

IBM NALAIYA THIRAN
CLOUD APP DEVELOPMENT
PERSONAL EXPENSE TRACKER
PROJECT REPORT

TEAM ID : PNT2022TMID30200

Submitted By

RITHISHA. S (611219104078)

SANDHYA. M (611219104083)

SHARAN. B (611219104091)

SHIVASUDHAN. K (611219104095)

in partial fulfillment for the award of the degree

of

BACHELOR OF ENGINEERING

in

COMPUTER SCIENCE AND ENGINEERING

KNOWLEDGE INSTITUTE OF TECHNOLOGY,

SALEM-637504

PERSONAL EXPENSE TRACKER

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CHAPTER - 1

INTRODUCTION

1.1 PROJECT OVERVIEW

Personal finance management is an important part of people's lives. However, everyone does not have the knowledge or time to manage their finances in a proper manner. And, even if a person has time and knowledge, they do not bother with tracking their expenses as they find it tedious and time-consuming. Now, you don't have to worry about managing your expenses, as you can get access to an expense tracker that will help in the active management of your finances. An expense tracker is a software or application that helps to keep an accurate record of your money inflow and outflow. Many people in India live on a fixed income, and they find that towards the end of the month they don't have sufficient money to meet their needs. While this problem can arise due to low salary, invariably it is due to poor money management skills.

People tend to overspend without realizing, and this can prove to be disastrous. Using a daily expense manager you can keep track of your expenses. At the end of the month, you will have a clear picture where your money is going. This is one of the best ways to get your expenses under control and bring some semblance of order to your finances. As a result, you will be able to save and be able to keep worry at bay. A daily money tracker helps you budget your money to use wisely.

1.2 PURPOSE

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

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helps you track all transactions like bills, refunds, payrolls, receipts, taxes, etc., on a daily, monthly and yearly basis. It is essential to prioritize your spending. If you begin analyzing what you are spending your hard-earned money on, you will be able to prioritize the spending. This way, you will spend just on things you really need, like paying your EMIs, utility bills, rent and grocery shopping, rather than spending frivolously. If you tend to spend money on a whim, using an expense manager will help you identify those habits. When you see this spending in black and white, you will be able to take corrective measures. Primarily, you will think twice before spending on things you don't really need.

When you track your expenses, you take control of your finances. It empowers you to control spending impulses and eliminate frivolous spending, thereby avoiding debt. You can, instead, work to create financial security for yourself by spending your money more wisely. When you track your expenses, you can save better and invest for your future. Spending aimlessly does not give you leeway to save and invest for your future. The main reason you should track your expenses is 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 promote better financial habits like saving and investing. It's an essential activity that you should ideally do everyday throughout the month. Tracking your expenses helps you become more aware of what you are spending and where you are spending it. Tracking your spending is the only way to find out how much you're spending on non-essentials. It can help you identify the areas where you need to change. The purpose is to keep track of your expenses in an essential way and get benefited.

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CHAPTER - 2

LITERATURE SURVEY

2.1 EXISTING PROBLEM

In existing, we need to maintain the Excel sheets, CSV etc. files for the user daily and monthly expenses. In existing, there is no such complete solution to keep a track of its daily expenditure easily. To do so a person has to keep a log in a diary or on a computer, also all the calculations need to be done by the user, which may sometimes result in errors leading to losses.

There can be many disadvantages to 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. Unraveling the complexity of your financial records by hand may be time-consuming. Since it takes time to generate reports.

2.2 SURVEY

EXPENSE TRACKER APPLICATION(VELMURUGAN R,MAR 2021)

This application allows the user to maintain a computerized diary. Expense tracker application which will keep a track of Expenses of a user on a day to-day basis. Expense tracker application will generate a report at the end of the month to show expense via a graphical representation. We also have added a special feature which will distribute your expenses into different categories suitable for the user. An expense history will also be provided in application. They have developed an android application named as “Expense Tracker Application” and this application is used to manage the user’s daily expenses in a more coherent and manageable way. With the help of this application, user can calculate his total expenses per day and these results will be stored for unique user. As the traditional methods of budgeting, we need to maintain the Excel sheets, Word Documents, notes, and files for the user's daily and monthly expenses. There is no such full-fledged solution to

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keep a track of our daily expenses easily. Keeping a log in diary is a very monotonous process. Expense tracker application will generate a report at the end of the month to show expense via a graphical representation. We also have added a special feature which will distribute your expenses into different categories suitable for the user. An expense history will also be provided in application.

DAILY EXPENSE TRACKER (SHIVAM MEHRA,DECEMBER 2021)

The daily expense tracker is a web application which is used to maintain data of daily, weekly, monthly and yearly expenses in an eye-catching way. The application contains all the features of digitally maintaining the records with some eye-catching visual representation and graphics of your spending and even eliminating the need for physical entries by providing voice instructions. This web application usually is developed using React Js as the framework and also uses its libraries like material Ui, chart.js to add and create the functionalities. Similarly, it will also have an expense category where you can make similar transaction about the source of your expense, amount and date. On creating such transaction a different chart for distribution of expense will also be made in real time. The web application will also be voice powered and all the functionalities can be used with voice commands. The application will be accessible and compatible with all the devices. It is designed and developed in a way that it is compatible with every device.

EXPENDITURE MANAGEMENT SYSTEM (DR.V.GEETHA,MAY 2022)

In this project, They propose an application known as "Expense Tracker," which is helpful to manage our income and expense daily or periodically or else whenever we want to remind. It also acts as an indicator or reminder example in the fastest world in which we cannot remember what the things we have to do for the end of the month are and the payments we have to pay for the particular month. This app will assist you in keeping track of what you need to do at the end of the month. For instance, what are the monthly expenses, Food expenses, phone, power, taxation, and other personal charges are some of the expense features. This project also includes features that will assist the user in maintaining all financial operations,

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such as a digital automatic diary. So, in order to create a better expense tracking system, they created a project that will greatly benefit the users. Most people are unable to track their expenses and income, resulting in financial difficulties. In this scenario, a daily cost tracker can assist people in tracking their income and expenses on a daily basis, allowing them to live a stress-free life.

