



CSE519: HUMAN COMPUTER INTERACTION

FINAL PROJECT REPORT

❖ PROJECT TITLE

- HISAB-DIARY

❖ TEAM NAME : TECH WARRIORS

❖ GROUP NO : 13

❖ TEAM MEMBERS :

- AU1841103 VATSAL PATEL
- AU1841058 DEEPKUMAR PATEL
- AU1841081 DHRUV PANCHAL
- AU1841107 VIJAY RANA

Index

<u>Chapter 1 : Introduction</u>	03..05
<u>Chapter 2 : Details of Tools</u>	06..09
<u>Chapter 3 : Project Planning and Preparation</u>	10..31
<u>Chapter 4 : Project Features</u>	32..78
<u>Chapter 5 : Difficulties Encountered and Resolved</u>	79..80
<u>Chapter 6 : Real Life Implementation Perspectives</u>	81..82
<u>Chapter 7 : References</u>	83

Chapter 1 : Introduction

❖ MOTIVATION

In daily-life we need some Application to store our all the expenses to keep track of where our money is being spent most and where we should make our expenses in control. We can make decisions by visualizing the charts and other information that how we can make our spendings in control.

❖ OVERVIEW OF PROJECT

➤PROJECT DETAILS

- Android Application.
- Focus of project : Accounts for Daily Expenses

➤PROJECT TITLE

- HISAB-DIARY

➤TOOLS

- Front-End : Android Studio
- Back-End : Android Studio
- Database : SQLite

❖ **MARKET SURVEY OF REAL LIFE PRODUCTS**

1. Day to Day Expenses (Application)

Day to Day Expenses is a simple and secure expense calculating App. In this app, we can make quick notes on our spending on the go. It is very realistic and convenient as it is to write it down on your pocket hand book. We just have to enter your income and expenses as you earn and spend, and the app will eventually deal with all the calculations for us. We can also make category-wise income/expenses and the App is giving us as many categories we want to make. Colorful and meaningful icons represent each category for easy identification. App will provide Daily/Monthly/Yearly Reports like visualization of overall expenses. It also provides features of saving user's data as PDP/EXPORT TO EXCEL.

App link :

<https://play.google.com/store/apps/details?id=com.seshadri.pdmaja.expense>

2. Expense Manager | Track Your Daily Expenses (Website)

Expense Manager is a simple, stable, very effective and clean looking website. This website allows us to record our daily routine expenses easily. We have to just add new transactions when we buy a new car or house or food or whenever we do a transaction. There is an Add income and an Add expense option available in

the dashboard. Also whenever the month is finished it shows the total monthly expense and the highest expense of the month. This website provides us with daily, monthly and yearly reports of our expenses. This website is easy to manage, easy to track all details with the help of best technical support and best privacy protection. So overall this website is quick and enjoyable.

Weblink : <http://www.expense-manager.in/>

3. Daily Expense Manager (Application)

Daily Expense manager takes care of your daily expenses. In this app, you can track your daily transactions earning and spending. This app is secure, all your data saved in your device. This app interface is very simple and user friendly interface so it addresses the principle of low memory load. We can set the balance by adding income and expenses on a daily, monthly or annual basis. Also, we can sort and filter transaction, categories and payment modes. There are different currencies, date format and time format used. This app gives database backup and we can import and export our transactions with reports in PDF or Excel format.

App link :

https://play.google.com/store/apps/details?id=com.dailyexpensesmanager&hl=en_IN&gl=US

Chapter 2 : Details of Tools

❖ Brief description of facilities available

This is a personal finance tool for use on our mobile phone. By using this tool, we can better manage our wealth. This application will easily manage our daily accounting, managing categories or even drawing detailed reports. This will be used to spend less, save more by keeping to our budgets easily. And also will set monthly budgets to accounts categories and check at one glance from the color-coded health bars. This app will be able to generate and run reports for profit and loss, expenses, income, and balance sheets. Using this app we will be able to customize the reports to indicate essential business needs, generated budgeting and inventory reports.

Features :

- Multiple accounts and support account balance
- Number pad with calculation
- Simple/ Detail / Custom Budgets
- Overview your expense and income summary
- Country-wise Currency
- Bar charts for Expense and Cash Flow
- Password Protection (Fingerprint OR Pin)
- Budget Planner with smart color-coded Budget Health indicators
- Unlimited customizable categories and payees

❖ Comparison table with other tools

Android Studio	Eclipse
Gradle Build System	Apache Ant Build System
Organize and manage project modules have their own gradle build	In Eclipse work on many project user need to merge them into a workspace
Android Studio supports java and kotlin programming language	Eclipse supports C,C++,PHP, Java and many other programming language
Drag and drop feature for easy layout design	No drag and drop feature

Android Studio	IntelliJ IDEA
Gradle Build System	Smart code completion
Google's official android ide	Best in class ide
Android Studio supports java and kotlin programming language	IntelliJ IDEA supports many programming language like golang, Scala, Clojure, Groovy, Bash, etc
Drag and drop feature for easy	No drag and drop feature

❖ **Features of Android Studio:**

- (i) **Instant App run:** Android studio is very similar to the Netbeans of java in the sense of running the app. It gives a very appropriate error message with line number and java or xml file in which the error occurred. It gives the suggestions for resolving the error just like in Netbeans. We can run the app in the emulator and our own phone also after joining the phone with the android studio. It gives us independence of choosing the emulator whichever we want. It also gives the options of running apps in every sized device so our app will be very feasible to every device like small phones, big phones, tables and others.
- (ii) **Firebase database:** Firebase database is an online nosql google database. Android studio gives the tools of joining the online database. We just have to click some buttons and it will add dependencies automatically and it will be connected in very less time. Google gives the reader open source code for every task we can do in the firebase with android studio.
- (iii) **Intelligence code editor :** We don't have to remember any code in android studio. If we know the basics of java language then we can use android studio very easily. Everytime we want to write any function or method or data type, it will show the suggestions of the whole code and that's why we just have to write the first one or two characters and

