

PERSONAL EXPENSE TRACKER

PROJECT REPORT

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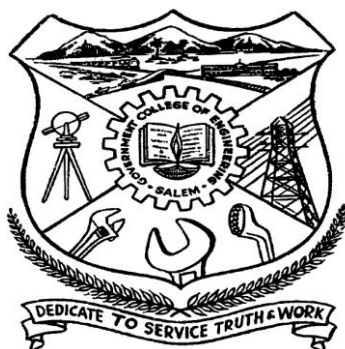
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Project Report

Personal Expense Tracker Application

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 Requirements
- 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

- 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

12. FUTURE SCOPE

13. APPENDIX

Source code, Github & Project Demo link

1. INTRODUCTION

In today's busy and expensive lives we are in a great rush to make money. But at the end of the day we broke off. As we are unknowingly spending money on little and unwanted things. So, we have come over with the idea to track our earnings. Daily Expense Tracker (DET) aims to help everyone who are planning to know their expenses and save from it. DTE is a website in which user can add expenses on daily basis and its table will get generated and at the end based on user expenses report will be generated. User can select date range to calculate his/her expenses come over with the idea to track our earnings. Personal Expense Tracker aims to help everyone who are planning to know their expenses and save from it. Personal Expense Tracker is a website in which user can add expenses on daily basis and at the end, based on user expenses report will be generated. User can select date range to calculate his/her expenses.

1.1 Project Overview

This website is used to track expenses and control spending beyond limits. while input data of expenses in website, we must select category which spent on and additionally notes can be used to note the details of expenses. By entering those record we can track our expenses. we can generate reports in graphical, pie chart. We can also set limits to particular category which alerts in email when the limits exceed.

1.2 Purpose

At end of certain period, users does not know where they spent their money and they spend more on needless expenses beyond budgets which leads to financial crisis. To avoid this people needs to track their expenses. While calculating in diary requires lot of manual calculation and lot of time. This is the purpose to go for website application to track expenses.

2. LITERATURE SURVEY

2.1 Existing problem

People can't able to track their expenses and spending more on unnecessary expenses which leads to money crisis. Without tracking people can't know whether they exceed the limit of their budget. Diary notes requires lots of manual calculation and It reduces the interest to track expenses. User frustrated about they can't remember where their money goes and can't handle their cash flow. There is no alerting system about exceeding limits. There can be many disadvantages of using a manual accounting system. Accounting, for any business, can be a complex undertaking. A manual accounting system requires you to understand the accounting

process in a way that may be unnecessary with a computerized accounting system. This can be an advantage or a disadvantage, depending on the person doing the bookkeeping; often, a specially trained professional is needed to ensure that accounting is done properly. Unrevealing the complexity of your financial records by hand may be time consuming. Since it takes time to generate reports.

2.2 References

S.NO	PAPER TITLE	AUTHOR NAME	PUBLICATION YEAR
1.	Expense Tracker	Atiya Kazi, RajS.Vilankar	2021
2.	A Smart Approach to Track everyday Expense	Navneet Kumar and J.Angelim Blessy	2020
3.	Expenditure Management System	Dr.V.Geetha, G.Nikitha	2019
4.	Personal Expense Assistant Management: An Android Based Application	Abbo Abdel Salam,Sali	2016

2.3 Problem Statement Definition

Our project helps the user to keep track their expenses and determine whether they are spending as per their set budget. Potential users need to input the required data such as the expense amount, merchant, category, and date when the expense was made. Which allows users to track their expenses daily, weekly, monthly, and yearly in terms of summary, bar graphs, and pie-charts. It is like automated diary which requires no burden of manual calculation and enables the user to not just keep the control on the expenses but also to generate and save reports. Users can insert and delete transactions. We can compare with past expenses. Customized email alerts are used alerts user when limit exceeds.


3. IDEATION AND PROPOSED SOLUTION

3.1 Empathy Map Canvas



3.2 Ideation & Brainstorming

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



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

Team gathering

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

Set the goal

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

Learn how to use the facilitation tools

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

[Open article](#)

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 STATEMENT

To Trace the Expenses of paid and unpaid Transactions and to make a better Budget by spending mindfully

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.

