PERSONAL EXPENSE TRACKER APPLICATION

Team ID: PNT2022TMID46680

A PROJECT REPORT

Submitted By

AVUDAIAPPAN.A.B

GOVINDHARAJAN.K

MOHAMED YASIR.A

RAMAKRISHNAN.E

BACHELOR OF ENGINEERING

IN

COMPUTER SCIENCE AND ENGINEERING

KINGS COLLEGE OF ENGINEERING
PUNALKULAM

ANNA UNIVERSITY: CHENNAI 600 025
NOV / DEC 2022

TABLE OF CONTENTS

1. INTRODUCTION

a. Project Overview

Personal ExpenseTracker

Category: Cloud App Development.

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 help you with budgeting and accounting and give you helpfulinsights into money management.

Personal finance applications will ask users to add their expenses and based on their expense's wallet balance will be updatedwhich will be visible to the user.Also, users can get an analysis of their expenditures in graphical forms. They have the 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.

b. PURPOSE

Personal finance management is an importantpart of people's lives. However, everyone does not have the knowledge or time to manage theirfinances properly. 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 access an expense tracker to help manage your finances. Also known as an 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 they don't have sufficient money towards the end of the month to meet their needs. While this problem can arise due to low salary, invariably it is due to poor money management skills.

People tend to overspend without realizing it, which can be disastrous. Using a daily expense manager can help you keep track of how much you spendevery day and on what.

Atthe end of the month,you will have a clear picture of where your money is going. This is one of the best ways to get your expensesunder control and bring some semblance of order to your finances.

Today, there are several expense manager applications in the market.Some are paid managers while others are free. Even banks like ICICI offer their customers expense trackers to help them out. Before you go in for a money manager, deciding the typeyou want is important.

1. LITERATURE SURVEY

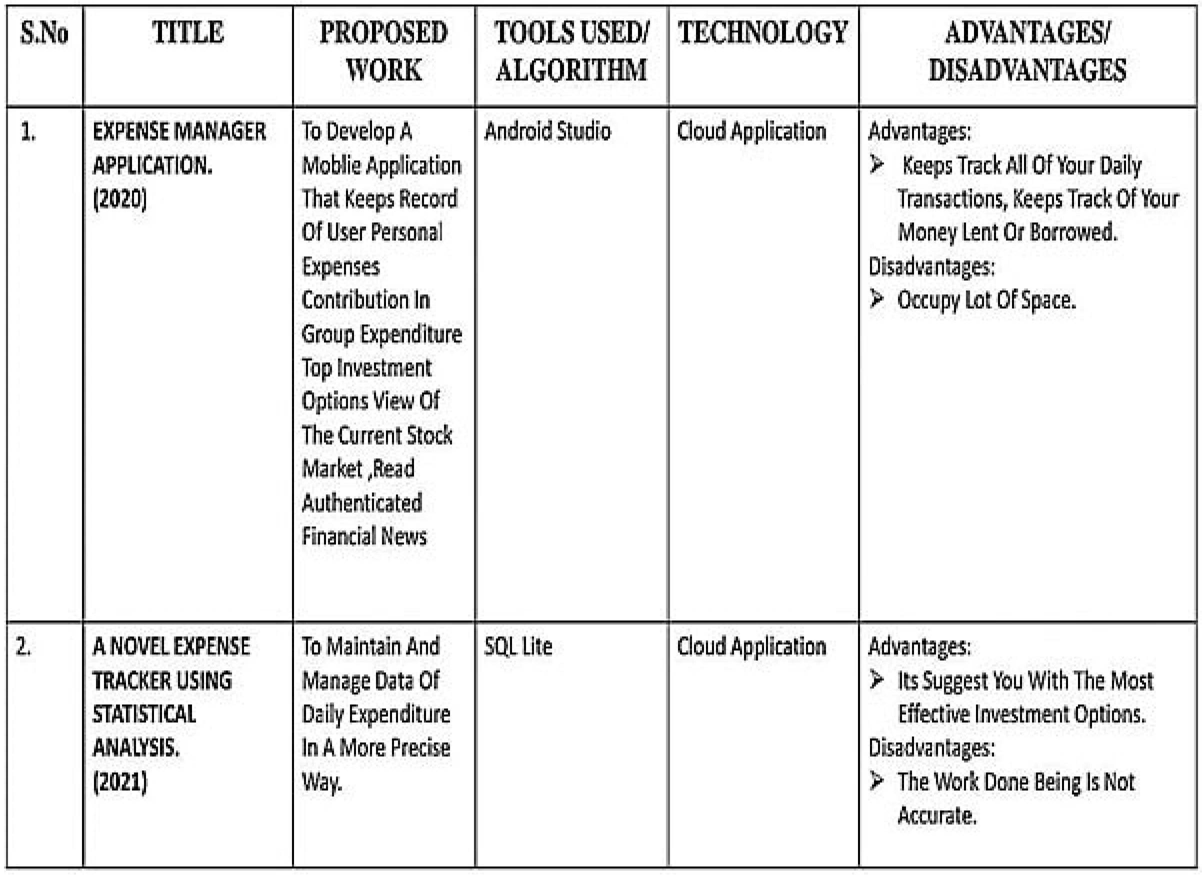
a. Existing Problem

In a study conducted by Forrester in 2016 surveying small and medium businesses (SMBs) across the world, 56% of companiesreported expense management as being the biggest challenge for their financedepartments.

Inanother survey conductedby Level Researchin 2018 in North America,respondents reported the following pain points in expense management before adopting automation:

- Manual entry and routingof expense reports(62%)
- Lack of visibility into spending data (42%)
- Inability to enforce travel policies (29%)
- Lost expensereports (24%)
- Lengthy expenseapproval system and reimbursement cycles(23%)

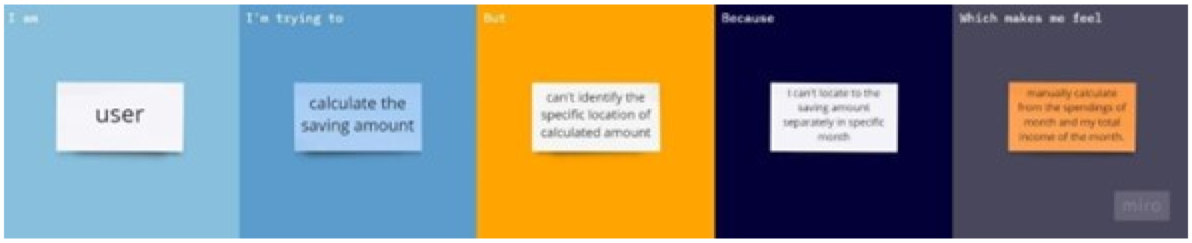
References



S.No	TITLE	PROPOSED WORK	TOOLS USED/ ALGORITHM	TECHNOLOGY	ADVANTAGES/ DISADVANTAGES
1.	EXPENSE MANAGER APPLICATION. (2020)	To Develop A Moblie Application That Keeps Record Of User Personal Expenses Contribution In Group Expenditure Top Investment Options View Of The Current Stock Market ,Read Authenticated Financial News	Android Studio	Cloud Application	Advantages: ➢ Keeps Track All Of Your Daily Transactions, Keeps Track Of Your Money Lent Or Borrowed. Disadvantages: ➢ Occupy Lot Of Space.
2.	A NOVEL EXPENSE TRACKER USING STATISTICAL ANALYSIS. (2021)	To Maintain And Manage Data Of Daily Expenditure In A More Precise Way.	SQL Lite	Cloud Application	Advantages: ➢ Its Suggest You With The Most Effective Investment Options. Disadvantages: ➢ The Work Done Being Is Not Accurate.

3.	**EXPENSE TRACKER. (2021)**	Facilitates The User To Keep Track And Manage Their Personal As Well As Business Expenses.	Android OS	Cloud Application	Advantages: ➢ Become Aware Of Poor Spending Habits And Take Care Of Your Finances Saving And Investment. Disadvantages: ➢ Searching And Referencing Is Difficult And Time-consuming.
4.	**EXPENSE TRACKER. (May 2021)**	The Application Keeps The Track Of The Income And Expenses Both Of User On A Day To Day Bases	Java	Cloud Application	Advantages: ➢ The Project Effectively Keeps Away From The Manual Figuring. Disadvantages: ➢ Report Generation Is A Tedious Process.

Problem Statement Definition


I am
user
I'm trying to
calculate the saving amount
But
can't identify the specific location of calculated amount
Because
I can't locate to the saving amount separately in specific month
Which makes me feel
manually calculate from the spendings of month and my total income of the month.
miro

All the financial decisions and activities that you make are unable to keepa track of it. This application makes your life easier by helping you to manage your finances efficiently. A personal finance application will help you with budgeting and accounting and give you helpful insightsinto financial management.

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 yourfinances efficiently.

A personal finance app will help you with budgeting and accounting and give you helpful insightsinto money management. Personal finance applications will ask users to add their expenses and based on their expense's wallet balance will be updated which will be visible to the user.

Also, users can get an analysis of their expenditures in graphical forms. They have the option to set a limit for the amount to be used for that particular month ifthe limit is exceeded the user will be notified with an email alert.

1. Who does the problemaffect?

The user does not know how to manage their daily expenses manually. Does not have enough knowledge in budget handling. To the person who does not have a limit on spending money. The group that is facing the problem is the users currently facing issues in saving money.Most people would not have madeup their minds about how to save money.

2. What are the boundaries of the problem?

A person who is above 16, starts spending money for their needs because below 16 people do not need much money to be spent. Illiterates or people who are not educated much find it difficult to track their expenses. The boundaries will be based on the individual’s ratio and also the available applications that areavailable to choose from and continue for the next fewyears.

