R.M.K. ENGINEERING COLLEGE

(An Autonomous Institution)

R.S.M. Nagar, Kavaraipettai-601 206, Gummidipoondi Taluk, Thiruvallur District.

PROJECT
PERSONAL EXPENSE TRACKER

DONE BY

TEAM ID:PNT2022TMID15814

PRIYANKA SELVAKUMAR (111719104127)
KALPANAKUMARI S (111719104305)
SNEHA R S (111719104146)
RAISA A (111719104128)

Project Report Format

1. **INTRODUCTION**
   1.1 Project Overview
   1.2 Purpose
2. **LITERATURE SURVEY**
   2.1 Existing problem
   2.2 References
   2.3 Problem Statement Definition
3. **IDEATION & PROPOSED SOLUTION**
   3.1 Empathy Map Canvas
   3.2 Ideation & Brainstorming
   3.3 Proposed Solution
   3.4 Problem Solution 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 Sprint Planning & Estimation
   6.2 Sprint Delivery Schedule
   6.3 Reports from JIRA
7. **CODING & SOLUTIONING (Explain the features added in the project along with code)**

   7.1 Feature 1
   7.2 Feature 2
   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**

INTRODUCTION

1.1 Project Overview :

In a nutshell, personal finance encompasses all financial decisions and activities that a finance app facilitates by assisting you in managing 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 those expenses, their wallet balance will be updated and made visible to the user. Also, users can get an analysis of their expenditure in graphical form. They have an option to set a limit for the amount to be used for that particular month; if the limit is exceeded, the user will be notified with an email alert..

1.2 Purpose :

1. Maintaining Financial Control

2. Holding Yourself Accountable

3. Tracking Your Financial Progress

4. Keeping Your Finances Organized

5. Improving Your Financial Security

6. Reducing Your Financial Stress

2 .LITERATURE SURVEY

1.3 Existing Problem

Since the beginning of human civilization, people have exchanged their destiny for one another to buy or sell goods. Since then, it has become an important and irreplaceable part of our daily lives.

Most of us have a fixed income and we get it on time (i.e., daily, monthly, annual, etc.). In addition, everyone follows a strict budget of spending. Generally, the budget is assembled according to category. Categories vary, for example, food, entertainment, transportation, education, health, clothing, and so on. However, spending is limited to budget revenue.

For this reason, we need to keep track of our expenses so that they do not exceed our budget. In the old days, people would track their expenses manually, which meant that using a penand paper system would be very laborious and time consuming. These days the availability of electronic devices like smartphones and computers has made our lives much easier and faster. We can use computers to track your daily expenses using the available online and offline software. There are some apps that can track daily expenses . These apps use a manual input system from the keyboard, which is laborious and time consuming. To meet the challenge of avoiding manual input, we propose the best way to do the same things in an automated and efficient way that takes less time. Under the proposed approach, users can spend, fill and monitor data.

2.2 REFERENCE :

Title : Security and privacy challenges in mobile cloud computing : survey and way ahead
Author : Muhammad Baqer Mollah et al
Journal : Journal of Network and Computer Applications
Year : 2017
Methodology : Computational offloading, Virtualization
Scope : The primary security and privacy issues facing cloud computing are highlighted in this survey in order to raise awareness within the academic and scientific communities. While there are many difficulties, comparable security solutions have been suggested and found in the literature by numerous researchers to address the difficulties. The recent works are also briefly presented in this work.

Title : Exploring infrastructure support for app based services on cloud platforms
Author : Hai Nguyen et al
Journal : Journal of Cloud Computing Advances Systems and Applications
Year : 2017
Methodology : Virtualization, Introspection and Security
Scope : In this paper, a rich model's design and implementation are discussed, allowing third-party cloud apps to access a client's virtual machines (VMs) and carry out privileged operations.The infrastructure support required to support cloud apps was discussed. Different design approaches to deploy cloud apps were also addressed. Various examples were used to demonstrate and assess the practicality of cloud applications.

Title : Mobile Financial Management Application using Google Cloud Vision API
Author : Kurniawan Dwi Saputra et al

Journal : International Conference on Computer Science and Computational Intelligence
Year : 2019
Methodology : Google Vision Cloud API, Optical Character Recognition
Scope : In order to address the primary financial issues , this study looked at the potential usefulness of the mobile application "Manage on Money (MoM)".OCR technology was created using Google Cloud Vision API. This technique works well for locating a single precise keyword on a receipt printed in black ink.MoM enables users to arrange their recurring expenses and sends a push reminder prior to the due date. One signal API serves as the foundation for this notification.

Title : Cloud Based Development Issues
Author : Sukhpal Singh, Inderveer Chana
Journal : International Journal of Cloud Computing and Services Science
Year : 2020
Methodology : A Methodical Analysis
Scope : The systematic representation process, research study findings, and challenges to the study's validity have all been covered in this review paper. By responding to the initially defined questions, the article has demonstrated the areas of research within cloud-based development that have been carried out. This paper presents findings from a rigorous investigation of problems with cloud based development.

Title : Expense Tracker
Author : Prof Miriam Thomas, Lekshmi P, and Dr.Mahalekshmi T
Journal : International Journal of Advanced Research in Science, Communication and Technology
Year : 2020
Methodology : Least Square Algorithm
Scope : This application allows the user to enter their income to determine their daily expenses, and the results are saved for each user. The application has a feature that uses data mining to predict the manager's income and expenses. The suggested system takes less time to process, and all the information is updated and processed right away.

Title : Cloud based Expense Tracker
Author : Asthha Wahal and Muskan Aggarwal
Journal : International Journal of Innovative Research in Technology
Year : 2021
Methodology : Clustering, Apriori algorithm, Virtualization
Scope : The DET app developed through this project includes clustering functionality. The Apriori algorithm allows for the clustering of organizations and individuals. As soon as a transaction is added to the list, an automated update is made to the graph of income and expenses. The information is all kept in local storage, which is the factor that is more crucial.

2.3 Problem Statement Definition :

Every earning people are mostly obsessed at the end of the month as they cannot remember where all of their money have gone when they have spent and ultimately have to sustain in little money minimizing their essential needs. There is no as such complete solution present easily to keep track of its daily expenditure easily and notify them if they are going to have money shortage. 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 alert. the main purpose of our application is to track the user's expenses.