Step-2: Brainstorm, Idea Listening

2

Brainstorm

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

⌚ 10 minutes

Mehala R

Better Idea bout income and expenditure

Make Plans to Spend Mndfully

Reduce the Unwanted Expenses

Shalini M

Avoids Debt

Make Better Budget

It is more Convenient

Abhirami L

The record of money is reliable

Traces the Expenses of paid and unpaid Transactions

Able to maintain bills properly

Aparna L

Create spending awareness

Reduction on Data Loss

Expenses tracked accurately

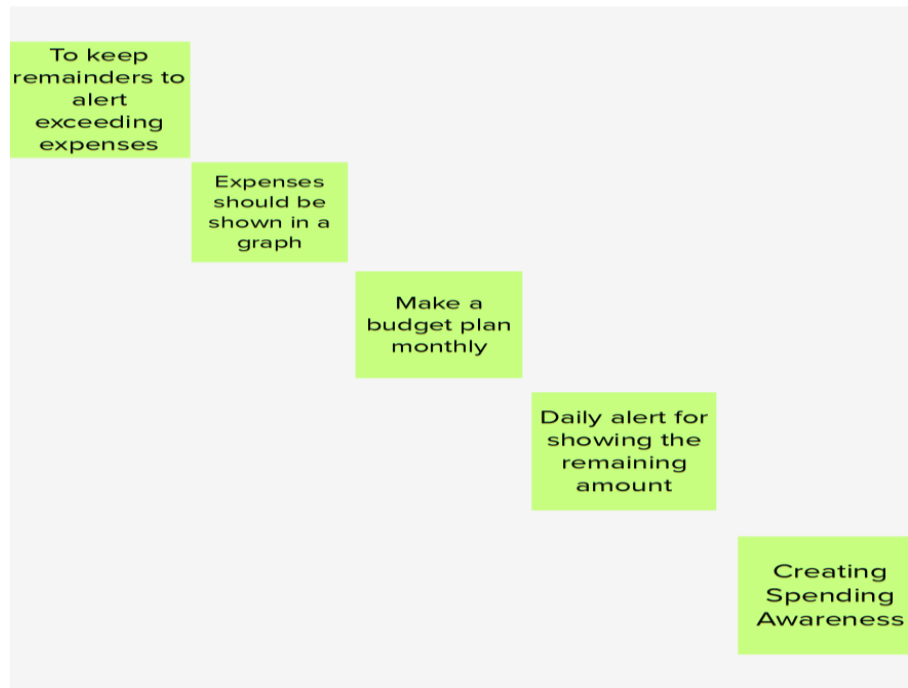
Step-3: Idea Grouping

3

Group ideas

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

🕒 20 minutes



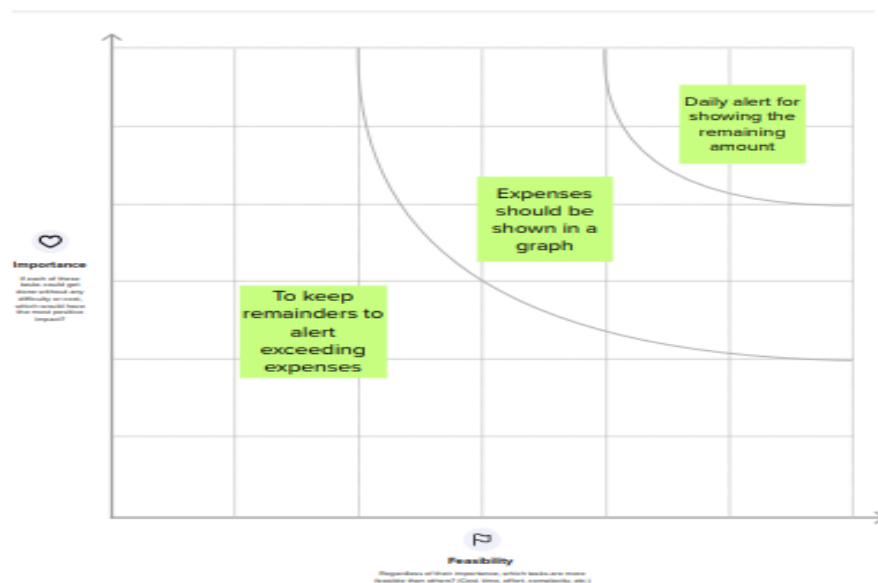
Step-4: Idea Prioritization

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)	Generally people are not aware of some of the expenses and end up in debt. So, To digitalize the records of the expenses of the user.
2	Idea / Solution Description	The application will be helpful for the individuals in not just managing their expenses, but also in enabling them to improve their investments.
3	Novelty / Uniqueness	The application gives the user a chance to plan his/her monthly expenses at the start of the month. Besides this, the user gets a notification when he/she exceeds the limit that is set.
4	Social Impact / Customer Satisfaction	The user can keep track of the expense and manage the money accordingly. The users can refer the expense and balance amount anytime they want by their phone.
5	Business Model (Revenue Model)	In app advertisements will generate the revenue. Users can use our application without advertisement by subscribing our premium plans
6	Scalability of the Solution	Large amount of users can be handled in our application. The scalability can be easily achieved since we using cloud technology.

3.4 Problem solution fit