Theperson should set some boundaryvalues based on the income for eachexpenditure. This way the boundaries extend to effectively manage the expenses.

3. What is the issue?

Thepeople who are struggling to find a better way to manage their expenses are the major issue and the problem that requires a better solution thatshould include the issues that are left out by the most available solutions in day- to-daylife. The project should find the user’s abilityto admit to the desiredmoneymanagement for the savings that they have earned.

Theimpact that the issue makes current days is that there is huge confusion about getting a good application that is available. The failure is unable to get a suitable expense tracker makes the users lose hope and unwillingly buy productsin EMI rather than the ones they had wished to carry.

This impact makes the lose theirmental stability and puts them under a lot of pressure of being unable to find a better way to save money. This has been in a state of not being able to fully recover from the problemthat is quite been therefor more than a decade. There are solutions to overcome this issue but, every solution that has been developed towards this had a flaw in any one of the thingsthat are present in their ideas.

This issue needs a complete fix that is by analysing the expenses to that of the income-expenditure that is been spent by the users. This way the issue gets slowly fixed and the users will not have any issues in setting their limits for spending money daily or monthly or sometimes losing them based on theunwanted expenditure.

Theissue will be continuing to persist even if the project has been implemented. But still, the users will be even more cautiousin selecting the right Personal expense application. Users if the issue is not solved then we will be suffering to find the expense tracker as it was before. So, the issue needs to be maintained at the earliest so that the users can concentrate on their day-to-day expenses and savings instead of searching for other ways.

1. When does the issue occur?

An issue occurs in expense trackingwhen there is a lack of control overthe day-to-day expenses. The absence of clearly definedspending limits is one ofthe biggestfrustrations when overseeing a person's expensemanagement process.There are expenses you cannot avoid. If you use the 50/30/20 budget, these should accountfor 50% of your spending.Necessities often includethe following:

a. Healthcare: Health insurance; out-of-pocket medical costs.
b. Life insurance
c. Child care
d. Student loan payment

1. Where is the issue occurring?

The issue occurs when the user does not keep track of their expenses and day-to-day expenditures. For instance, if the user does not have enoughmoney in his/her account or wallet, but tends to buy products beyondthe budget list (buying unnecessary products/materials/things unknowingly), he might end up in troubleand disappointed.

So,in this situation, this personalexpense tracker application will help the users by s sending notifications on a timelybasis.

Some of the necessities that cannot avoid:

a. Housing: Mortgage or rent
b. Transportation: Car payment,gas, maintenance, and auto insurance.
c. Utilities: Electricity, water,cell phone bills.

2. Why is it important that we fix the problem?

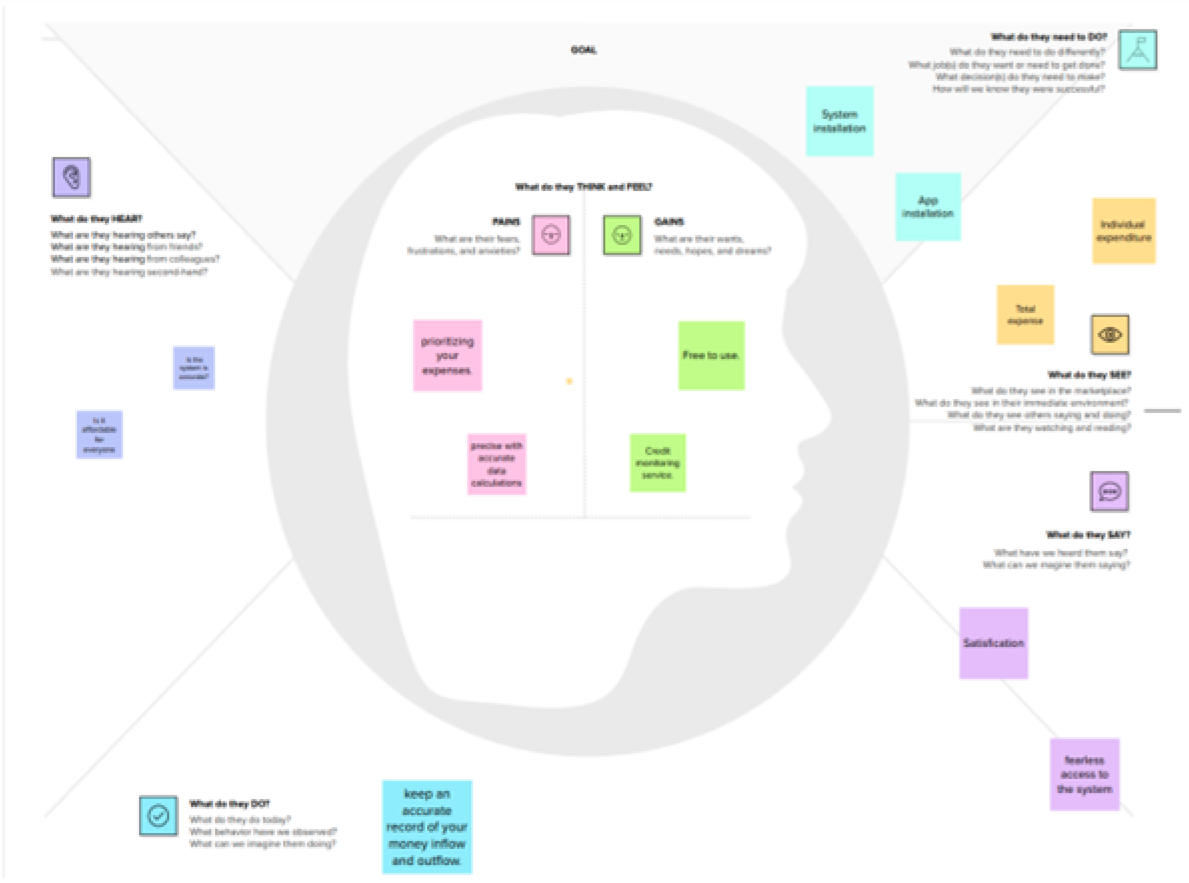
When you track your spending, you know where your money goes and you can ensure that your money is used wisely. Tracking your expenditures also allows you to understand why you're in debt and how you got there. This will then help you design a befitting strategy for getting out of debt.

Themain reason you should track your expensesis to identify and eliminate wasteful spending habits in your financial life. Moreover, consistently tracking your expenses will help you maintain control of your finances, and promotebetter financial habits like saving and investing.

When you start tracking expenses, you can separate your spending into three categories: needs, wants,and savings. Trackingyour spending regularlycan give you an accurate picture of where your money is going – and where you should like it to go instead.