3. IDEATION & PROPOSED SOLUTION

3.1 Empathy map Canvas :
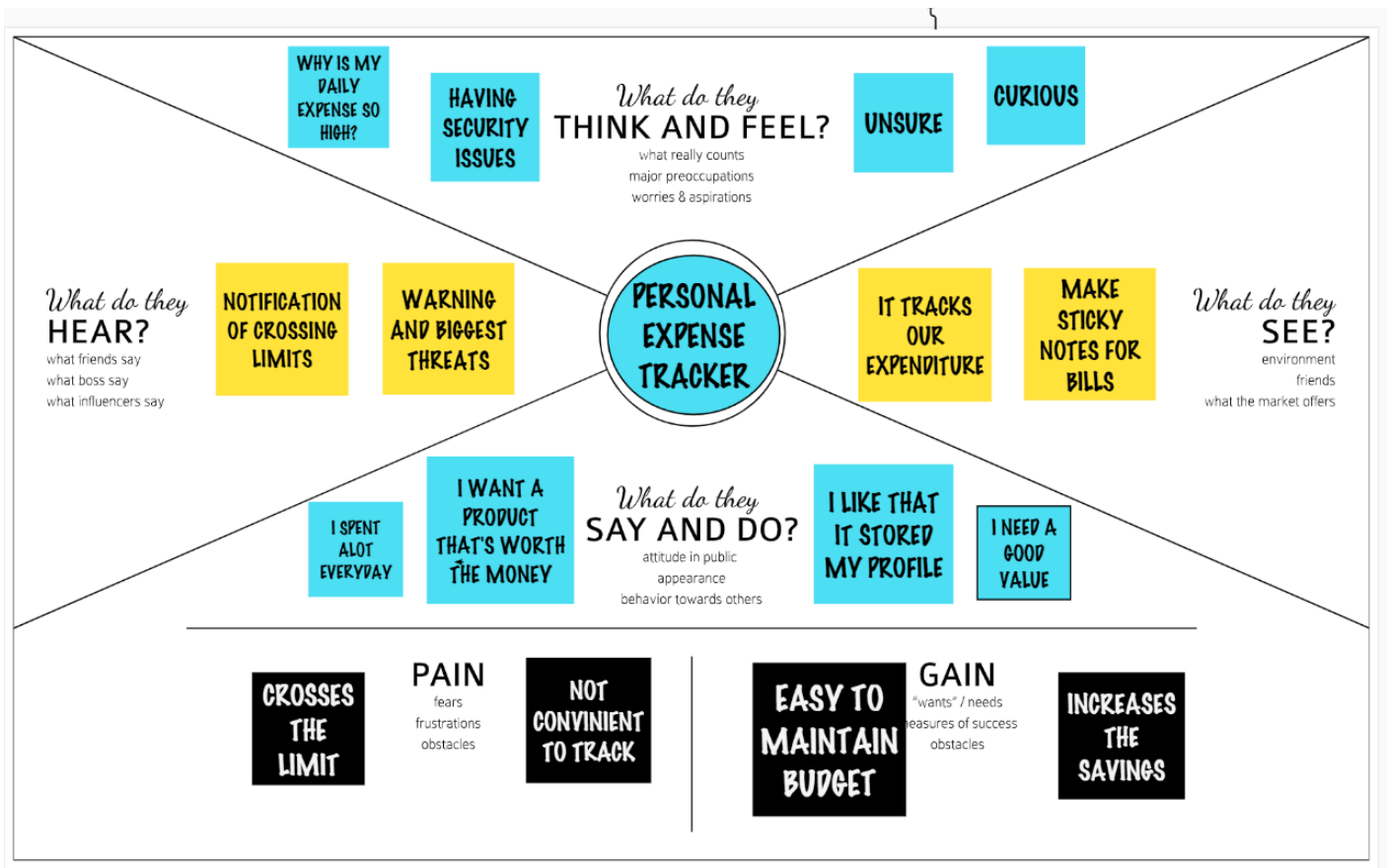
3.2 Ideation & brainstorming :

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

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 →

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

This project will help users track their daily expenses through this application. The expense tracker app connects with a user's bank account and/or credit card to track and categorise your experience and give you the best ideas for purchasing purposes. This will help users find the spending areas where you could make cuts. If we keep on track with our expenses, it will help to manage our overall finances. In some companies, they have their own systems to record their income and daily expenses, and it is a good habit for each person to record daily expenses and earnings. But due to lack of proper applications to suit the user's privacy, and lack of decision-making capacity, people are using traditional note-keeping methods to do so. Due to the lack of a complete tracking system, there will be a constant overload of daily entries of expenditure and total appraisal till the end of the month.

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

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

PRIYANKA S

Easly Accessible	High level protection	visualize the charges & cost
round the clock	network security	Allocation & Resource
Acknowledgment system	Fixed allowance	Fix the salary money limit

KALPANAKUMARI S

Finding and eliminating bad spending habits	User can lower their financial stress	Making sure that you pay yourself first,
Developing good financial discipline	Savings for goals	Tracking Your Financial Progress
Maintain your focus on the currency difference.	Monitor either personal or business expenses.	Show some ideas to reduce cost

RAISA A

Preventing overspending	Figure out ways to cut back on your spending	Avoiding Debt
Reducing Impulse Spending	Notification alert for amount payment	JWT authentication
Reports such as doc and PDF cannot be generated	It's easy to work as it represents in diagramatical view.	No need to use complicated excel sheet

SNEHA R S

Making sure you pay yourself first,	Plan for future large purchases	Maintaining Financial Control
Holding Yourself Accountable	Keeping Your Finances Organized	Reducing Your Financial Stress
Easy portable & Gives us Control	Insert additional source of income	Include a financial news update.

Individual Expertise

EASY ACCESSIBILITY	USING ANIMATIONS	PROFESSIONAL COLOUR SCHEMES	ATBOT/HELP DASHBOARD

Features

MULTI-FACTOR AUTHENTICATION	USER FRIENDLY UI/UX	ENCRYPTION AND DECRYPTION	JWT-TOKEN AUTHENTICATION APPROACH

Front & back end

HTML CSS	BOOTSTRAP JAVASCRIPT	FLASK	IBM DATABASE	IBM CLOUD	FAST A

Tracking idea/process

TRACKING TAXES FOR VARIOUS ASSETS	SALARY BASED TRACKING AND ANALYAIS	LOAN ANALYSIS AND GRAPHS	SALARY BASED TRACKING AND ANALYSIS	GRAPHICAL REPRESENTATION

3.3 Proposed Solution:

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	If you've tried budgeting and failed miserably, using an expense tracker can solve your budget planning problems. Expense tracking isn't just about saving all of your receipts or writing down every cent you spend for the rest of eternity. It's actually much simpler than that. Tracking expenses is the difference between creating a budget that works, and one that doesn't. Whether you're about to start budgeting for the first time, or have been living on a budget for years, knowing where your money goes is the one thing that is guaranteed to make your budget work.
2.	Idea / Solution description	If your goal is to build a budget spreadsheet that works, you must start by tracking your expenses. You can't live on a budget where the numbers are pulled out of thin air. You must track where your money is actually going, so that you know where you're starting from. When tracking your spending, spend as you normally would. Tracking isn't meant to make you feel guilty or to stop you from spending. It's meant to highlight what your habits are so that you can make some choices and changes.

3.	Novelty / Uniqueness	The most important part of using an expense tracker to solve your budget planning problems is to just get started. Dive in and give it your best shot. It won't be perfect, but that's how budgeting works; you adjust it as you need to. Life happens, so tracking your spending guarantees you a budget that works.
4.	Social Impact / Customer Satisfaction	Once you've tracked your spending and created a balanced budget, it's vital to track your spending for the first few months to make sure you're able to cover all of your monthly and seasonal expenses. You can use tracking as a way to re-assure yourself that your budget plan is actually working.
5.	Business Model (Revenue Model)	If you've been successfully living on a budget, it's still important to monitor your spending every once in a while to make sure your expenses are still the same as they used to be. When gas prices rise, your fuel expenses will likely go up. Your grocery bill will grow with your growing family. Check-in every now and again to ensure your spending plan is still up to date.
6.	Scalability of the Solution	The scalability of your cost structure requires keeping your fixed and variable costs that are necessary to create more products, or offer more services, as low as possible. One way of doing this is to keep replicability in mind when designing your software products. If replicability is an afterthought, you may end up with a complex product that takes a lot of technical intervention or customer success coaching to operate, which effectively increases the variable cost of producing and providing the product to more customers.

3.4 Problem Solution Fit :

Define CS, fit into CC	1. CUSTOMER SEGMENT(S) CS	6. CUSTOMER CONSTRAINTS CC	5. AVAILABLE SOLUTIONS AS	Explore AS, differentiate
	People who needs more savings Provides a whole lot of different categories of expenditure types to avoid mismatch of expenditure. The Need for Financial Management for Common People	The approach proposed here features a function that allows you to view expenses visually It also has a functionality that notifies you throughout email if a spending exceeds a predetermined limit. Devices That Are Available. Network Relationship	Applications that track expenses and are accessible for both iOS and Android. A personal expense tracking tool was created for this project	

Focus on J&P, tap into BE, understand RC	2. JOBS-TO-BE-DONE / PROBLEMS J&P	9. PROBLEM ROOT CAUSE RC	7. BEHAVIOUR BE	Focus on J&P, tap into BE, understand RC
	User Data security This application's goal is to make it possible for users to keep track of their spending. They also have the choice of viewing the costs as a graphical depiction for the duration of a year, six months, etc. Comprehensible User Interface.	No comprehensive and simple way to keep track of everyday spending Excessive spending without effective management Insufficient financial knowledge mistake prone and it takes time. A reduction in savings A poor investment	Give proper input in the application Gain sufficient knowledge Ask your neighbourhoods or co-workers for information. Obtain recommendations from professionals who are knowledgeable in the finance sector	

