.2 Ideation & Brainstorming



### Brainstorm & idea prioritization

Use this template in your own brainstorming sessions so your team can unleash their imagination and start shaping concepts even if you're not sitting in the same room.

🕒 10 minutes to prepare

🕒 1 hour to collaborate

👤 2-8 people recommended

💬 Share template feedback



#### Before you collaborate

A little bit of preparation goes a long way with this session. Here's what you need to do to get going.

🕒 10 minutes

#### A Team gathering

Define who should participate in the session and send an invite. Share relevant information or pre-work ahead.

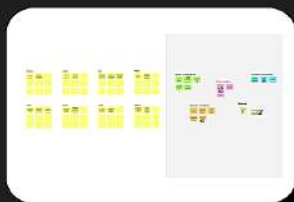
#### B Set the goal

Think about the problem you'll be focusing on solving in the brainstorming session.

#### C Learn how to use the facilitation tools

Use the Facilitation Superpowers to run a happy and productive session.

[Open article](#)



#### Need some inspiration?

See a finished version of this template to kickstart your work.

[Open example](#)



1

## Define your problem statement

What problem are you trying to solve? Frame your problem as a How Might We statement. This will be the focus of your brainstorm.

🕒 5 minutes

### PROBLEM

How might we [your problem statement]?



### Key rules of brainstorming

To run an smooth and productive session



Stay in topic.



Encourage wild ideas.



Defer judgment.



Listen to others.



Go for volume.



If possible, be visual.

2

## Brainstorm

Write down any ideas that come to mind that address your problem statement.

🕒 10 minutes

### TIP

You can select a sticky note and hit the pencil (switch to sketch) icon to start drawing!

#### Prem

Boost your productivity	Protect data	Provide valuable insights
Automate the process	Boost your productivity	Become aware of your spending habits
Prioritize your spending	Take control of your business	Accurate of money inflow and outflow

#### Ragul

Mail notified	Calendar notification	Timing and managing
Categorize your expenses	Reduce tedious process	Control unnecessary spending
Can record expenses daily	To track Money as they Spend	You can review your expenses weekly

#### PraveenKumar

Well prepared for tax season	Eliminate Human Error	Avoid Debt
Track a financial progress	Control your Budget	Reveal your spending issues
Reduce impulse spending	Offer precise analytics	Prevent data loss

#### Nishanth

Put you in control of your finances	Avoid budget overspending	Track your expense regularly
Visual representation of expenses	Increases efficiency	set spending limits
Helps user to categorize their spending	Allocate money to different priorities	Helps you to stick your budget



3

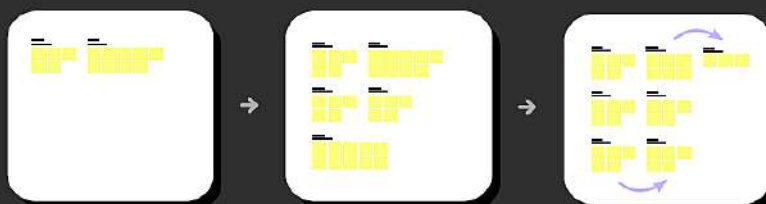
### Group ideas

Take turns sharing your ideas while clustering similar or related notes as you go. Once all sticky notes have been grouped, give each cluster a sentence-like label. If a cluster is bigger than six sticky notes, try and see if you can break it up into smaller sub-groups.

🕒 20 minutes

#### TIP

Add customizable tags to sticky notes to make it easier to find, browse, organize, and categorize important ideas as themes within your mural.

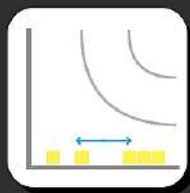
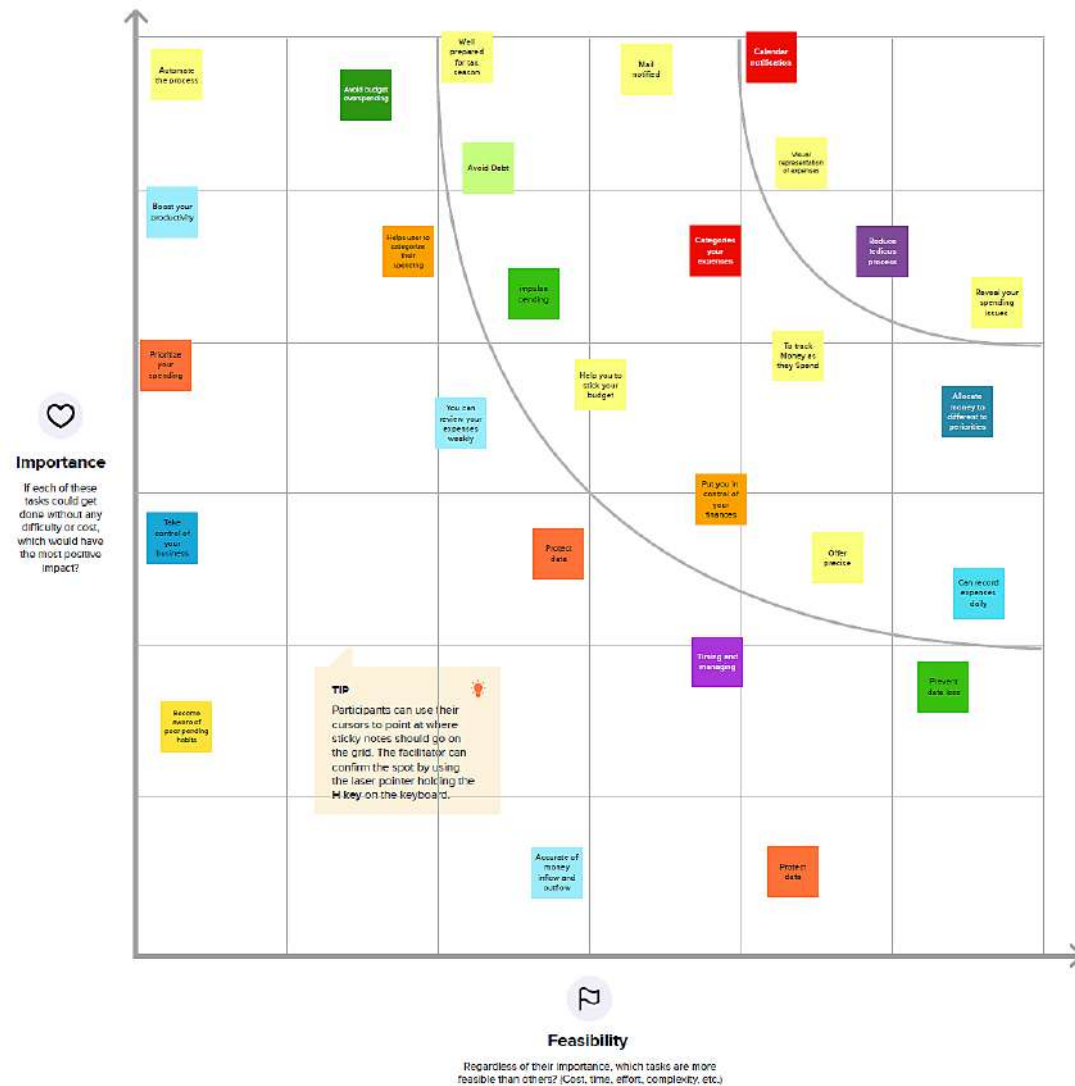


4

## Prioritize

Your team should all be on the same page about what's important moving forward. Place your ideas on this grid to determine which ideas are important and which are feasible.

