

PROJECT REPORT

PERSONAL EXPENSE TRACKER APPLICATION

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ABSTRACT

The web application “Personal Expense Tracker” is developed to manage the daily expenses in a more efficient and manageable way. By using this application we can reduce the manual calculations of the daily expenses and keep track of the expenditure. In this application, user can provide his income to calculate his total expenses per day and these results will be stored for each user. The application has the provision to predict the income and expense for the manager using data mining. In this application, there are 3 logins such as admin, manager and staff. Admin has the privilege to add, edit, delete manager, add, edit, delete staff, and to get all custom reports. For Manager, the privileges are to add type of expense, verify expense, add type of income, verify income and generate reports. For staff, the privileges are to add and edit expense, income and calculations, and send for verification.

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INTRODUCTION

1.1 Project Overview

Personal Expense Tracker is a daily expense management system which is specially designed for non- salaried and salaried personnel for keeping track of their daily expenditure with easy and effective way through computerized system which tends to eliminate manual paper works. It will also manage records in systematic way and user can access the stored data conveniently. We have tried to design the project in such way that user may not have any difficulty in using this application without much effort. This software can be really used by end user who have Android running devices with them. The language that we use to develop this system is and MYSQL for database.

1.2 Purpose

The idea of developing this project for user convenience. Because whenever they make expenses immediately, they add in the application. Some of the concerns maintaining a personal expense is a BIG problem, in daily expenses many times we don't know where the money goes. Some of the conventional methods used to tackle this problem in normal circumstances are like making use of a sticky note by common users, Proficient people deals with this kind of problems by using spread sheets to record expense and using a ledger to maintains the largeamounts data by especially by expert people. We believe a handy design and a handy mobile application which handles these troubles. Such that app is capable of recording the expenditure and giving broad view with easy to use the user interface and this application is intelligent enough to shows the history of expenses.

2. LITERATURE SURVEY

2.1 Existing Problem

A. AMAN GARG, MUKUL GOEL, SAGAR MITTAL, MR. SHEKHAR SINGH “EXPENSE TRACKER” – APRIL 2021:

This Expense Tracker is a web application that facilitates the users to keep track and manage their personal as well as business expenses. This application helps the users to keep a digital diary. It will keep track of a user's income and expenses daily. Tracking your expenses daily can not only save your amount, but it can also assist you set financial goals for the longer term. If you know exactly where your amount goes every month, you will easily see where some cutbacks and compromises can be made.

B. GIRISH BEKAROO AND SAMEER SUNHALOO “INTELLIGENT ONLINE BUDGET TRACKER” – 2007 :

The development of this application has been conducted in a stepwise manner using the well-defined methodology, RUP, customized according to the requirements of the system. Most of the goals set at the start of the development phase have been met. Security problems like web security or network security have also been treated in the design and development of the system, thus increasing the reliability of the system. Quality management issues have also been handled satisfactorily.

c. RAJAPRABHA.M “FAMILY EXPENSE MANAGER APPLICATION”-2017:

The user can make use of this application in his/her daily life. After being used it can be a part of daily life to update and view daily expense and family expenses. This helps to track expenses and manage it for the user as they are busy in their daily routine, they are not able to keep track of their incomes and expenses.

d. MUSKAAN SHARMA ,AYUSH BANASAL,DR. RAJU RANJAN, SHIVAM SETHI “ A NOVEL EXPENSE TRACKER USING SATISTICAL ANALYSIS”-JUNE 2021:

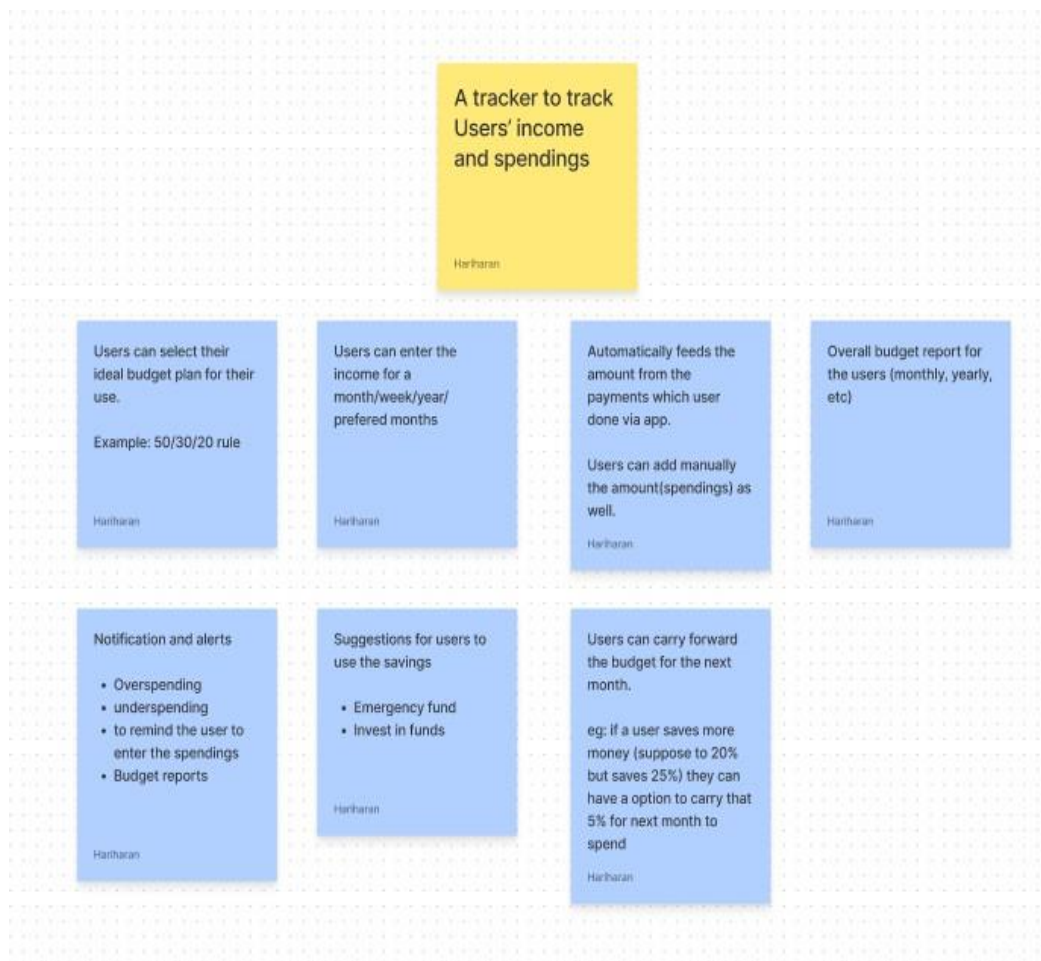
Expense tracker is used to maintain and manage data of daily expenditure in a more precise way it can give profound knowledge of their expenses. User can choose the kind of spending they wanted to do, even the amount etc. and all these details is going to be saved by the internal database storage. In this system user can actually have the knowledge about their expenditure on their daily basis, weekly as well as monthly basis. This systematic way of sorting your information related to your expenses would help you to keep a track of Your expenditure and further you do not have to do the manual stuff. Some statistical analysis have to be done to be able to give users correct information on their expenses and help them spend better. This helps the society to prevent the issues like bankruptcy and save time from manual calculations. User can provide his/her income to calculate the total expense per day and result will be sorted for each individual user. People when usually go for trips with friends,