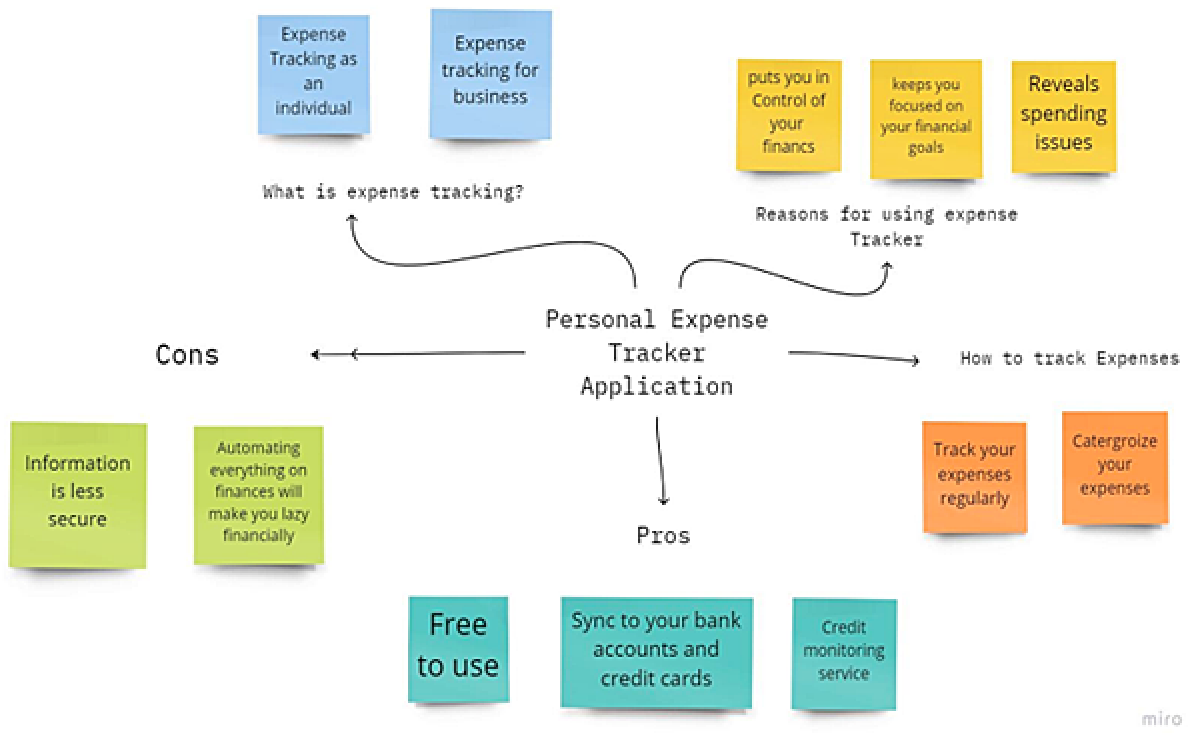
1. IDEATION & PROPOSEDSOLUTION

a. Empathy Map Canvas

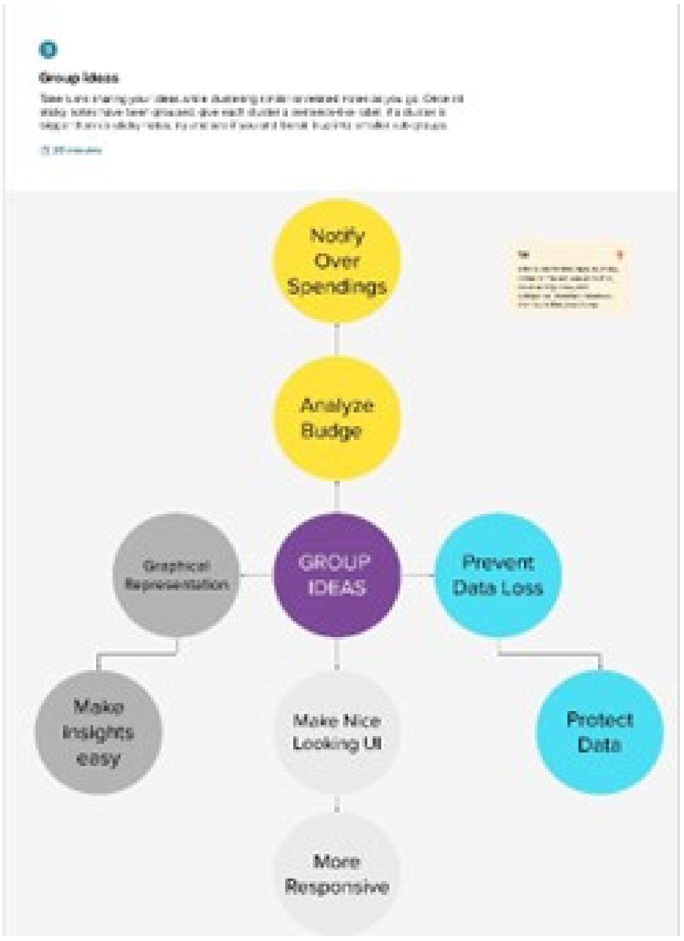

GOAL
What do they need to DO?
What do they need to do differently?
What job(s) do they want or need to get done?
What decision(s) do they need to make?
How will we know they were successful?
System installation
App installation
Individual expenditure
Total expense
What do they SEE?
What do they see in the marketplace?
What do they see in their immediate environment?
What do they see others saying and doing?
What are they watching and reading?
What do they SAY?
What have we heard them say?
What can we imagine them saying?
Satisfication
fearless access to the system
What do they THINK and FEEL?
PAINS
What are their fears, frustrations, and anxieties?
GAINS
What are their wants, needs, hopes, and dreams?
prioritizing your expenses.
precise with accurate data calculations
Free to use.
Credit monitoring service.
What do they HEAR?
What are they hearing others say?
What are they hearing from friends?
What are they hearing from colleagues?
What are they hearing second-hand?
Is the system is accurate?
Is it affordable for everyone
What do they DO?
What do they do today?
What behavior have we observed?
What can we imagine them doing?
keep an accurate record of your money inflow and outflow.

Ideation & Brainstorming

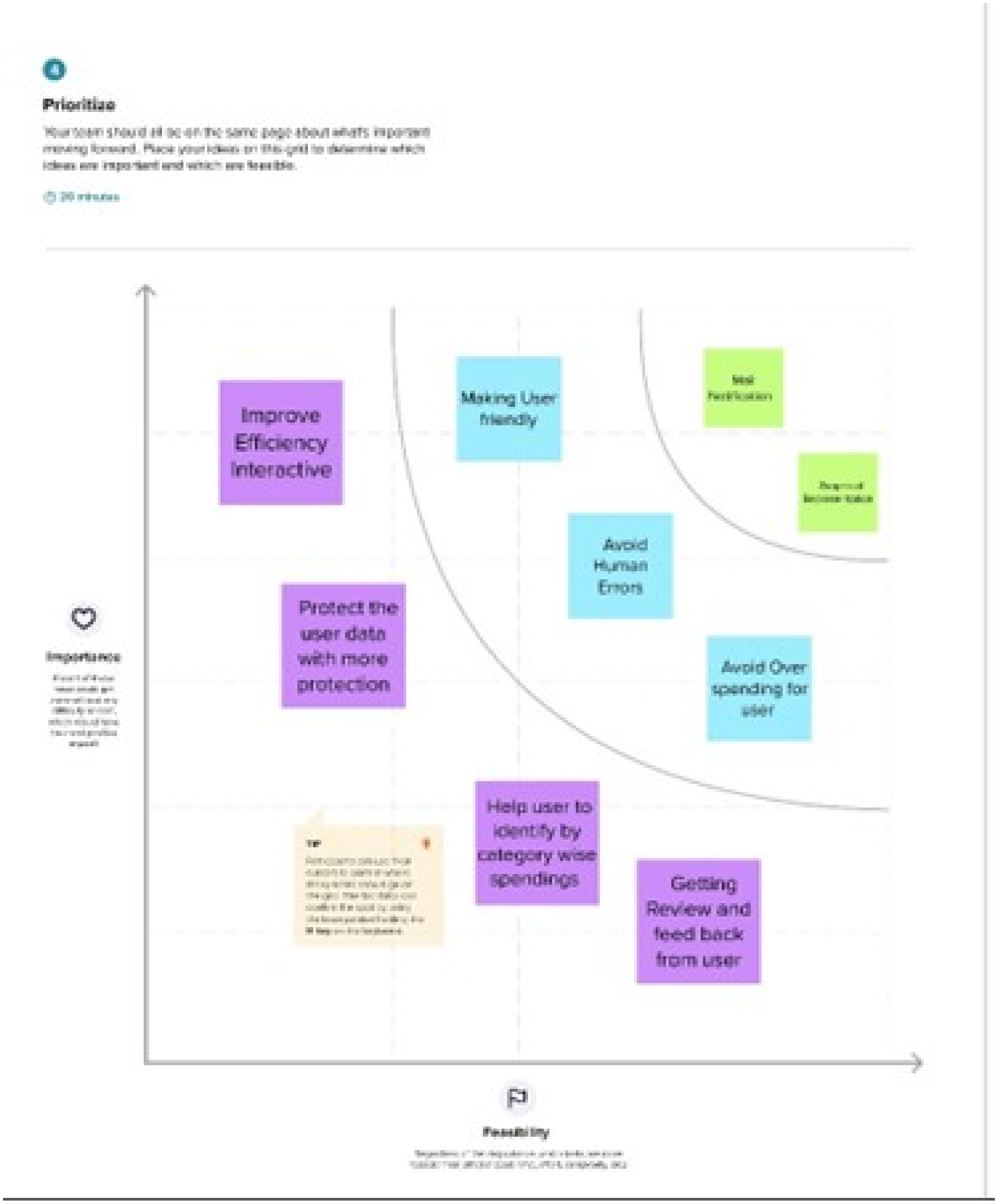
Step-1: Team Gathering, Collaboration and Select the Problem Statement


Expense Tracking as an individual
Expense tracking for business
What is expense tracking?
puts you in Control of your financs
keeps you focused on your financial goals
Reveals spending issues
Reasons for using expense Tracker
Cons
Personal Expense Tracker Application
How to track Expenses
Information is less secure
Automating everything on finances will make you lazy financially
Track your expenses regularly
Catergroize your expenses
Pros
Free to use
Sync to your bank accounts and credit cards
Credit monitoring service
miro

Step 2: Brainstorm, Idea Listing, and Grouping



Step-3: Idea Prioritization



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

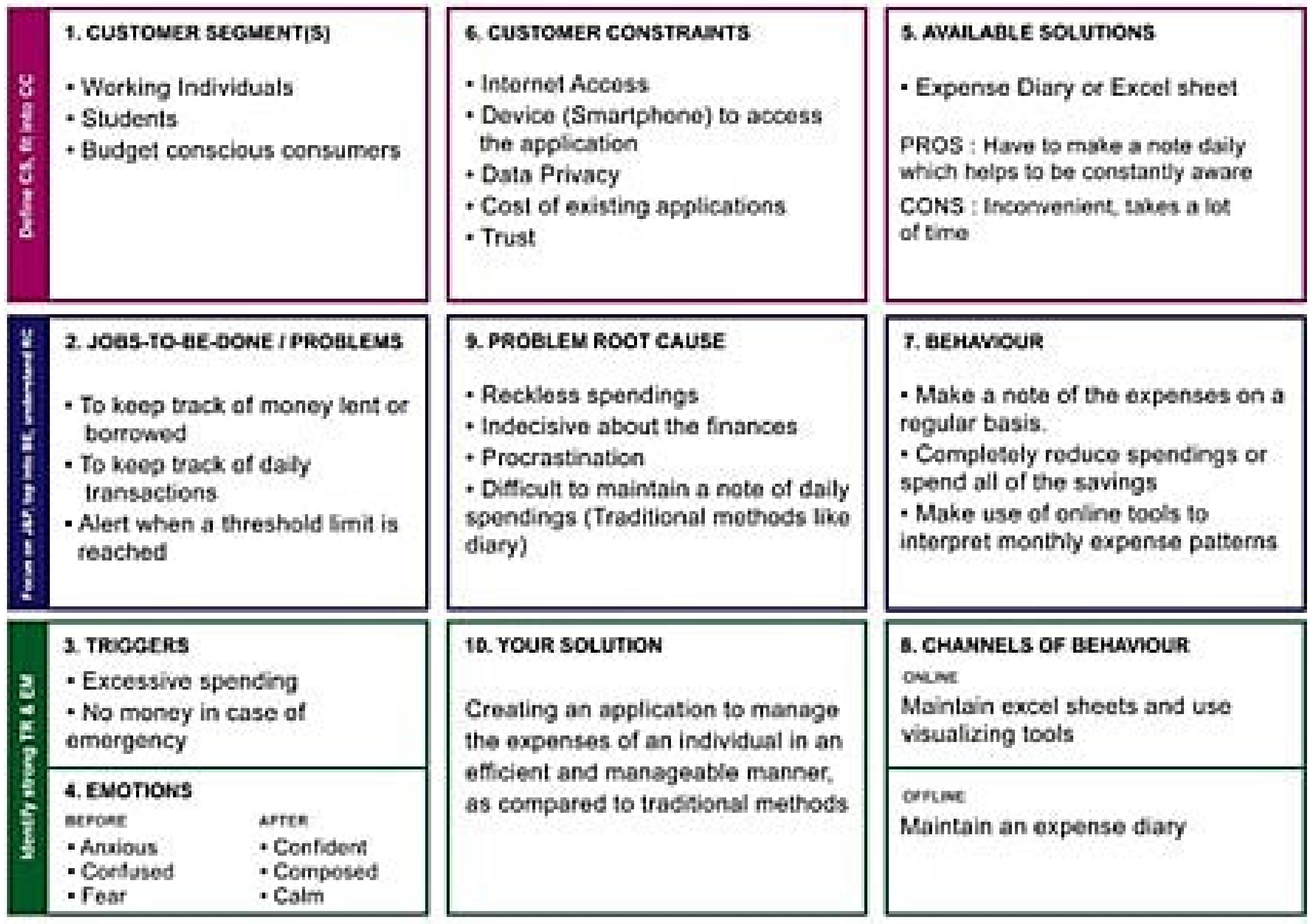
Improve Efficiency Interactive
Making User friendly
Protect the user data with more protection
Avoid Human Errors
Avoid Over spending for user
Help user to identify by category wise spendings
Getting Review and feed back from user
TIP
Importance
Feasibility