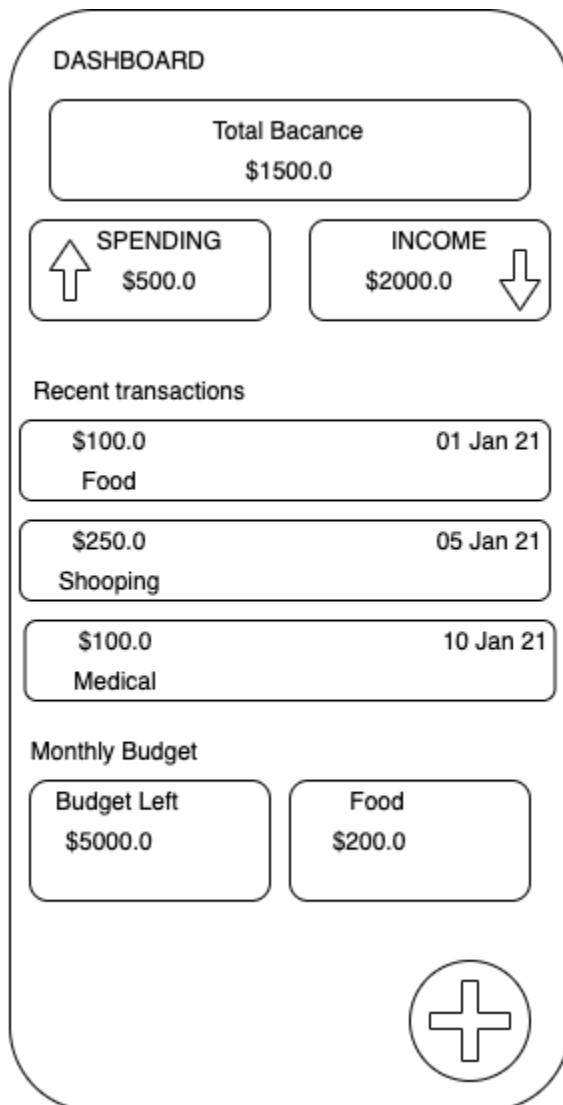
it will show the whole set of suggestions and it will automatically import required dependencies.

(iv) **Code template:** It gives us the readymade template for some common basic activities. For example, it gives us Login Activity readymade. It gives us menu activity readymade. So we don't have to worry about the code for that part of the application. We just need to change some values in order to achieve our goal of the application. It gives us the option of different modes like light mode or dark mode in UI. It also gives the ability to change the color of the notification bar at the top of the phone.

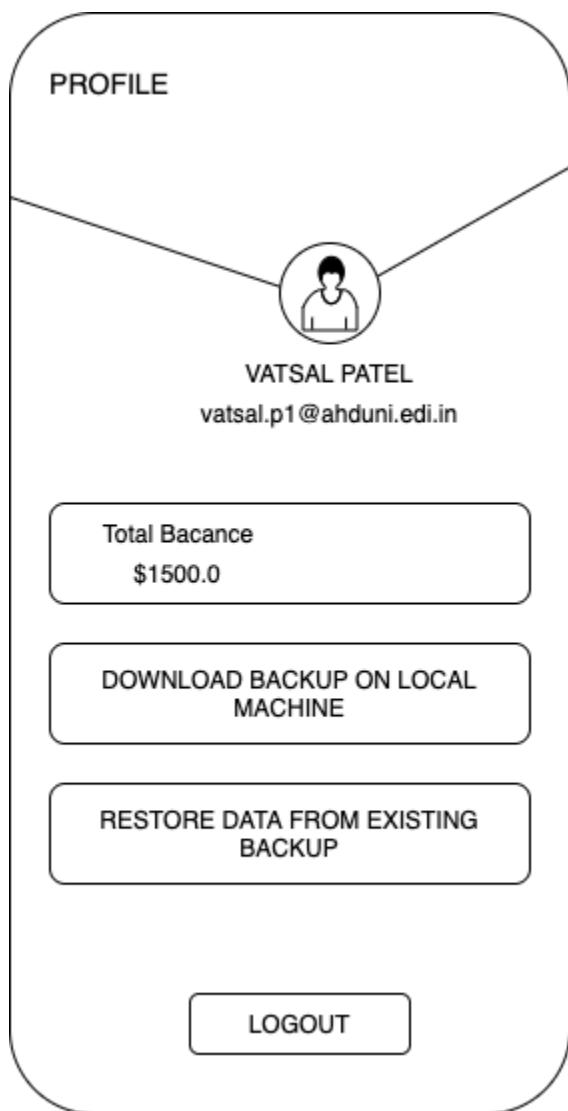
Chapter 3 : Project Planning and Preparation