AN ANDROID BASED MOBILE APPLICATION FOR TRACKING DAILY EXPENSES (ADEPEGBA,JAN 2019)

This Article is about developing an android based mobile application capable of monitoring and controlling personal expenses, as well as cautioning the user against un-budgeted spending. It was implemented using Java programming language on android studio and My SQL. The use of this application will among other things help to monitor rate of spending, refresh information and give warning notification among other things. The wide use of these android mobile phones and their ability to run software applications, make a lot of sense in making this application android based. It has also helped in providing more knowledge in Java programming on Android studio, Mobile app development, SQLite Server database application and integration. The developed system was designed using system flowchart, use case diagram, sequence diagrams, class diagram and system architecture diagram which makes the system user-friendly with easy to use interface for any user, including those that are not used to computer software. In this paper, the development and implementation of an Android Based Mobile Application for Tracking Daily Expenses capable of helping users to keep records of their daily expenses, monitor their spending and control wasteful spending had been presented.

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2.3 PROBLEM STATEMENT DEFINITION

Problem Statement (PS)	I am (Customer)	I'm trying to	But	Because	Which makes me feel
PS-1	Businessman	Keep track of his business expenses and which type of expense carries the most	It shows randomly all expenses	The application does not categorize the expenses	Frustrated
PS-2	IT Professional	Add my expenses without any manual work	It asks us to enter our expenses manually	I don't want to add my expenses manually every time	Depressed
PS-3	Housewife	Make a budget plan according to their expenses	It shows the total expenses	I want to create a budget according to my list of expenses	Disappointed
PS-4	Family man	Divide my part of salary for my loan and I want to set a remainder for my loan due	It does not have any specific remainder for loan dues	It is not updated to that level	Helpless
PS-5	Businessman	Keep track of my expenses in an automated manner	It is not possible	There isn't any feature to record all expenses automatically	Irritated

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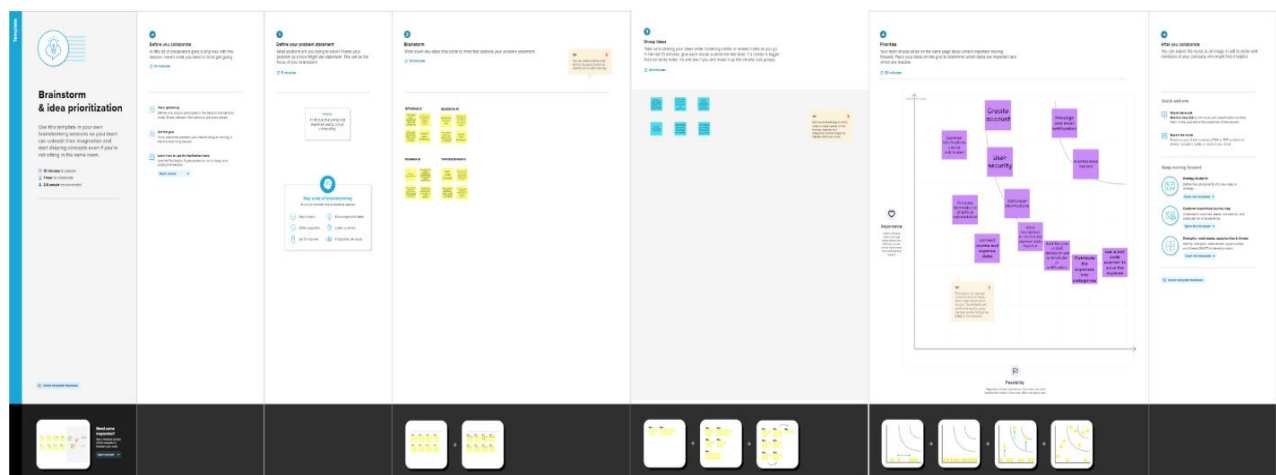
CHAPTER - 3

IDEATION & PROPOSED SOLUTION

3.1 EMPATHY MAP CANVAS



3.2 IDEATION & BRAINSTORMING



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3.3 PROPOSED SOLUTION

S.No	Parameter	Description
1.	Problem Statement (Problem to be solved)	➤ To keep track of our expenses using Cloud Computing.
2.	Idea / Solution description	<p>➤ Most people are not aware of their expenses and often get stuck with a financial crisis.</p> <p>➤ To overcome the financial problems and make a budget according to the salary, Our project helps them to keep track of their daily expenses and provide a monthly record of their expenses in a graphical representation.</p> <p>➤ It will help the user to know where it went all wrong and how to overcome the financial problems.</p>
3.	Novelty / Uniqueness	➤ We help the customers to keep track of the expenses and we also alert them which expenses to be reduced and chart the expense monthly so they can know either they are benefited or not from our application.
4.	Social Impact / Customer Satisfaction	➤ By using our application, Customer can know where their money is going and they can save money by creating a budget for the amount they have and use accordingly.
5.	Business Model (Revenue Model)	➤ Saving money with the help of an application makes our idea realistic. As it is useful who cares about their money, it can attract customers as well.