Define CS, fit into CC	1. CUSTOMER SEGMENT(S) <ul style="list-style-type: none"> • Employees • School & College Students • Budgeting customers 	6. CUSTOMER <ul style="list-style-type: none"> • Data Security • Belief • Affordable cost • Accessing Annication. 	5. AVAILABLE SOLUTIONS <ul style="list-style-type: none"> • Making records in diary or in Excel sheet <p>Pros : Make daily notes which helps to meet the planned budget. Cons : sometimes may be inconvenient or failed to track the records. Takes a lot of time.</p>
Focus on J&P, tap into BE, understand RC	2. JOBS-TO-BE-DONE / PROBLEMS <ul style="list-style-type: none"> • To keep a track of money lent or borrowed • To keep track of daily transactions • Alert when a threshold limit is reached 	9. PROBLEM ROOT CAUSE <ul style="list-style-type: none"> • Limitless Spending • Unfamiliar abot the finances • Procrastination • Difficukt to maintain a note of daily spendings. 	7. BEHAVIOUR <ul style="list-style-type: none"> • Make a regular note on daily expenses. • Completely reduce spendings or spend all the savings. • Use online tools to interpret monthly expense patterns.
Identify strong TR & EM	3. TRIGGERS <ul style="list-style-type: none"> • Excessive Expenditure • Lack of money in case of emergency. 4. EMOTIONS: <div> <div>BEFORE</div> <div>AFTER</div> </div> <div> <ul style="list-style-type: none"> • Anxious • Confused • Fear <ul style="list-style-type: none"> • Confident • Composed • Calm </div>	10. YOUR SOLUTION Repeating an application to manage the expenses of an individual in an efficient and manageable manner, as compared to traditional methods	8.CHANNELS of BEHAVIOUR 8.1 ONLINE Maintain Excel Sheets and use respective tools 8.2 OFFLINE Maintain an Expense Notes

4. REQUIREMENT ANALYSIS

4.1 Functional Requirements

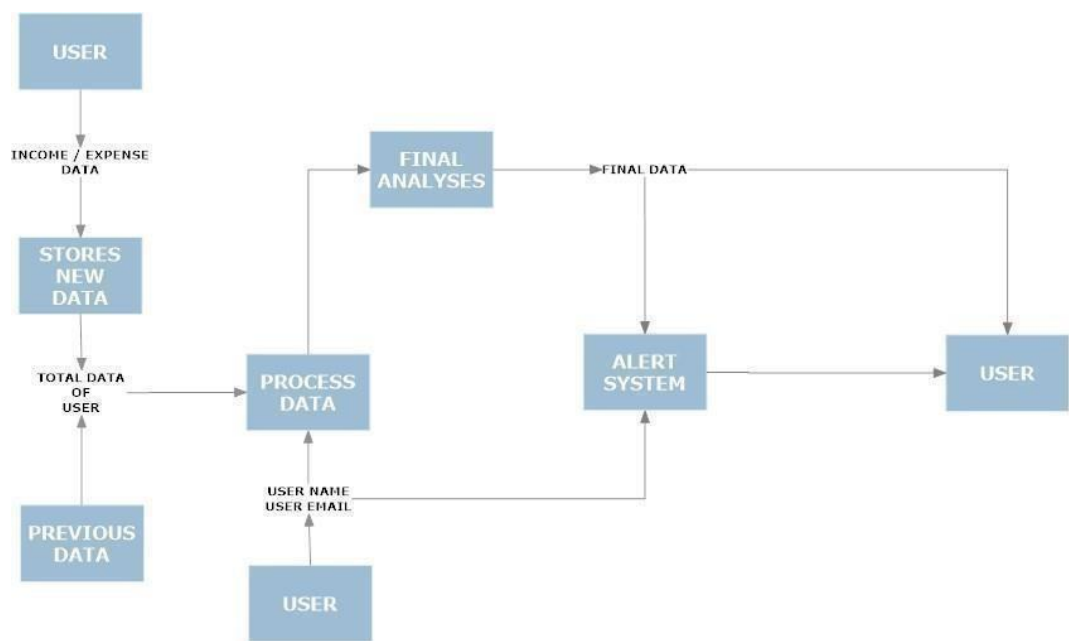
FR No.	Functional Requirement	Description
FR-1	User Registration	Form for collecting details
FR-2	Login	Enter username and password
FR-3	Calendar	Personal expense tracker application must allow user to add the data to their expenses.
FR-4	Expense Tracker	This application should graphically represent the expense in the form of report.
FR-5	Report generation	Graphical representation of report must be generated.
FR-6	Category	This application shall allow users to add categories of their expenses.