❖ Paper-pen designs of the screens

1. Dashboard page



2. Profile Page



3. Budget Page

BUDGET

Budget Left : \$3000.0

Month

February, 2021

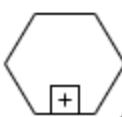
Total budget

\$5000.0

Category-wise budget

FOOD
— 500 +

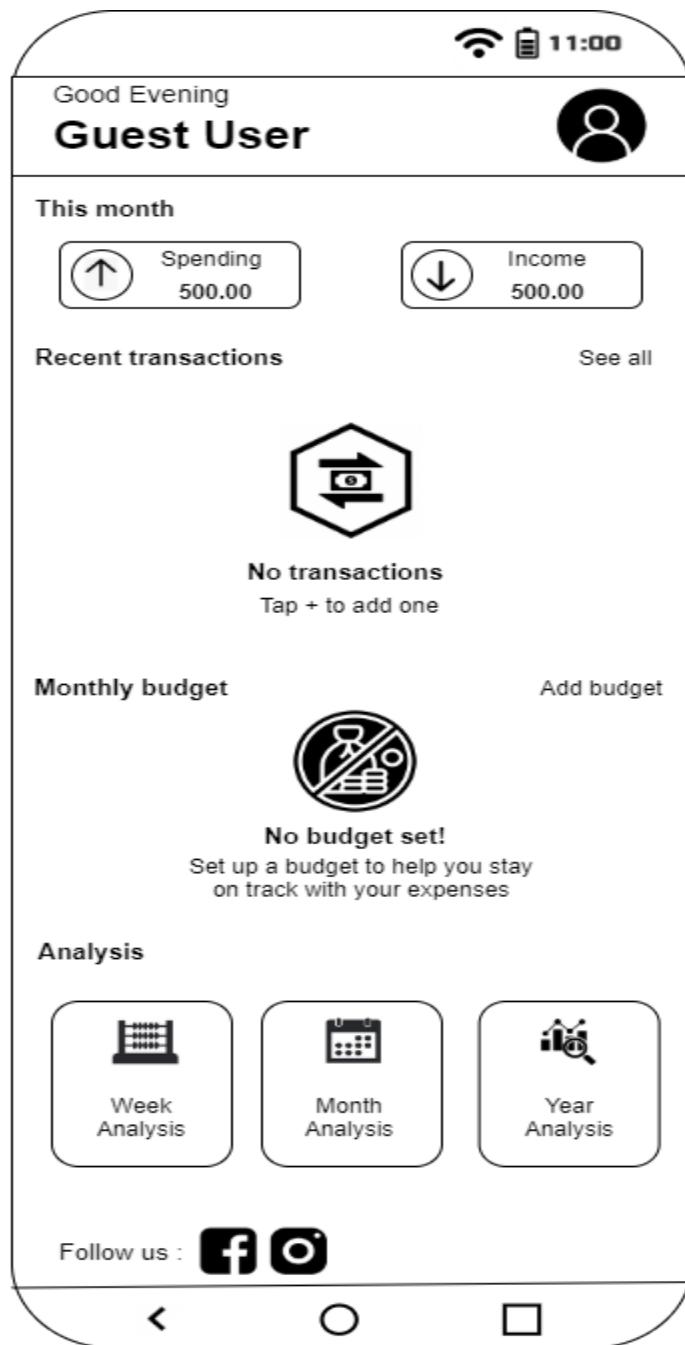
SHOPPING
— 400 +



4. Login page



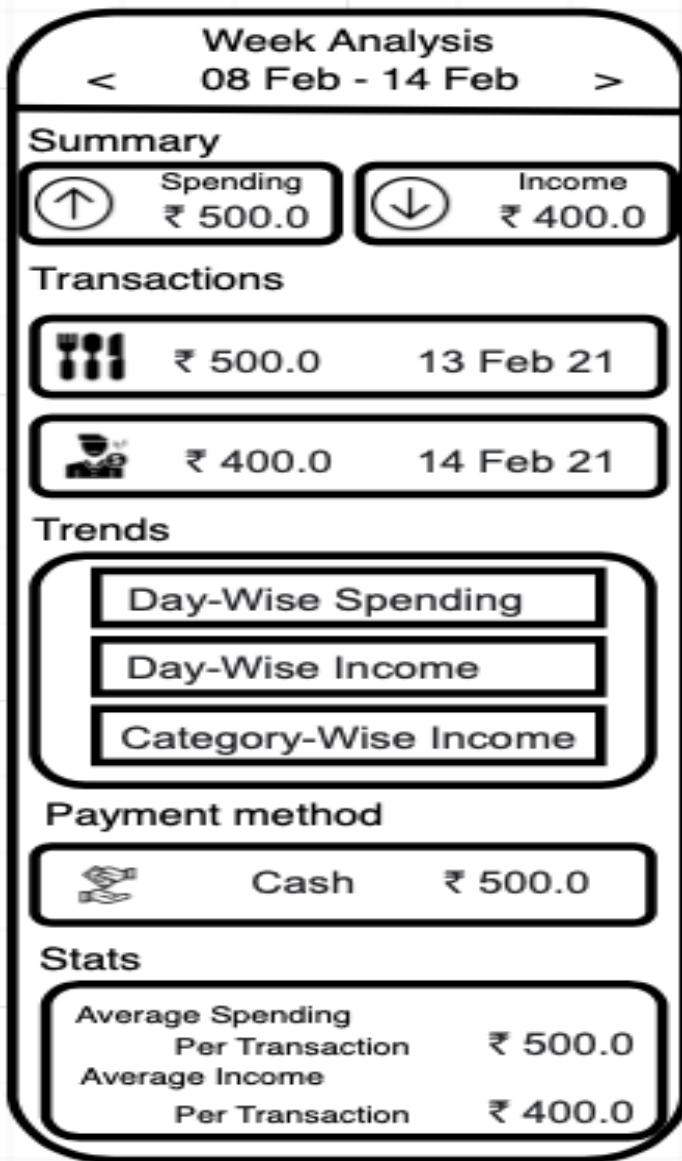
5. Home page



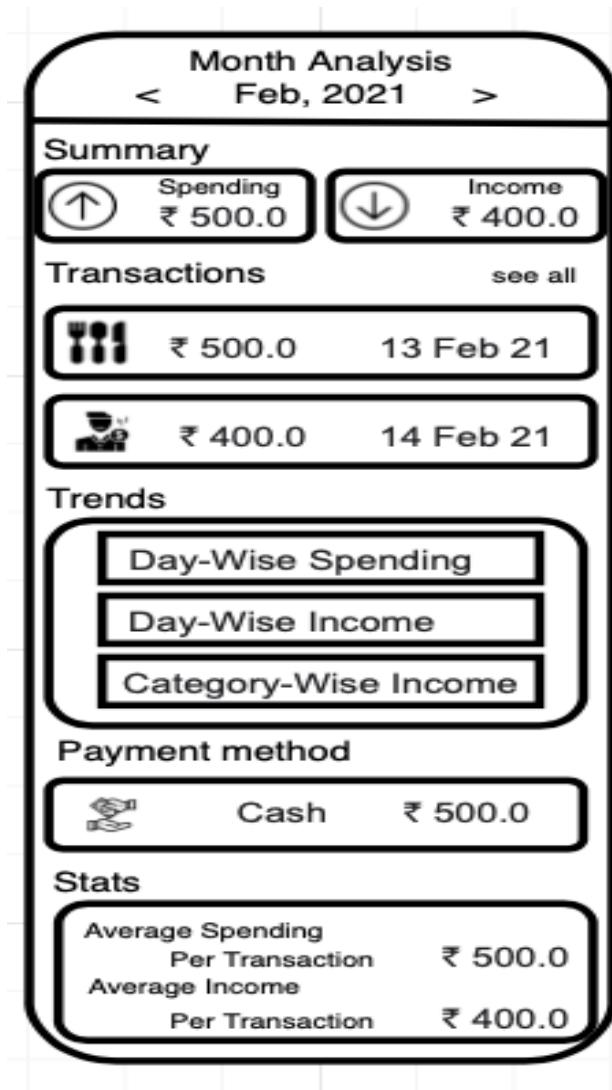
6. Registration page



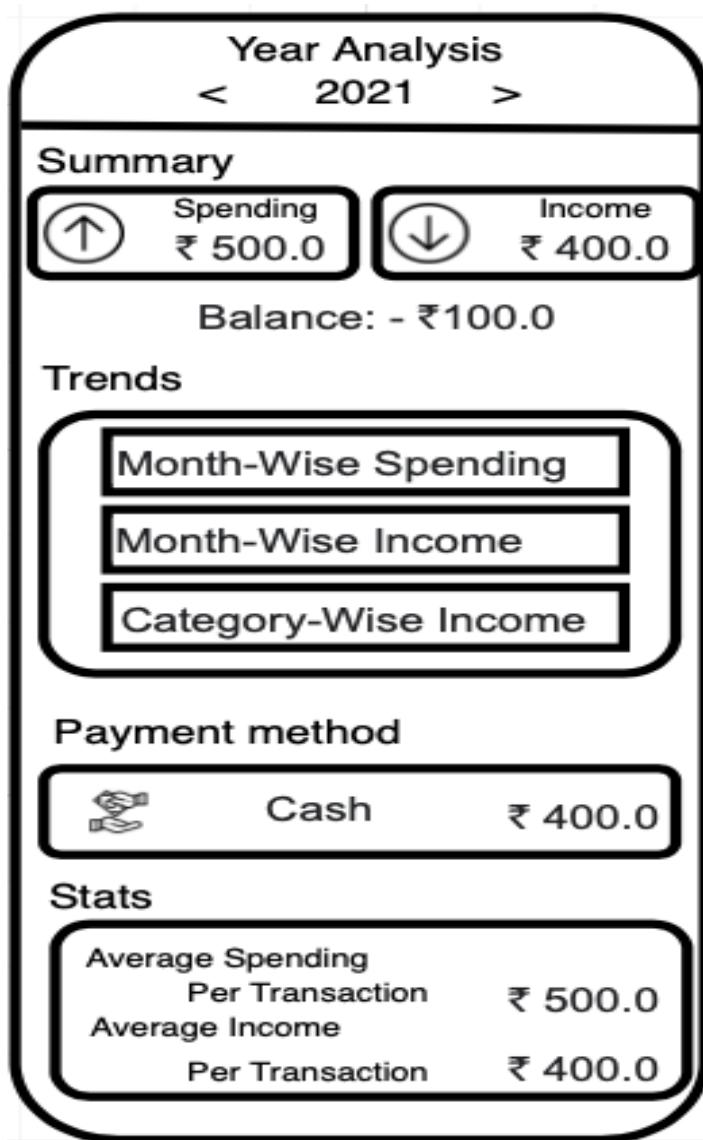
7. Week Analysis



8. Month Analysis



9. Year Analysis



10. Budget Page

BUDGET												
DAY	MONTH	YEAR										
12/02/2021												
Add Budget	500\$											
<input checked="" type="checkbox"/> category	Reset											
<table border="1"><tr><td>Bus</td><td>+ 100\$</td><td>Other</td><td>+ 100\$</td><td></td></tr><tr><td>-</td><td></td><td>-</td><td></td><td></td></tr></table>			Bus	+ 100\$	Other	+ 100\$		-		-		
Bus	+ 100\$	Other	+ 100\$									
-		-										
Budget 500\$	Expense 100\$	Remaining 400\$										

11. Add Transaction Page

Add Transaction

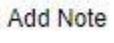
Date
12/02/2021 

Amount

Expense Income

category 

Payment Method Cash 



12. ALL Transaction Page

ALL Transaction		
<input type="button" value="Daily"/>	<input type="button" value="Weekly"/>	<input type="button" value="Monthly"/>
<input type="button" value="All"/>		
Today		
	50\$	Mon Feb 15 2021
	<input type="button" value="Expense"/>	
	1000\$	Mon Feb 15 2021
	<input type="button" value="Income"/>	
Total Income 1000\$	Total Expense 50\$	Balance 950\$
Previous Balance 000\$		

❖ Persona development

Fictional Name

Gautam Agarwal

Occupation

Mechanical Engineer, at
Essar Steel Industries

Demographic

- 35 years old;
- Lives in Surat, Gujarat;
- Married, one child;
- Has brother and sister
- Upper middle class income level



Goals and Needs

Mr. Agrawal is very enthusiastic with his work of engineering and he is very hard working in the steel industry. He really wants to make money from other sources also to pay his son's fees and that's why he wants to make money as much as he can.

Pain Points

The first point is that he can not track the money he earns and that's why tries to make notes of every payment and he also suggests to his wife these types of habits but some of the expanses they forgot to write and that's how they end up with untraceable money lost.

Relative patterns of Behavior

Every day at 5:30 in the evening he goes for photography and takes pictures and posts them on facebook. Every day at 2 pm he performs engineering related tasks on the games which gives him time to relax and think of problem solving ideas.

Personalities

- Judging
 - Creative
 - Introvert
-

Fictional Name

Arya Reddy

Occupation

Computer Engineer, at
Assured Industries

Demographic

- 26 years old;
- Lives in Alandi, Pune;
- Unmarried;
- Has brother
- Middle class income level



Goals and Needs

The goal is to discover ways to make computers faster and more powerful. And developed skills in complex problem solving, speaking effectively to others, active listening, decision making, and operation analysis, among other abilities. Have to learn all the concepts for the design, development, and application of software programs.

Personalities

- Thinker
 - Creative
 - Idealist
 - Mastermind
-

Fictional Name

Mitali Saxena

Age : 30,

Work : Female Fashion Designer,

Family : Married, 2 child,

Location : Fibre2Fashion Company,

Lives : Kolkata, India.

Organised, Protective, Hardworking



Goals and Needs