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3.4 PROBLEM SOLUTION FIT

Project Title: Personal Expense Tracker		Project Design Phase-I – Solution Fit		Team ID: PNT2022TMID30200	
Define CS, fit into CC	1. CUSTOMER SEGMENT(S) CS <ul style="list-style-type: none"> Businessman Housewife Professionals 	6. CUSTOMER CC <ul style="list-style-type: none"> It is a fear of not having the resources available to meet our needs. Most of them don't have a reminder to warn them of their expenses and help to overcome the high expenses. 	5. AVAILABLE SOLUTIONS AS <ul style="list-style-type: none"> The available solution is to provide a platform for the customer to keep track of the expenses. To reduce the expenses and increase the income. Think about all of your expenses you usually tend to spend your money on and prioritize which is important and plan accordingly. 	Explore AS, differentiate	
	2. JOBS-TO-BE-DONE / PROBLEMS J&P <ul style="list-style-type: none"> Solve unexpected expenses and financial anxiety. Lack of awareness. Remind the customer about their financial status and how to compensate the expenses. To set a limit of a particular amount and keep track of the expenses without exceeding the limit. 	9. PROBLEM ROOT CAUSE RC <ul style="list-style-type: none"> Users are not very much careful about their savings and spend money without keeping track of it. It often leads them to spend extra and it will lead them to a financial crisis. Also, They are less motivated about the cause of this and it will trouble their savings and may end up in many financial problems. 	7. BEHAVIOUR BE <ul style="list-style-type: none"> To develop a web application which includes all the factors to keep track of their expenses. 		
Focus on J&P, map into BE, understand RC	3. TRIGGERS TR <ul style="list-style-type: none"> Seeking for self-gratification by earning the thing. 	10. YOUR SOLUTION SL <ul style="list-style-type: none"> This application will help the users to add their expenses so they can get an analysis of their expenditure in a graphical form. They have an option to set a limit of the amount to be used for a particular month and if the limit is exceeded the user will be notified with an alert message. 	8. CHANNELS of BEHAVIOUR CH <p>ONLINE</p> <ul style="list-style-type: none"> Google advertisements. Social media platforms. <p>OFFLINE</p> <ul style="list-style-type: none"> Through words. Recommendation from the customers. 	Focus on J&P, map into BE, understand RC	
	4. EMOTIONS: BEFORE / AFTER EM <ul style="list-style-type: none"> Before : Fear , Hopeless , Depressed After : Confident , Aware 		8. CHANNELS of BEHAVIOUR CH <p>ONLINE</p> <ul style="list-style-type: none"> Google advertisements. Social media platforms. <p>OFFLINE</p> <ul style="list-style-type: none"> Through words. Recommendation from the customers. 		
Identify strong TR & EM				Extract online & offline CH of BE	

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CHAPTER - 4

REQUIREMENT ANALYSIS

4.1 FUNCTIONAL REQUIREMENTS

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	Registration through Form Registration through Gmail
FR-2	User Confirmation	Confirmation via Email Confirmation via OTP
FR-3	Login	Enter the valid username and password
FR-4	Calendar	Personal expense tracker application shall allow users to add the data to their expenses.
FR-5	Expense Tracker	This application should graphically represent the expense in the form of report.
FR-6	Report generation	Report generation through Message Report generation through Gmail
FR-7	Category	This application shall allow users to add categories of their expenses.

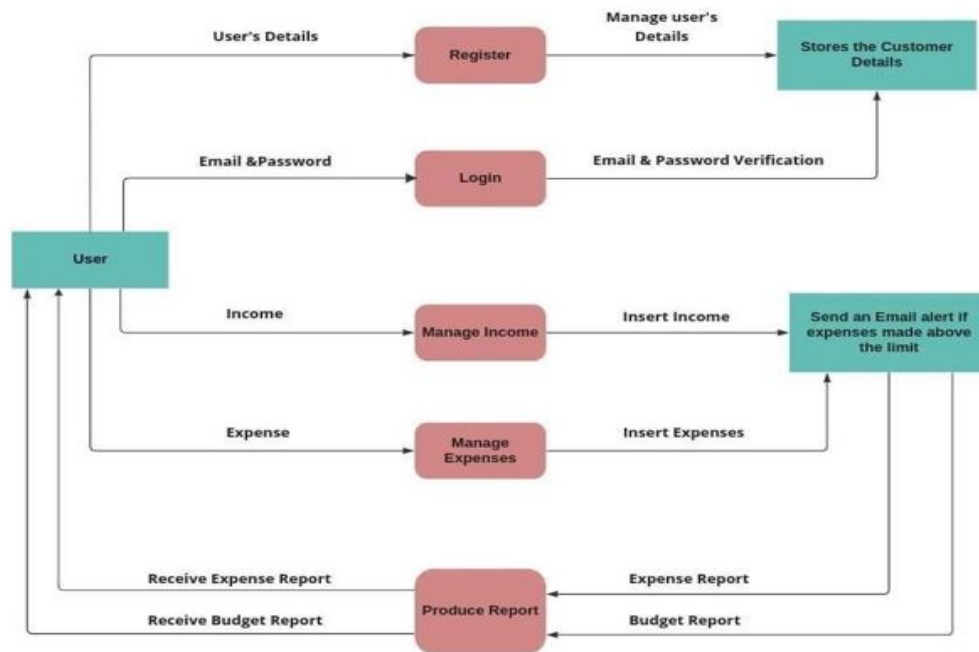
4.2 NON-FUNCTIONAL REQUIREMENTS

FR No.	Non-Functional Requirement	Description
NFR-1	Usability	Helps to keep an accurate record of your money inflow and outflow.
NFR-2	Security	Budget tracking apps are considered very safe from cybercriminals.
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. Through put of the system is increased due to light weight database support.
NFR-5	Availability	It is available all the time. No time constraint
NFR-6	Scalability	The ability to appropriately handle increasing demands.

