PROJECT

PERSONAL EXPENSE TRACKER APPLICATION

DONE BY

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PNT2022TMID18464

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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

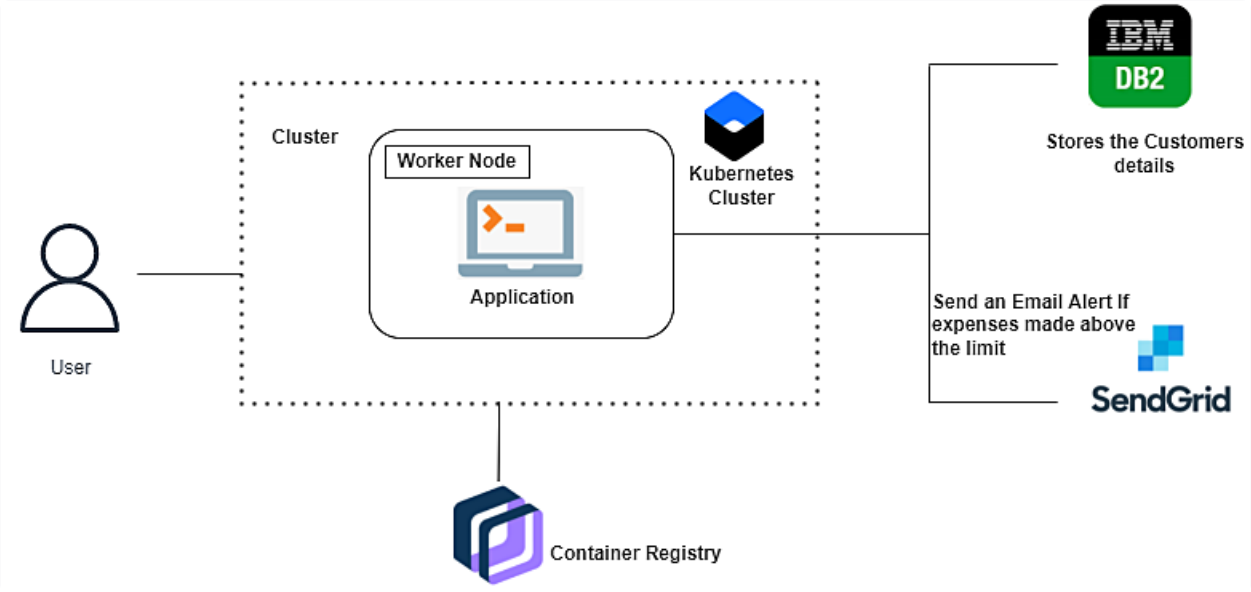
1.1Project Overview

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 easilyon 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 otheroptional parameters
- It helps the androidusers in any situation by keeping track of theirexpenses every day.
- App also sends customized tips in the form of push notifications which helps users to manageexpenses.

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 ExpenseTracker**

Publisher: International Journal of Researchin Engineering and Science (IJRES)

Daily Expense Trackeris 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 typingmanually instead it is very helpful using voice recognition.
- It saves time and user friendlyand also requiresless 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 incometo warn the situation.

2.2 References

- https://ieeexplore.ieee.org/document/8628070
- https://www.ijraset.com/fileserve.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