Mitali Saxena has been a fashion designer at a fibre2fashion company for the past 5 years. Husband, two children, father and mother are her family members. She is very hardworking and she is always passionate about her job. She pays less attention to her family because she is so busy. That's why she needs an application that will manage her daily routine expenses.

Pain Points

She is stuck between job responsibilities and house responsibilities that's why she isn't able to track her daily routine expenses like children fees, shopping, food etc. She tried to remember all these things but she always forgot about it. This has caused a lot of trouble in her family and she is very upset about this.

Personalities

- Active
- Extrovert
- Fickle
- Creative

Fictional Name

Raj Arya



Demographic

- **Age :** 30,
- **Work :** Marketing Manager,
- **Family :** Married, 1 child,
- **Location :** Swiss MNC
- **Lives :** Mumbai, India,

Goals and Needs

Mr. Raj has been the Marketing Manager in Arya swiss MNC Company for the last four years. His goal is to continued professional growth. He is keen to prove that his contribution is not only important but essential to his company. Specifically he wants to lead. Raj needs a cost-effective and impactful marketing team to get the results.

Pain Points

His schedule is very busy and he has unrealistic deadlines so he didn't track his money flow. So, he noted their earnings and expenses. Also, he has a limited budget and difficult KPI target to achieve the results so he wants to draw a budget for that.

Personalities

- Adaptable
- Creative
- Leadership
- Communicative

❖ Scenario Description

- User wants to set the budget for the month.

User is tired of handling budget issues for his/her family. So he/she will add the total budget of the month in the app. After that he/she will contribute the all the budget to all the places like food, travel, fees, petrol etc. So now when he/she spends money somewhere the app will provide information that this much total budget is left for the month and this much budget is left for a different entity and he/she has to maintain the budget so it does not go over budget.

- Users want to store data of budgets.

A few people have an old style utilizing accounting pages or journals, when others already started to look for modern solutions, like mobile applications or desktop applications.

However, the majority of them need you to physically enter the amount you spend day by day by utilizing receipts or bank proclamations. I started my process by doing research with potential users applying interviews with friends and family members who explained to me about the way they save money. For that they need one app which stores their data for a long time. Basically they need this data for controlling their expenses and predicting their budget for next year.

- User wants his weekly, monthly and yearly analysis of expenses.

User wants to track his/her family's daily routine expenses to avoid the mess up. So users will be able to add her/his daily spending money and income money with particular categories to the application. If a user spends his 5000 rupees for shopping then he will be able to add transactions with the shopping category. When his salary comes then he will be able to add an amount of income with the salary category. Also he will be able to set a monthly budget. After one week he will be able to take a weekly expenses report with all transaction details, day-wise spending, day-wise income, payment modes and stats of transactions. Same as after months and years are over he will be able to take analysis of monthly expenses, yearly expenses and yearly income.