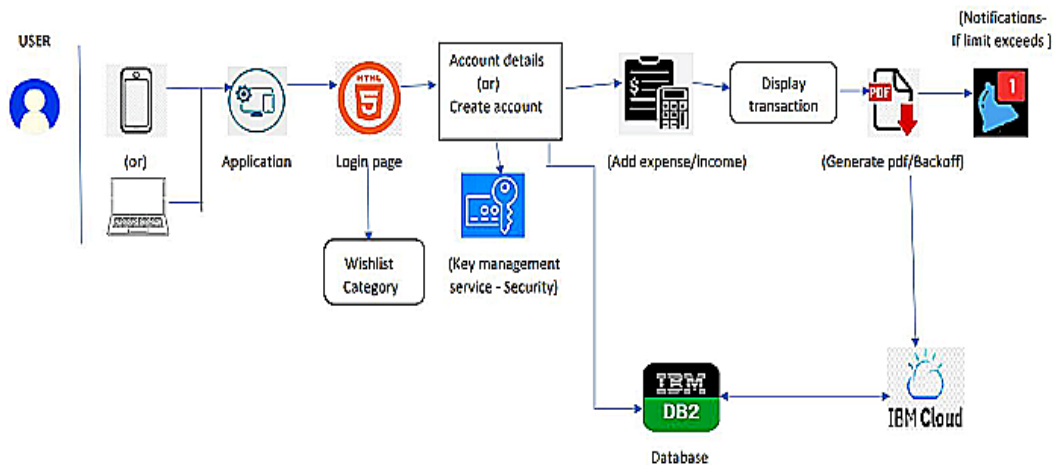
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CHAPTER - 5 PROJECT DESIGN

5.1 DATA FLOW DIAGRAM



5.2 SOLUTION & TECHNICAL ARCHITECTURE



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5.3 USER STORIES

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Customer (Mobile 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 a 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 & 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 anytime 24*7	Medium	
Administrator	Application	USN – 7	As an administrator, I can upgrade or update the application.	I can fix the bug which arises for the customers and users of the application	Medium	

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CHAPTER -6 PROJECT PLANNING & SCHEDULING

6.1 PROJECT 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.	5	High	Rithisha S Sandhya M
Sprint-1	Login	USN-2	As a user, I can log into the application by entering email & password	5	High	Sharan B Shivasudhan K
Sprint-1		USN-3	As a user, I can register for the application through Gmail	5	Low	Rithisha S Sandhya M
Sprint-2	Adding details	USN-4	As an user ,I can add expenditure details	5	Medium	Sharan B Shivasudhan K
Sprint-2		USN-5	As an admin,I should display the history of expenditure details	10	High	Rithisha S Sandhya M
Sprint-2		USN-6	As an user ,I can delete expenditure details	5	High	Sharan B Shivasudhan K
Sprint-3	Limit	USN-7	As an user,I can set my limit for expenses	4	High	Rithisha S Sandhya M
Sprint-3	Dashboard	USN-8	As an admin,I should provide analysis of expenditures in graphical form	6	Medium	Sharan B Shivasudhan K

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Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-4	Administrative	USN-9	As an admin,I Should Send an Email alert if expenses made above the limit	10	High	Rithisha S Sandhya M
Sprint-4		USN-10	As an admin,I should provide the expense details of the user in daily,monthly ,and in a yearly basis	10	Medium	Sharan B Shivasudhan K

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	15	7 Days	22 Oct 2022	28 Oct 2022		
Sprint-2	20	5 Days	29 Oct 2022	2 Nov 2022		
Sprint-3	10	5 Days	03 Nov 2022	7 Nov 2022		
Sprint-4	20	4 Days	8 Nov 2022	12 Nov 2022		

Velocity:

Average velocity of sprint-1: $AV = 15/7 = 2.15$

Average velocity of sprint-2: $AV = 20/5 = 4$

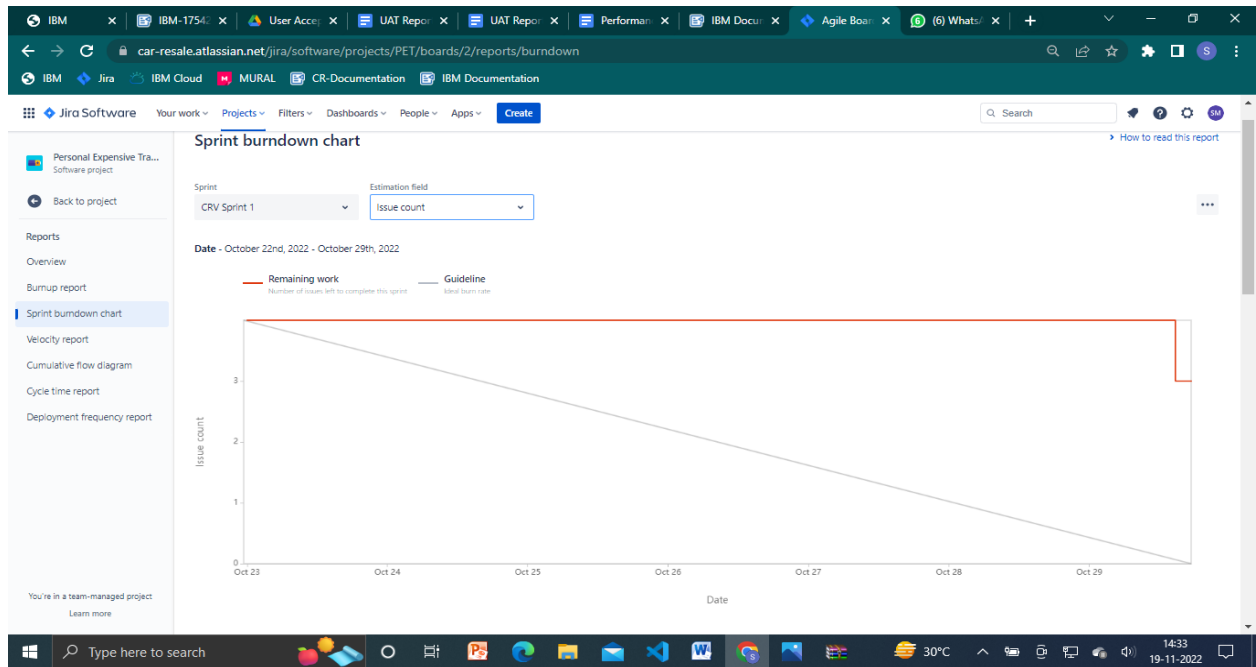
Average velocity of sprint-3: $AV = 10/5 = 2$