Proposed Solution

S. No	Parameter	Description
1	Problem Statement (Problem tobe solved)	• To digitalize the records of theexpenses of the user. • Generally, people are not aware of some of the expensesand end up in debt.
2	Idea / Solution Description	• An application is designed to monitor income and manage expenses. • The income and the expensecan be represented in a graphical manner.
3	Novelty / Uniqueness	• An alert can be sent to the userif the expense is reached the threshold limit. • A notification will be sent to the user if the user didn’t enterthe datafor a particular period.

4	Social Impact / CustomerSatisfaction	• The user can keep track of theexpense and manage the money accordingly. • The users can refer to the expense and balance amount anytime they want by their phone.
5	Business Model (RevenueModel)	• In-app advertisements will generate revenue. • Users can use our applicationwithout advertisement by subscribing to our premium plans.
6	Scalability of the Solution	• A large number of users can behandled in our application. • The scalability can be easily achieved sincewe using cloudtechnology.

Problem Solution fit



Define CS, fit into CC

1. CUSTOMER SEGMENT(S)

- Working Individuals
- Students
- Budget conscious consumers

6. CUSTOMER CONSTRAINTS

- Internet Access
- Device (Smartphone) to access the application
- Data Privacy
- Cost of existing applications
- Trust

5. AVAILABLE SOLUTIONS

- Expense Diary or Excel sheet

PROS : Have to make a note daily which helps to be constantly aware

CONS : Inconvenient, takes a lot of time

Focus on J&P, tap into BE, understand RC

2. JOBS-TO-BE-DONE / PROBLEMS

- To keep track of money lent or borrowed
- To keep track of daily transactions
- Alert when a threshold limit is reached

9. PROBLEM ROOT CAUSE

- Reckless spendings
- Indecisive about the finances
- Procrastination
- Difficult to maintain a note of daily spendings (Traditional methods like diary)

7. BEHAVIOUR

- Make a note of the expenses on a regular basis.
- Completely reduce spendings or spend all of the savings
- Make use of online tools to interpret monthly expense patterns

Identify strong TR & EM

3. TRIGGERS

- Excessive spending
- No money in case of emergency

4. EMOTIONS

BEFORE	AFTER
• Anxious	• Confident
• Confused	• Composed
• Fear	• Calm

10. YOUR SOLUTION

Creating an application to manage the expenses of an individual in an efficient and manageable manner, as compared to traditional methods

8. CHANNELS OF BEHAVIOUR

ONLINE

Maintain excel sheets and use visualizing tools

OFFLINE

Maintain an expense diary

REQUIREMENT ANALYSIS

Functional Requirements:

Following are the functional requirements of the proposed solution.

FR	**Functional Requirements (Epic)**	**Sub Requirement (Story / Sub-Task)**
FR-1	User Registration	Registration via g-mail or phone number
FR-2	User Confirmation	● Confirmation via OTP ● Confirmation via g-mail
FR-3	Tracking of expenses	The user can keep track of his/her expenses
FR-4	Notify of recurring expenses	The user gets a notification for his/her monthlyrecurring expenses
FR-5	Recommend investment ideas	Recommending ideasbased on their expenses, salary,etc.
FR-6	Alert on overspending	It gives an alert message if the user spends morethan his budget.

a. Non-Functional Requirements:

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

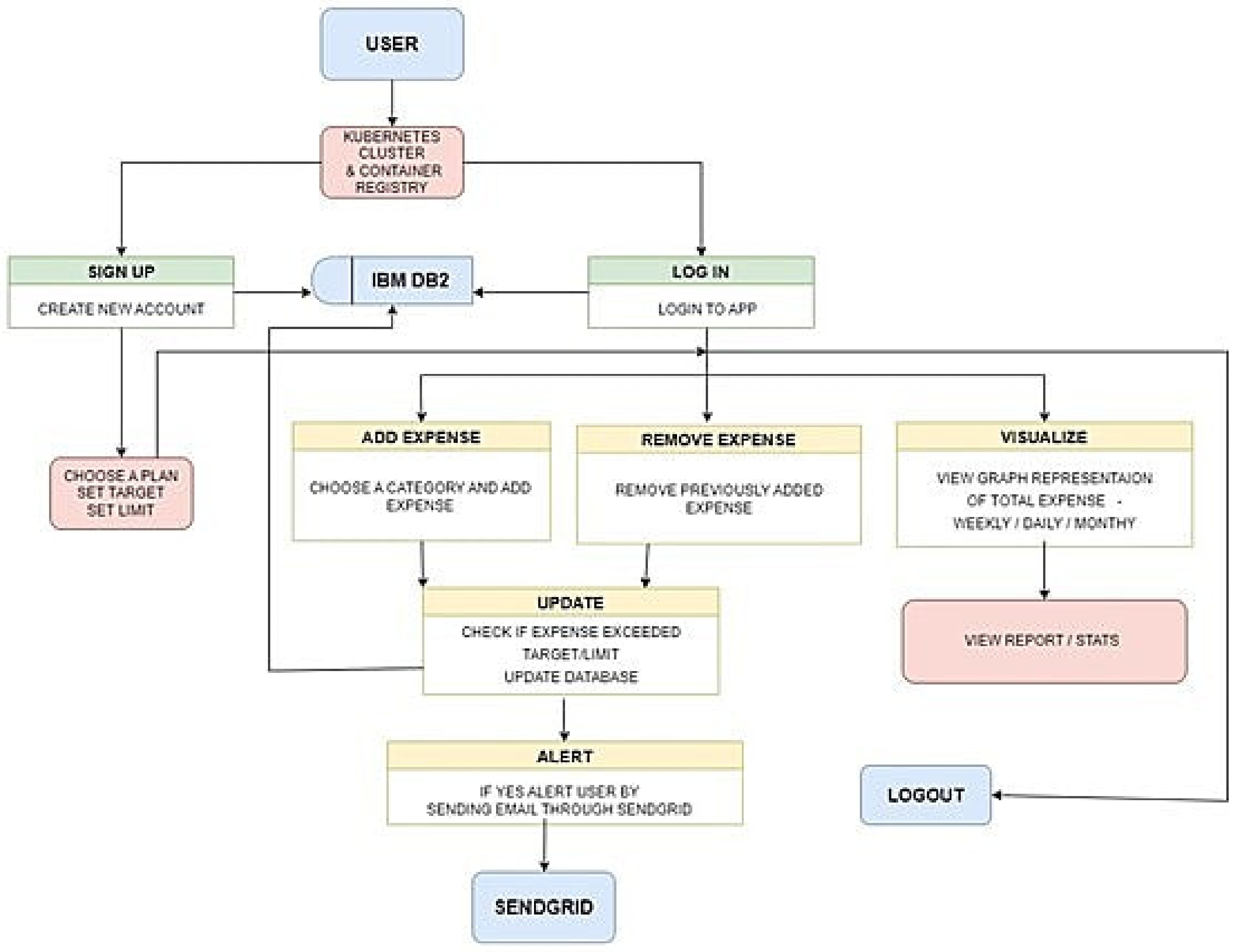
NFR	**Non-Functional Requirements**	**Description**

NFR-1	Usability	It is very user-friendly since they can easily store theirexpense details.
NFR-2	Security	It can be accessed only by the authorized user with the registered logincredentials.

NFR-3	Reliability	The user can keeptrack of his/her expenses
NFR-4	Performance	The system performs well in reporting the expenses, reminders, alerts, etc.
NFR-5	Availability	The expense tracker application can be accessed at any time.
NFR-6	Scalability	The application will havea data backup mechanism.