- Users want to track and manage their expenses and savings.

In some scenarios users spend their pay on pointless things and needless shopping. After spending these useless pay users surely not feel relaxed and carelessly spending their money on irrelevant things. How can users stop their needless spending stop and pay needy things and save some money? So, the solution is to track your spending all day, month and year. The best way to track where all your money goes at the end of the day is to track your expenses. Users get the overview of the things you usually spend on and draw their budget category wise like Bus, Food, Airline, Hotel etc.

❖ Use case description

- Use case of setting budget.
 1. First user will choose the option of Budget.
 2. App will prompt the blank page with “You have not set the budget yet”
 3. User will add total month’s budget
 4. User will have the choice of adding different types of budgets
 5. User will add the budget of Food
 6. User will add the budget of Fees and others
 7. User will come back to the dashboard
 8. User will be able to add the expanses with the category of food
 9. User will be able to see the reduced amount in food budget

- Use case of expense viewer.
 1. Budget view for entering and updating the details
 2. Add transaction in terms of income and expense with date range
 3. Generate reports including date range
 4. Display weekly and monthly and yearly analysis
 5. A view for entering events Examples: appointments, tasks, etc.
 6. User will be able to see the reduced amount of budget
 7. A view that empowers the client to see their anticipated monetary state at a specific date
 8. Display the information for the cost with smart color-coded Budget Health indicators
 9. Expenses entry view for entered and updated expense details for a fixed day
 10. Users will have the choice to see different types of budgets.
-

- Use case for weekly, monthly and yearly expenses analysis.
 1. First user will add all the spending and income transactions to the application.
 2. Users will choose the week analysis option.
 3. In week analysis, a system will be provided to select a particular week.
 4. After selecting the week user will get all details of transactions.
 5. When the user will choose a particular transaction the system will provide full details about the transaction.

6. Also the system will provide trends options like Day-wise spending, Day-wise income, Category-wise spending and Category-wise income to users.
 7. Users will choose any option of trends then the system will provide a graph and chart of all details.
 8. Users will get details about payment mode.
 9. Users will take stats of all the transactions.
 10. In month and year analysis users will get the same options as above.
-

- Use case for budget, add transaction and transaction history.
 1. For adding budget first user select day, month or year.
 2. After selecting daily, monthly or yearly button user add their budget in different currency.
 3. User select category wise budget like petrol, bus and also add their category.
 4. User can increase and decrease their category budget and also reset their budget.
 5. For adding transaction first user select date of transaction.
 6. User add their amount of transactions.
 7. User select amount of transaction is expense or income.
 8. User chose transaction categories and payment methods like cash, card etc.
 9. User add their transaction note using voice, camera and sticky note.
 10. Transaction history page users select daily, weekly, monthly or all transactions.

Chapter 4 : Project Features

❖ Details of all features with Screen photos

➤ Feature 1 : Login page

A login page feature is used to authenticate a user of a website or any application. Basically it contains the username and password of the user.

In our application users can login by three ways such as by username - password , using mobile number and directly sign in using google account.

If login is successful then the user is able to access the homepage of the application.

If login fails then the system provides the information about the error message and the user remains on the same login page.

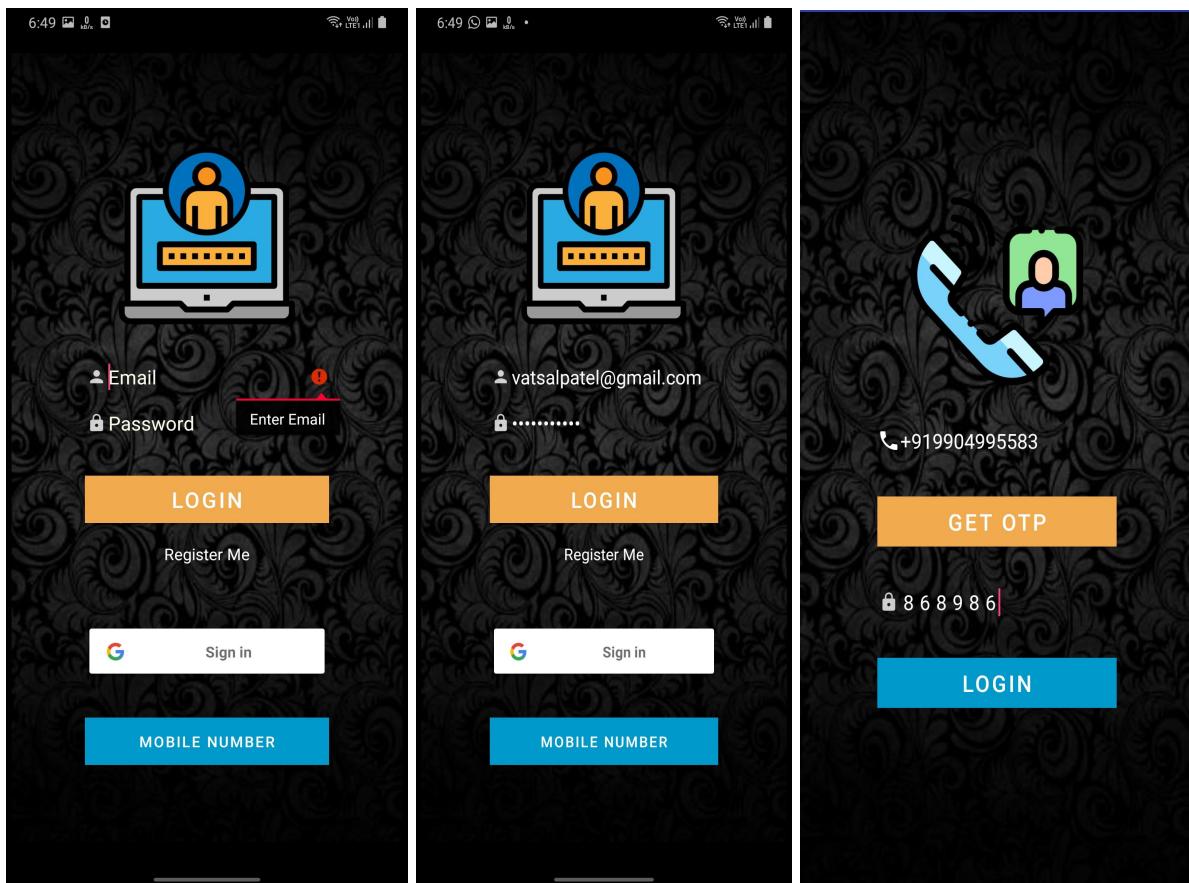
If the user forgot the username or password then the user is able to reset his/her password using the provided link by the system.