Identify strong TR & EM	3. TRIGGERS TR	10. YOUR SOLUTION SL	8. CHANNELS of BEHAVIOUR CH	Extract online & offline CH of BE
	Knowing that these expenditure applications can help clients save a lot of money.	Track the expense and savings of the user on monthly basis create a flask based personal cost tracker application, use the send grid framework to enable email-based expense notifications, and offer a graphical expense display option.	User can share the reports to others. Inspect the expenses and plan for future	
	4. EMOTIONS: BEFORE / AFTER EM			
	Before: Users are in a depressive state prior. After: Users feel ready to handle the cost.		Access to data that has already been downloaded. Make sure they are familiar with the tax laws by having them read the available books on taxes	

4.REQUIREMENT ANALYSIS:

4.1 Functional Requirement :

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	**User Register and User Confirmation**	Registration is the process of the user to complete the application's form. Ce tain details must be submitted such as e-mail address, password and password confirmation. Confirmation via Email ,Confirmation via OTP
FR-2	**User Login**	The login screen is used to verify the identity of the user. The account can be accessed using the user's registered email address and password.
FR-3	**Categories**	On the main page, we can see overall revenue and spending, as well as the balance remaining after expenditure, as well as the user's entire categories namely Entertainment. Cloth, Food and Drinks, Health and Fitness and so on.
FR-4	**User Update Daily Expensive**	The user can upload the daily expensive detail what they are spending on each day. The details such as cloth, entertainment, food, health etc.,

FR-5	User budget plan / User Savings Budget	Planning and Tracking of user expense vs budget limit based on monthly income of individuals. Every month has to save some amount and in emergency situations he can access the savings account
FR-6	Set Alert	When a user attempts to spend more than the pre-defined amount limit, the app will automatically send an alert via E-mail alert or SMS alert
FR-7	Notification	A feature of the application called push notifications lets the administrator or developer send a personalized tip of money management to all of the app's users.

4.2 Non-Functional requirement :

| FR No.	Non-Functional Requirement	Description
NFR-1	Usability	The system shall allow the users to access the system with pc using web application. The system uses a web application as an interface. The system is user friendly which makes the system easy.
NFR-2	Security	Authentication, authorization, encryption of the application that ensures one of many different security properties of software is being satisfied.
NFR-3	Reliability	The system has to be 100% reliable due to the importance of data and the damages that can be caused by incorrect or incomplete data. The system will run 7 days a week. 24 hours a day.

NFR-4	**Performance**	The information is refreshed depending upon whether some updates have occurred or not in the application. The system shall respond to the member in not less than two seconds from the time of the request submittal. The system shall be allowed to take more time How the application is functioning and how responsive the application is to the end-users
NFR-5	**Availability**	The system is available 100% for the user and is used 24 hrs a day and 365 days a year. The system shall be operational 24 hours a day and 7 days a week.
NFR-6	**Scalability**	Scalability is the measure of a system's ability to increase or decrease in performance and cost in response to changes in application and system processing demands.

5. PROJECT DESIGN

5.1 Data Flow diagram :
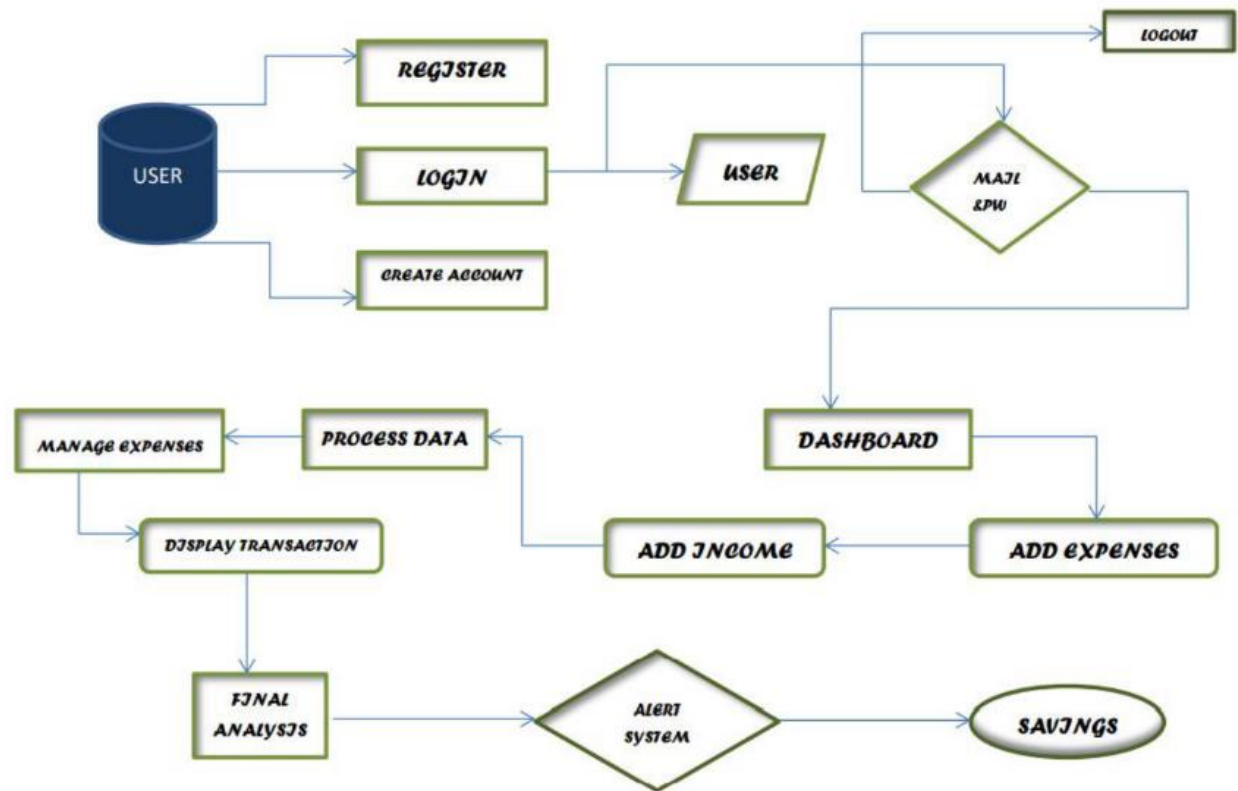
5.2 Solution & Technical Architecture
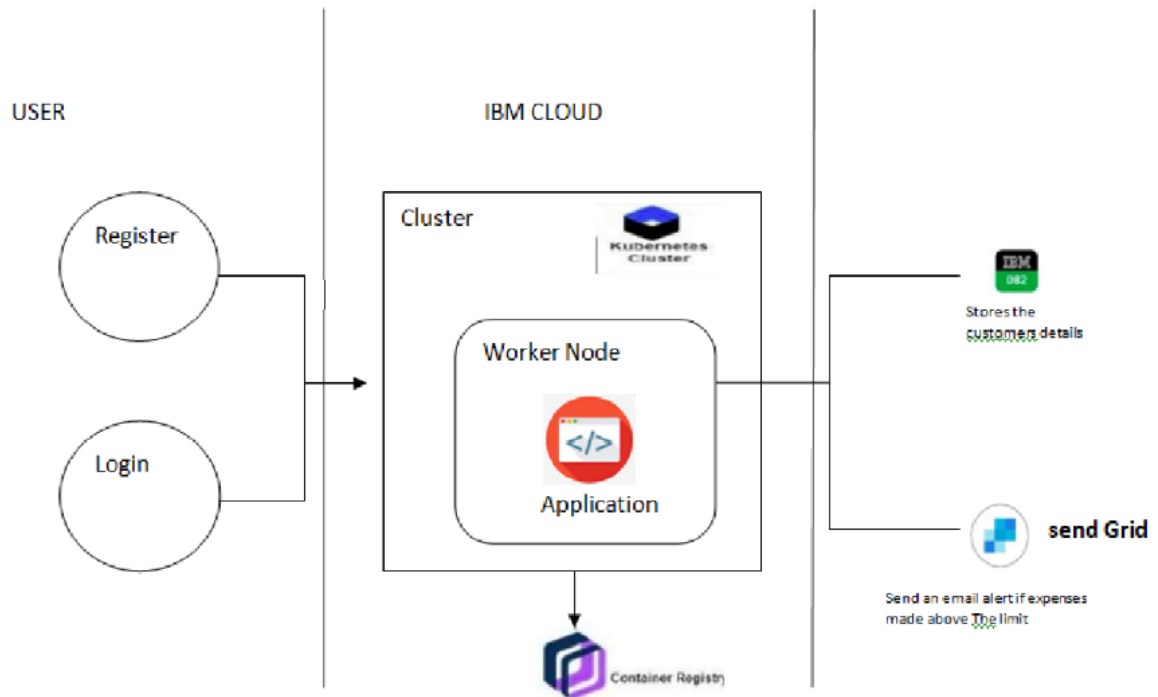
Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	Customer interaction with the application. e.g. Web UI, Mobile App, Chatbot etc.	HTML, CSS, JavaScript in Python Flask
2.	User login	The user can sign in using either their Gmail account or a server account for the app.	Google Oauth for Google Signin. Hashed password in DB
3.	Graph Visualisation	creating graphs and plots based on consumer expenditure information	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	The user information and the data entries are stored using IBM DB2.
6.	SendGrid	You can send email without needing to maintain email servers by using a cloud-based SMTP provider.	When a specific condition is met, SendGrid is utilised to send mail to user emails.
7.	Google OAuth	Users can share specified data with an application using OAuth 2.0 while maintaining the confidentiality of their usernames, passwords, and other personal data.	Enables access to the application by allowing login using a gmail account
8.	Cloud Deployment	OnCloud Server for Application Deployment	For deployment, Docker and Kubernetes are employed since they guarantee scalability and high availability.