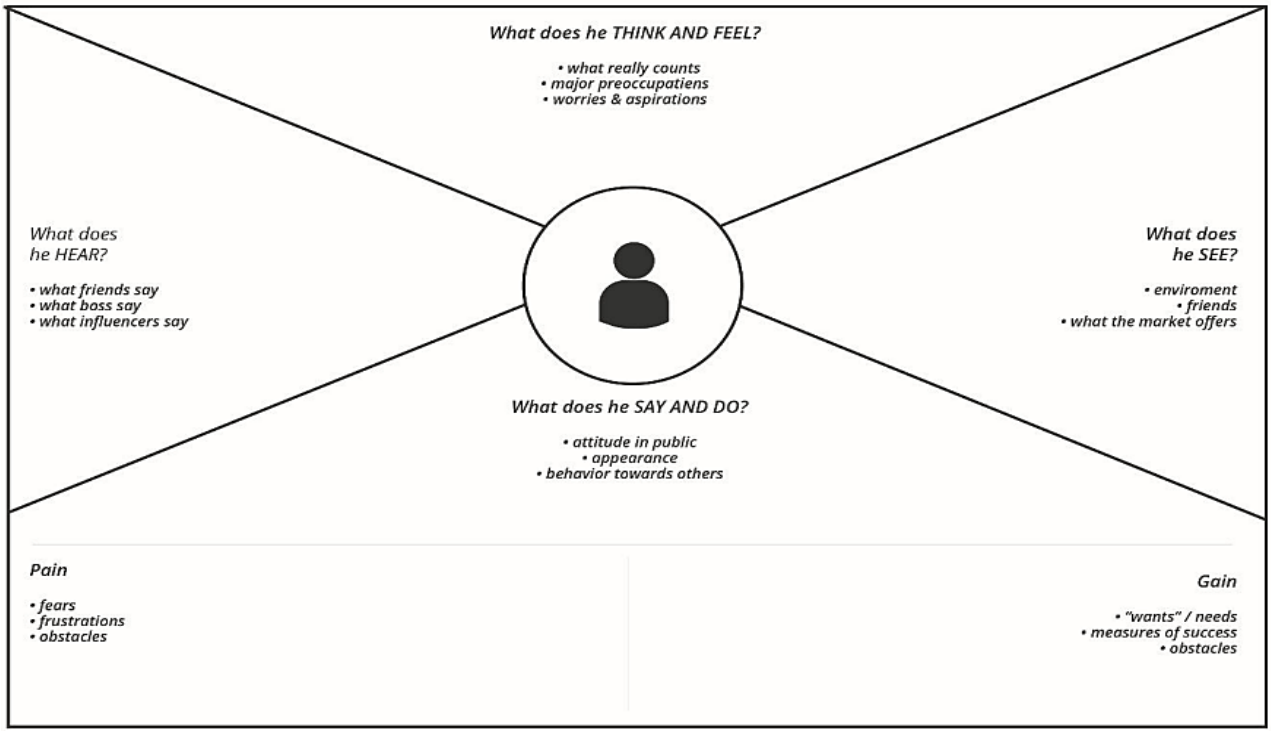
2.3 Problem StatementDefinition

The Expense Tracker is a mobile application that allows the users to download it 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 a simple, easy-to-digest visual that captures knowledge about a user's behaviours and attitudes. It is a useful tool to helps 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

Template

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.

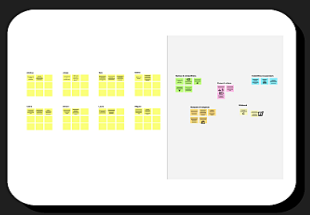
10 minutes

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.
- Defer judgment.
- Go for volume.
- Encourage wild ideas.
- Listen to others.
- 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 poor pending habits
- Prioritize your spending
- Take control of your business
- Accurate of money inflow and outflow

Ragul

- Mail notified
- Calendar notification
- Timing and managing
- Categories your expenses
- Reduce tedious process
- Control unnecessary pnding
- 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 pending
- 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 to periorities
- Help you to stick your budget

3

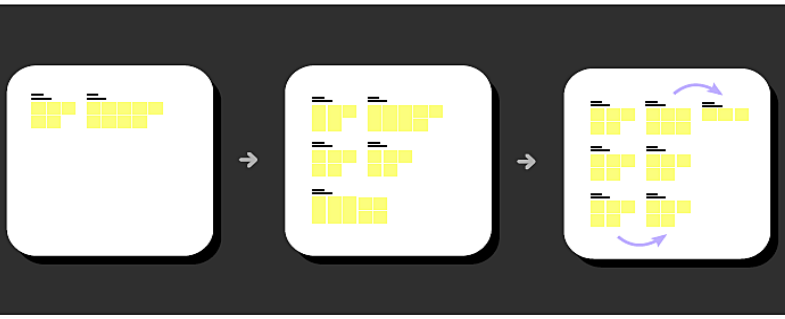
Group ideas

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 and 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.