● Functionality

- It allows us to use the email address as the username

- It provides the password hints
- Allows us to change the username
- Reset password option available

- **Photos of the implementation**



- **Design Principles/Universal Usability Principles**
- Prevent Errors and Constraints

- System provides the proper guidelines to set the passwords so that users can navigate easily.
 - Also sign in and all icons are colorful and visible so users can identify easily.
-
- Permit Easy Reversal of Actions
 - If login fails then the system provides the information about the error message.
 - System provides the reset password option to users.
-
- Details of Interaction Style
-
- Form Fill-in
 - Select the username and password for the login to application.
 - Direct Manipulation
 - By pointing at visual representations of icons, users can carry out tasks rapidly and can observe the results immediately.

➤ Feature 2 : Sign Up

Sign up is an activity to register yourself for a new account. When you wish to access an application for the very first time, you need to sign up.

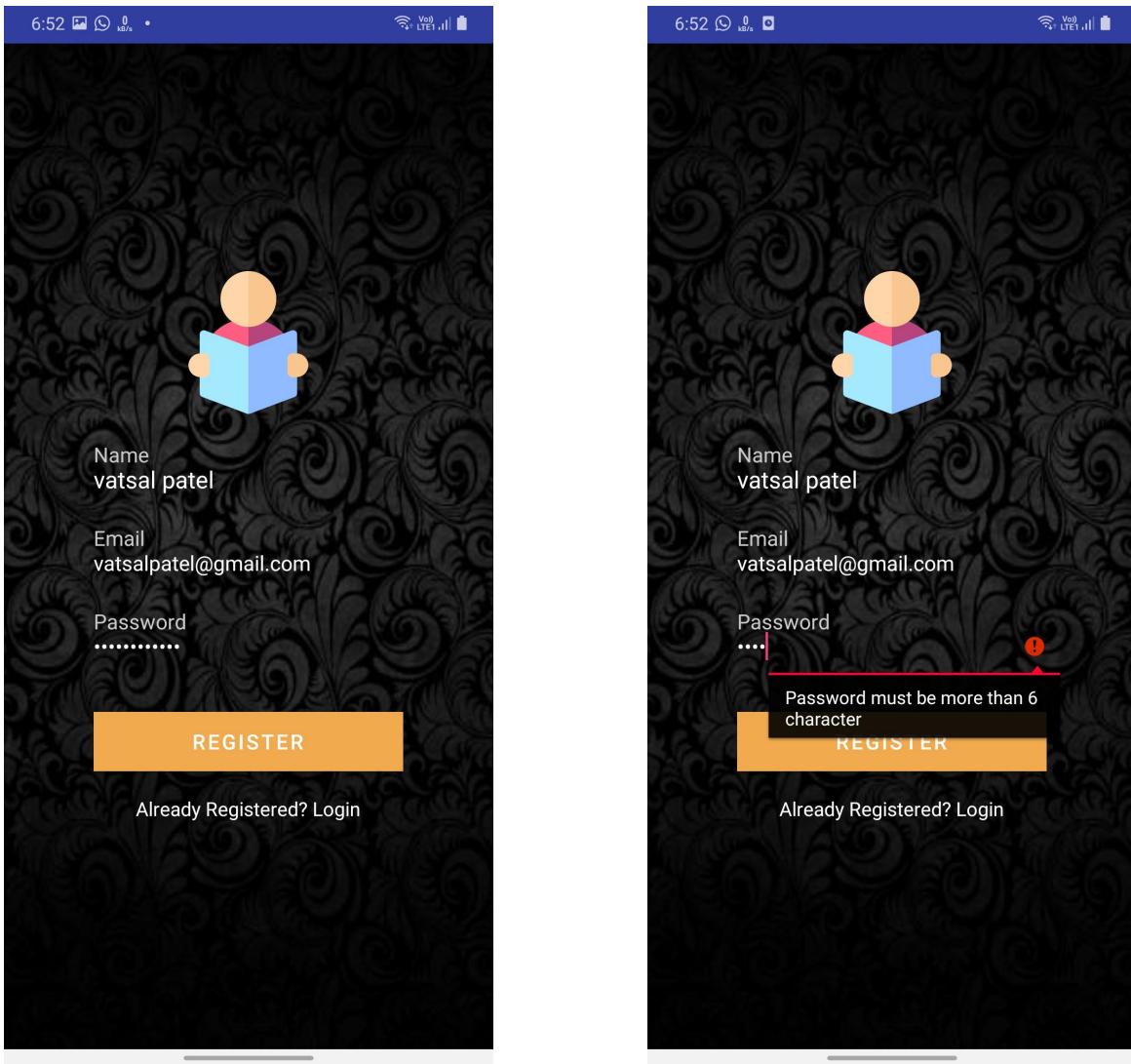
Signup pages also known as “Registration Pages”. The user signup page creates people in your application.

Sign up page is for reviewing a grant application.

- **Functionality**

- Create a user and organization at the same time
- Applying for a grant
- Create a user
- Create an organization
- It provides the password hints

- **Photos of the implementation**



- **Design Principles/Universal Usability Principles**

- Prevent Errors and Constraints
 - Password field suggest format
- Visibility
 - Icon and button clearly visible
 - Proper Color and font size

- **Details of Interaction Style**

- Form Fill-in
 - Select the username, email id and password for the signup to application.
 - Direct Manipulation
 - By pointing at visual representations of icons, users can carry out tasks rapidly and can observe the results immediately.
-

➤ **Feature 3 : Dashboard**

Basically the dashboard includes the main functionality of the application or website. It includes monthly total money, spendings, income. It shows recent transactions and it gives us functionality of going into the page where the page shows all transactions.

If we want to update or change anything in a particular transaction then we just need to click on the particular transaction and it will lead us to updating the transaction page where we can update whatever information we added before.

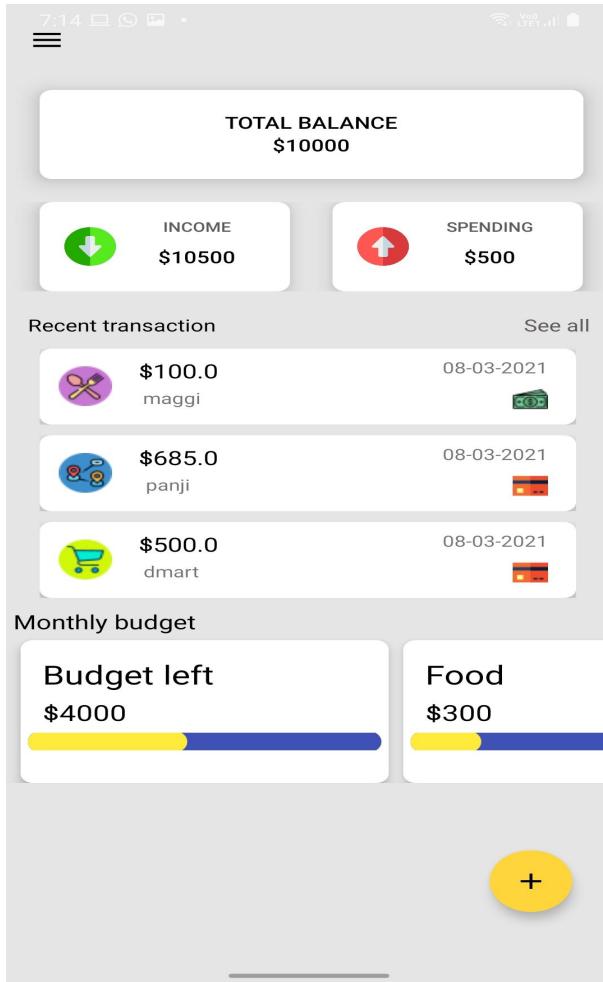
Another functionality which is available at dashboard is add transaction. By clicking the floating action button, it will lead us to add a transaction page and we can add the new transaction there.