5.3 User Stories :

USER STORIES :

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Customer (Mobile user & web user)	Registration	USN-1	As a user, I can register for the application by entering my email, password, and confirming my password.	I can access my account / dashboard	High	
		USN-2	As a user, I will receive confirmation email once I have registered for the application	I can receive confirmation email & click confirm	High	
		USN-3	As a user, I can register for the application through Gmail	I Can register with the Gmail account	Medium	
	Login	USN-4	As a user, I can log into the application by entering email & password	I can login into application using correct register email id and password	High	
	Dashboard	USN-5	As a user,I can login into the account and I view the dashboard	I can add,delete,modify and update the expenses	High	
		USN-6	As a user, I can see my expenses for my clear understand purpose	I can see my in expenses in graphical representatins	High	
Customer Care Executive		USN-7	As a customer care executive I can solve the login issues or anyother issues of the application immediately	I can provide customer support of working hours through phone call and chat	Medium	
Administrator	Application	USN-8	As a Adminstrator,I can update or upgrade the server or application	I can fix the bug of server side of data manage,crush	Medium	

6. PROJECT PLANNING & SCHEDULING

6.1 Sprint Planning & Estimation :

The phase by phase development of the project has been specified as sprit plan.

Product Backlog, Sprint Schedule, and Estimation (4 Marks)

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.	2	High	Raisa A
		USN-2	As a user, I will receive confirmation email once I have registered for the application	1	High	Sneha RS
	Login	USN-3	As a user, I can log into the application by entering email & password	1	High	Priyanka S
	Dashboard	USN-4	Logging in takes to the dashboard for the logged user.	2	High	Kalpanakumari S

			Bug fixes, routine checks and improvisation by everyone in the team *Intended bugs only			
Sprint 2	Workspace	USN-1	Workspace for personal expense tracking	2	High	Sneha RS
	Charts	USN-2	Creating various graphs and statistics of customer's data	1	Medium	Priyanka S
	Connecting to IBM DB2	USN-3	Linking database with dashboard	2	High	Kalpanakumari S
		USN-4	Making dashboard interactive with JS	2	High	Raisa A
Sprint-3		USN-1	Wrapping up the server side works of frontend	1	Medium	Priyanka S
	Watson Assistant	USN-2	Creating Chatbot for expense tracking and for clarifying user's query	1	Medium	Kalpanakumari S
	SendGrid	USN-3	Using SendGrid to send mail to the user about their expenses	1	Low	Raisa A
		USN-4	Integrating both frontend and backend	2	High	Sneha RS
			Bug fixes, routine checks and improvisation by everyone in the team *Intended bugs only			
	Docker	USN-1	Creating image of website using docker/	2	High	Kalpanakumari S
	Cloud Registry	USN-2	Uploading docker image to IBM Cloud registry	2	High	Raisa A
Sprint-4	Kubernetes	USN-3	Create container using the docker image and hosting the site	2	High	Sneha RS
	Exposing	USN-4	Exposing IP/Ports for the site	2	High	Priyanka S

6.2 Sprint Delivery Schedule :

The deliverable are listed as per the schedule and they are tabulated.

Project Tracker, Velocity & Burndown Chart: (4 Marks)

Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed (as on Planned End Date)	Sprint Release Date (Actual)
Sprint-1	20	6 Days	23 Oct 2022	28 Oct 2022	20	29 Oct 2022
Sprint-2	20	6 Days	30 Oct 2022	04 Nov 2022	20	05 Nov 2022
Sprint-3	20	6 Days	06 Nov 2022	11 Nov 2022	20	12 Nov 2022
Sprint-4	20	6 Days	13 Nov 2022	18 Nov 2022	20	19 Nov 2022

Velocity

We have a 6-day sprint duration, and the velocity of the team is 20 (points per sprint). Calculating the team's average velocity (AV) per iteration unit (story points per day)

$$AV = \text{sprint duration / velocity} = 20/6 = 3.33$$

Burndown Chart:

A burn down chart is a graphical representation of work left to do versus time. It is often used in agile software development methodologies such as Scrum. However, burn down charts can be applied to any project containing measurable progress over time.

6.3 Reports from JIRA

What is analytics Jira
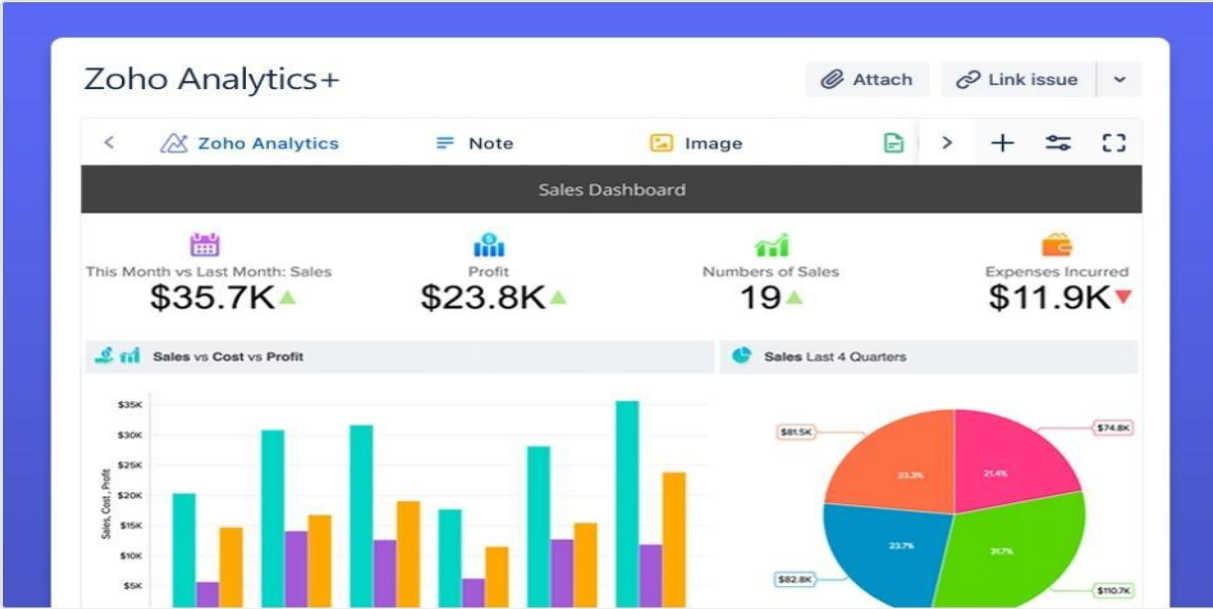
Analytics Plus for Jira Software is designed to serve as a unified platform with insights on multi-project metrics, workflows, roadmaps, issues, backlogs, and bottlenecks.