4.2 Non-functional Requirements

NFR No.	Functional Requirement	Description
NFR-1	Usability	Helps to keep an accurate record of your income and expenses.
NFR-2	Security	Budget tracking apps are considered very safe from those who commit cybercrimes.
NFR-3	Reliability	Each data record is stored on a well built efficient database schema. There is no risk of data loss
NFR-4	Performance	The types of expense are categories along with an option. Throughput of the system is increased due to light weight database support.
NFR-5	Availability	The application must have a 100% up-time.
NFR-6	Scalability	The ability to appropriately handle increasing demands.

5. PROJECT DESIGN

5.1 Data-Flow Diagrams



5.2 Solution & Technical Architecture

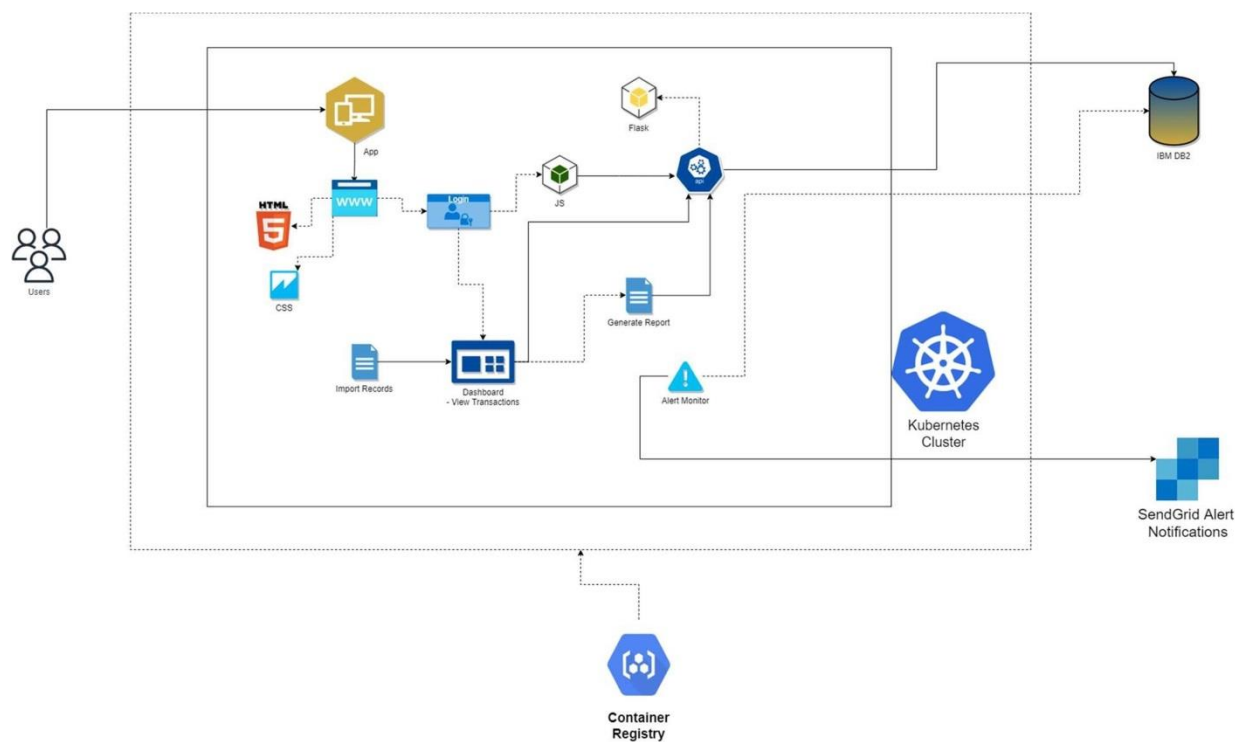


Table-1 : Components & Technologies

S.No.	Component	Description	Technology
1.	User Interface	The user can Interact with the application with use of Chatbot	HTML, CSS, JavaScript / Angular Js / React Js etc.
2.	Application Logic-1	The application contains the sign in/sign up where the user will login into the main dashboard	Java / Python
3.	Application Logic-2	Dashboard contains the fields like Add income, Add Expenses, Save Money	IBM Watson STT service
4.	Application Logic-3	The user will get the expense report in the graph form and also get alerts if the expense limit exceeds	IBM Watson Assistan, SendGrid
5.	Database	The Income and Expense data are stored in the MySQL database	MySQL, NoSQL, etc.
6.	Cloud Database	With use of Database Service on Cloud, the User data are stored in a well secured Manner	IBM DB2, IBM Cloud and etc.
7.	File Storage	IBM Block Storage used to store the Financial data of the user	IBM Block Storage or Other Storage Service or Local File system
8.	File Storage	The user's financial data is stored on IBM Block Storage.	IBM Block Storage or Other Storage Service or Local Filesystem
9.	Container Registry	Container Images Storage	Local Registry: DockerHub Cloud Registry: Container Registry
10.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud	Local Server Configuration: Minikube Cloud Server Configuration: Kubernetes

Table-2: Application Characteristics

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Flask Framework in Python is used to implement this Application	Python-Flask
2.	Security Implementations	This Application Provides high security to the user Financial data.It can be doneby using the Container Registry in IBM cloud	Container Registry, Kubernetes Cluster