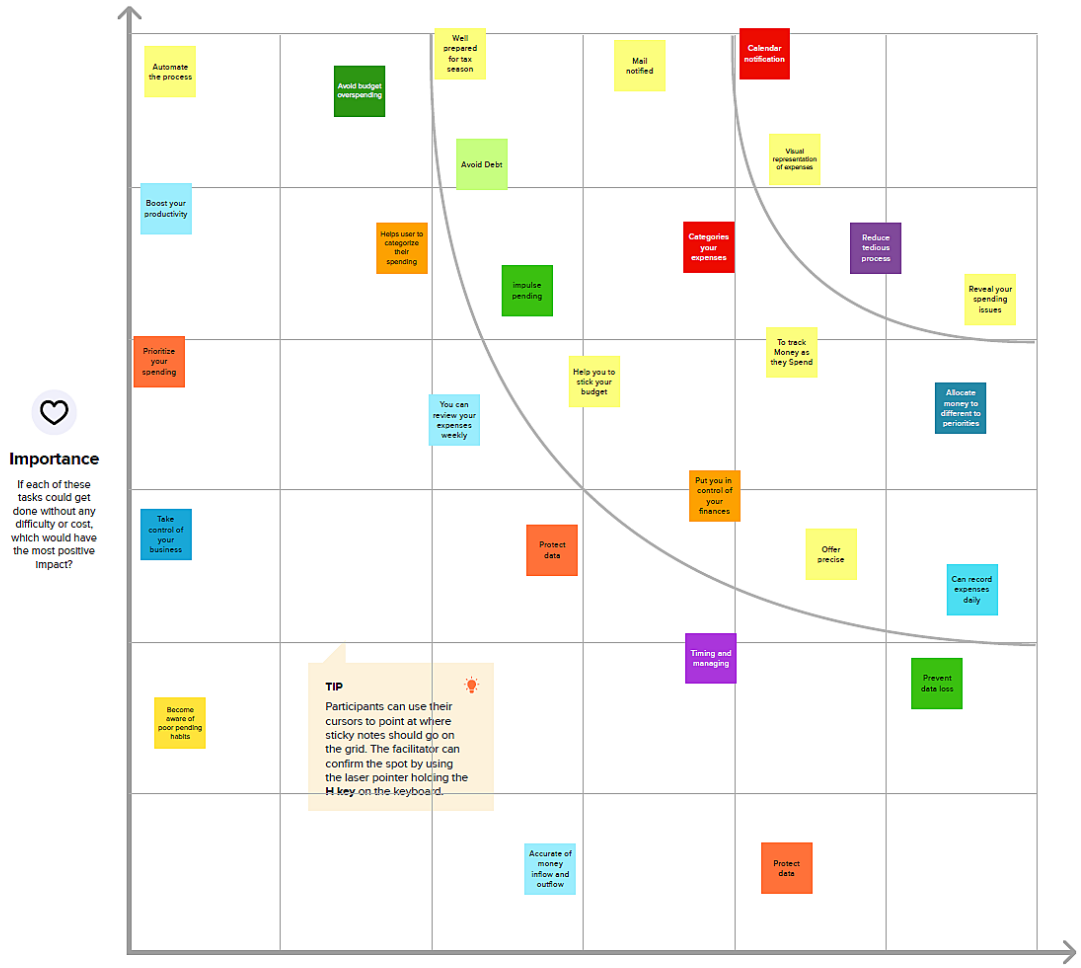


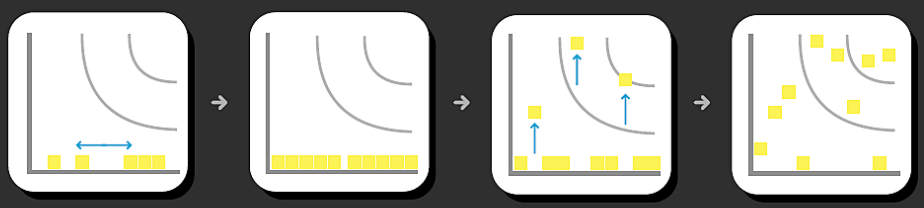
4

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

DefineCS,fitintoCC

1.CUSTOMERSEGMENT(S) CS

Whoisyourcustomer?

-People who felt ease for tracking expense

6.CUSTOMERCONSTRAINT CC

Whatconstraintspreventyourcustomersfromtakingactionorlimittheirchoices ofsolutions?i.e.spendingpower,budget,nocash,networkconnection,availabledevices.

-Insufficient report visibility
-Expense policy management and enforcement

5.AVAILABLESOLUTIONS AS

Whichsolutionsareavailabletothecustomerswhentheyfacetheproblem orneedtogetthejobdone?Whathavetheytriedinthepast?Whatpros&consdothesesolutionshave ?i.e.penandpaperisanalternativetodigitalnotetaking

-Easy to use mobile app that minimize data entry time
-Solid customization

ExploreAS,differentiate

Focus onJ&P,tapintoBE,understandRC

2.JOBS-TO-BE-DONE/PROBLEMS J&P

Whichjobs-to-be-done(orproblems)

-Stick to their monthly expense
-Know about save and spend

9.PROBLEMROOTCAUSE RC

What is the real reason that this problem exists?

-Customer need to do it to avoid unexpected expense and wastage of money

7.BEHAVIOUR BE

Whatdoesyourcustomerdotoaddresstheproblemandgetthejobdone? usage and benefits;

-Save the time of customer
-Create balanced budget

Focus onJ&P,tapintoBE,understandRC

IdentifystrongTR&EM

3.TRIGGERS TR

Whattriggerscustomerstoact?i.e.seeingtheirneighbourinstallingsolarpanels,r eadingaboutamoreefficientsolutioninthenews.

-Face monthly crisis
-Aware about daily expense

4.EMOTIONS:BEFORE/AFTER EM

Howdocustomersfeelwhentheyfaceaproblemorajobandafterwards? i.e.lost,insecure>confident,incontrol-useitinyourcommunicationstrategy&design.

-People no need to worry about misplaced receipts and paper traits

10.YOURSOLUTION SL

Ifyoureworkingonanexistingbusiness,writedownyourcurrentsolutionfirst,fillinthecanvas, andcheckhowmuchfitsreality.
Ifyoureworkingonanewbusinessproposition,thenkeepitblankuntilyoufillinthe canvas and come up with a solution that fits within customer limitations,solvesaproblemandmatchescustomerbehaviour.

-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

8. CHANNELSofBEHAVIOUR CH

8.1 ONLINE

Whatkindofactionsdocustomerstakeonline?Extractonlinechannelsfrom#7

-Use cloud based software
-Use personal tracking app

8.2 OFFLINE

Whatkindofactionsdocustomerstakeoffline?Extractofflinechannelsfrom#7andus ethemforcustomerdevelopment.

-Marketing actions like traditional marketing that do not involves

ExtractonlineAOfflineCHofBE

4 Requirement Analysis

4.1 Functional Requirements:

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	Registration through Form Registration through
FR-2	User Confirmation	Confirmation via Email Confirmation via OTP
FR-3	User Financial Accounts	Account Details Verification of Details
FR-4	User Dashboard	Expense Data Data Records
FR-5	User Notifications	System Access Real time Alerting
FR-6	Security of User Data	Secured Database Data Security Algorithms