Average velocity of sprint-4: $AV = 20/4 = 5$

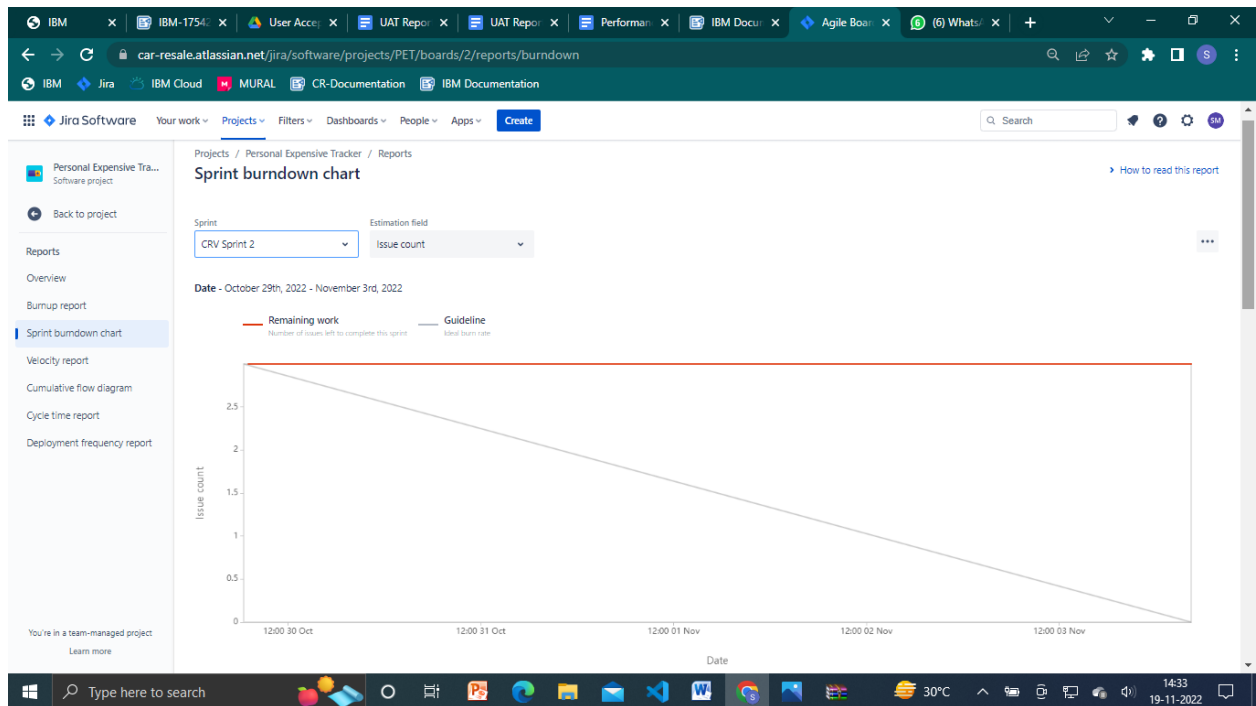
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6.3 REPORTS FROM JIRA