🕒 20 minutes





### 3.3 Proposed Solution

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	This project is based on an expense and income tracking system. Its aim is to create an easy, faster and tracking system between the expense and the income. This way experience tracked help people to track income expense day to day and making life tension free.
2.	Idea / Solution description	Personal Expense Tracker (PET) is a daily Expense Management System. This software can be really used by end user who have Android running devices with them.
3.	Novelty / Uniqueness	We found various similar product that have already been developed in the market. Unlike all those products Personal Expense Tracker provides security and graphical results.
4.	Social Impact / Customer Satisfaction	A good financial plan can spot positive and negative trends where they may have become lost in a sea of numbers. The application will display a pie chart-style alert message if your spending exceeds people to generate revenue
5.	Business Model (Revenue Model)	These apps can help you keep track of receipts, organize all of your costs into catagories and even integrate with popular accounting software
6.	Scalability of the Solution	IBM cloud will automatically allocate the storage for the uses.

## 3.4 Problem Solution fit

Define CS, fit into CC	<b>1. CUSTOMER SEGMENT(S)</b> <small>Who are your customers?</small> - People who felt ease for tracking expense	<b>6. CUSTOMER CONSTRAINT</b> <small>What constraints are your customers facing in taking action and in the choice of solutions? i.e. spending power, budget, social, network, connection, available devices.</small> - Insufficient report visibility - Expense policy management and enforcement	<b>5. AVAILABLE SOLUTIONS</b> <small>Which solutions are available to the customer? when they face the problem, do they 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 vs. a free app or a digital note taking.</small> - Easy to use <b>mobile</b> app that minimize data entry <b>time</b> - Solid customization	Explore AS, differentiate
	Focus on J&P, tap into BE, understand RC	<b>2. JOBS-TO-BE-DONE/PROBLEMS</b> <small>Which jobs to be done (or problems)?</small> - Stick to their monthly expense - Knew about save and spend	<b>9. PROBLEM ROOT CAUSE</b> <small>What is the real reason that this problem exists?</small> - Customer need to do it to avoid unexpected expense and wastage of money	
Identify strong TR & EM		<b>3. TRIGGERS</b> <small>What triggers your customer to? i.e. seeing the unsightly outstanding bills, or perhaps reading about a more efficient solution in the news.</small> - Face monthly crisis - Aware about daily expense	<b>10. YOUR SOLUTION</b> <small>If you are working on a new startup business, write down your current solution on first 5 lines of a canvas, and check how much it fits reality. If you are working on a new business proposition, then keep it blank until you fulfill the canvas and come up with a solution that fits within customer limitations, solves a problem and matches customer behaviour.</small> - Provide better tracking applications that enable administrations to set expense policies - Enable detailed drill-down reports across a broad range of matrix for real time analysis	<b>8. CHANNELS of BEHAVIOUR</b> <b>8.1 ONLINE</b> <small>What kind of options do customers take online? Extract online channels from #7</small> - Use cloud based software - Use personal tracking app  <b>8.2 OFFLINE</b> <small>What kind of options do customers take offline? Extract offline channels from #7 and use it them for customer development.</small> - Marketing actions like traditional marketing that do not involves
	<b>4. EMOTIONS: BEFORE/AFTER</b> <small>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 &amp; design.</small> - People no need to worry about misplaced receipts and paper trails			

## 4 Requirement Analysis

### 4.1 Functional Requirements:

Following are the functional requirements of the proposed solution.

<b>FR No.</b>	<b>Functional Requirement (Epic)</b>	<b>Sub Requirement (Story / Sub-Task)</b>
FR-1	User Registration	Registration through Signup
FR-2	Login	Enter User name and Password
FR-3	Expense	Add Expense
FR-4	User Dashboard	Expense Data Records
FR-5	User Notifications	Send Alert If Expense cross Limit
FR-6	Report generation	Graphical Representation of report

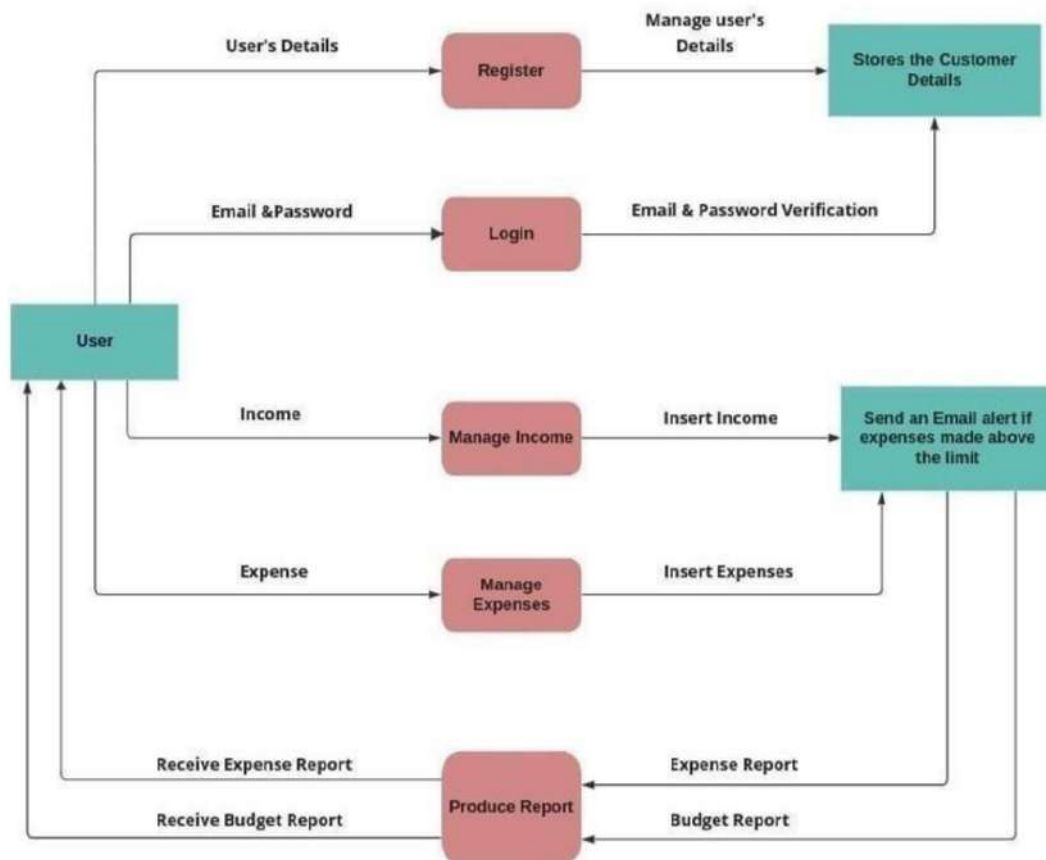
## 4.2 Non-functional Requirements:

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

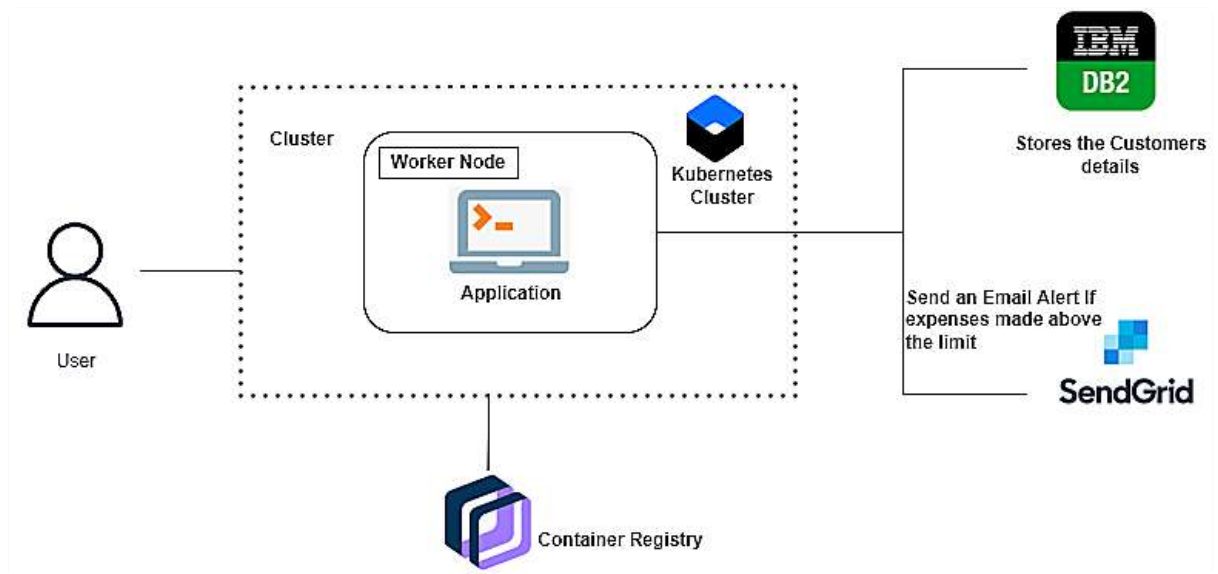
<b>FR No.</b>	<b>Non-Functional Requirement</b>	<b>Description</b>
NFR-1	<b>Usability</b>	By using this application, the user can keep track of their expenses and can ensure that user's money is used wisely.
NFR-2	<b>Security</b>	Maintain user personal details in a encrypted manner by using data security algorithms .
NFR-3	<b>Reliability</b>	It will maintain a proper tracking of day-to-day expenses in an efficient manner.
NFR-4	<b>Performance</b>	By enter our incoming and departing cash, and the software can help you keep and monitor it with at-most quality and security with high performance.
NFR-5	<b>Availability</b>	Using charts and graphs may help you monitor your budgeting and assets.
NFR-6	<b>Scalability</b>	Rely on your budgeting app to track, streamline, and automate all the recurrent expenses and remind you on a timely basis.

## 5. Project Design

### 5.1 Data Flow Diagram



## 5.2 Technical Architecture



## Components & Technologies:

S.No.	Component	Description	Technology
1.	User Interface	The user can Interact with the application with use of Chatbot	HTML, CSS, JavaScript etc.
2.	Application Logic-1	The application contains the sign in/sign up where the user will login into the main dashboard into the main dashboard	Python
3.	Application Logic-2	Dashboard contains the fields like Add income, Add Expenses, SaveMoney	IBM Watson STT service
4.	Application Logic-3	The user will get the expense report in the graphform and also get alerts if the expense limit exceeds	IBM Watson Assistant,SendGrid
5.	Database	The Income and Expense dataare stored in the IBM DB database	IBM DB2
6.	Cloud Database	With use of Database Service on Cloud, the User dataare stored in a well secured Manner	IBM DB2, IBMCloudant etc.
7.	File Storage	IBM Block Storage used to storethe Financial dataof the user	IBM Block Storageor Other Storage Service or Local Filesystem

## 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	This Application Provides high security to the user Financial data. It can be done by using the Container Registry in IBM cloud	Container Registry, Kubernetes Cluster
3.	Scalable Architecture	Expense Tracker is a life time access application. It's demand will increase when the user's income are high	Container Registry, Kubernetes Cluster
4.	Availability	This application will be available to the user at any part of 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

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Customer	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	Sprint1
	Login	USN-2	As a user, I can login to the application by entering email & password	I can access the application	High	sprint 1
	Dashboard	USN-3	As a user I can enter my income and expenditure details.	I can view my daily expenses	High	sprint 2
Customer Care Executive		USN-4	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	sprint 3
Administrator	Application	USN-5	As an administrator I can upgrade or update the application.	I can fix the bug which arises for the customers and users of the application	Medium	Sprint 4

## 6. PROJECT PLANNING & SCHEDULING

### 6.1 SPRINT PLANNING & ESTIMATION

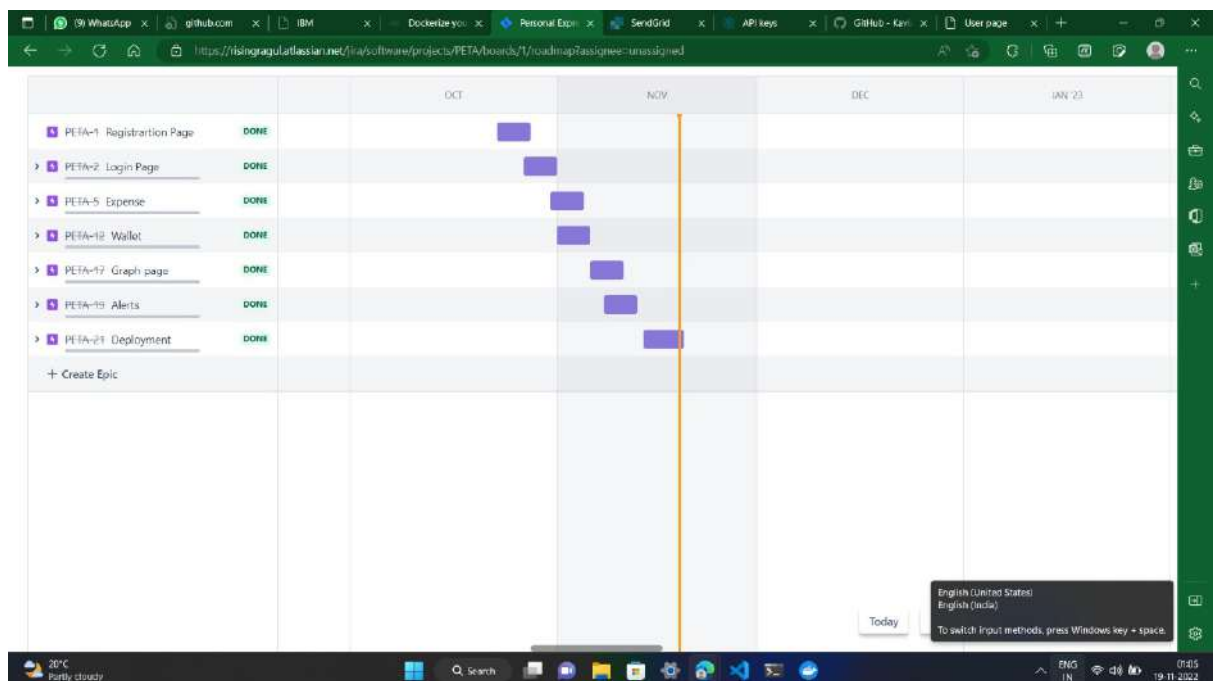
Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Registration	USN-1	As a user, I can register for the application by entering my email, password, and confirming my password.	3	High	Prem S R
Sprint-1		USN-2	As a user, I will receive confirmation email once I have registered for the application	3	High	Praveenkumar p
Sprint-1	Login	USN-3	As a user, I can log into the application by entering email & password	5	High	Ragul C
Sprint-1	Dashboard & Logout	USN-4	As a user, once I logged in I can access all the features of the web app and Logout once I completed all the work.	5	High	Ragul C
Sprint-1		USN-5	Once logged in, Keep me logged for few hours to avoid repeated login if the page is refreshed	4	Medium	