4.2 Non-functional Requirements:

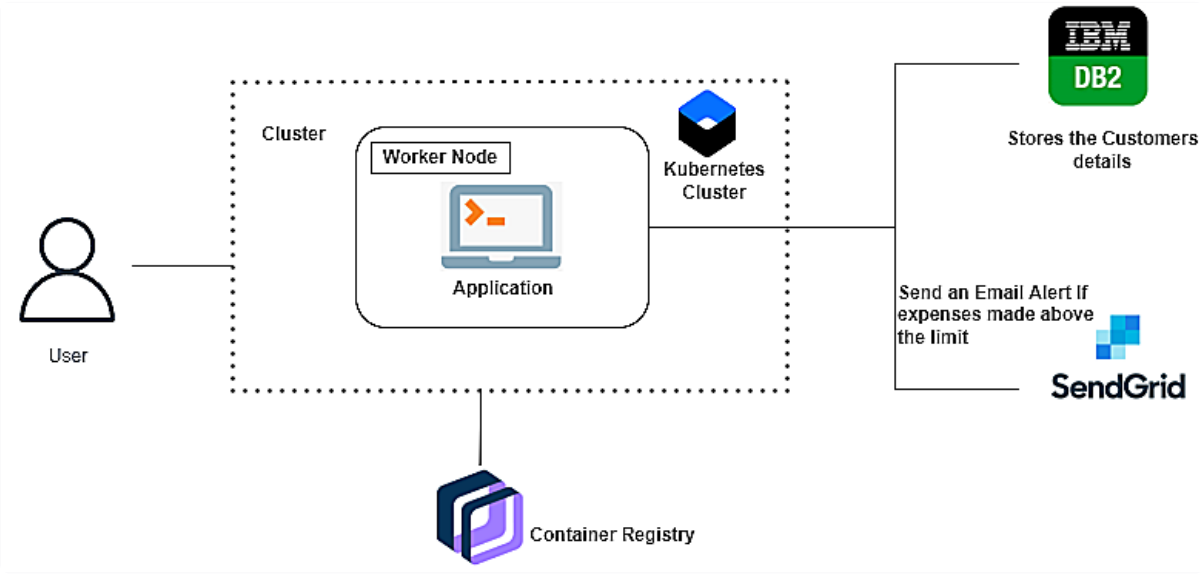
Following are the non-functional requirements of the proposed solution.

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	By using thisapplication, the usercan keep trackof their expenses and can ensurethat user's moneyis used wisely.
NFR-2	**Security**	Maintain user personal details in a encrypted manner by using datasecurity algorithms .
NFR-3	**Reliability**	It will maintain a proper tracking of day-to-day expenses in an efficient manner.
NFR-4	**Performance**	By enter our incoming and departing cash,and thesoftware can help youkeep and monitor it with at-most quality and security with high performance.
NFR-5	**Availability**	Using charts and graphs may help you monitor your budgeting and assets.
NFR-6	**Scalability**	Rely on your budgeting app to track,streamline,and automate all the recurrent expenses and remind you on a timelybasis.

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 / Angular Js / ReactJs 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	Java / 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 MySQL database	MySQL, NoSQL, etc.
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 usedto implement thisApplication	Python-Flask
2.	Security Implementations	This Application Provides high security to the userFinancial 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 supplication. It's demand will increase when the user'sincome 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	Relea se
Customer (Mobile user)	Registration	USN-1	As a user, I can register for the application byentering my email, password, and confirming my password.	I can access my account/dashboard	High	
	Login	USN-2	As a user, I can login to the application by entering email & password	I can access the application	High	
	Dashboard	USN-3	As a user I can enter my incomeand expenditure details.	I can view my daily expenses	High	
Customer Care Executive		USN-4	As a customer care executive, I can solve the log in issues and other issuesof the application.	I can provide support or solution at any time24*7	Medium	
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	

6. PROJECT PLANNING & SCHEDULING

6.1 SPRINT PLANNING & ESTIMATION

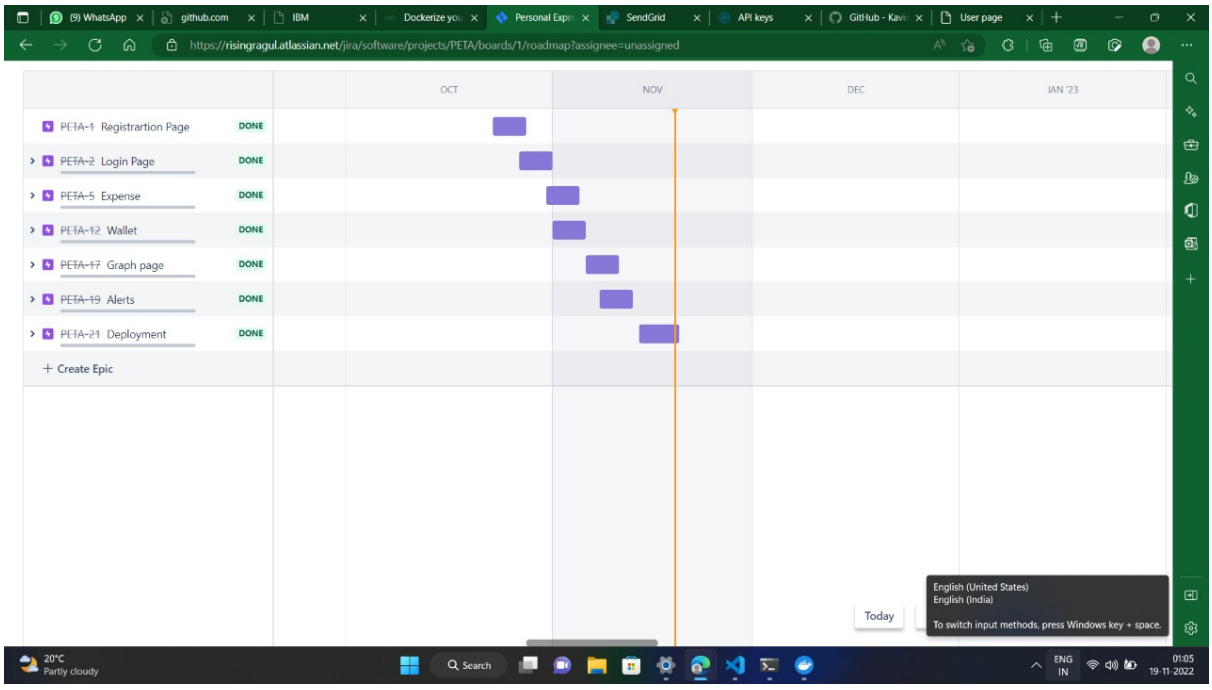
Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Registration	USN-1	As a user, I can register for the application by entering my email, password, and confirming my password.	3	High	
Sprint-1		USN-2	As a user,I will receive confirmation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