BURNDOWN CHART

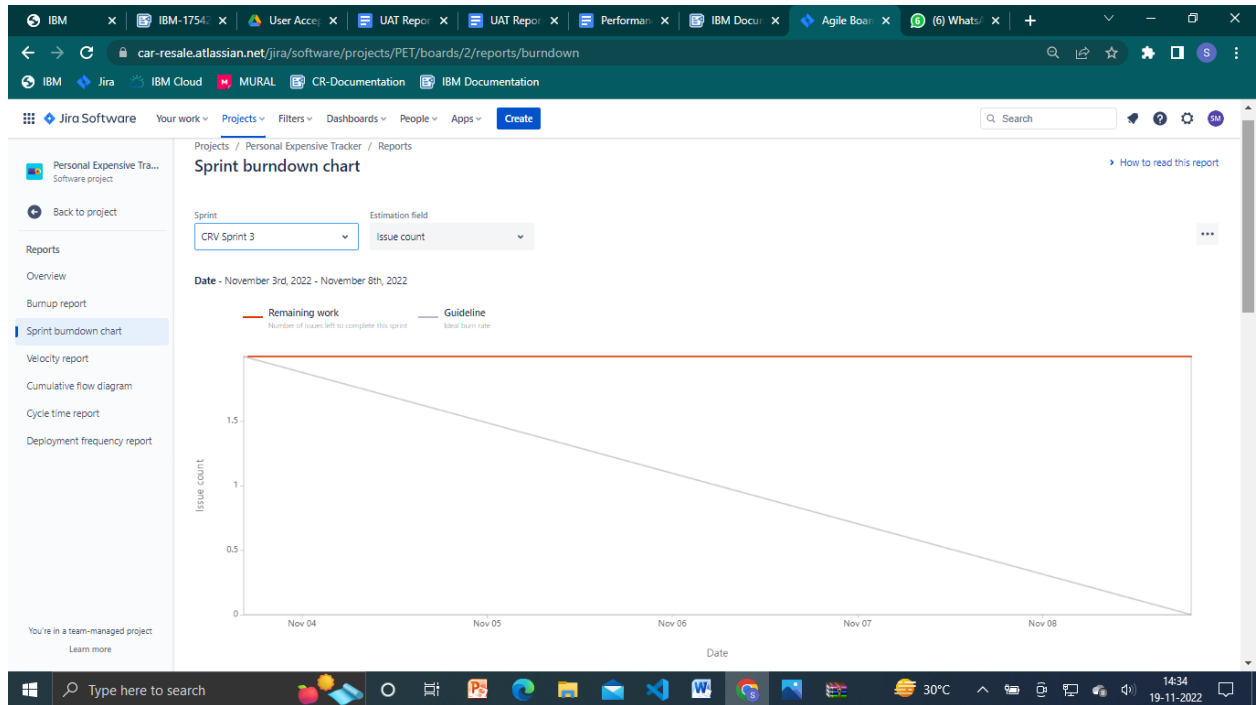


SPRINT - 1

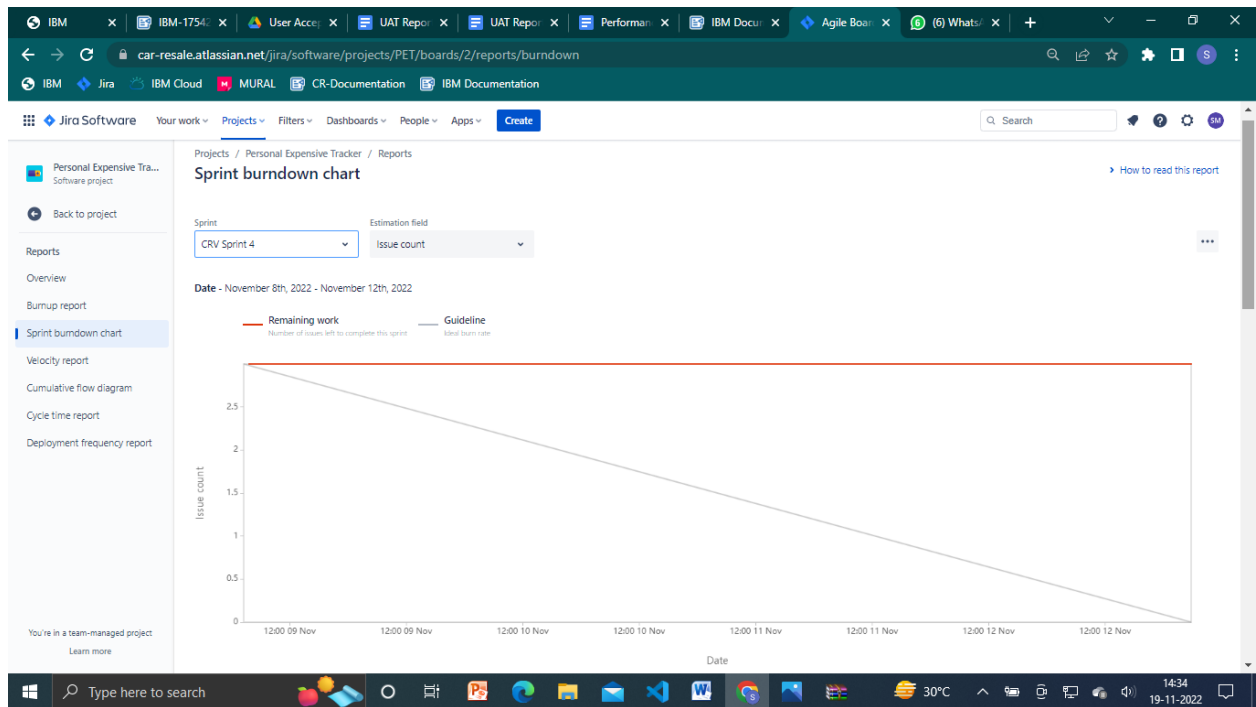


SPRINT - 2

PERSONAL EXPENSE TRACKER



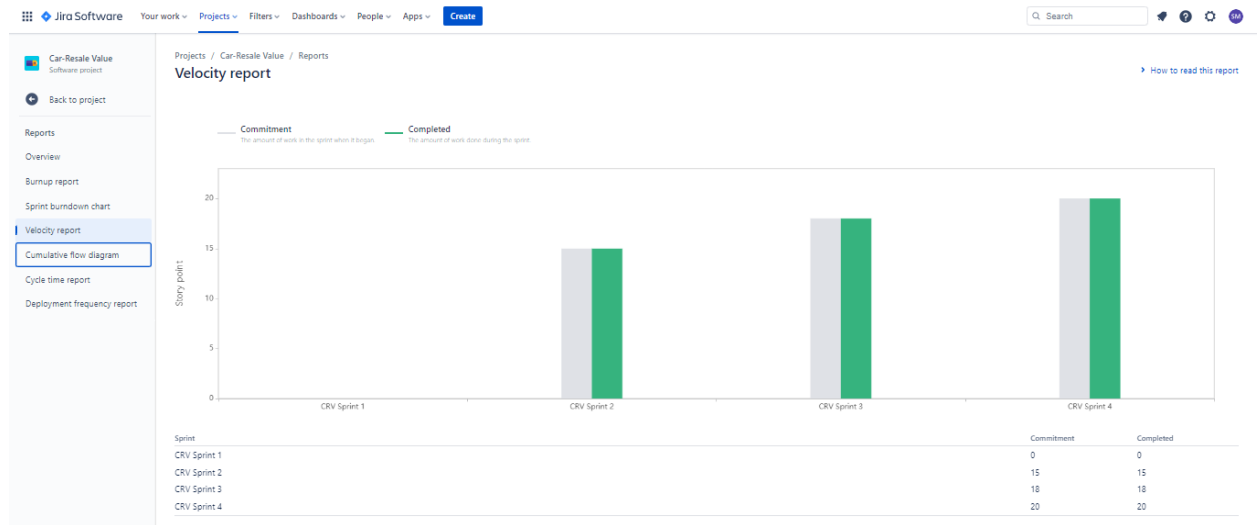
SPRINT - 3



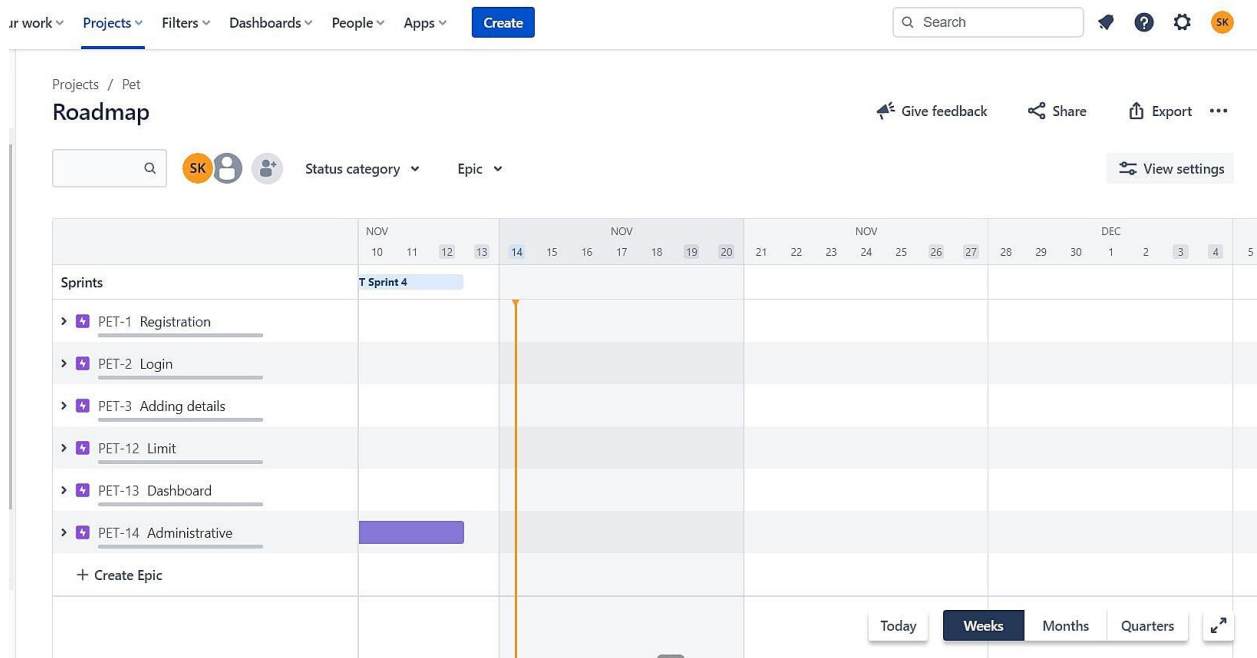
SPRINT - 4

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VELOCITY CHART



ROADMAP



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CHAPTER - 7

CODING & SOLUTIONING

7.1. FEATURE 1

Feature 1: Add Expense

Feature 2: Update expense

Feature 3: Delete Expense

Feature 4: Set Limit

Feature 5: Send Alert Emails to users

7.2 FEATURE 2

Track your expenses anywhere, anytime. Seamlessly manage your money and budget without any financial paperwork. Just click and submit your invoices and expenditures. Access, submit, and approve invoices irrespective of time and location. Avoid data loss by scanning your tickets and bills and saving in the app. Approval of bills and expenditures in real-time and get notified instantly. Quick settlement of claims and reduced human errors with an automated and streamlined billing process

DATABASE SCHEMA

When the user registered to our web application their details like mail ID, Name, password and mobile number gets stored in IBM Cloud (IBM Db2)

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IBM Db2 on Cloud

Load Data

Load History

Tables

Views

Indexes

Aliases

MQTs

Sequences

Application objects

Find schemas or tables

Refresh

Schemas

Tables

New table +

Filter

Sort

Columns

Name	Schema	Properties
<input type="checkbox"/> ADDEXPENSE	MYD98326	...
<input type="checkbox"/> LIMITS	MYD98326	...
<input type="checkbox"/> REGISTER	MYD98326	...
<input type="checkbox"/> USER	MYD98326	...

Total: 4, selected: 0

Table definition

Approximate 0 rows (0 KB)
Updated on 2022-11-12 04:59:28

Name	Data type	Nullable	Length	Scale	
EMAIL	CHAR	N	30	0	👁
USERNAME	CHAR	N	30	0	👁
ROLL_NUMBER	INTEGER	N		0	👁
PASSWORD	CHAR	N	15	0	👁

View data

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CHAPTER - 8 TESTING