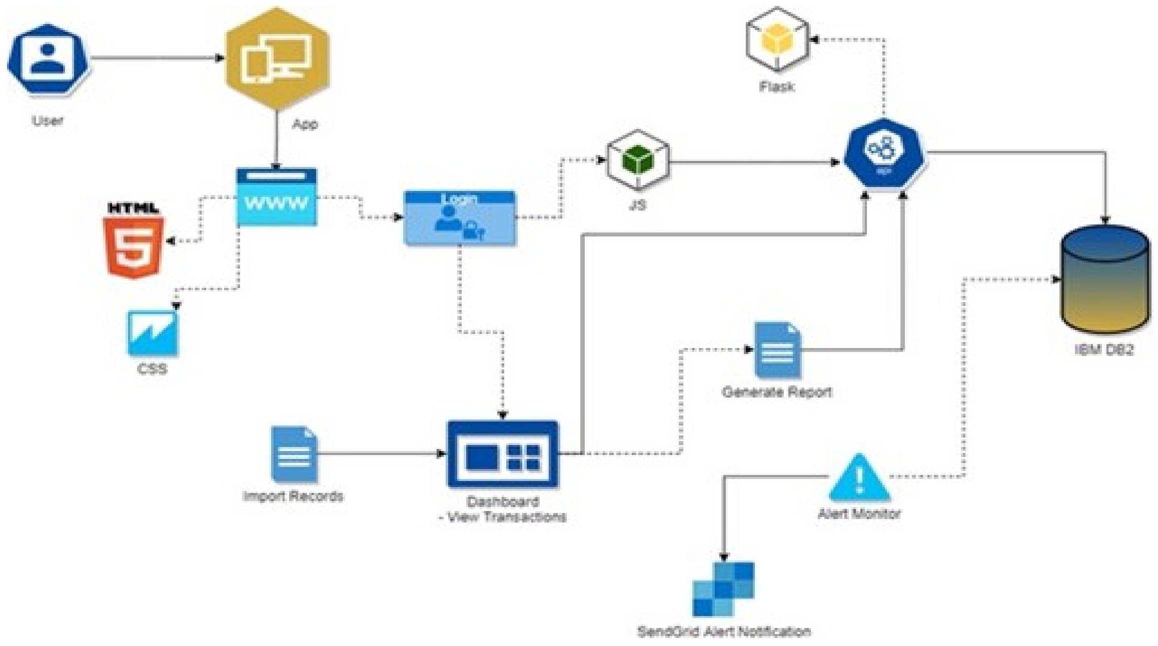
PROJECT DESIGN

Data Flow Diagrams

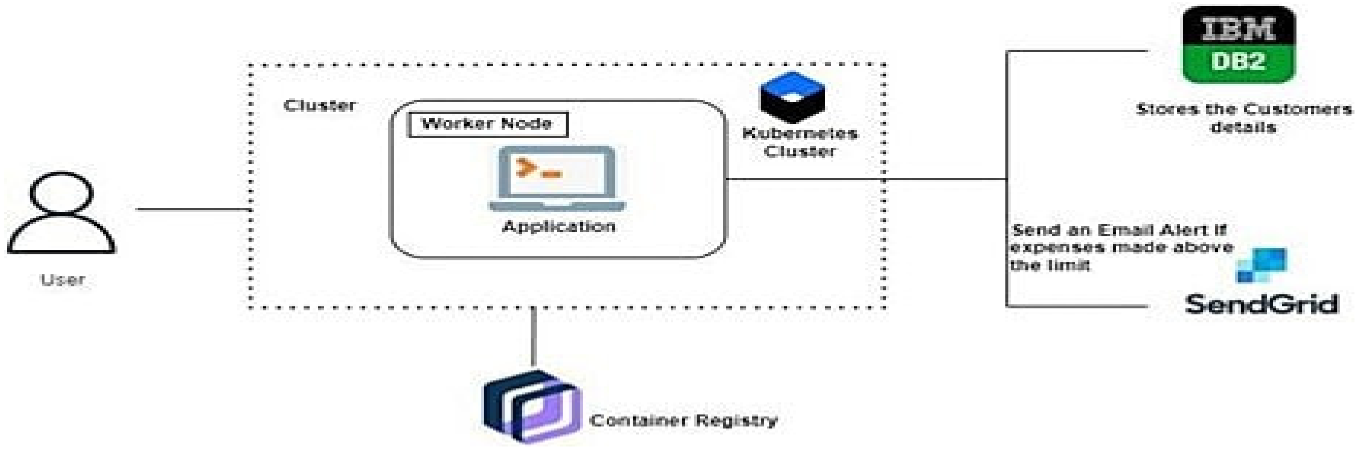

USER
KUBERNETES CLUSTER & CONTAINER REGISTRY
SIGN UP
CREATE NEW ACCOUNT
IBM DB2
LOG IN
LOGIN TO APP
CHOOSE A PLAN
SET TARGET
SET LIMIT
ADD EXPENSE
CHOOSE A CATEGORY AND ADD EXPENSE
REMOVE EXPENSE
REMOVE PREVIOUSLY ADDED EXPENSE
VISUALIZE
VIEW GRAPH REPRESENTAION OF TOTAL EXPENSE - WEEKLY / DAILY / MONTHY
UPDATE
CHECK IF EXPENSE EXCEEDED TARGET/LIMIT
UPDATE DATABASE
VIEW REPORT / STATS
ALERT
IF YES ALERT USER BY SENDING EMAIL THROUGH SENDGRID
LOGOUT
SENDGRID

Solution & Technical Architecture

Solution Architecture:



Technical Architecture:



User Stories

User Type	Functional Requirement (Epic)	User Story Number	User Story/ Task
Customer (Mobile user)	Registration	USN-1	As a user, I can register for theapplication by entering my email, and password, and confirming my password.
	Login	USN-2	As a user, I can log into theapplication by entering my email & password.
	Add	USN -3	As a user,I can add in new expenses.
	Remove	USN – 4	As a user,I can remove previously addedexpenses.
	View	USN - 5	As a user, I can view my expenses in the formof graphs and get insights.
	Get alert message	USN - 6	As a user, I will get alert messages if I exceedmy target amount.
Administrator	Add/remove user	USN – 7	As an admin, I can add or remove user details on db2manually.

		USN - 8	As an admin, I can add or remove user details onSendGrid.

PROJECT PLANNING & SCHEDULING

Sprint Planning & Estimation

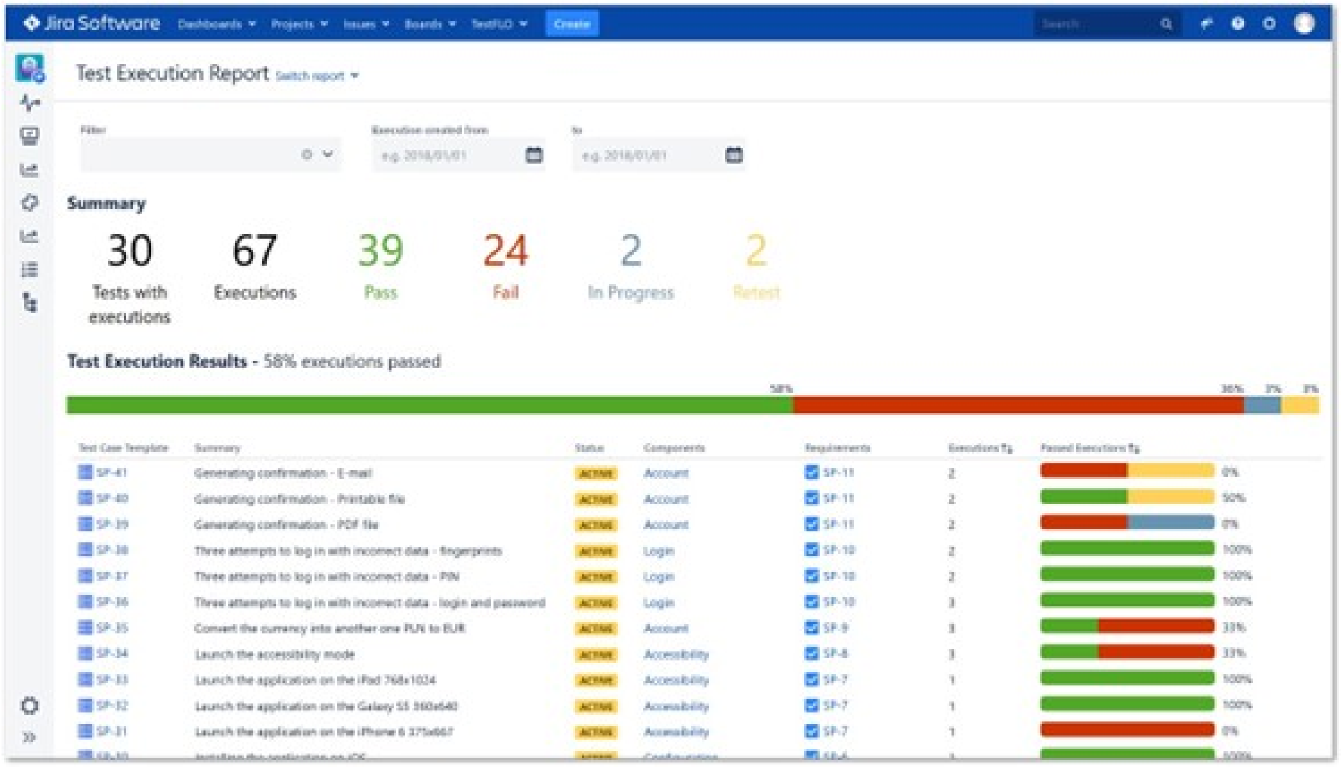
Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
1	Registration	USN 1	As a user,I can register for the application by entering my email, and password, and confirming my password.	2	High	NanthaKumar

		USN 2	As a user,I will receive a confirmation email once I have registered for the application	1	High	Nafil Arzzam
	Login	USN 3	As a user,I can log into the application by entering my email & password	2	High	Praveen
	Registration	USN 4	Logging in takes to the dashboard for the logged user.	1	High	Christopher Raj