Sprint-2	Expense	USN-6	Add total income for the monthand Allow for edit option	6	High	
Sprint-2		USN-7	Split the totalincome based on usage likeentertainment, food, shopping etc.	2	Low	
Sprint-2		USN-8	Add the day to day expense.	6	High	
Sprint-2		USN-9	Display the useradded expense	6	High	
Sprint-3		USN-10	Filter theexpense data basedon criteria	6	Medium	
Sprint-3	Charts	USN-11	As a user I can display it in graphs	4	Low	
Sprint-3	Alerts	USN-12	As a userI create customalert for the balance	10	High	
Sprint-4	Deployment	USN-13	As a user I shouldable to accessit anywhere in the net	20	High	

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

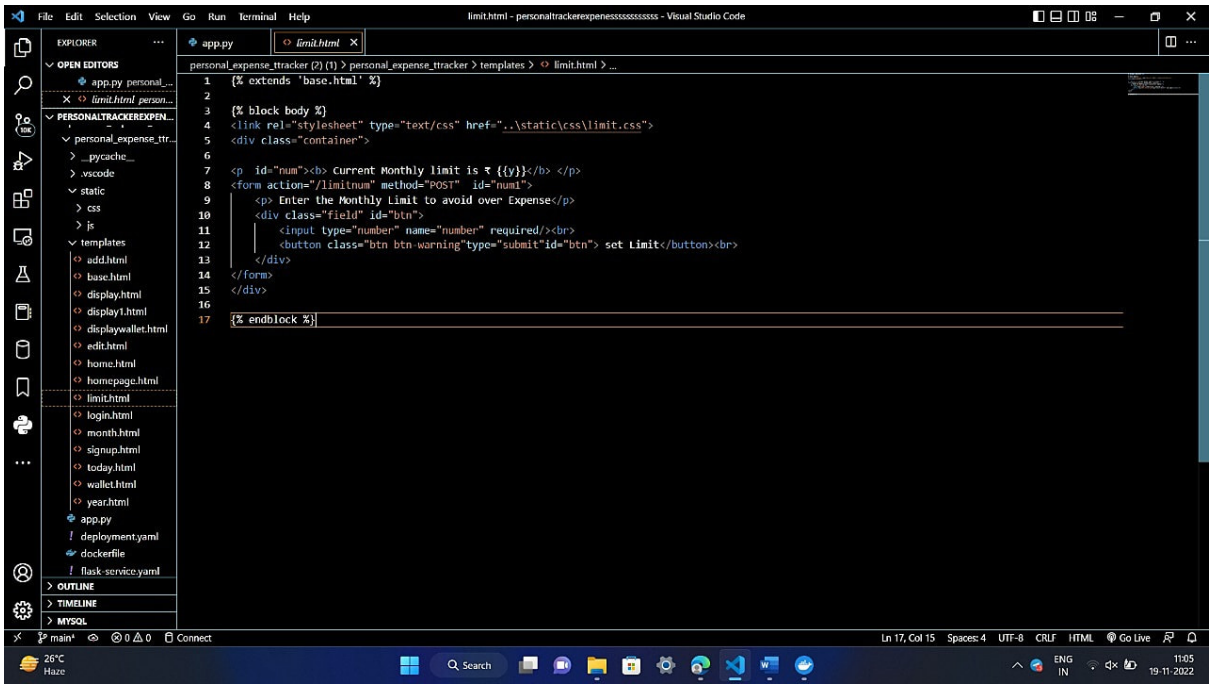
6.3 Reports from JIRA

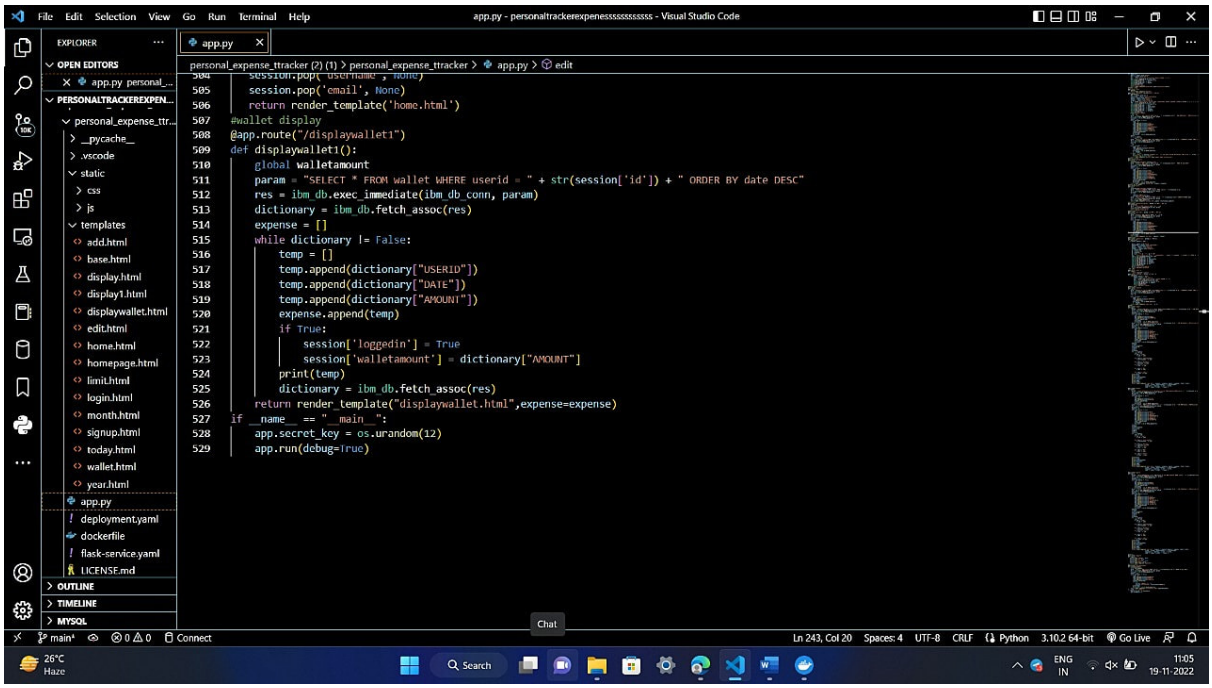


7.CODING & SOLUTIONING :

7.1 FEATURE 1:

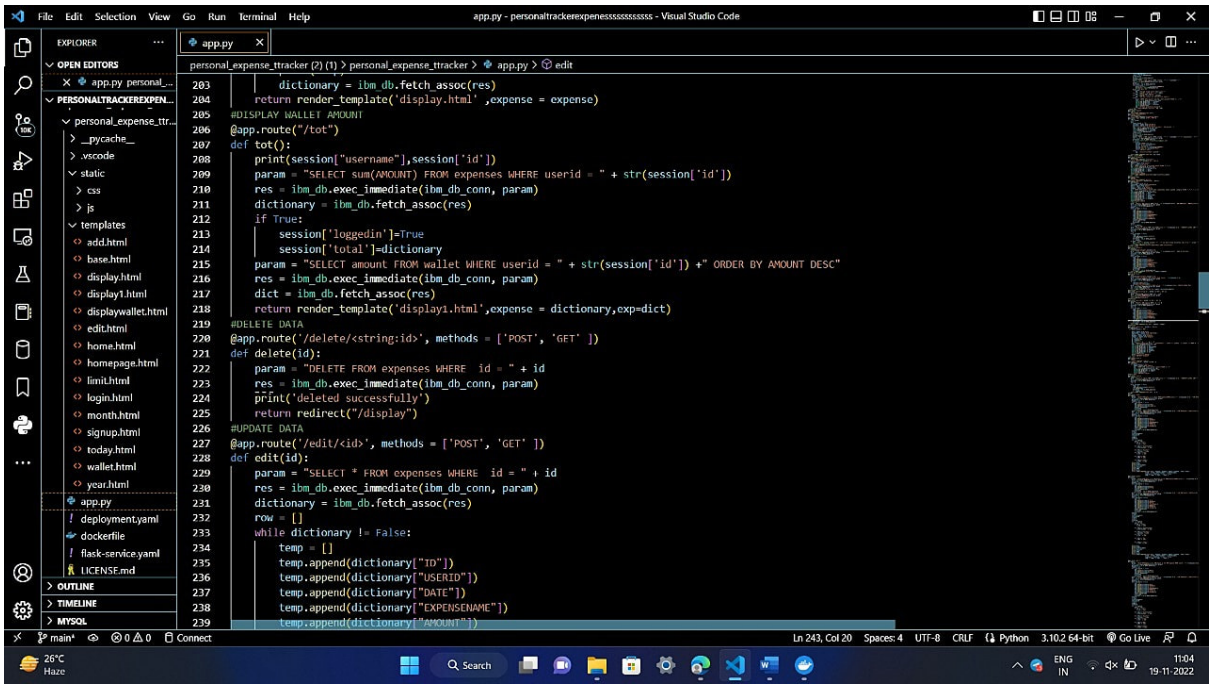
- In this project We Added a feature to set limit for the expenses done by the user to avoid over expenses by giving an alert mail to the user using sendgrid mail.We alert user to limit their expenses within the fixed ammount