can use this tracker to maintain their expense.

2.2 References

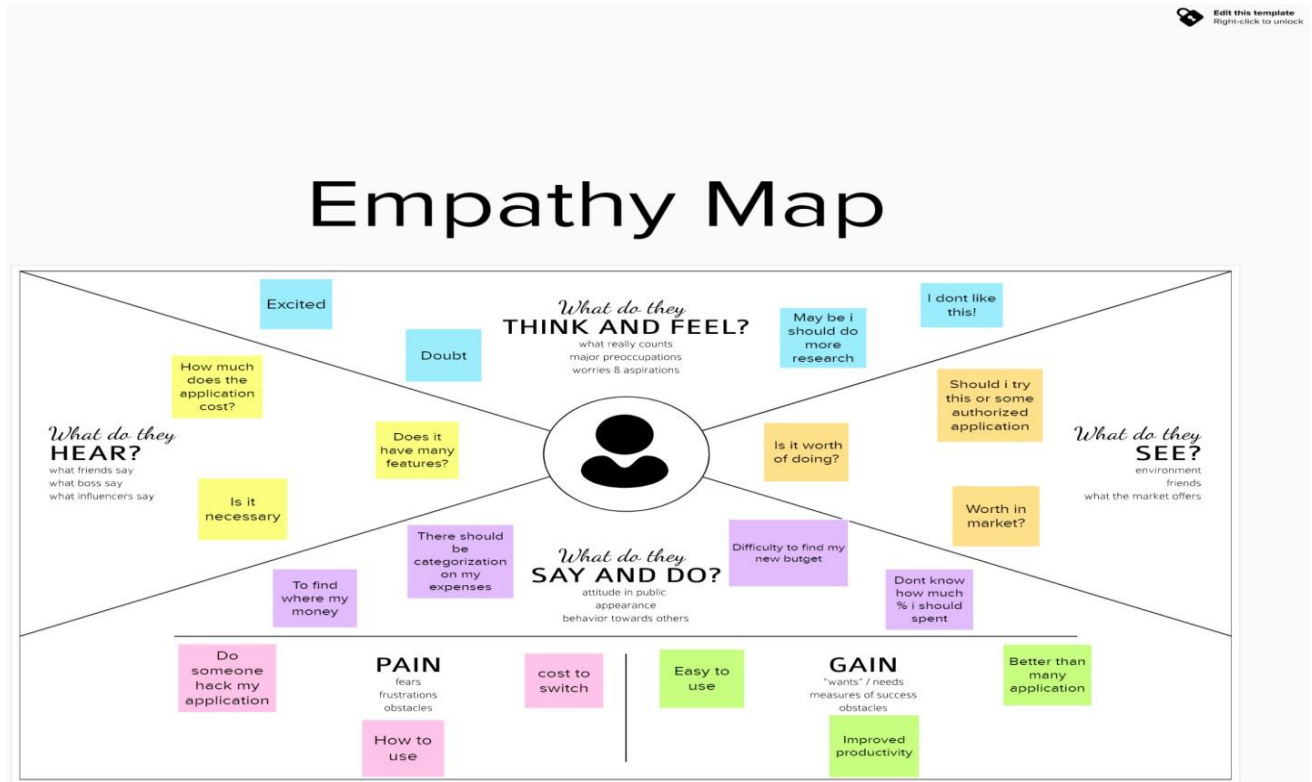
1. https://ijirt.org/master/publishedpaper/IJIRT151474_PAPER.pdf
2. <https://iopscience.iop.org/article/10.1088/1757-899X/263/4/042050>
3. <https://www.irjet.net/archives/V6/i3/IRJET-V6I31110.pdf>