3.	Scalable Architecture	Expense Tracker is a life time access supplication. It's demandwill increase when the user's income are high	Container Registry, Kubernetes Cluster
4.	Availability	This application will be available totheuser 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
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 Facebook	I can register and access the dashboard with Facebook Login	Low
	Login	USN - 4	As a user, I can log into the application by entering email & password	I can access the application	High

	Dashboard	USN - 5	As a user I can enter my income and expenditure details.	I can view my daily expenses	High
Customer Care Executive		USN - 6	As a customer care executive I can solve the log in issues and other issues of the application.	I can provide support or solution at any time 24*7	Medium
Administrator	Application	USN - 7	As a 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	Aparna L Shalini M
Sprint-1		USN-2	As a user, I will receive confirmation email once I have registered for the application	3	High	Shalini M Aparna L
Sprint-1	Login	USN-3	As a user, I can log into the application by entering email & password	5	High	Shalini M Aparna L
Sprint-1	Dashboard & Logout	USN-4	As a user, once I logged in I can access all the features of the web app and Logout once I completed all the work.	5	High	Aparna L Shalini M
Sprint-2		USN-5	Once logged In, Keep me logged for few hours to avoid repeated login if the page is refreshed	4	Medium	Abhirami L Mehala R
Sprint-2	Expense	USN-6	Add total income for the month and Allow for credit option	6	High	Mehala R Abhirami L
Sprint-2		USN-7	Split the total income based on usage like entertainment, food, shopping etc.	2	Low	Abhirami L Mehala R
Sprint-2		USN-8	Add the day to day expense.	6	High	Mehala R Abhirami L
Sprint-3		USN-9	Display the user added expense	6	High	Abhirami L Aparna L
Sprint-3		USN-10	Filter the expense data based on criteria	6	Medium	Aparna L Abhirami L
Sprint-3	Charts	USN-11	As a user I can display it in graphs	4	Low	Mehala R Shalini M

Sprint-4	Alerts	USN-12	As a user I create custom alert for the balance	10	High	Shalini M Abhirami L
Sprint-4	Deployment	USN-13	As a user I should able to access it anywhere in the net	20	High	Aparna L Mehala R

6.2 Sprint Delivery Schedule

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	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