Sprint Delivery Schedule

Sprint	Story Points	Duration	Start Date	End Date	Story Points complete	Sprint Release Date
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

Reports from Jira



Test Execution Report

Summary

30 Tests with executions
67 Executions
39 Pass
24 Fail
2 In Progress
2 Retest

Test Execution Results - 58% executions passed

58% 36% 3% 3%

Test Case Template	Summary	Status	Components	Requirements	Executions	Passed Executions
SP-41	Generating confirmation - E-mail	ACTIVE	Account	SP-11	2	0%
SP-40	Generating confirmation - Printable file	ACTIVE	Account	SP-11	2	50%
SP-39	Generating confirmation - PDF file	ACTIVE	Account	SP-11	2	0%
SP-38	Three attempts to log in with incorrect data - fingerprints	ACTIVE	Login	SP-10	2	100%
SP-37	Three attempts to log in with incorrect data - PIN	ACTIVE	Login	SP-10	2	100%
SP-36	Three attempts to log in with incorrect data - login and password	ACTIVE	Login	SP-10	3	100%
SP-35	Convert the currency into another one PLN to EUR	ACTIVE	Account	SP-9	3	33%
SP-34	Launch the accessibility mode	ACTIVE	Accessibility	SP-8	3	33%
SP-33	Launch the application on the iPad 768x1024	ACTIVE	Accessibility	SP-7	1	100%
SP-32	Launch the application on the Galaxy S5 360x640	ACTIVE	Accessibility	SP-7	1	100%
SP-31	Launch the application on the iPhone 6 375x667	ACTIVE	Accessibility	SP-7	1	0%
SP-30	Installing the application on iOS	ACTIVE	Configuration	SP-6	1	100%

CODING & SOLUTIONING

i. **Feature 1:** Add Expense
ii. **Feature 2:** Update expense
iii. **Feature 3:** Delete Expense
iv. **Feature 4:** Set Limit
v. **Feature 5:** Send Alert Emails to users

Feature 2

- Track your expenses anywhere, anytime. Seamlessly manage your moneyand budget without any financialpaperwork.
- Just click and submit your invoices and expenditures. Access, submit, andapprove invoicesirrespective of time and location.
- Avoid data loss by scanning your tickets and bills and them saving in theapp.
- Approval of bills and expenditures in real-time and get notifiedinstantly.
- Quick settlement of claims and reduced human errors with an automatedand streamlined billing process.

TESTING

TEST CASES

i. Login Page (Functional)
ii. Login Page (UI)

Add ExpensePage (Functional)

USER ACCEPTANCE TESTING

1. **Purpose of the document**

The purpose of this document is to briefly explain the test coverage and openissues of the Personal Expense Tracker project at the time of the release to User Acceptance Testing(UAT).

RESULTS

a. **Tracking income and expenses:** Monitoring the income and tracking

all expenditures (through bank accounts, mobile wallets, and credit & debit cards).

b. **Transaction Receipts:** Capture and organize your payment receipts to keep track of your expenditure.
c. **Organizing Taxes:** Import your documents to the expense tracking app, and it will streamline your income and expenses under the appropriate tax categories.
d. **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.
e. **Reports:** The expense tracking app generates and sends reports to give a detailed insight about profits,losses, budgets, income,balance sheets, etc.,

ADVANTAGES AND DISADVANTAGES

Advantages:

One of the major pros of tracking spending is always being aware of the state of one's finances. Tracking what you spend can help you stick to your budget, not just in a general way, but in each category such as housing, food, transportation, and gifts.

While a con is that manuallytracking all cash that is spent can be irritating as well as time-consuming, a pro is that doing this automatically can be quick andsimple.

Another pro is that many automatic spending-tracking software programs are available for free.

Having the program on a hand-held device can be a main pro since it can be checked before spending occurs to be sure of the available budget.

Another pro is that for those who just wish to keep tracking spending by hand with paper and pen or by entering data onto a computer spreadsheet, these options are also available.

Some people like to keep a file folder or box to store receipts and record the cash spent each day. A pro of this simple daily tracking system is that it can make one more aware of where the money is going way before the end of a pay period or month.

Disadvantages:

A con with any system used to track spending is that one may start doing it and then taper off untilit's forgotten about altogether. Yet, this is a risk for anynew goal such as trying to lose weight or quit smoking.

If a person first makes a budget plan, then places money in savings beforespending any each new pay period ormonth, the trackinggoal can help.

In this way, tracking spending and making sure all receipts are accounted for only needs to be done once or twice a month.

Even with constant trackingof one's spendinghabits, there is no guaranteethat financial goals will be met.

Although this can be considered to be a con of tracking spending, it could be changed into a pro if one makes up his or her mind to keep trying to properlymanageall finances.

Another con that may occur when spending is being trackedis an error, butthismay also be able to be changedinto a pro if the person does regular tracking

Frequent tracking of cash spending can allow one to catch and correct errors so that the budget plan is still able to be adhered to despite the mistake.

CONCLUSION

A comprehensive money management strategy requires clarity andconviction for decision-making.

You will need a defined goal and a clear vision for grasping the business andpersonal finances.That’s when an expense trackingapp comes into the picture.

An expense tracking app is an exclusive suite of services for people who seek to handle their earnings and plan theirexpenses and savingsefficiently.

It helps you track all transactions like bills, refunds, payrolls, receipts, taxes,etc., on a daily,weekly, and monthlybasis.

13 APPENDIXES:

SOURCE CODE:

```
from flask import Flask, render_template, request, redirect, session

import ibm_db

import re

import smtplib

from email.mime.multipart import MIMEMultipart

from email.mime.text import MIMEText

from email.mime.base import MIMEBase

app = Flask(__name__

app.secret_key = 'a'

conn=ibm_db.connect("DATABASE=bludb;HOSTNAME=824dfd4d-99de-440d-9991-
629c01b3832d.bs2io90l08kqb1od8lcg.databases.appdomain.cloud;PORT=30119;SECURITY=SSL;SSLS
erverCertificate=DigiCertGlobalRootCA.crt;UID=mtq37014;PWD=W4Sam6RCrj9zDrfD;",",")
```

```
#HOME--PAGE

@app.route("/home")

def home():

    return render_template("homepage.html")

@app.route("/")

def add():

    return render_template("home.html")



#SIGN--UP--OR--REGISTER

@app.route("/signup")

def signup():

    return render_template("signup.html")

@app.route('/register', methods =['GET', 'POST'])

def register():

    msg = ''

    if request.method == 'POST' :

        username = request.form['username']

        email = request.form['email']

        password = request.form['password']
```

```
sql = "SELECT * FROM REGISTER WHERE USERNAME =?"

stmt = ibm_db.prepare(conn, sql)

ibm_db.bind_param(stmt,1,username)

ibm_db.execute(stmt)

account = ibm_db.fetch_assoc(stmt)

print(account)



if account:

    msg = 'Account already exists !'

elif not re.match(r'[^@]+@[^@]+\.[^@]+', email):

    msg = 'Invalid email address !'

elif not re.match(r'[A-Za-z0-9]+', username):

    msg = 'name must contain only characters and numbers !'

else:

    sql1="INSERT INTO REGISTER(USERNAME,PASSWORD,EMAIL) VALUES(?,?,?)"

    stmt1 = ibm_db.prepare(conn, sql1)



    ibm_db.bind_param(stmt1,1,username)

    ibm_db.bind_param(stmt1,2,password)

    ibm_db.bind_param(stmt1,3,email)

    ibm_db.execute(stmt1)
```

```
            msg = 'You have successfully registered !'

            return render_template('signup.html', msg = msg)


 #LOGIN--PAGE

@app.route("/signin")

def signin():

    return render_template("login.html")

@app.route('/login',methods =['GET', 'POST'])

def login():

    global userid

    msg = " "

    if request.method == 'POST' :

        username = request.form['username']

        password = request.form['password']

        sql = "SELECT * FROM REGISTER WHERE USERNAME =? AND PASSWORD =?"

        stmt = ibm_db.prepare(conn, sql)

        ibm_db.bind_param(stmt,1,username)

        ibm_db.bind_param(stmt,2,password)

        ibm_db.execute(stmt)

        account = ibm_db.fetch_assoc(stmt)
        if account:
            session['loggedin'] = True
            session['id'] = account["ID"]
            userid=  account["ID"]
            session['username'] = account["USERNAME"]
            session['email']=account["EMAIL"]
            return redirect('/home')
        else:
            msg = 'Incorrect username / password !'
    return render_template('login.html', msg = msg)


 #ADDING----DATA
@app.route("/add")
def adding():
    return render_template('add.html')
@app.route('/addexpense',methods=['GET', 'POST'])
def addexpense()
    date = request.form['date']
    expensename = request.form['expensename']
    amount = request.form['amount']
    paymode = request.form['paymode']
    category = request.form['category']

    time=request.form['time']

sql="INSERTINTO
EXPENSES(USERID,DATE,EXPENSENAME,AMOUNT,PAYMENTMODE,CATEGORY,TIME)
VALUES(?,?,?,?,?,?,?)"

    stmt = ibm_db.prepare(conn, sql)

    ibm_db.bind_param(stmt,1,session['id'])

    ibm_db.bind_param(stmt,2,date)

    ibm_db.bind_param(stmt,3,expensename)

    ibm_db.bind_param(stmt,4,amount)

    ibm_db.bind_param(stmt,5,paymode)

    ibm_db.bind_param(stmt,6,category)

    ibm_db.bind_param(stmt,7,time)

    ibm_db.execute(stmt)

    print(date + " " + expensename + " " + amount + " " + paymode + " " + category)

                sql1 = "SELECT * FROM EXPENSES WHERE USERID=? AND
MONTH(date)=MONTH(DATE(NOW()))"

    stmt1 = ibm_db.prepare(conn, sql1)

    ibm_db.bind_param(stmt1,1,session['id'])

    ibm_db.execute(stmt1)

    list2=[]

    expense1 = ibm_db.fetch_tuple(stmt1)
```

```
while(expense1):
    list2.append(expense1)
    expense1 = ibm_db.fetch_tuple(stmt1)
total=0
for x in list2:
      total += x[4]

sql2 = "SELECT EXPLIMIT FROM LIMITS ORDER BY LIMITS.ID DESC LIMIT 1"
stmt2 = ibm_db.prepare(conn, sql2)
ibm_db.execute(stmt2)
limit=ibm_db.fetch_tuple(stmt2)
if(total>limit[0]):
    mail_from = '19i304@psgtech.ac.in'
    mail_to = session['email']
    msg = MIMEMultipart()
    msg['From'] = mail_from
    msg['To'] = mail_to
    msg['Subject'] = 'Expense Alert Limit'
    mail_body = """
    Dear User, You have exceeded the specified monthly expense Limit!!!!
    """
```

```
        msg.attach(MIMEText(mail_body)

        try:

            server = smtplib.SMTP_SSL('smtp.sendgrid.net', 465)

            server.ehlo()

                                                                                    server.login('apikey',
'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')

            server.sendmail(mail_from, mail_to, msg.as_string())

            server.close()

            print("mail sent")

        except:

            print("issue")

   return redirect("/display")

#DISPLAY---graph

@app.route("/display")

def display():

    print(session["username"],session['id'])



    sql = "SELECT * FROM EXPENSES WHERE USERID=?"

    stmt = ibm_db.prepare(conn, sql)

    ibm_db.bind_param(stmt,1,session['id'])

    ibm_db.execute(stmt)

    list1=[]
   row = ibm_db.fetch_tuple(stmt)

   while(row):

       list1.append(row)

       row = ibm_db.fetch_tuple(stmt)

   print(list1)



   total=0

   t_food=0

   t_entertainment=0

   t_business=0

   t_rent=0

   t_EMI=0

   t_other=0

for x in list1:

       total += x[4]

       if x[6] == "food":

           t_food += x[4]

       elif x[6] == "entertainment":

           t_entertainment  += x[4]

       elif x[6] == "business":

           t_business  += x[4]
```

```
        elif x[6] == "rent":
            t_rent  += x[4]
        elif x[6] == "EMI":
            t_EMI  += x[4]
        elif x[6] == "other":
            t_other  += x[4]
   return render_template('display.html' ,expense = list1,total = total ,
                           t_food = t_food,t_entertainment =  t_entertainment,
                           t_business = t_business,  t_rent =  t_rent,
                           t_EMI =  t_EMI,  t_other =  t_other)


#delete---the--data
 @app.route('/delete/<string:id>', methods = ['POST', 'GET' ])
def delete(id):
     print(id)
     sql = "DELETE FROM expenses WHERE  id =?"
     stmt = ibm_db.prepare(conn, sql)
     ibm_db.bind_param(stmt,1,id)
     ibm_db.execute(stmt)
      return redirect("/display")
#UPDATE---DATA
```

```
@app.route('/edit/<id>', methods = ['POST', 'GET' ])

def edit(id):

  sql = "SELECT * FROM expenses WHERE  id =?"

    stmt = ibm_db.prepare(conn, sql)

    ibm_db.bind_param(stmt,1,id)

    ibm_db.execute(stmt)

    row=ibm_db.fetch_tuple(stmt)



    print(row)

    return render_template('edit.html', expenses = row)

@app.route('/update/<id>', methods = ['POST'])

def update(id):

  if request.method == 'POST' :



      date = request.form['date']

      expensename = request.form['expensename']

      amount = request.form['amount']

      paymode = request.form['paymode']

      category = request.form['category']

      time=request.form["time"]

    sql = "UPDATE expenses SET date =? , expensename =? , amount =?, paymentmode =?, category =?,
time=? WHERE expenses.id =? "
```