2.3 Problem Statement Definition

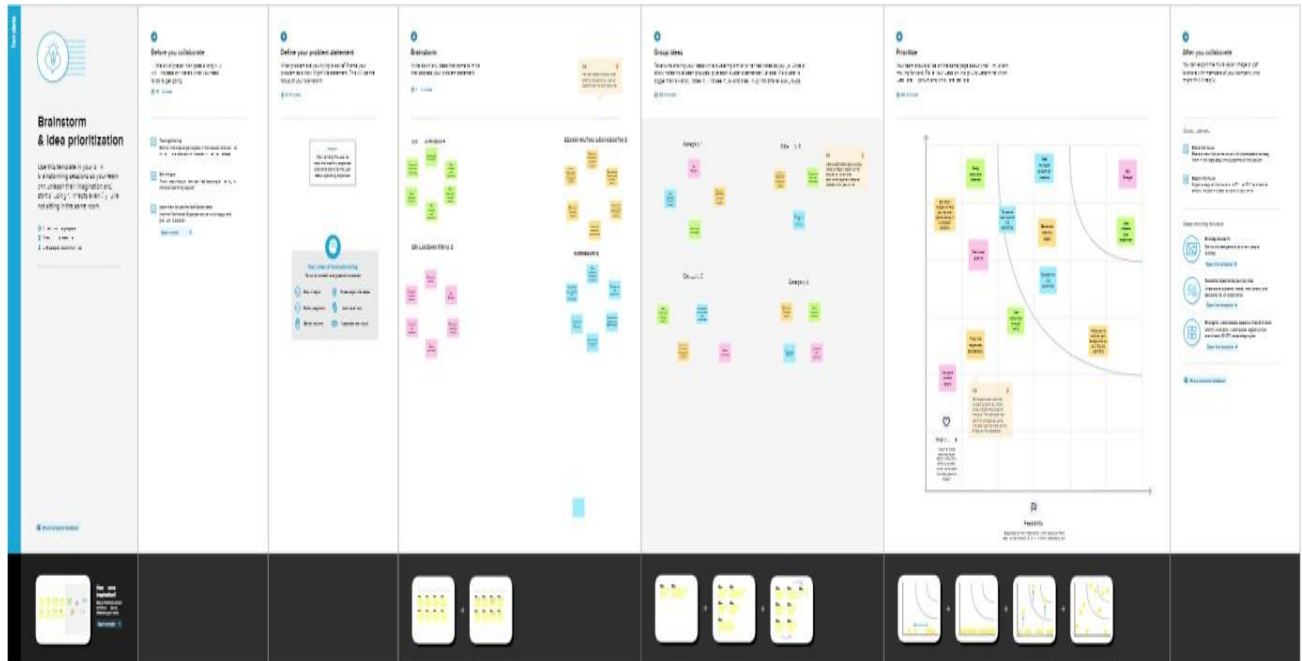


3. IDEATION & PROPOSED SOLUTION

3.1 Empathy Map Canvas



3.2 Ideation & Brainstorming



3.3 Proposed Solution

S.No	Parameter	Description
1.	Problem Statement	In paper-based expense tracker system it is difficult to track our monthly expenses manually. In paper-based expense records may get lost in case of fire accidents, flood etc.
2.	Novelty/Uniqueness	The user gets notified when their expense exceeds the limit and also it reminds the user when they forgot to make entry. Tracking expenses through SMS. Data analytics on expenses. Future expense prediction.

3.	Idea/Solution description	Daily expense management system which is specially designed for non-salaried and salaried personnel for keeping track of their daily expenditure with easy and effective way through computerized system which tends to eliminate manual paper works. 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. 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
4.	Business Model	This provided for free of cost. But It will have some advertisement. In premium version there is no advertisement and contains some additional features
5.	Social Impact	The application should be able to generate reports of their spending and notify users if they have exceeded their budget. It is designed to be dynamic to produce the prediction. It also provides users' personal information, their income as well as their expenses. This application can create awareness among common people about finance and stuffs. This application also helps user to be financially responsible. It Reduces time rather than entering details manually.
6.	Scalability of the Solution	This Application is provided for free of cost. But It will have some advertisement. In premium version there is no advertisement and contains some additional features.

3.4 Problem Solution fit

The Problem-Solution Fit simply means that you have found a problem with your customer and that the solution you have realized for it actually solves the customer's problem. It helps entrepreneurs, marketers and corporate innovators identify behavioural patterns and recognize what would work and why.

Define CS, fit into CL	1. CUSTOMER SEGMENT(S) CS People who are struggling to track their expenses are our customers. They can use our app to maintain records about their income and expenses	6. CUSTOMER LIMITATIONS <small>EG, BUDGET, DEVICES</small> CL User have to entry every record manually. The category divided may be blunder or messy. person who is handling system must have some technical knowledge.	5. AVAILABLE SOLUTIONS <small>PLUSSES & MINUSES</small> AS User can add their income and expenses. 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.
	2. PROBLEMS / PAINS <small>• ITS FREQUENCY</small> PR In paper-based expense tracker system it is difficult to track our monthly expenses manually. The paper-based expense records may get lost in case of fire accidents, flood etc.	9. PROBLEM ROOT / CAUSE RC When the digits could not be recognized correctly. When the transactions are not successful. When the elder people unable to understand the smaller handwritten digits. When the paper based expense tracker records are subjected to fire accident, flood, etc.	7. BEHAVIOR <small>• ITS INTENSITY</small> BE They may keep a temporary note on their mobile. He/She will tell the other persons to remember the expense they do while calculating the expenses they consider only on the expenses that are single time and huge and leave the rest
Focus on PR, Tap into BE, understand RC	3. TRIGGERS TO ACT TR This application can create awareness among common people about their income and expenses. It Reduces time rather than entering details manually.	10. YOUR SOLUTION SL The application should be able to generate reports of their spending and notify users if they have exceeded their budget. This application can create awareness among common people about finance and stuffs. This application also helps user to be financially responsible.	8. CHANNELS of BEHAVIOR CH <small>ONLINE</small> Download statements from bank and pay monthly installment
	4. EMOTIONS <small>BEFORE / AFTER</small> EM Frustration, Confusion, Inadequate > Boost, Feeling smart, Be an example for others		<small>OFFLINE</small> Using spreadsheets and notes for financial management
Identify strong TR & EM			