JIRA REPORT ANALYSIS 1.1

JIRA REPORT ANALYSIS 1.2

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

7.1 Feature 1 :

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

<head>
    <title>Add Expense</title>
    <meta charset="utf-8">
    <meta name="viewport" content="width=device-width, initial-scale=1">
    <link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/3.4.1/css/bootstrap.min.css">
    <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.6.0/jquery.min.js"></script>
    <script src="https://maxcdn.bootstrapcdn.com/bootstrap/3.4.1/js/bootstrap.min.js"></script>
    <link rel="stylesheet" href="../static/AddExpense.css" />

</head>

<body>

    <nav class="navbar navbar-default" style="background-color: ☐#15172b;">
        <div class="container-fluid">
            <div class="navbar-header">
                <a class="navbar-brand" href="#" style="color:■white;">
                    Expense Tracker</a>
            </div>
            <ul class="nav navbar-nav">

                <li><a href="/home" style="color:■white;">Home</a></li>
                <li class="active"><a href="/addExpense" style="color:☐#15172b;">Add</a></li>
                <li><a href="/history" style="color:■white;">History</a></li>
                <li><a href="/limit" style="color:■white;">Limit</a></li>
                <li><a href="/today" style="color:■white;">Report</a></li>

                <li><a href="/logout" style="color:■white;">Logout</a></li>
            </ul>
        </div>
    </nav>
```
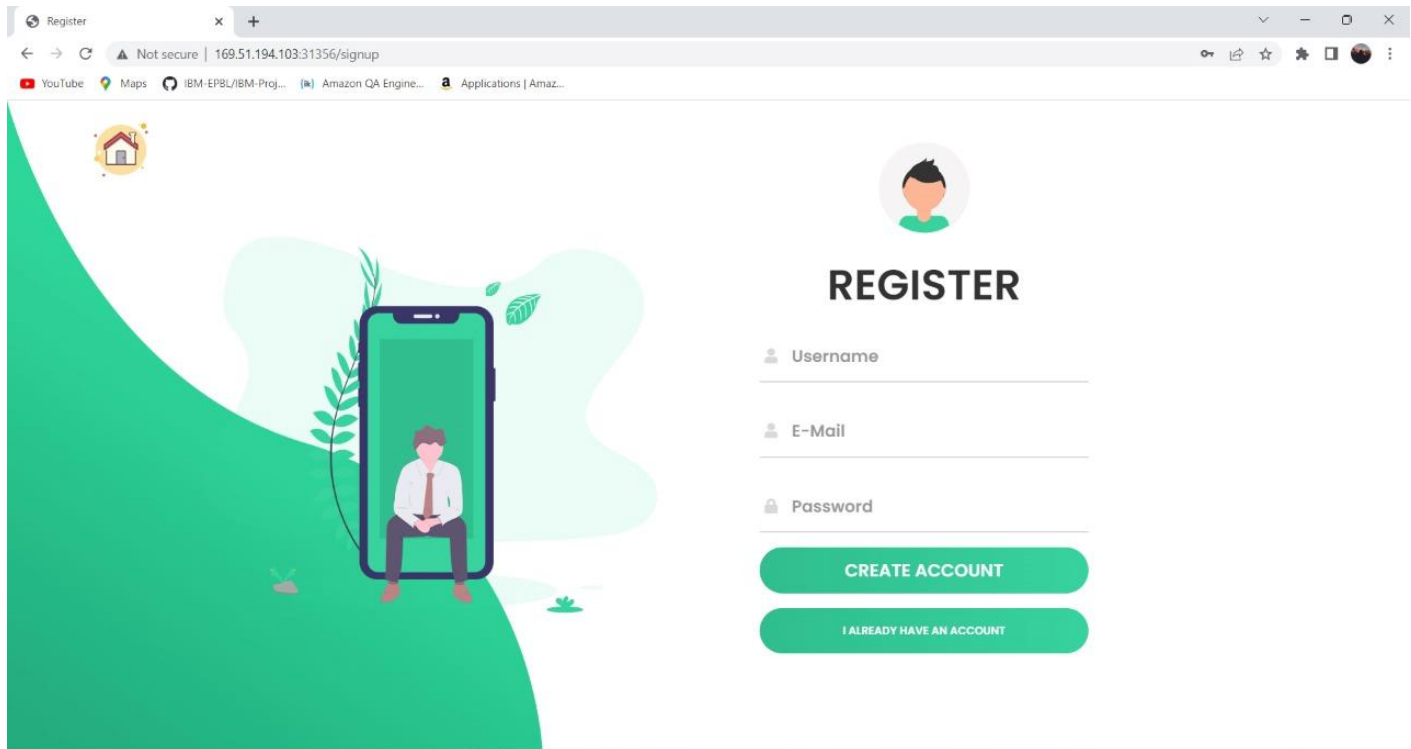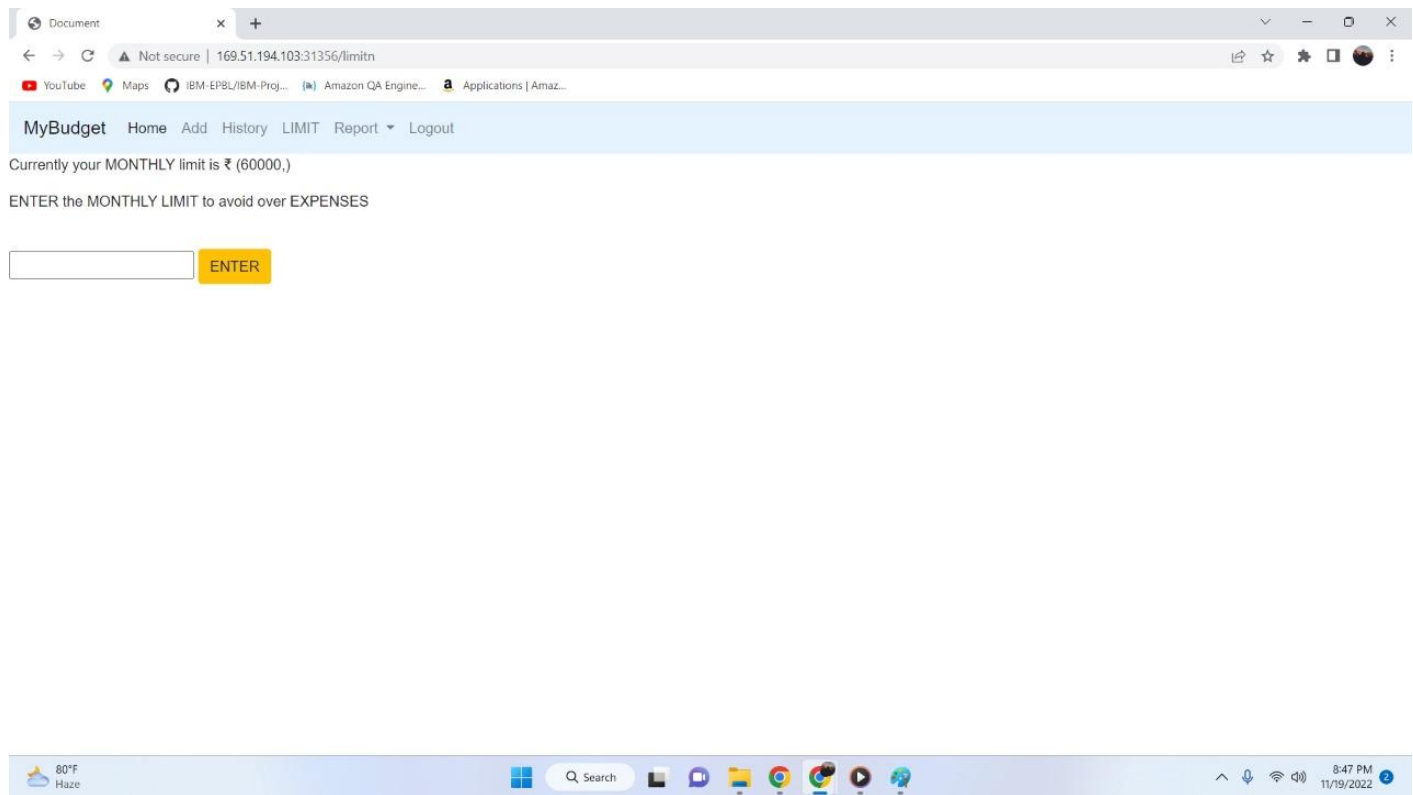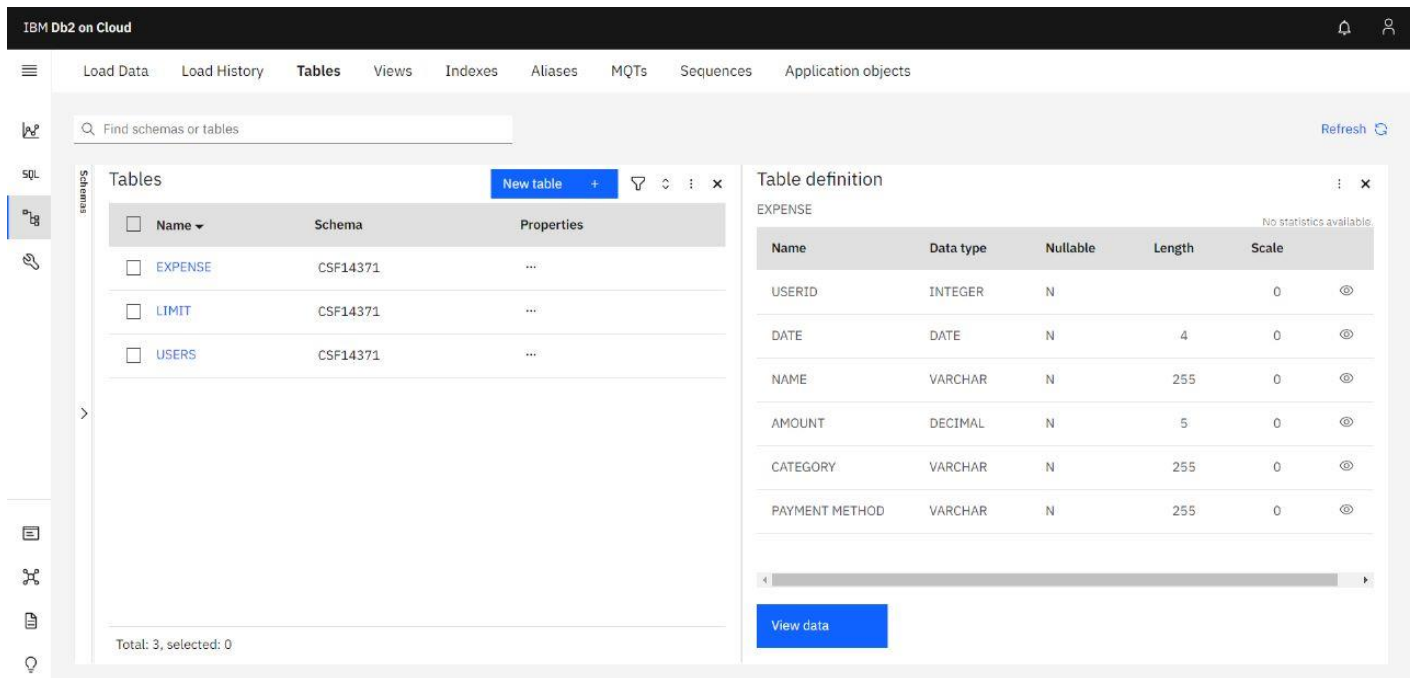
```html
<!doctype html>
<html>