Velocity

Velocity is a metric that predicts how much work an Agile software development team can successfully complete within a two-week sprint (or similar time-boxed period). Velocity is a useful planning tool for estimating how fast work can be completed and how long it will take to complete a project

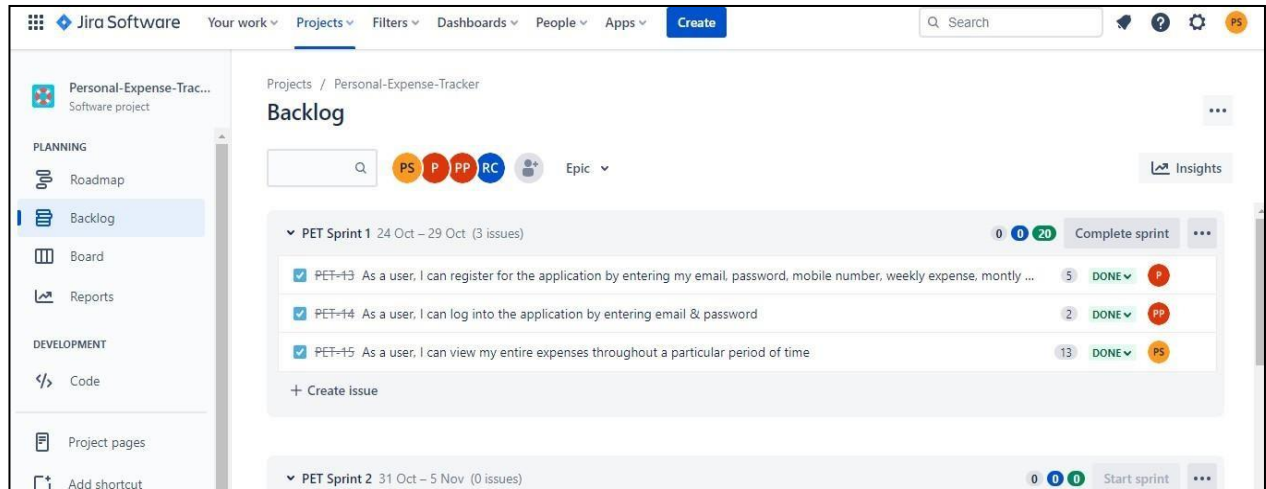
Average velocity = Total story points / No. of iterations = 22/4 = 5.4

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.



Reports from JIRA



7 CODING AND SOLUTIONING

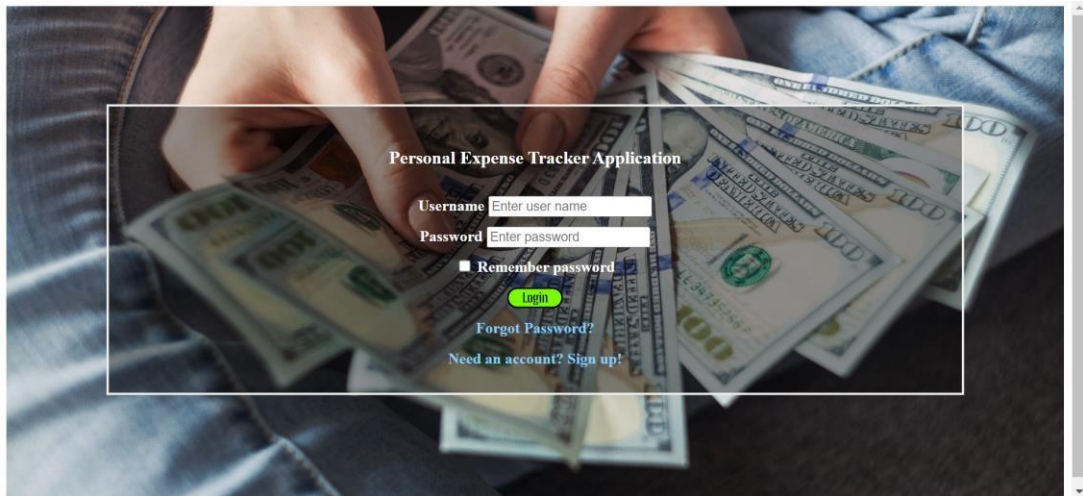
7.1 Feature 1

The sign-up page features a 'Create Account' form on a brown background with large, stylized 'EXPENSES' text. The form includes the following fields and options:

- User Name: Enter User Name
- First Name: Enter first name
- Last Name: Enter last name
- Email: Enter email address
- Profession: Employee (dropdown menu)
- Income: Income
- Amount for Expense: Budget limit for Expense
- Password: Enter password
- Confirm Password: Confirm password

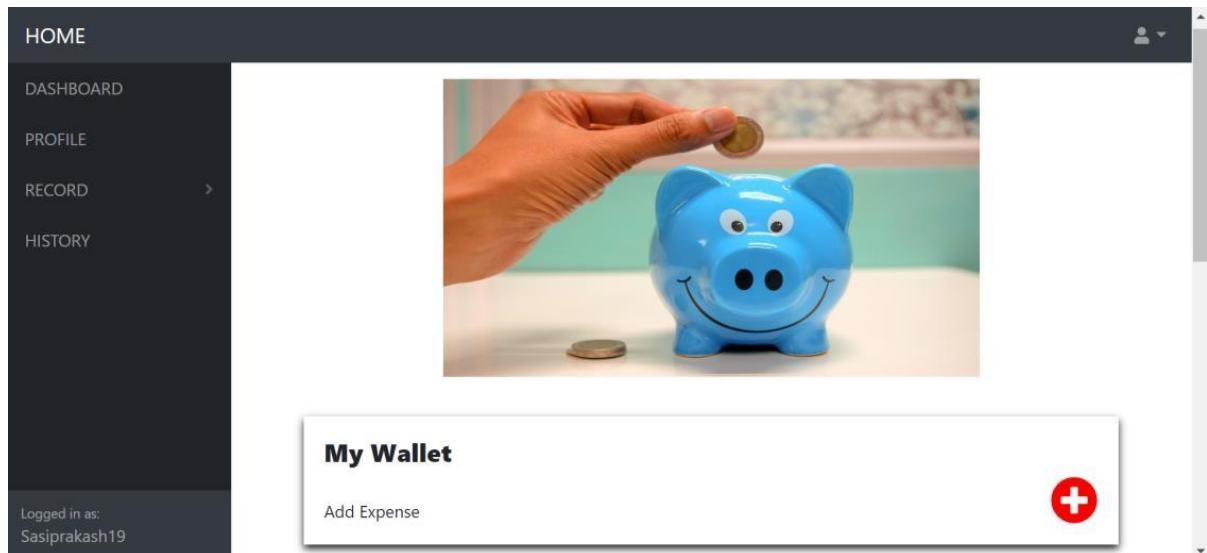
A green 'Create User' button is located below the password fields. At the bottom, there is a link: 'Have an account? Go to login'.