4. REQUIREMENT ANALYSIS

4.1 Functional requirements

Following are the functional requirements of the proposed solution.

FR.No	Functional Requirement(Epic)	Sub Requirement(Story/Sub-Task)
FR-1	User Registration	Form for collecting details
FR-2	User Confirmation	Enter username and password
FR-3	Calendar	Personal expense tracker application must allow user 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

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

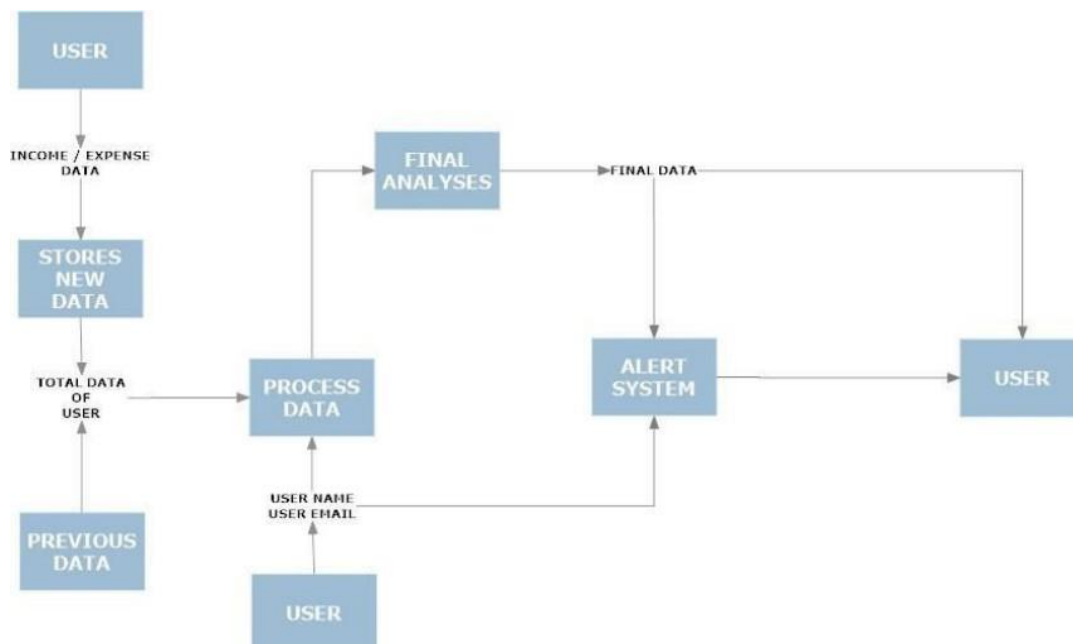
FR.No	Non-Functional Requirement	Description
NFR-1	Usability	Helps to keep an accurate record of your income and expenses
NFR-2	Security	Budget tracking apps are considered very sage from those who commit cyber crimes
NFR-3	Reliability	Each data record is stored on a well-built efficient database schema. There is no risk of data loss

NFR-4	Performance	By enter our incoming and departing cash, and the software can help you keep and monitor it with at most quality and security with high performance.
NFR-5	Availability	The application must have a 100% up-time
NFR-6	Scalability	The ability to appropriately handle increasing demands