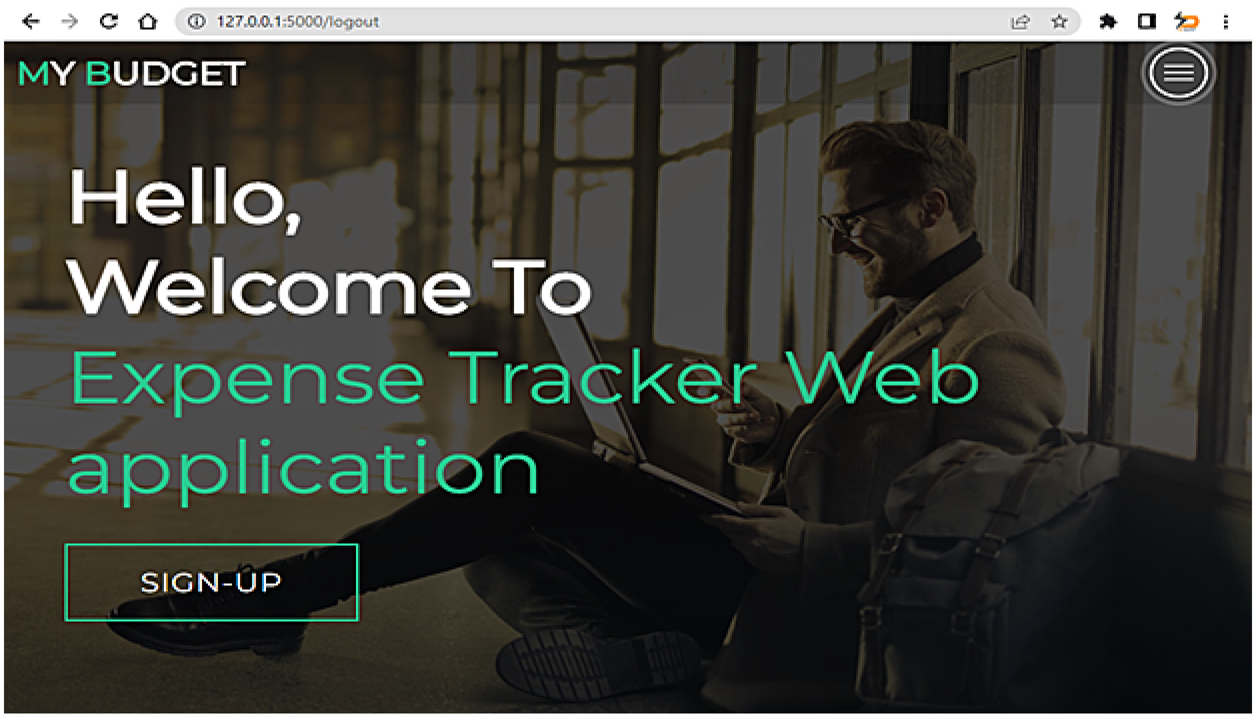
```
      stmt = ibm_db.prepare(conn, sql)

      ibm_db.bind_param(stmt,1,date)

      ibm_db.bind_param(stmt,2,expensename)

      ibm_db.bind_param(stmt,3,amount)

      ibm_db.bind_param(stmt,4,paymode)

      ibm_db.bind_param(stmt,5,category)

      ibm_db.bind_param(stmt,6,time)

      ibm_db.bind_param(stmt,7,id)

      ibm_db.execute(stmt)



      print('successfully updated')

      return redirect("/display")

 #limit

@app.route("/limit" )

def limit():

       return redirect('/limitn')



@app.route("/limitnum" , methods = ['POST' ])

def limitnum():

     if request.method == "POST":

         number= request.form['number']
```

```
        sql = "INSERT INTO LIMITS(USERID,EXPLIMIT) VALUES(?,?)"

        stmt = ibm_db.prepare(conn, sql)

        ibm_db.bind_param(stmt,1,session['id'])

        ibm_db.bind_param(stmt,2,number)

        ibm_db.execute(stmt)

        return redirect('/limitn')



@app.route("/limitn")

def limitn():

   def logout():

   session.pop('loggedin', None)

   session.pop('id', None)

   session.pop('username', None)

   session.pop('email',None)

   return render_template('home.html')


    if __name__ == "__main__":

    app.run(debug=True)
```