8.1 TEST CASES

8.1. TESTING:

1. Login Page (Funcional)
2. Login Page (UI)
3. Add Expense Page (Functional)

8.2. User Acceptance Testing:

1. Purpose of Document

The purpose of this document is to briefly explain the test coverage and open issues of the [ProductName] 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

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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

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CHAPTER - 9

RESULTS

9.1 PERFORMANCE METRICS

- Tracking income and expenses: Monitoring the income and tracking all expenditures (through bank accounts, mobile wallets, and credit & debit cards).
- Transaction Receipts: Capture and organize your payment receipts to keep track of your expenditure.
- Organizing Taxes: Import your documents to the expense tracking app, and it will streamline your income and expenses under the appropriate tax categories.
- Payments & Invoices: Accept and pay from credit cards, debit cards, net banking, mobile wallets, and bank transfers, and track the status of your invoices and bills in the mobile app itself. Also, the tracking app sends reminders for payments and automatically matches the payments with invoices.
- Reports: The expense tracking app generates and sends reports to give a detailed insight about profits, losses, budgets, income, balance sheets, etc.,
- E-commerce integration: Integrate your expense tracking app with your e-Commerce store
and track your sales through payments received via multiple payment methods.
- Vendors and Contractors: Manage and track all the payments to the vendors and contractors added to the mobile app.
- Access control: Increase your team productivity by providing access control to particular
users through custom permissions.
- Track Projects: Determine project profitability by tracking labor costs, payroll, expenses,

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etc., of your ongoing project.