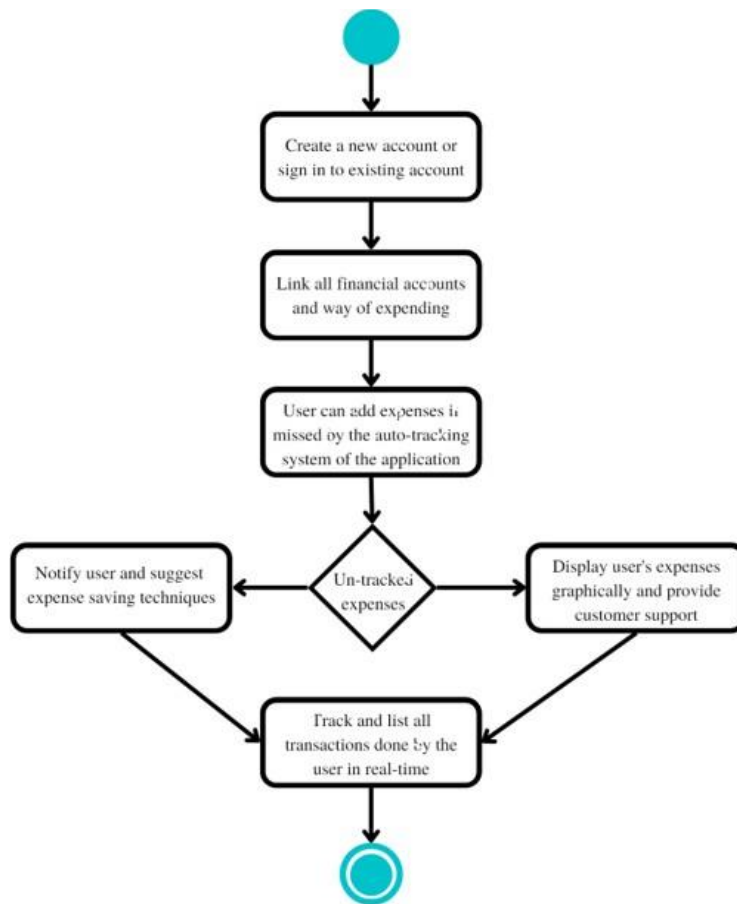
5. PROJECT DESIGN

5.1 Data Flow Diagrams

A Data flow diagram(DFD) is a traditional visual representation of the information flows within a system. A neat and clear DFD can depict the right amount of the system requirement graphically. It shows how data enters and leaves the system, what changes the information, and where data is stored.



5.2 Solution & Technical Architecture



5.3 User Stories

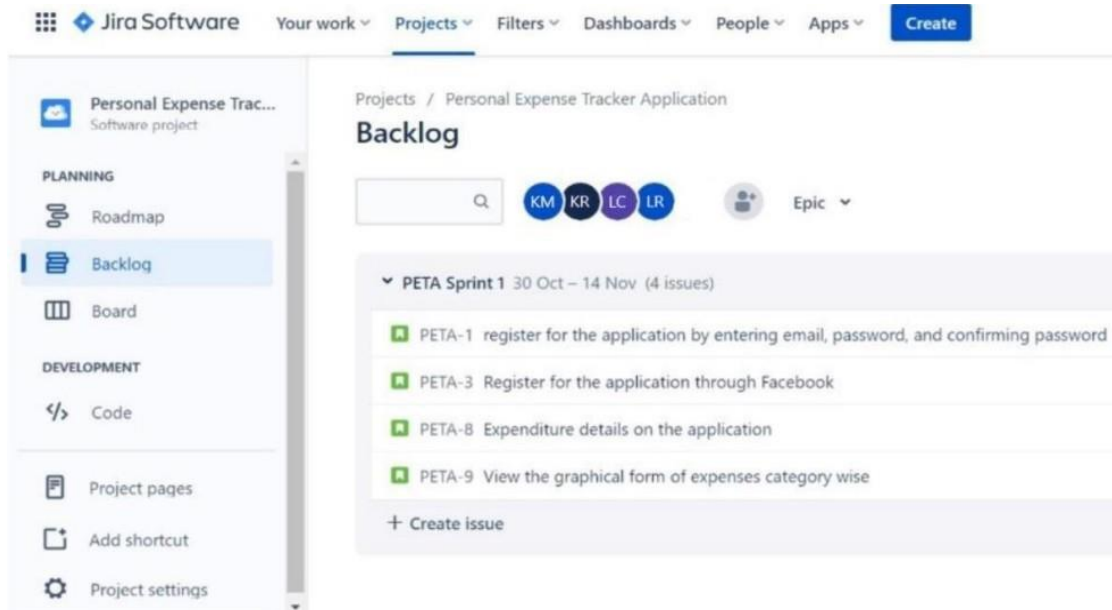
Use the below template to list all the user stories for the product

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

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	19 Oct 2022	24 Oct 2022	20	25 Oct 2022
Sprint-2	20	6 Days	27 Oct 2022	01 Nov 2022	20	02 Nov 2022
Sprint-3	20	6 Days	03 Nov 2022	08 Nov 2022	20	09 Nov 2022
Sprint-4	20	6 Days	10 Nov 2022	15 Nov 2022	20	18 Nov 2022

6.3 Reports from JIRA



7. CODING AND SOLUTIONING

7.1 FEATURE: 1

1. Expense and Revenue Tracking
2. Managing transaction receipts and records.
3. Paying taxes in time.
4. Processing payment and invoices.
5. Create in-depth reports.

7.2 FEATURE: 2

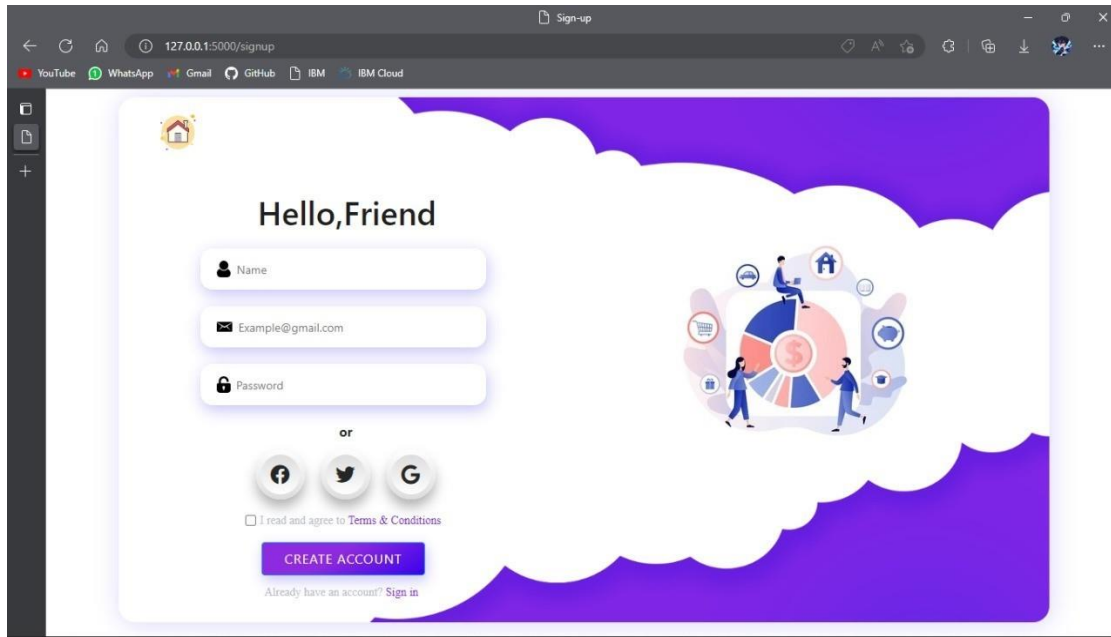
Email notifications will be sent to the users once they cross the