Sprint-2	Expense	USN-6	Add total income for the month and Allow for edit option	6	High	Ragul C
Sprint-2		USN-7	Split the total income based on usage like entertainment, food, shopping etc.	2	Low	Nishanth R
Sprint-2		USN-8	Add the day to day expense.	6	High	Praveen kumar P
Sprint-2		USN-9	Display the user added expense	6	High	Praveen kumar P
Sprint-3		USN-10	Filter the expense data based on criteria	6	Medium	Nishanth R
Sprint-3	Charts	USN-11	As a user I can display it in graphs	4	Low	Prem S R
Sprint-3	Alerts	USN-12	As a user I create custom alert for the balance	10	High	Prem S R
Sprint-4	Deployment	USN-13	As a user I should be able to access it anywhere in the net	20	High	Nishanth R

## 6.2 Sprint Delivery Schedule:

Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed (ason Planned End Date)	Sprint Release Date (Actual)
Sprint-1	20	6 Days	24 Oct 2022	29 Oct 2022	20	29 Oct 2022
Sprint-2	20	6 Days	31 Oct 2022	05 Nov 2022	20	05 NOV 2022
Sprint-3	20	6 Days	07 Nov 2022	12 Nov 2022	20	12 NOV 2022
Sprint-4	20	6 Days	14 Nov 2022	19 Nov 2022	20	19 NOV 2022

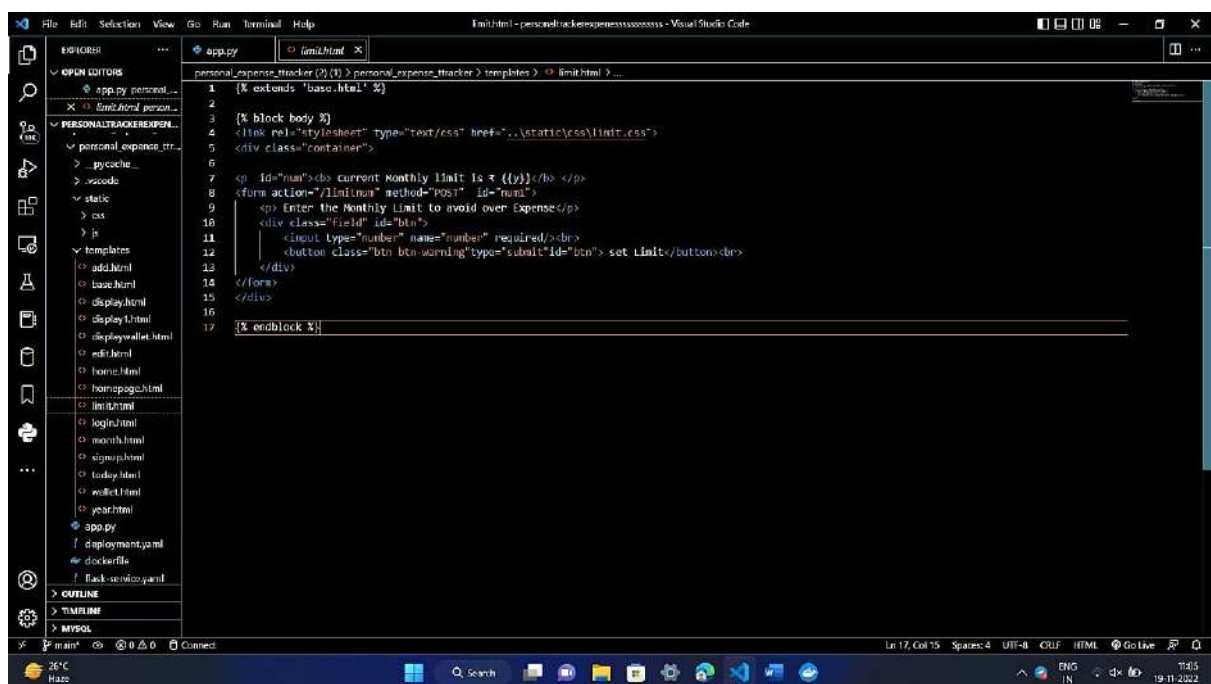
## 6.3 Reports from JIRA



## 7.CODING & SOLUTIONING :

### 7.1 FEATURE 1:

- In this project We Added a feature to set limit for the expenses done by the user to avoid over expenses by giving an alert mail to the user using sendgrid mail.We alert user to limit their expenses within the fixed amount