<head>
    <link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/3.4.1/css/bootstrap.min.css">
    <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.6.0/jquery.min.js"></script>
    <script src="https://maxcdn.bootstrapcdn.com/bootstrap/3.4.1/js/bootstrap.min.js"></script>
    <link rel="stylesheet" href="../static/history.css" />
</head>

<body>
    <nav class="navbar navbar-default" style="background-color: #15172b;">
        <div class="container-fluid">
            <div class="navbar-header">
                <a class="navbar-brand" href="#" style="color: white;">
                    Expense Tracker</a>
            </div>
            <ul class="nav navbar-nav">

                <li><a href="/home" style="color: white;">Home</a></li>
                <li><a href="/addExpense" style="color: white;">Add</a></li>
                <li><a href="/history" style="color: white;">History</a></li>
                <li class="active"><a href="/limit" style="color: #15172b;">Limit</a></li>
                <li><a href="/today" style="color: white;">Report</a></li>

                <li><a href="/logout" style="color: white;">Logout</a></li>
            </ul>
        </div>
    </nav>
```

7.2 Database Schema (if Applicable) :

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.

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 :

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	4	2	8	15
Duplicate	1	0	3	0	4
External	2	3	0	1	6
Fixed	9	2	4	11	20
Not Reproduced	0	0	1	0	1
Skipped	0	0	1	1	2
Won't Fix	0	5	0	1	8
Totals	22	14	11	22	51

3.Test Case Analysis :

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

Section	Total Cases	Not Tested	Fail	Pass
Interface	7	0	0	7
Login	43	0	0	43
Logout	2	0	0	2

9.RESULTS

9.1 Performance Metric :
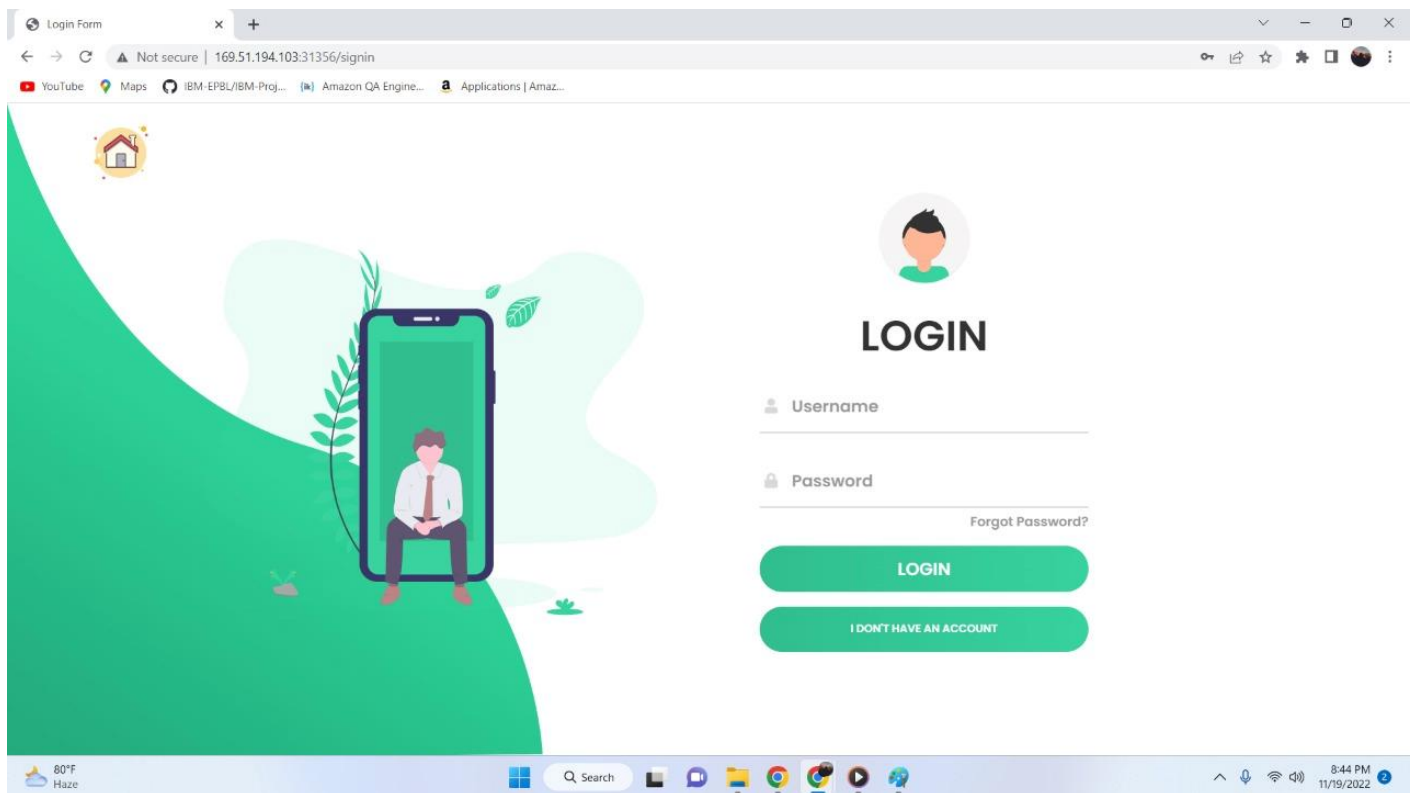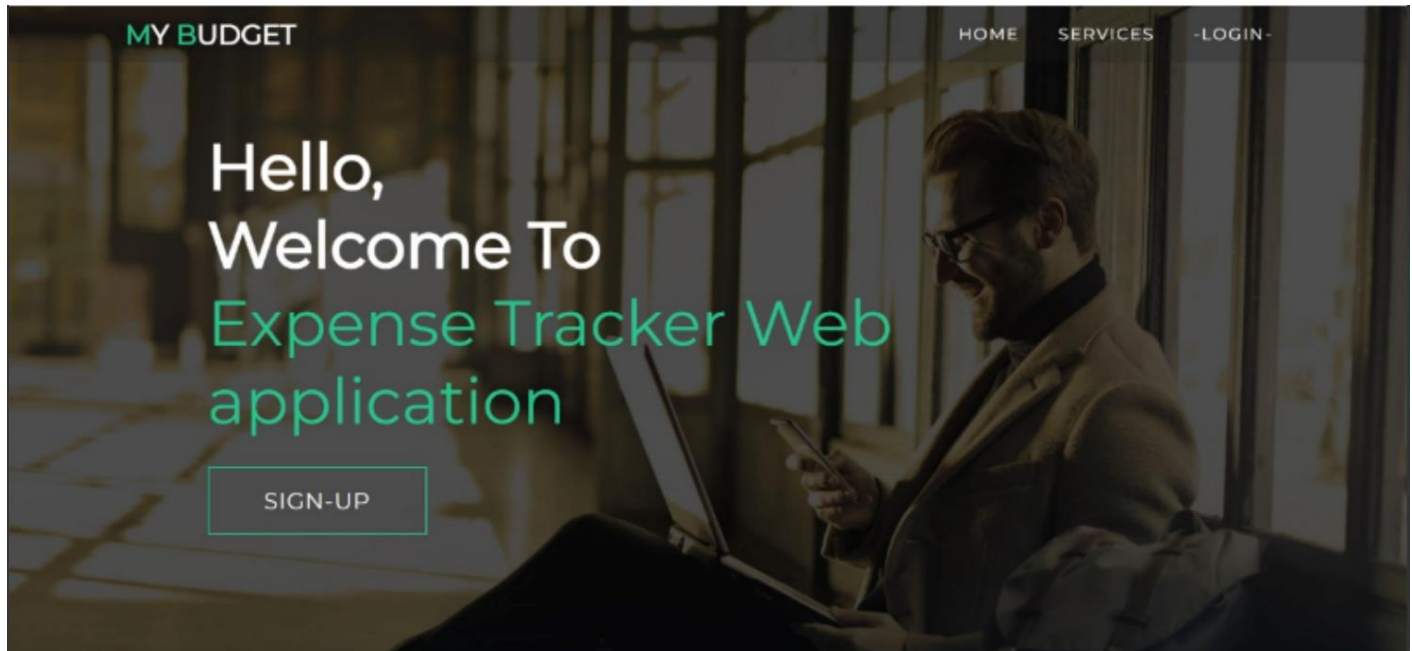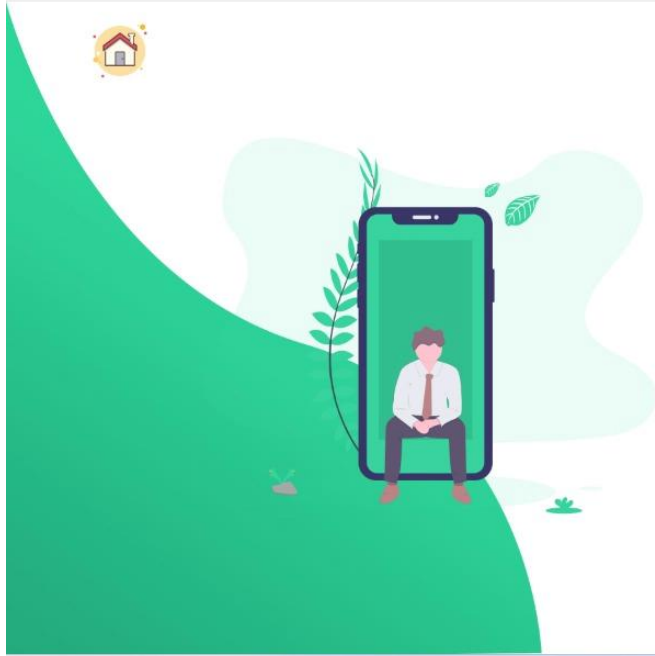
Register   ×   +