expenditure limit through send grid mail system. Most notifications are transactional, meaning a recipient's action or account activity triggers them. But some notifications are marketing related, encouraging the recipient to take a specific action. Ecommerce product notifications inform recipients about new products or discounts. Plus, unlike general marketing emails, these are highly personalized and focus on a single product. For example, if a customer views an item on your website and that item goes on sale, you can send the customer a notification to let them know this is the best time to buy. Users can also opt into receiving notifications when an out-of-stock item is back in stock. Notification emails tend to perform well because the content is highly relevant to the recipient. But the only way for the recipient to know this is if you state the content clearly in the subject line. For example, the subject line "New Sign-in to Your Account" gets straight to the point, letting the user know why you sent this notification.

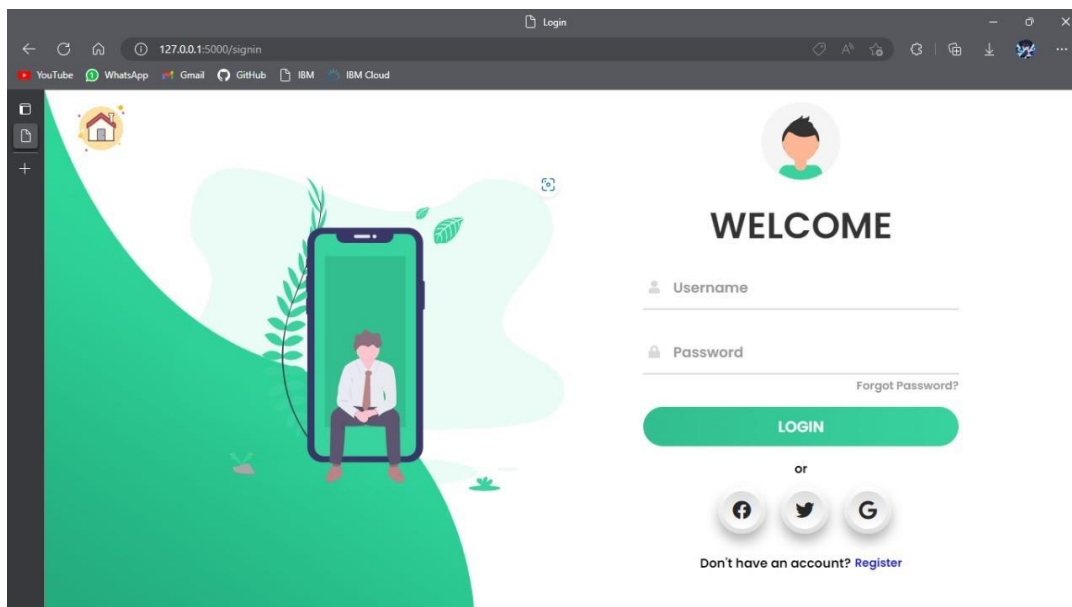
8.TESTING

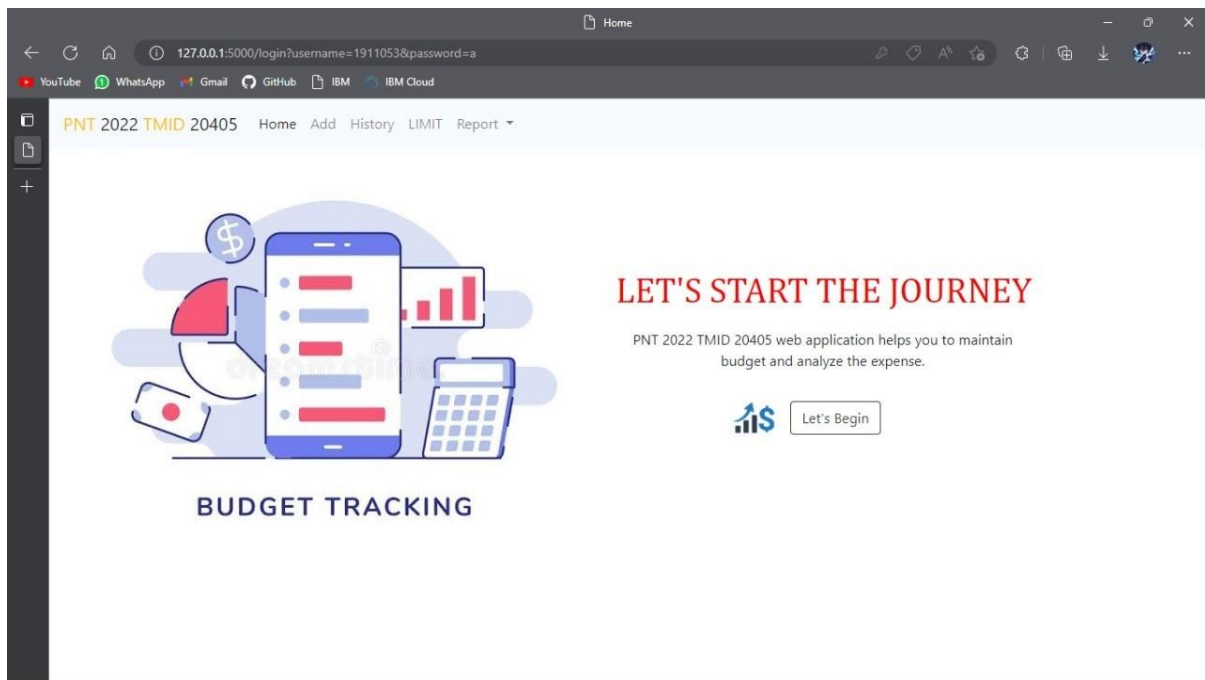
8.1 TEST CASES

REGISTRATION PAGE



LOGIN





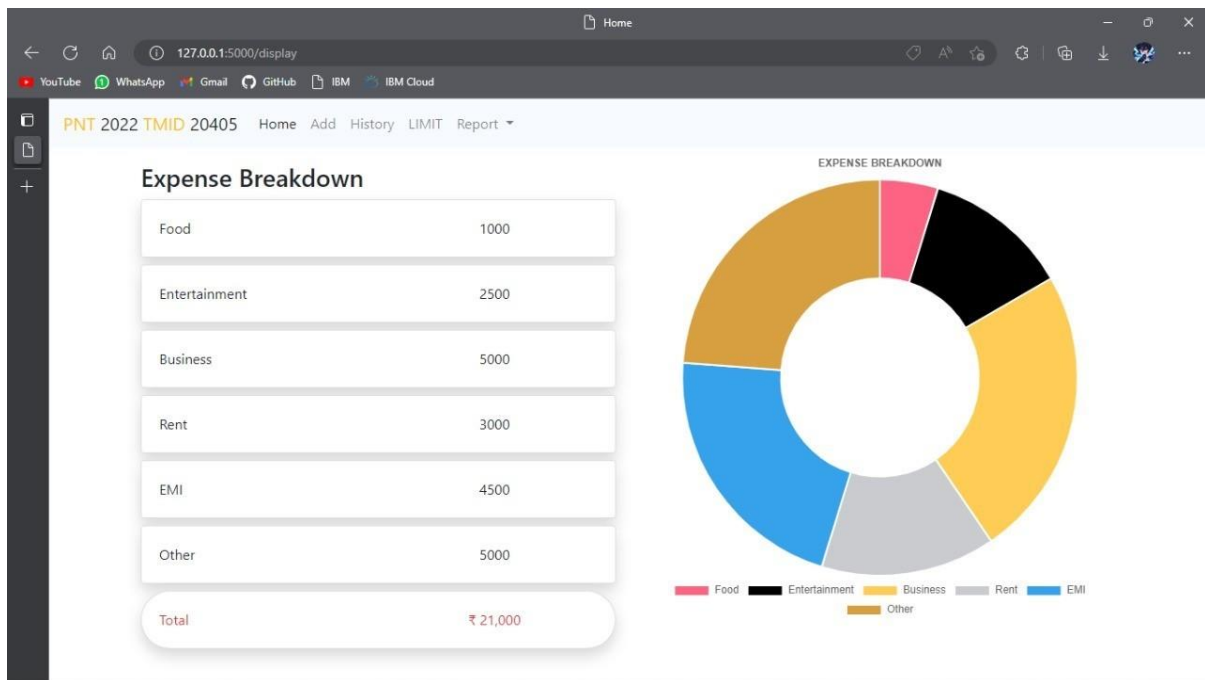
ADD EXPENSES

The screenshot shows the "Add Expense" form within the same web application. The browser's address bar now shows "127.0.0.1:5000/add". The form includes the following fields and elements:

- Date:** A text input field with a placeholder "dd-mm-yyyy --:--" and a calendar icon.
- Expense name:** A text input field.
- Expense Amount:** A text input field.
- Pay-Mode:** A dropdown menu.
- Category:** A dropdown menu.
- Add:** A red button to submit the form.

On the right side of the form, there is an illustration of a notepad titled "EXPENSES" with a checklist:

Category	Status
FOOD	<input checked="" type="checkbox"/>
ELECTRIC	<input type="checkbox"/>
WATER	<input checked="" type="checkbox"/>
PHONE	<input checked="" type="checkbox"/>
INTERNET	<input type="checkbox"/>