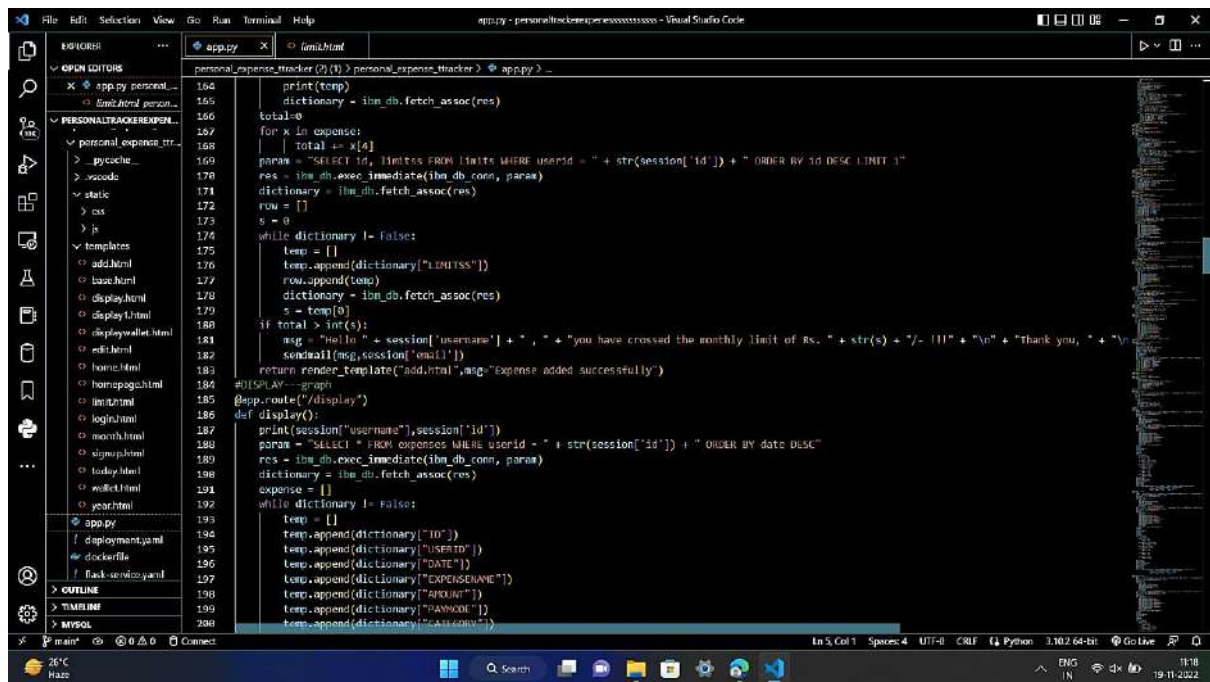
```
1 [% extends 'base.html' %]
2
3 [% block body %]
4 <link rel="stylesheet" type="text/css" href="{{static/css/limit.css}}>
5 <div class="container">
6
7 <p id="num"><b>current Monthly limit is ₹ {{p}}</b></p>
8 <form action="/limitnum" method="POST" id="num">
9   <p>Enter the Monthly Limit to avoid over Expense</p>
10   <div class="field" id="btn">
11     <input type="number" name="number" required/><br>
12     <button class="btn btn-warning" type="submit" id="btn"> set Limit</button><br>
13   </div>
14 </form>
15 </div>
16
17 [% endblock %]
```

```
personal_expense_tracker(2/1) > personal_expense_tracker > app.py > edit
504 session.pop('username', None)
505 session.pop('email', None)
506 return render_template('home.html')
507 wallet display
508 @app.route('/displaywallet')
509 def displaywallet():
510     global walletamount
511     param = "SELECT * FROM wallet WHERE userid = " + str(session['id']) + " ORDER BY date DESC"
512     res = ibm_db.exec_immediate(ibm_db_conn, param)
513     dictionary = ibm_db.fetch_assoc(res)
514     expense = []
515     while dictionary != False:
516         temp = []
517         temp.append(dictionary['USERID'])
518         temp.append(dictionary['DATE'])
519         temp.append(dictionary['AMOUNT'])
520         expense.append(temp)
521         if True:
522             session['logged_in'] = True
523             session['walletamount'] = dictionary['AMOUNT']
524             print(temp)
525             dictionary = ibm_db.fetch_assoc(res)
526     return render_template("displaywallet.html", expense=expense)
527 if __name__ == '__main__':
528     app.secret_key = os.urandom(12)
529     app.run(debug=True)
```

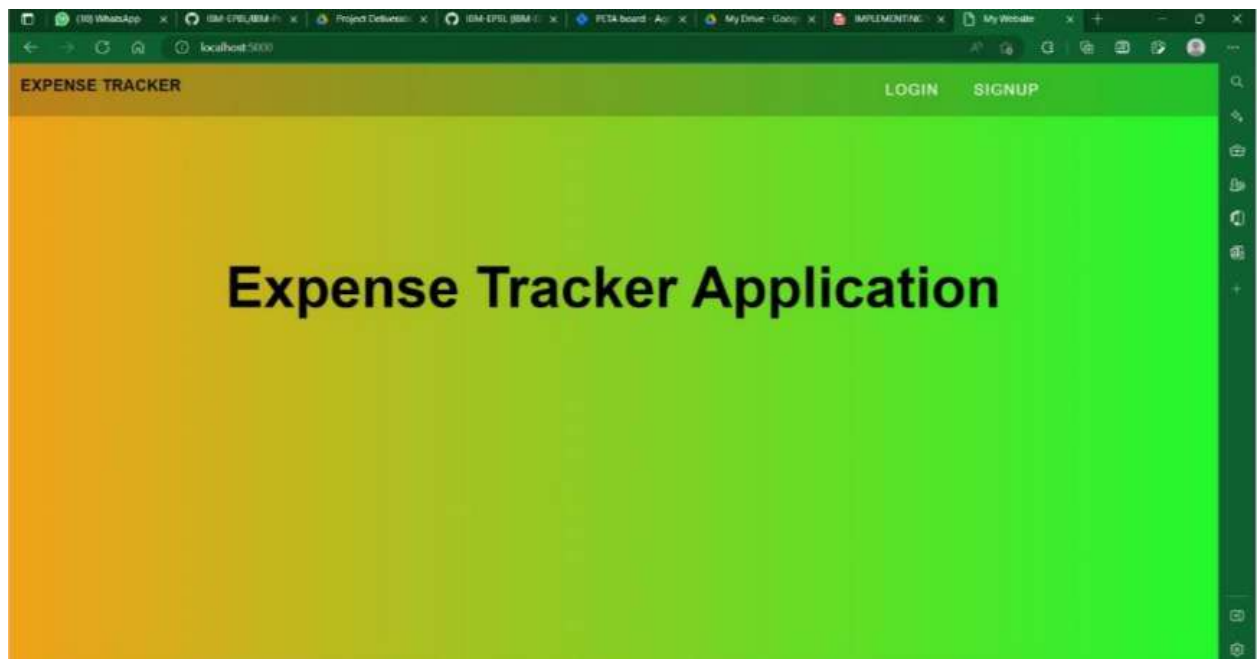
## 7.2 FEATURE 2:

In this we add a wallet where user add their income and see it how much money they spend on their income and they can view their expense and income by this feature.

```
personal_expense_tracker(2/1) > personal_expense_tracker > app.py > edit
203 dictionary = ibm_db.fetch_assoc(res)
204 return render_template('display.html', expense = expense)
205 #DISPLAY WALLET AMOUNT
206 @app.route('/tot')
207 def tot():
208     print(session['username'], session['id'])
209     param = "SELECT sum(AMOUNT) FROM expenses WHERE userid = " + str(session['id'])
210     res = ibm_db.exec_immediate(ibm_db_conn, param)
211     dictionary = ibm_db.fetch_assoc(res)
212     if True:
213         session['logged_in'] = True
214         session['total'] = dictionary
215     param = "SELECT amount FROM wallet WHERE userid = " + str(session['id']) + " ORDER BY AMOUNT DESC"
216     res = ibm_db.exec_immediate(ibm_db_conn, param)
217     dict = ibm_db.fetch_assoc(res)
218     return render_template('display.html', expense = dictionary, exp=dict)
219 #DELETE DATA
220 @app.route('/delete/<string:ids>', methods = ['POST', 'GET'])
221 def delete(id):
222     param = "DELETE FROM expenses WHERE id = " + id
223     res = ibm_db.exec_immediate(ibm_db_conn, param)
224     print('deleted successfully')
225     return redirect('/display')
226 #UPDATE DATA
227 @app.route('/edit/<id>', methods = ['POST', 'GET'])
228 def edit(id):
229     param = "SELECT * FROM expenses WHERE id = " + id
230     res = ibm_db.exec_immediate(ibm_db_conn, param)
231     dictionary = ibm_db.fetch_assoc(res)
232     row = []
233     while dictionary != False:
234         temp = []
235         temp.append(dictionary['ID'])
236         temp.append(dictionary['USERID'])
237         temp.append(dictionary['DATE'])
238         temp.append(dictionary['EXPENSENAME'])
239         temp.append(dictionary['AMOUNT'])
```




```
164 print(temp)
165 dictionary = ibm_db.fetch_assoc(res)
166 total=0
167 for x in expense:
168     total += x[4]
169 param = "SELECT id, limits FROM limits WHERE userid = " + str(session['id']) + " ORDER BY id DESC LIMIT 1"
170 res = ibm_db.exec_immediate(ibm_db_conn, param)
171 dictionary = ibm_db.fetch_assoc(res)
172 row = []
173 s = 0
174 while dictionary != False:
175     temp = []
176     temp.append(dictionary["LIMITSS"])
177     row.append(temp)
178     dictionary = ibm_db.fetch_assoc(res)
179     s = temp[0]
180 if total > int(s):
181     msg = "Ho! In " + session['username'] + " , " + "you have crossed the monthly limit of Rs. " + str(s) + "/" + "!!!" + "\n" + "Thank you, " + " " + "\n"
182     sendmail(msg,session['email'])
183     return render_template("add.html",msg="Expense added successfully")
184 @app.route("/display")
185 def display():
186     print(session['username'],session['id'])
187     param = "SELECT * FROM expenses WHERE userid = " + str(session['id']) + " ORDER BY date DESC"
188     res = ibm_db.exec_immediate(ibm_db_conn, param)
189     dictionary = ibm_db.fetch_assoc(res)
190     expense = []
191     while dictionary != False:
192         temp = []
193         temp.append(dictionary["ID"])
194         temp.append(dictionary["USERID"])
195         temp.append(dictionary["DATE"])
196         temp.append(dictionary["EXPENSENAME"])
197         temp.append(dictionary["AMOUNT"])
198         temp.append(dictionary["PAYMODE"])
199         temp.append(dictionary["PAIDAMOUNT"])
```



110 WhatsApp x IBM-EPOL/IBM- x Project Delivery x IBM-EPOL/IBM- x PETA board - App x My Drive - Google x IMPLEMENTING x signup form x

localhost:5000/signup



## SignUp Form


Enter User name

Email Address

Password

Register

[LOGIN](#)



## Login Form

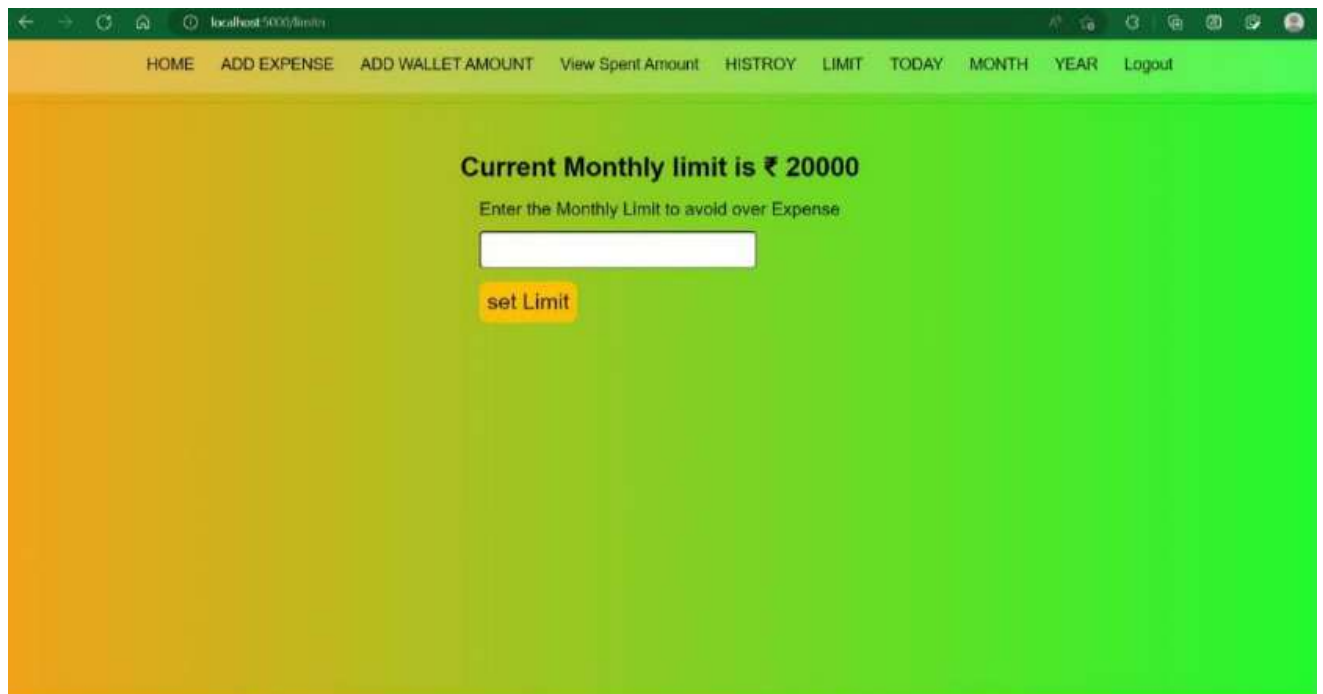
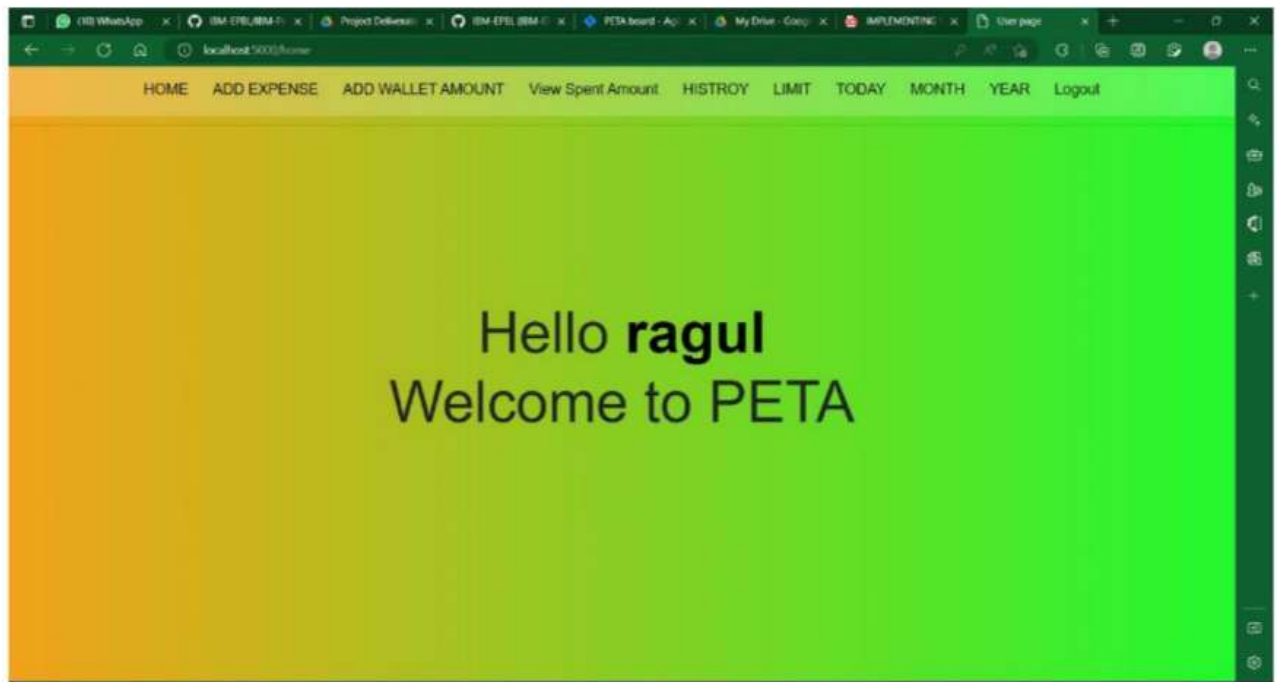
ragul