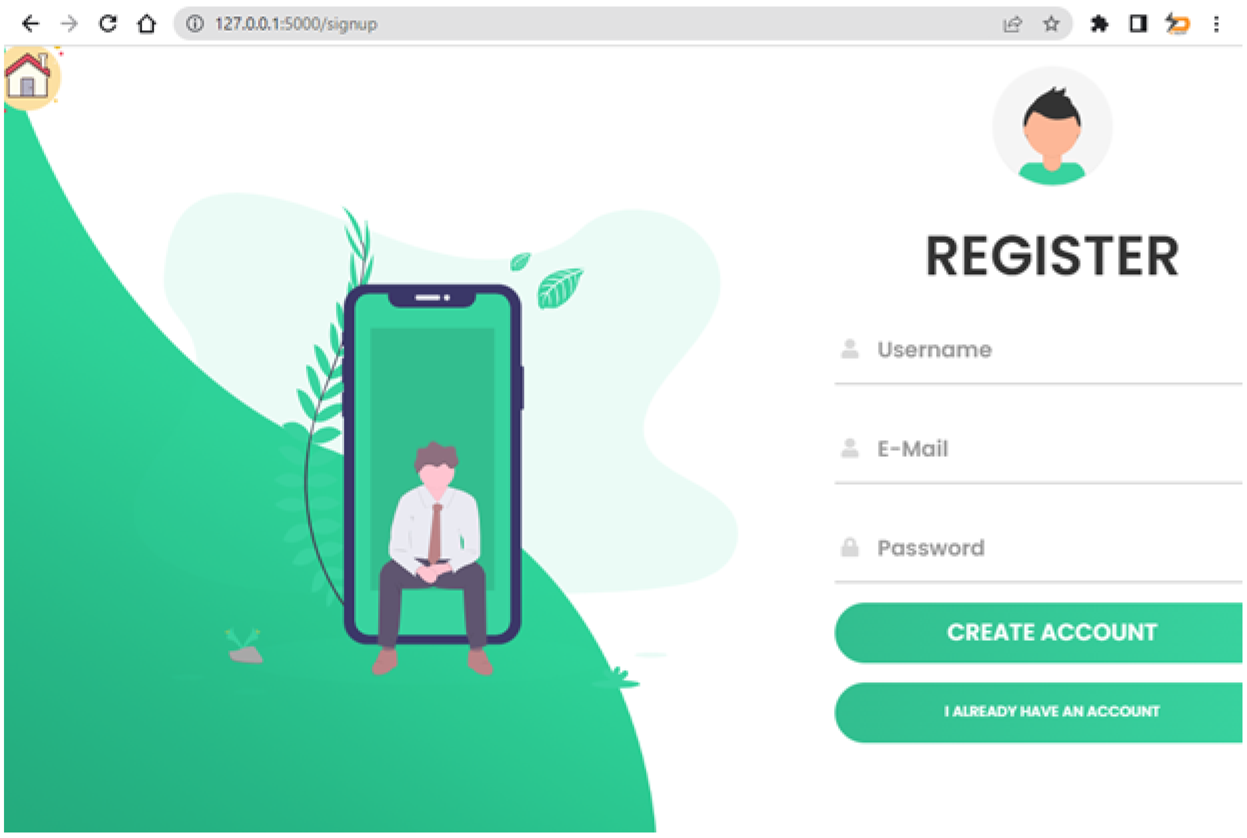
GitHub & Project Demo Link

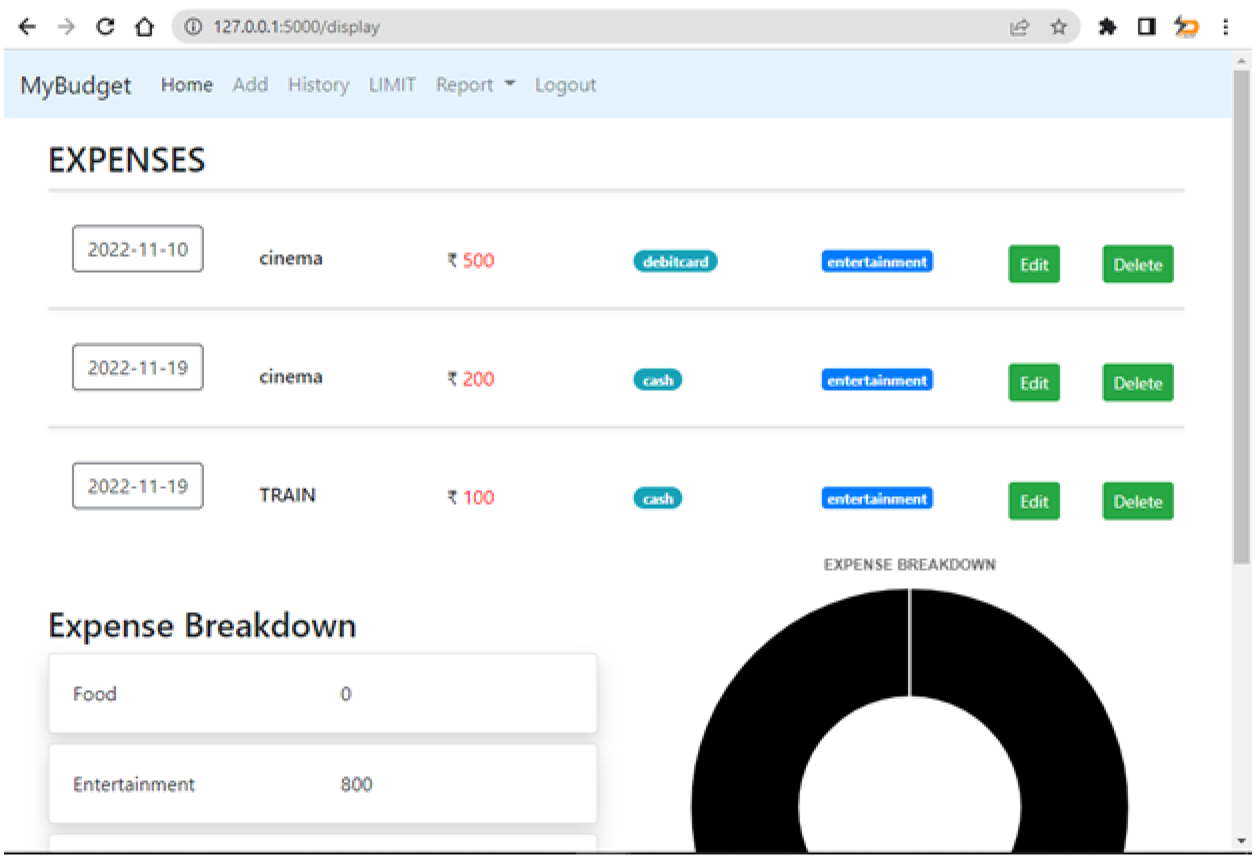
Repo Link :https://github.com/IBM-EPBL/IBM-Project-44150-1660722691

Demo Video Link : https://youtu.be/poPCWrrTcaw



Hello,
Welcome To
Expense Tracker Web application


127.0.0.1:5000/signup
REGISTER
Username
E-Mail
Password
CREATE ACCOUNT
I ALREADY HAVE AN ACCOUNT



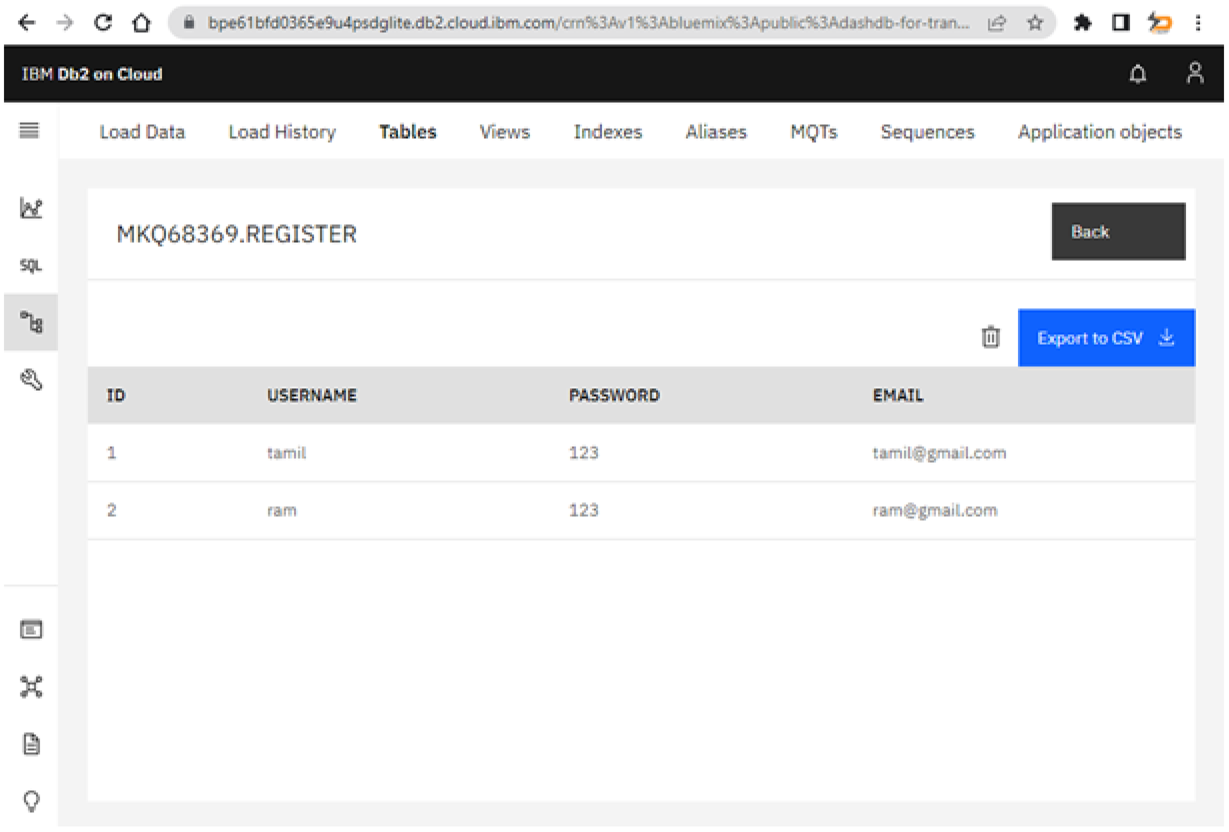
127.0.0.1:5000/display

EXPENSES

2022-11-10	cinema	₹ 500	debitcard	entertainment	Edit	Delete
2022-11-19	cinema	₹ 200	cash	entertainment	Edit	Delete
2022-11-19	TRAIN	₹ 100	cash	entertainment	Edit	Delete

Expense Breakdown

Food	0
Entertainment	800



MKQ68369.REGISTER

ID	USERNAME	PASSWORD	EMAIL
1	tamil	123	tamil@gmail.com
2	ram	123	ram@gmail.com