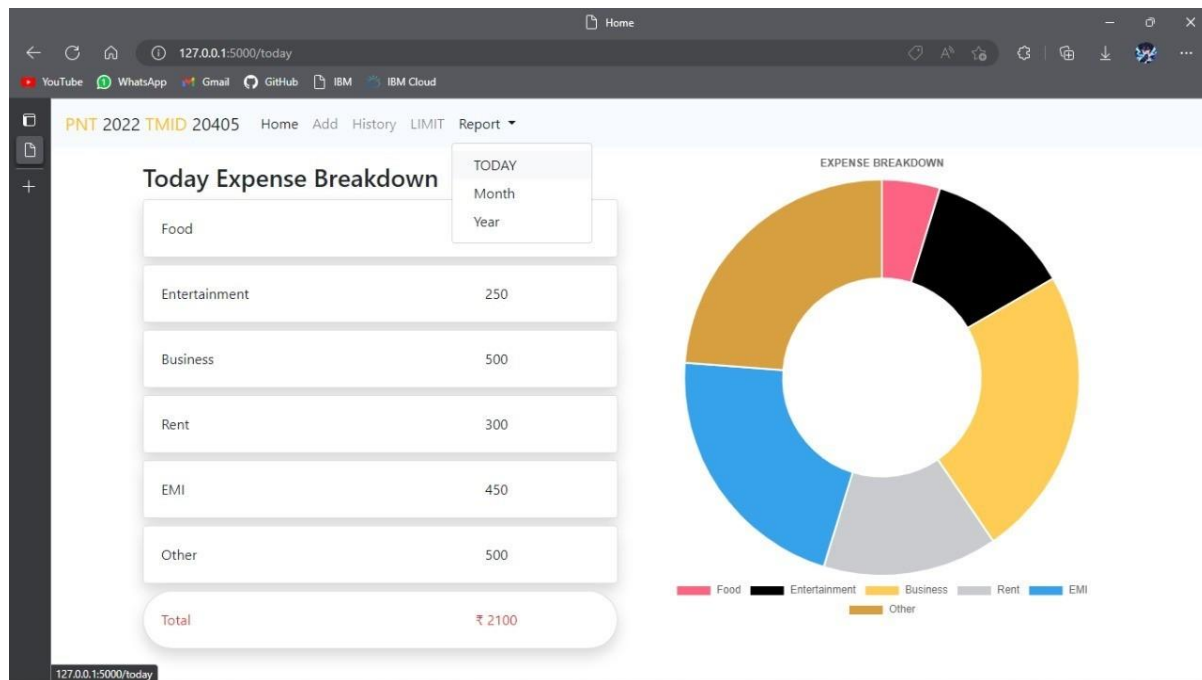
127.0.0.1:5000/limit

PNT 2022 TMID 20405 Home Add History LIMIT Report

Currently your MONTHLY limit is ₹ 25,000

ENTER the MONTHLY LIMIT to avoid over EXPENSES

ENTER



9.RESULTS

9.1 PERFORMANCE METRICES

- Tracking income and expenses: Monitoring the income and tracking all expenditures (through bank accounts, mobile wallets, and credit & debit cards).
- Transaction Receipts: Capture and organize your payment receipts to keep track of your expenditure.
- Organizing Taxes: Import your documents to the expense tracking app, and it will streamline your income and expenses under the appropriate tax categories.
- Payments & Invoices: Accept and pay from credit cards, debit

cards, net banking, mobile wallets, and bank transfers, and track the status of your invoices and bills in the mobile app itself. Also, the tracking app sends reminders for payments and automatically matches the payments with invoices.

- **Reports:** The expense tracking app generates and sends reports to give a detailed insight about profits, losses, budgets, income, balance sheets, etc.,
- **E-commerce integration:** Integrate your expense tracking app with your eCommerce store and track your sales through payments received via multiple payment methods.
- **Vendors and Contractors:** Manage and track all the payments to the vendors and contractors added to the mobile app.
- **Access control:** Increase your team productivity by providing access control to particular users through custom permissions.
- **Track Projects:** Determine project profitability by tracking lab or costs, payroll, expenses, etc., of your ongoing project.
- **Inventory tracking:** An expense tracking app can do it all. Right from tracking products or the cost of goods, sending alert notifications when the product is running out of stock or the product is not selling, to purchase orders.
- **Recurrent Expenses:** Rely on your budgeting app to track, streamline, and automate all the recurrent expenses and remind you on a timely basis.

ADVANTAGES AND DISADVANTAGES

ADVANTAGES:

- Improved customer service
- Cloud-based solution
- Order Fulfilment
- Harness customer loyalty and retention
- Achieve your business goals with tailored mobile app that perfectly fits your business
- Scale-up at the pace your business is growing
- Deliver an outstanding customer experience through additional control over the app
- Control the security of your business and customer data
- Boost the productivity of all the processes within the organization needs
- Ability to provide valuable insights

DISADVANTAGES:

- System clash
- Reduced physical audits
- No solution to improve or eliminate bottlenecks in the service cycle

CONCLUSION

From this project, we are able to manage and keep tracking the daily expenses as well as income. While making this project, we gained a lot of experience of working as a team. We discovered various predicted and unpredicted problems and we enjoyed a lot solving them as a team. We adopted things like video tutorials, text tutorials, internet and learning materials to make our project complete. Taking proper care of our record is crucial in every business, no matter how big or little, we must understand. We must educate ourselves about the idea of effective inventory management and its applications because we can see that managers do not fully grasp it. A company's inventory management system is one of the reasons for its failure. Many customs to combat failure are present, and we can start from this point. Modern technologies can support us in managing and keeping an eye on our inventory. We may learn, put new ideas into practice, and assess our company.

FUTURE SCOPE

The project assists well to record the income and expenses in general. However, this project has some limitations:

- The application does not provide higher decision capability.
- The application is unable to maintain the backup of data once it is uninstalled.

To further enhance the capability of this application, we recommend the following features to be incorporated into the system:

- Multiple language interface
- Provide backup and recovery of data
- Provide better user interface for user
- Mobile apps advantage

GITHUB LINK:

<https://github.com/IBM-EPBL/IBM-Project-32840-1660212492>

DEMO VIDEO LINK:

<https://drive.google.com/file/d/1N1bjdS69aAR2RwM4LmJdBR3CARTDQWYr/view?usp=sharing>