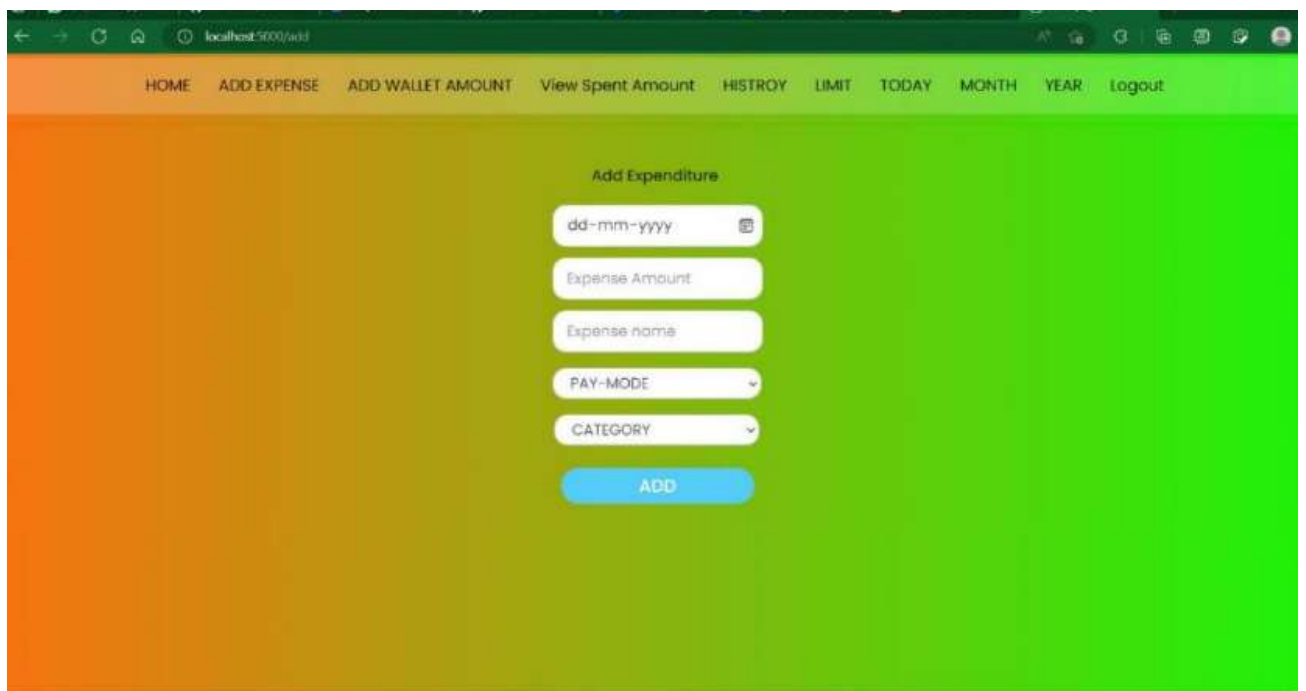
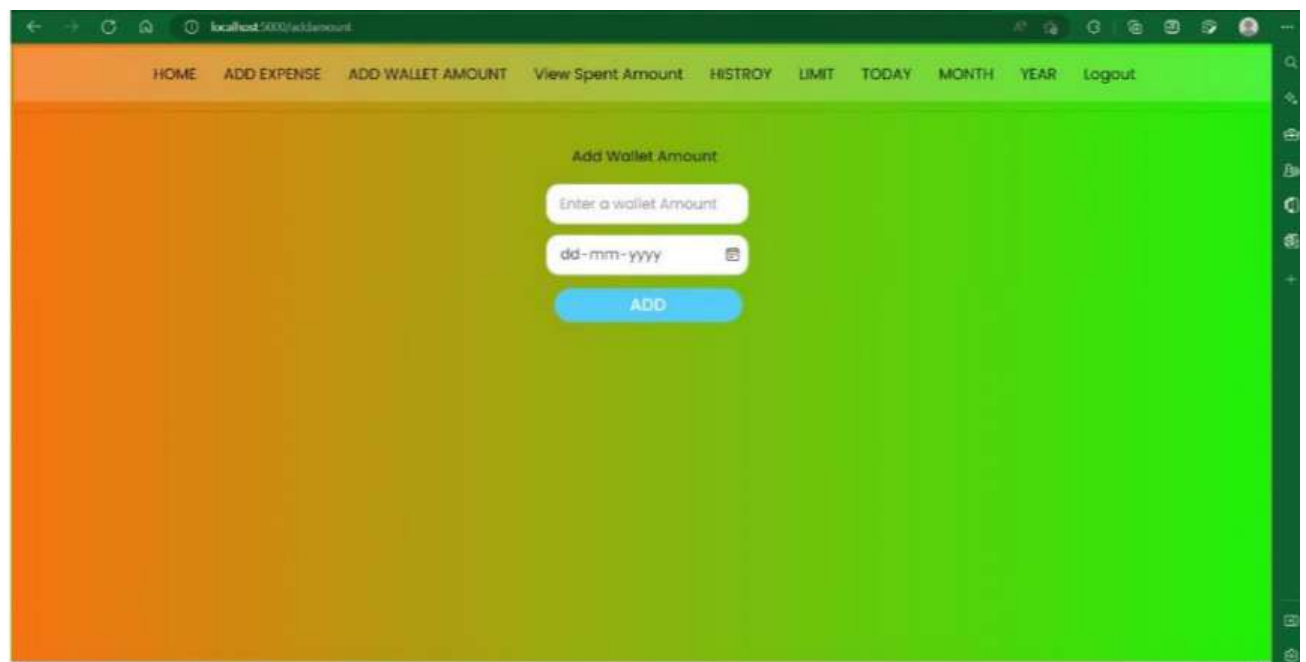
\*\*\*