Also this app provides a Budget. In the budget page we can set a monthly budget for all utilities like food, traveling and all. It also shows in the dashboard.

- **Functionality**

- Display the Total Balance
- Display Income
- Display Spending
- Display Recent Transactions
- Display Monthly Budget
- Notify Budget Limit

- **Photos of the implementation**



- **Design Principles/Universal Usability Principles**

- **Strive For Consistency**

- If you can see there is consistency in the whole dashboard. The color of the background is the same in the whole application. Then the cardview has the same elevation(shadow) and same cornerradius in every rectangle which is shown.

- Visibility
 - Users can easily see the icons and all the images and text which is shown in the dashboard.
 - Permit Easy Reversal of Actions
 - If User accidentally added the transaction which has some wrong value then the user can update or delete that transaction.
-
- Details of Interaction Style
 - Form Fill-in
 - Direct Manipulation
 - Menu Selection

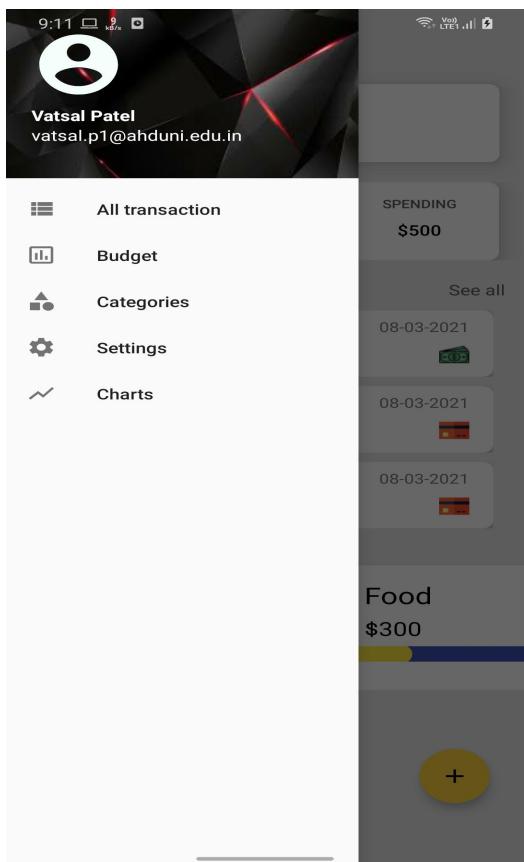
➤ Feature 4 :Menu Page

Basically the menu page is the side page where users can see some functionalities of the website or application such as user profile, setting, etc.

In our project the menu page provides All transactions, Budgets, Categories, Payment Modes, Setting, and More options.

● Functionality

- Display Profile Information
 - Display the All transactions
 - Display Budgets
 - Display Categories
 - Display Payment Modes
 - Setting
-
- Photos of the implementation



- Design Principles/Universal Usability Principles

- Visibility
 - when the navigation drawer is visible the background of the dashboard is grayed out so the navigation can be properly visible.
- Offer Informative Feedback

When a user has not logged into the app it will make the user as the guest user.

- **Details of Interaction Style**

- Form Fill-in
 - Direct Manipulation
-

➤ Feature 5 :Add Transaction

In our application Add Transaction feature where users can add their expenses and incomes transactions. For adding the transaction, users have to perform the small process.

First the user has to select the date when you have done the transaction and then enter the amount of transaction. After that users need to select the transaction type income or expense. Also users have to choose the particular category like if users spent their money to buy food then users need to select the food category. There are a lot of categories available such as Food, Travelling, Shopping, Medical and etc.

They can also add a description of their transaction for future reference. You select the transaction mode cash, card and etc.

- **Functionality**

- Add Transaction
- Choose Transaction Type
- Select Category
- Add Note
- Select Payment Method

- **Photos of the implementation**

7:01 VoIP LTE1

Add transaction

Date

08-03-2021

500

Type:

Travelling

Payment Method: Card



- **Design Principles/Universal Usability Principles**

- Strive for Consistency

- All icon and color are consistency like save button
- Also date picker is consistent

- Prevent Errors and Constraints

- Before current date it gives an error

- Without adding amount it gives error
- Visibility
 - More visible icon and color
 - Date field id visible
- Offer Informative Feedback
 - Add transaction it gives a feedback Add successfully
 - Select income or expense change a color of gray part

- **Details of Interaction Style**

- Form Fill-in
 - Select Date, Add Amount, Add Note for future reference
- Menu Selection
 - For categorize select the category
 - For payment method

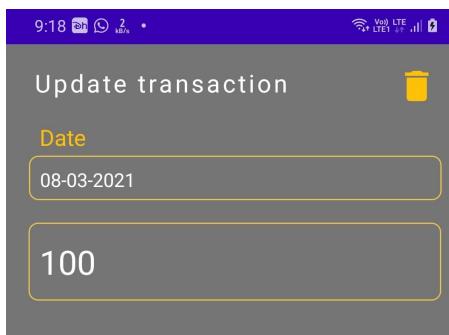
➤ Feature 6 :Update Transaction

For editing the transaction choose the transaction in the transactions list you update the transaction and you want to delete the transaction.