Sign-up page

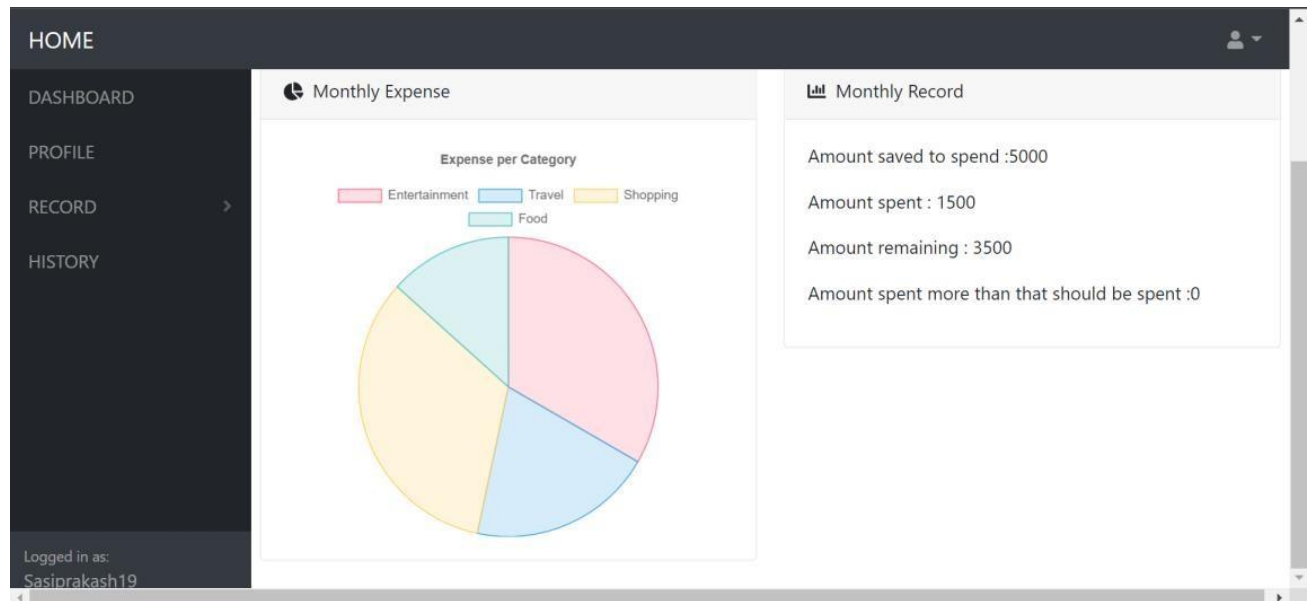


Login page

7.2 Feature 2



Dashboard



Status page

8 TESTING

8.1 Test cases

- i. Login button click with wrong credentials entered.
- ii. Signup with already registered mail ID.
- iii. Signup with wrong form data entered.
- iv. Entering home page with logged out session.
- v. delete expense triggers change in graph.
- vi. Add expense without choosing category.

8.2 User Acceptance Testing

S.No	Test Case id	Feature Id	Test Description	Input Test Data	Actual Output	Expected Output	Remarks
1	TC – RG 01	Functional	Register for application by entering my name, email, password, monthly limit	User1 User1@gmail.com ***** 500	Registration successful	Registration successful	pass
2	TC – SI 01	Functional	Log into the application by entering Email & password	User1@gmail.com *****	Login successfull	Login successfull	pass
3	TC – ST 01	UI	View my entire expenses throughout a particular period of time		Expenses are displayed For particular time	Expenses are displayed For particular time	pass
4	TC – DB 01	UI	Display graph in dashboard		Graph is displayed	Graph is displayed	pass
5	TC – ST 02	Functional	Generate reports based on my previous expenditures		Reports generated in graphical form	Reports generated in graphical form	pass
6	TC – SI 02	Functional	Can logout		Go to sign page	Sign in page displayed	pass
7	TC – ST 03	Functional	Create expense	14-11-2022 100 Food	Expense created	Expense created	pass
8	TC – ST 04	Functional	Can edit ,delete, update expense		Expenses updated	Updated of expenses	pass
9	TC – ST 05	UI	Can view Credit and debit expenses separately		Expenses are listed separately	Expenses are listed separately	pass
10	TC – ST 06	UI	Aware of the expense that I spend the most on		Expenses are listed for particular category	Expenses are listed for particular category	pass
11	TC – PG 01	Functional	Able to update my set monthly limit		Monthly limit updated	Monthly limit updated	pass
12	TC – PG 01	UI	Able to View my profile		Profile details displayed	Profile details displayed	pass

9.RESULTS

9.1 Performance Metrics

9.1.1	Hours worked : 50 hours
9.1.2	Stick to Timelines : 100%
9.1.3	Consistency of the product : 75%
9.1.4	Efficiency of the product : 80%
9.1.5	Quality of the product : 85%

10. ADVANTAGES AND DISADVANTAGES

Advantages

- Which allows users to track their expenses daily, weekly, monthly, and yearly in terms of summary, bar graphs, and pie-charts.
- Separate view for credit and debit transactions
- No burden of manual calculations
- Generate and save reports.
- You can insert, delete records
- You can track expenses by categories like food, automobile, entertainment, education etc..
- You can track expenses by time, weekly, month, year etc..
- Setting monthly limits and we can update it later
- Customized email alerts when limit exceeds.

Disadvantages

- User have entry every records manually
- The category divided may be blunder or messy
- Can't able to customized user defined categories

11.CONCLUSION

In this project, 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 make them aware about their daily expenses. It will prove to be helpful for the people who are frustrated with their daily budget management, irritated because of the amount of expenses and wish 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

In further days, there will be mails and payment embedded with the app. Also, backup details will be recorded on cloud.

- 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 spent.
- Alerts for paying dues and remainders to record input at particular user defined time.

13.APPENDIX

Github Link : <https://github.com/IBM-EPBL/IBM-Project-23198-1659871266>

Project Demonstration Link : <https://vimeo.com/772674251>