- **Inventory tracking:** An expense tracking app can do it all. Right from tracking products or the cost of goods, sending alert notifications when the product is running out of stock or the product is not selling, to purchase orders.
- **In-depth insights and analytics:** Provides in-built tools to generate reports with easy-to understand visuals and graphics to gain insights about the performance of your business.

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CHAPTER 10

ADVANTAGES AND DISADVANTAGES

10.1. ADVANTAGES

One of the major pros of tracking spending is always being aware of the state of one's personal 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 manually tracking all cash that is spent can be irritating as well as time consuming, a pro is that doing this automatically can be quick and simple. 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 in order to be sure of the available budget. Another pro is that for those who just wish to keep tracking spending by hand with a 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 before the end of a pay period or month.

10.2. DISADVANTAGES

A con with any system used to track spending is that one may start doing it then taper off until it's forgotten about all together. Yet, this is a risk for any new goal such as trying to lose weight or quit smoking. If a person first makes a budget plan, then places money in savings before spending any new pay period or month, the tracking goal 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

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constant tracking of one's spending habits, there is no guarantee that 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 properly manage all finances. Another con that may occur when spending is being tracked is an error, but this may also be able to be changed into 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.

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CHAPTER 11

CONCLUSION

A comprehensive money management strategy requires clarity and conviction for decision making. You will need a defined goal and a clear vision for grasping the business and personal finances. That's when an expense tracking app comes into the picture. 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.

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FUTURE SCOPE

Expense management software will begin to respond to this change in the manner that people work by facilitating mobility. Employees will be able to submit reports and managers can approve the claims from a smartphone. Also, mobile applications will become more intuitive and responsive, encouraging greater adoption. Optical character recognition (OCR) will be one of the significant ways in which the ease-of-use of [expense management tool](#) will be enhanced. It eliminates the need to manually input data from receipts into forms. It will also facilitate mobility.

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APPENDIX

SOURCE CODE

```
@app.route('/addexpense',methods=['GET', 'POST'])  
def add_expense():  
    print("Entering add expense")  
    if request.method == 'POST':  
        date = request.form.get('date')  
        Expensename = request.form.get('expensename')  
        amount = request.form.get('amount')  
        pay mode = request.form.get('paymode')  
        category = request.form.get('category')  
        email = session['userid']  
  
        print("&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&")  
        print(email)  
        print("&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&")  
  
        insert_sql = "INSERT INTO ADDEXPENSE VALUES (?,? ,?, ?, ?, ?)"  
        prep_stmt = ibm_db.prepare(conn, insert_sql)  
  
        print("=====  
        ibm_db.bind_param(prepare_stmt, 1, date)  
        ibm_db.bind_param(prepare_stmt, 2, expense name)  
        ibm_db.bind_param(prepare_stmt, 3, amount)  
        ibm_db.bind_param(prepare_stmt, 4, pay mode)  
        ibm_db.bind_param(prepare_stmt, 5, category)  
        ibm_db.bind_param(prepare_stmt, 6, email)
```

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```
    ibm_db.execute(prepare_stmt)
    print("=====")
    print("Successfully inserted")
    # print(date + " " + expense name + " " + amount + " " + pay mode + " " +
category)
    return redirect('/display')
```

```
@app.route("/display")
```

```
def display():
```

```
    print("=====")
    expense = []
    print(expense)
    sql = "SELECT * FROM ADDEXPENSE where email=?"
    prepare_stmt = ibm_db.prepare(conn, sql)
    print("USER ID = ", session['userid'])
    ibm_db.bind_param(prepare_stmt, 1, session['userid'])
    ibm_db.execute(prepare_stmt)
    dictionary = ibm_db.fetch_both(prepare_stmt)
    print("-----dictionary-----")
    # print(dictionary)
    print("-----")
    t_food = 0
    t_entertainment = 0
    t_business = 0
    t_rent = 0
    t_EMI = 0
    t_other = 0
    total = 0
    income amount = 0
    while dictionary != False:
        print("_varutha__")
```


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```
expense.append(dictionary)
print(dictionary)
category = str(dictionary['CATEGORY']).strip()
if(category == 'food'):
    t_food = int(dictionary['AMOUNT']) + t_food
if(category == 'entertainment'):
    t_entertainment = int(dictionary['AMOUNT'])+ t_entertainment
if(category == 'business'):
    t_business = int(dictionary['AMOUNT'])+ t_business
if(category == 'rent'):
    t_rent = int(dictionary['AMOUNT'])+ t_rent
if(category == 'EMI'):
    t_EMI = int(dictionary['AMOUNT'])+ t_EMI
if(category == 'other'):
    t_other = int(dictionary['AMOUNT'])+ t_other

dictionary = ibm_db.fetch_both(prepare_stmt)

total = t_food + t_entertainment + t_business + t_EMI + t_rent + t_other
print(expense)
if expense:
    print("IF")
    return render_template("display.html", expense =
json.dumps(expense,default=str),expenselist=expense, t_food = t_food,
t_entertainment=t_entertainment,
t_business=t_business,t_rent=t_rent,t_EMI=t_EMI,t_other=t_other, total=total)
    # return render_template("display.html", expense = expense, expense
list=expense)
else:
    print("ELSE")
    return render_template("display.html", expense = [])
```

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GITHUB & PROJECT DEMO LINK

Github- IBM-EPBL/**IBM-Project-36817-1660298087**

Project demo link - <https://youtu.be/GHeMQyZC0To>

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CHAPTER - 14

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