← → C   ▲ Not secure | 169.51.194.103:31356/signup

▶ YouTube   📍 Maps   ◯ IBM-EPBL/IBM-Proj...   🔳 Amazon QA Engine...   a Applications | Amaz...

REGISTER

👤 Username

👤 E-Mail

🔒 Password

CREATE ACCOUNT

I ALREADY HAVE AN ACCOUNT

Document   ×   +

← → C   ▲ Not secure | 169.51.194.103:31356/home

▶ YouTube   📍 Maps   ◯ IBM-EPBL/IBM-Proj...   🔳 Amazon QA Engine...   a Applications | Amaz...

MyBudget   Home   Add   History   LIMIT   Report ▼   Logout

LET START JOURNEY

Let's Begin>

Document   ×   +

← → C   ▲ Not secure | 169.51.194.103:31356/add

YouTube   Maps   IBM-EPBL/IBM-Proj...   Amazon QA Engine...   Applications | Amaz...

MyBudget   Home   Add   History   LIMIT   Report ▾   Logout

Add Expense

Date

| mm/dd/yyyy | 📅 |

Time

| --:-- -- | 🕐 |

Expense name

Expense Amount

Pay-Mode ▾

Category ▾

Add

Document   ×   +

← → C   ▲ Not secure | 169.51.194.103:31356/limitn

YouTube   Maps   IBM-EPBL/IBM-Proj...   Amazon QA Engine...   Applications | Amaz...

MyBudget   Home   Add   History   LIMIT   Report ▾   Logout

Currently your MONTHLY limit is ₹ (60000,)

ENTER the MONTHLY LIMIT to avoid over EXPENSES

| | **ENTER** |

```python
   1
   2
   3    from flask import Flask, render_template, request, redirect, session
   4
   5    import ibm_db
   6    import re
   7    import smtplib
   8    from email.mime.multipart import MIMEMultipart
   9    from email.mime.text import MIMEText
  10    from email.mime.base import MIMEBase
  11
  12
  13    app = Flask(__name__)
  14
  15
  16    app.secret_key = 'a'
  17
  18    conn=ibm_db.connect("")
  19
  20
  21
  22
  23    #HOME--PAGE
  24    @app.route("/home")
  25    def home():
  26        return render_template("homepage.html")
  27
  28    @app.route("/")
  29    def add():
  30        return render_template("home.html")
  31
  32
  33
  34    #SIGN--UP--OR--REGISTER
  35
  36
  37    @app.route("/signup")
```