Login

[SIGNUP](#)





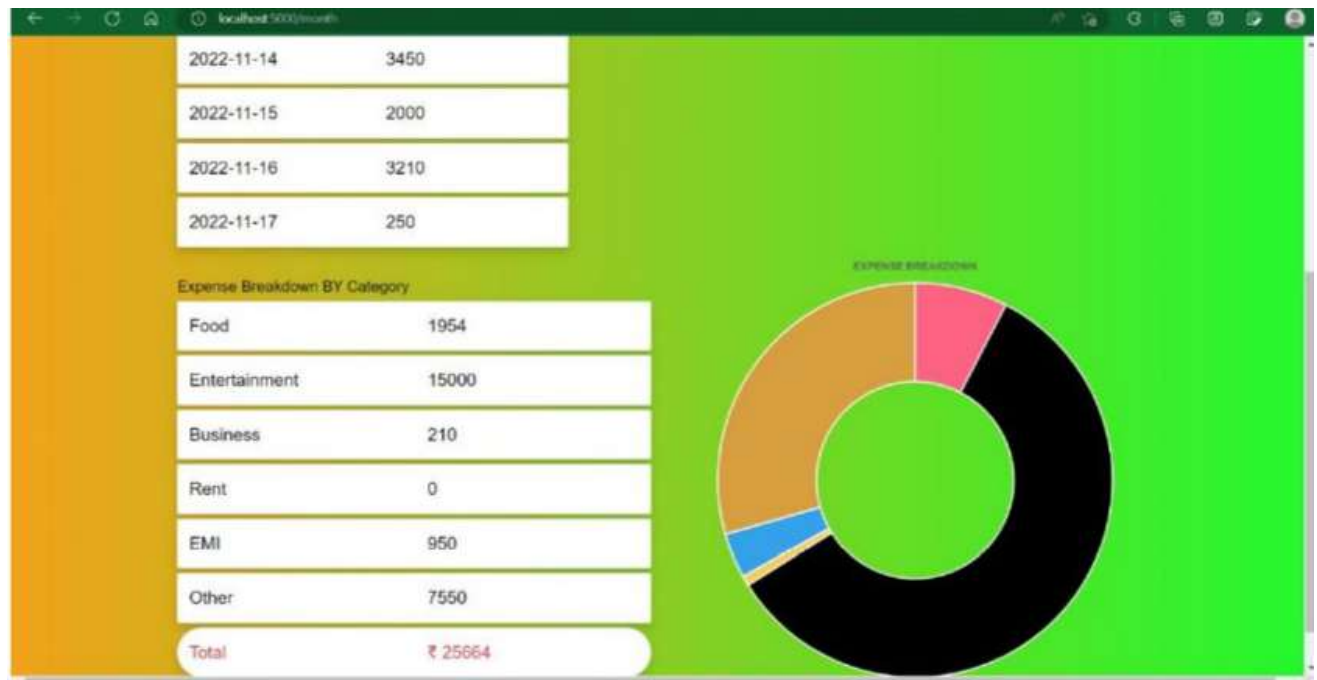


EXPENSES						
2022-11-17	food	₹ 250	debitcard	food	Edit	Delete
2022-11-16	snacks	₹ 250	cash	food	Edit	Delete
2022-11-16	bus fare	₹ 250	cash	other	Edit	Delete
2022-11-16	food	₹ 2500	cash	other	Edit	Delete
2022-11-16	dress	₹ 210	cash	business	Edit	Delete
2022-11-15	shoe	₹ 2000	epayment	other	Edit	Delete
2022-11-14	juice party	₹ 2500	debitcard	other	Edit	Delete
2022-11-14	car loan	₹ 950	onlinebanking	EMI	Edit	Delete

Today Expense Breakdown	
TIME	AMOUNT
Expense Breakdown BY Category	
Food	0
Entertainment	0
Business	0
Rent	0
EMI	0
Other	0
Total	₹ 0

EXPENSE BREAKDOWN

Food
Entertainment
Business
Rent
EMI
Other



## 8. Testing:

### 8.1 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.

Test Case ID	Purpose	TestCases	Result
TC1	Authentication	password with length less than 4 characters	password cannot be less than 4 characters
TC2	Authentication	User name with length less than 2 characters	User name cannot be less than 2 characters
TC3	Authentication	Valid user name with minimum 2 characters	User name accepter
TC4	Authentication	User name is blank	User name cannot be less than 2 characters
TC5	Authentication	Password field blank	User password cannot be empty
TC6	Authentication	Minimum 4 characters valid password	Password accepted
TC7	Authentication	Password and Confirm password did not match	Please enter same password
TC8	Authentication	Confirm Password field bland	Please enter same password

## 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.

Resolution	Severity 1	Severity 2	Severity 3	Severity 4	Subtotal
By Design	5	4	2	0	11
Duplicate	0	0	0	0	0
External	2	3	0	2	4
Fixed	1	2	2	0	5
Not Reproduced	0	0	0	0	0
Skipped	0	0	0	0	0
Won't Fix	0	0	0	0	0
Totals	6	9	4	2	21

This report shows the number o.f test cases that have passed, failed, and untested

## 9.RESULTS

### 9.1Performance Metrics

Tracking income and expenses: Monitoring the income and tracking all expenditures .

- Transaction Receipts: Capture and organize your payment receipts to keep track of your expenditure
  - Reports: The expense tracking app generates and sends reports to give a detailed insight about profits, losses, budgets, income, balance sheets, etc.
  - Access control: Increase your productivity by providing access control to particular users through custom permissions.
  - Track Projects: Determine project profitability by tracking labor costs, payroll, expenses, etc., of your ongoing project.
- 
- In-depth insights and analytics: Provides in-built tools to generate reports with easy-to-understand visuals and graphics to gain insights about the performance of your business.

## 10.Advantages and Disadvantages

- **You have no control over your money** If you don't 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 .
- **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.

- **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.
- **You spend and save in a haphazard manner** If you don't 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 have to allocate to each expense category, and if you are short, you will be able to make adjustments with ease.
- **You have no clue about making your money work for you,** In this day and age, 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.
- **You don't have funds for emergencies** Remember, emergencies come when you least expect. Hence, if you don't 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:**

- 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 have to 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.
- Now, you shouldn't 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.
- 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're spending and where your money is going. Eventually you may look at your Mint data and realize that you've 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 there 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 also using SSO login so that it is helpfulfor users to get into platform easily.



## 13.APPENDIX

**GitHubLink:**

<https://github.com/IBM-EPBL/IBM-Project-24516-1659944127>

**ProjectDemolink :**

<https://drive.google.com/file/d/1MVCslpzAgPQOQ-NCml6n3Ogr83tf6fqb/view?usp=drivesdk>