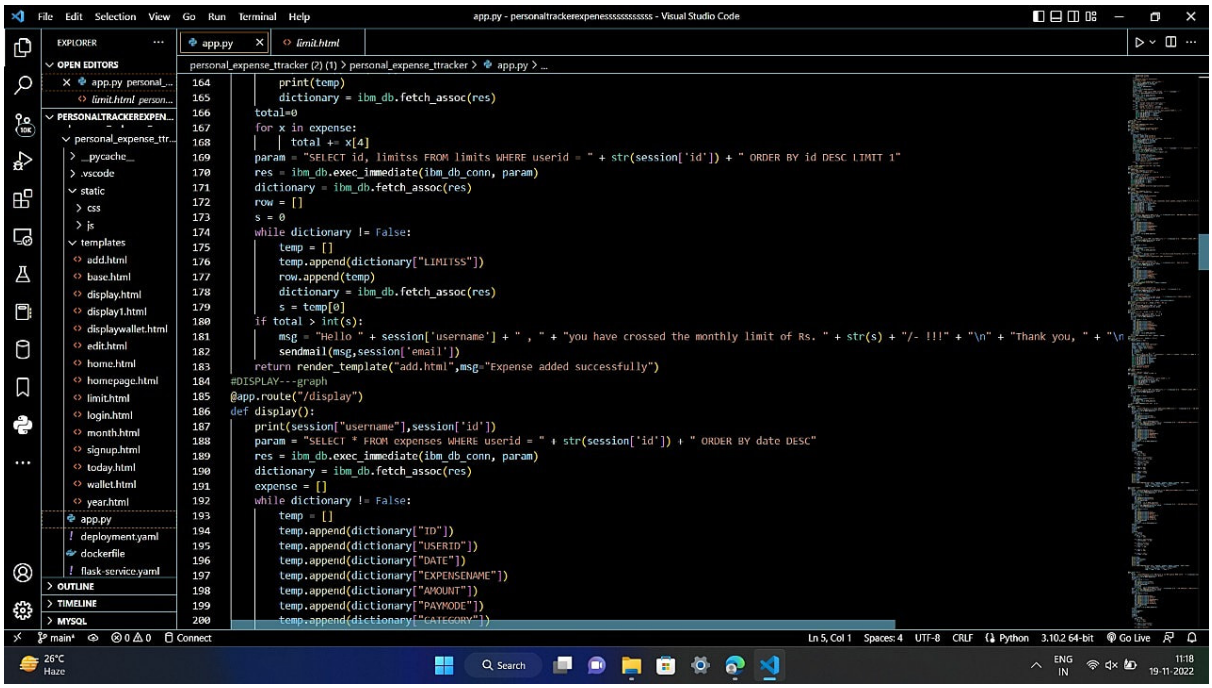


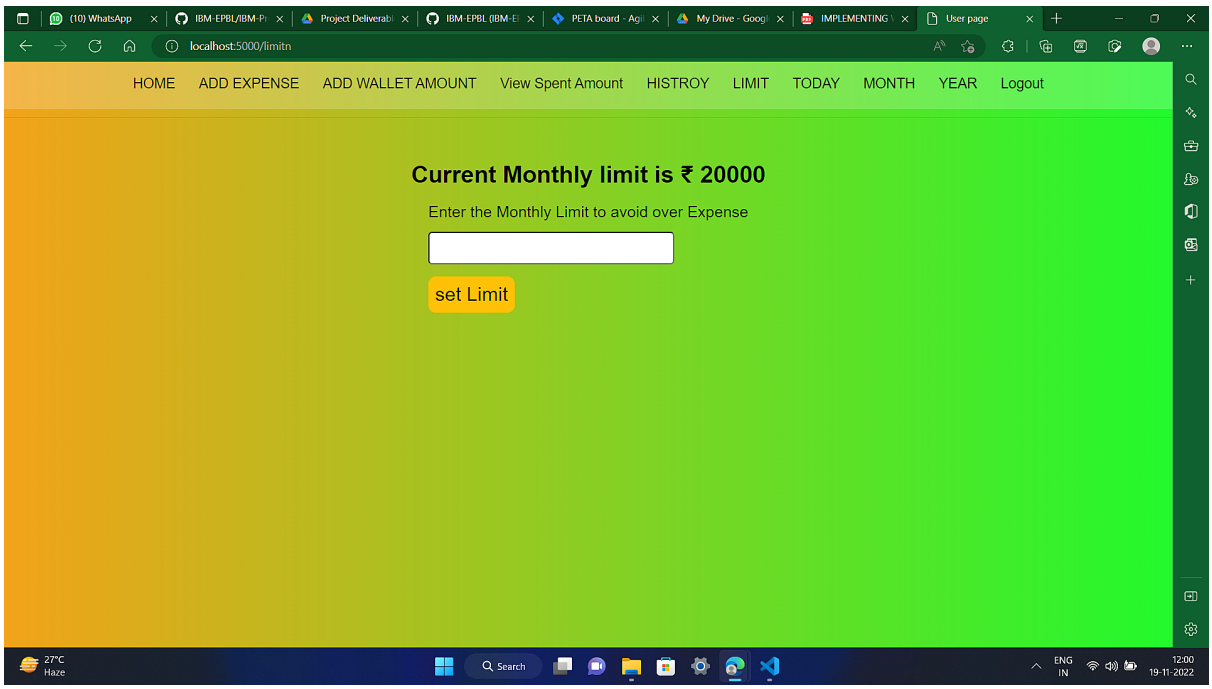


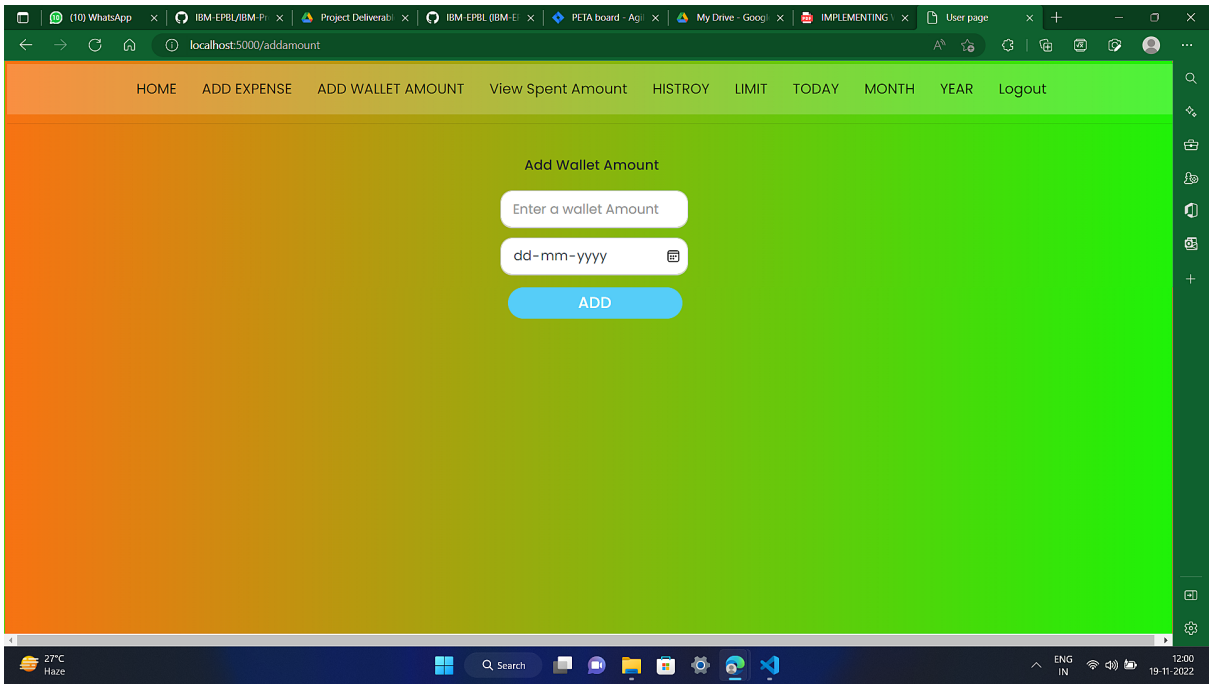
7.2 FEATURE 2:

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.




app.py - personaltrackerexpenesssssssssss - Visual Studio Code
app.py
limit.html
personal_expense_ttracker (2) (1) > personal_expense_ttracker > app.py > ...
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, limitss 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 = "Hello " + 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 #DISPLAY---graph
185 @app.route("/display")
186 def display():
187 print(session["username"],session['id'])
188 param = "SELECT * FROM expenses WHERE userid = " + str(session['id']) + " ORDER BY date DESC"
189 res = ibm_db.exec_immediate(ibm_db_conn, param)
190 dictionary = ibm_db.fetch_assoc(res)
191 expense = []
192 while dictionary != False:
193 temp = []
194 temp.append(dictionary["ID"])
195 temp.append(dictionary["USERID"])
196 temp.append(dictionary["DATE"])
197 temp.append(dictionary["EXPENSENAME"])
198 temp.append(dictionary["AMOUNT"])
199 temp.append(dictionary["PAYMODE"])
200 temp.append(dictionary["CATEGORY"])


localhost:5000/limitn
HOME
ADD EXPENSE
ADD WALLET AMOUNT
View Spent Amount
HISTROY
LIMIT
TODAY
MONTH
YEAR
Logout
Current Monthly limit is ₹ 20000
Enter the Monthly Limit to avoid over Expense
set Limit



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.

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.

9.RESULTS

9.1Performance Metrics

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

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

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

● 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.

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

, ● E-commerce integration: Integrate your expense tracking app with your eCommerce store and track your sales through payments received via multiple payment methods.

● Vendors and Contractors: Manage and track all the payments to the vendors and

contractors added to the mobile app.
● Access control: Increase your team 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.
● 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.
● In-depth insights and analytics: Provides in-built tools to generate reports with easy-tounderstand visuals and graphics to gain insights about the performance of your business.
● Recurrent Expenses: Rely on your budgeting app to track, streamline, and automate all the recurrent expenses and remind you on a timely basis

NFT - Detailed Test Plan				
SNo	project overview	NFT Test approach	Assumptions/Dependencies/Risks	Approvals/ SignOff
1	Personal Expense Trackerv1	Load testing	Locust installed, app deployed with docker	
2	Personal ExpenseTracker v2	Stress testing	Locust installed, app deployed with docker	
3	Personal ExpenseTracker v2	Spike testing	Locust installed, app deployed with docker	
4	Personal ExpenseTracker v2	Reliability testing	Locust installed, app deployed with docker	

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 haphazardmanner** 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 createa 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 toyour poor money management skills

Disadvantages:

- Your information is less secure, and probably being used and sold. If the service is free, then the productis 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 historyand 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 billsare paid automatically and your financesare 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'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