```python
 126
 127
 128    #ADDING----DATA
 129
 130
 131    @app.route("/add")
 132    def adding():
 133        return render_template('add.html')
 134
 135
 136    @app.route('/addexpense',methods=['GET', 'POST'])
 137    def addexpense():
 138
 139        date = request.form['date']
 140        expensename = request.form['expensename']
 141        amount = request.form['amount']
 142        paymode = request.form['paymode']
 143        category = request.form['category']
 144        time=request.form['time']
 145
 146        sql = "INSERT INTO EXPENSES(USERID,DATE,EXPENSENAME,AMOUNT,PAYMENTMODE,CATEGORY,TIME) VALUES(?,?,?,?,?,?,?)"
 147        stmt = ibm_db.prepare(conn, sql)
 148        ibm_db.bind_param(stmt,1,session['id'])
 149        ibm_db.bind_param(stmt,2,date)
 150        ibm_db.bind_param(stmt,3,expensename)
 151        ibm_db.bind_param(stmt,4,amount)
 152        ibm_db.bind_param(stmt,5,paymode)
 153        ibm_db.bind_param(stmt,6,category)
 154        ibm_db.bind_param(stmt,7,time)
 155        ibm_db.execute(stmt)
 156
 157
```

10. ADVANTAGES AND DISADVANTAGES

Pros :

The art of money management is all about turning your money into wealth by reframing your mindset; instead of thinking of managing money in terms of just expenses, you should also think of money as an investment tool.

An expense tracking app is an exclusive suite of services for people who seek to handle their earnings and plan their expenses and savings efficiently. It helps you track all transactions like bills, refunds, payrolls, receipts, taxes, etc., on a daily, weekly, and monthly basis.

SOME OF THE FOLLOWING PROS :

❖ **On the go expense submission**

This helps eliminate the risk of error and allows them to focus on the more important tasks at hand

❖ **Access anywhere, anytime**

A mobile expense tracking app combined with a cloud-based database means that employees can submit, approve and access expense reports at any time, from anywhere. When all you need is an internet connection, this removes barriers to fulfilling tedious but necessary tasks such as expense submission.

❖ **No more data loss**

Traveling for work, even if it's by car just across the border, can be overwhelming at any time for employees, more so now with the different restrictions in place.

❖ **Real time approval and notifications**

Notifications help positively influence user behaviour and keep track of possibly suspicious activities.

❖ **Better spending awareness**

With paper-based processes, it is nearly impossible for your employees and managers to have a global view on spend. This would require additional work and spreadsheets, introducing the possibility for errors and forgetfulness.

It's instantaneous. The application will track all of your data for you. It doesn't do it once a week or once a month, like you might if you were doing it manually. All the information is automatically brought right into

your account as soon as it is available. That means that you have a day by day way of checking to ensure that you're on track and moving in the right direction.

CONS :

Creating a budget is an important part of ensuring your expense has the funding it needs to operate efficiently. However, sometimes a budget can present disadvantages that keep your expense from reaching its full potential.

In this , we look at some disadvantages and offer ways to overcome them.

- ❖ Determining the right process

- ❖ Feeling constrained

- ❖ Spending more than necessary

- ❖ Finding the time for it

- ❖ The risk of limited accessibility

- ❖ Security issues

- ❖ Lack of control of your data

Automating everything to do with your finances can make you financially lazy. If your bills are paid automatically and your finances are track automatically, then what is there left for you to do? Not a lot, to be honest. So you might stop caring about what you'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.

11.CONCLUSION

An expense tracker is a software or application that helps to keep an accurate record of your money inflow and outflow. When you track your spending, you know where your money goes and you can ensure that your money is used wisely. Tracking your expenditures also allows you to understand why you're in debt and how you got there. This will then help you design a befitting strategy of getting out of debt.

The new system has overcome most of the limitations of the existing system and works according to the design specification given. The project what we have developed is work more efficient than the other income and expense tracker. The project successfully avoids the manual calculation for avoiding calculating the income and expense per month. The modules are developed with efficient and also in an attractive manner. The developed systems dispense the problem and meet the needs of by providing reliable and comprehensive information. All the requirements projected by the user have been met by the system.

The newly developed system consumes less processing time and all the details are updated and processed immediately. Since the screen provides online help messages and is very user friendly, any user will get familiarized with its usage. Module s are designed to be highly flexible so that any failure requirements can be easily added to the modules without facing many problems. The best organizations have a way of tracking and handling these reimbursements. This ideal practice guarantees that the expenses tracked are accurately and in a timely
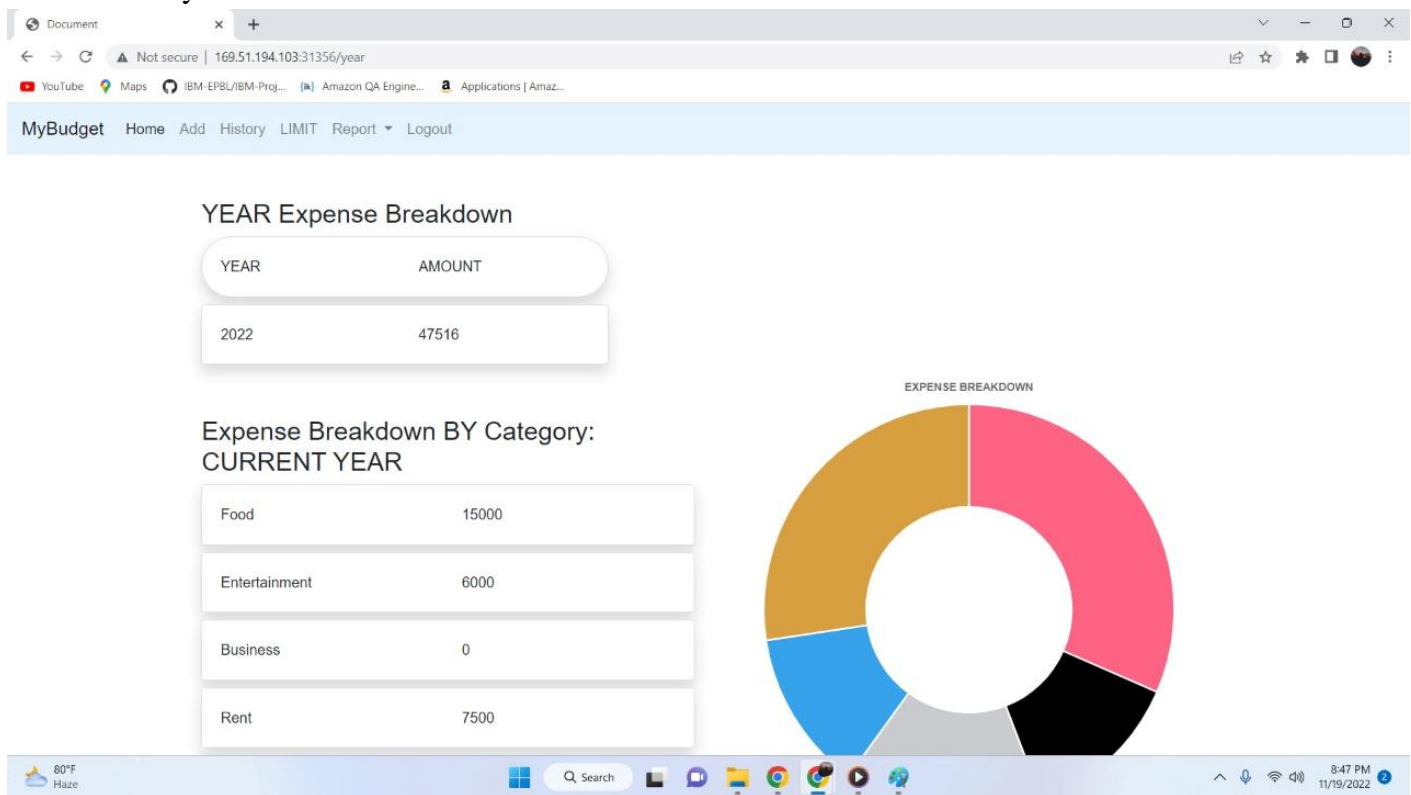
12. FUTURE SCOPE

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

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

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

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

13.APPENDIX

GitHub & Project Demo Link :

[IBM-EPBL/IBM-Project-26003-1659979334: Personal Expense Tracker Application (github.com)](IBM-EPBL/IBM-Project-26003-1659979334)