- **Functionality**

- Update Transaction
- Delete Transaction
- Choose Transaction Type
- Select Category
- Add Note
- Select Payment Method

- **Photos of the implementation**



Type:

Food

Payment Method:



- **Design Principles/Universal Usability Principles**

- Prevent Errors and Constraints
 - Before current date it gives an error
 - Without adding amount it gives error
 - Strive for Consistency
 - All icon and color are consistency like save button
 - Also date picker field is consistent
 - Visibility
 - More visible icon and color
 - Date field id visible
 - Offer Informative Feedback
 - Add transaction it gives a feedback Add successfully
 - Select income or expense change a color of gray part
-
- Details of Interaction Style
 - Form Fill-in
 - Select Date, Add Amount, Add Note for future reference
 - Menu Selection
 - For categorize select the category
 - For payment method

➤ Feature 7 : Week Analysis

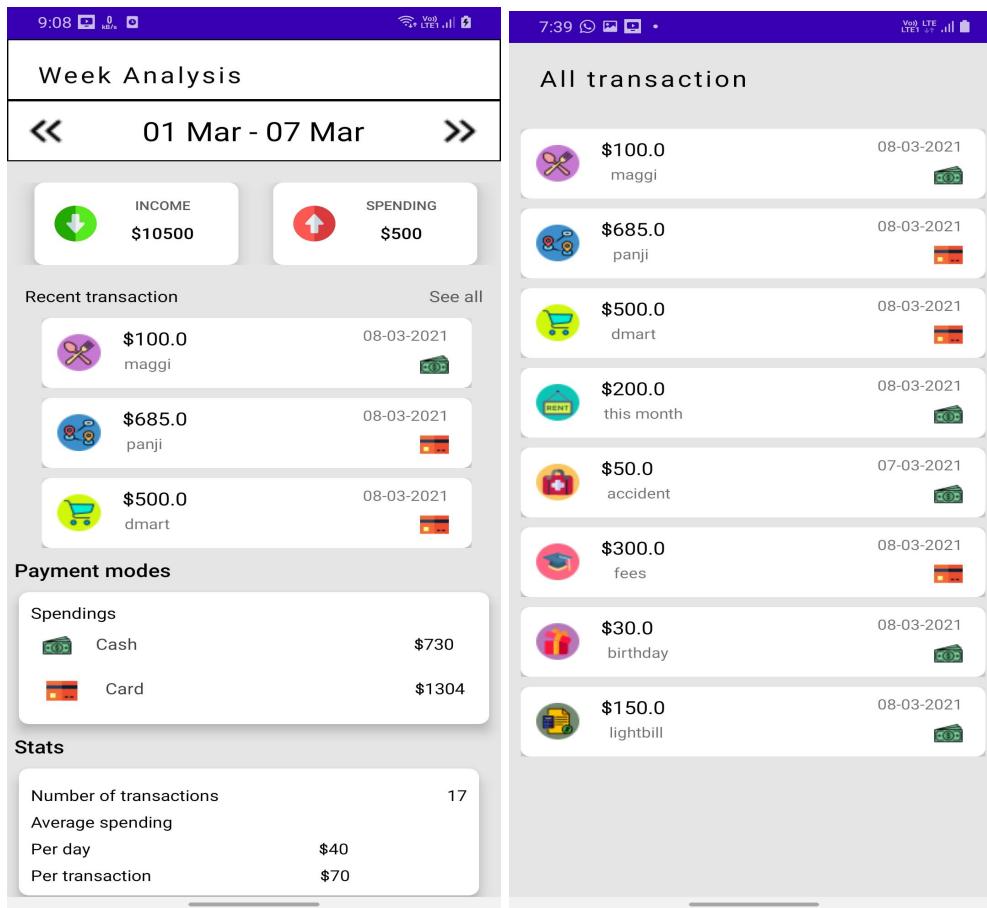
The Weekly Analysis feature integrates all the data that is done during a particular week. Also this feature gives us better visualisation so that we are able to do some analysis. In our application, we are able to see which day is the most expensive day and which day is the most income day.

The week analysis provides a summary of the particular one week. The summary is nothing but the total spending and total income of the week. It displays all the transactions that we have done during the week. We are able to see some trends such as the Day-Wise Spending, Day-Wise Income, Category-Wise Spending, Category-Wise Income with some graphical representation. It displays the payment methods that we have done during the transactions. Also it displays the statistics information about the week. Statistics information include the total number of transactions, average spending and average income per day.

- **Functionality**

- Display the Total Spending
- Display the Total Income
- Display All Transactions
- Day-Wise Spending
- Day-Wise Income
- Category-Wise Spending
- Category-Wise Income
- Stats and Payment Method

- Photos of the implementation



- Design Principles/Universal Usability Principles

- Strive For Consistency
 - All icons and buttons are clearly visible with different colors.
 - Icons are consistent.
- Prevent Errors and Constraints

- System provides the proper guidelines for the payment method so that users can navigate easily.
- Visibility
 - Icons and layouts are clearly visible and clean.
- **Details of Interaction Style**
 - Direct Manipulation
 - By pointing at visual representations of icons, users can carry out tasks rapidly and can observe the results immediately.

➤ Feature 8 : Month Analysis

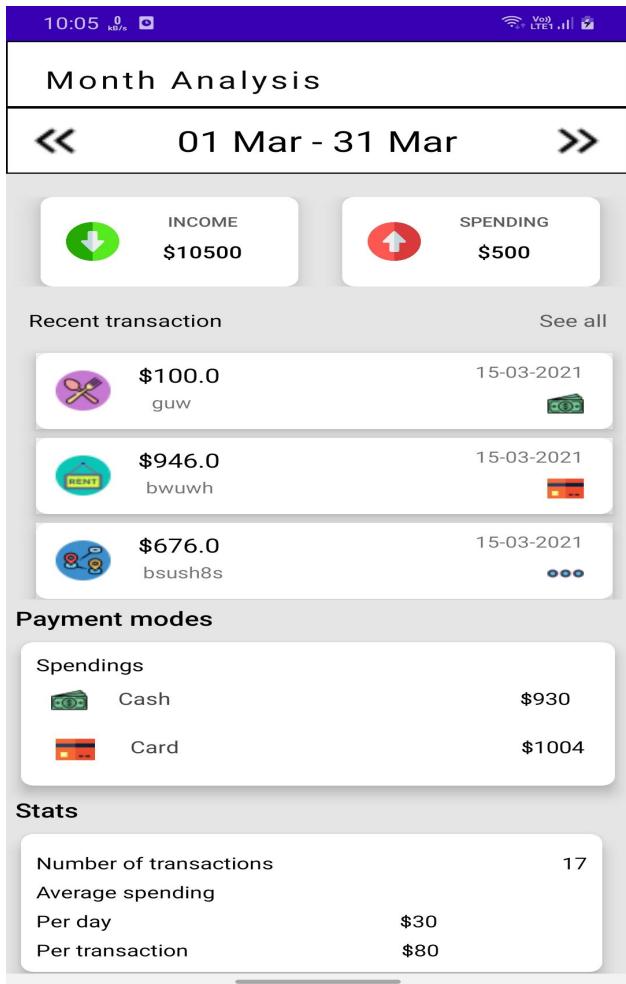
The monthly Analysis feature integrates all the data that is done during a particular month. Also this feature gives us better visualisation so that we are able to do some analysis. In our application, we are able to see which month is the most expensive month and which month is the most income month.

The month analysis provides a summary of the particular one month. The summary is nothing but the total spending and total income of the month. It displays all the transactions that we have done during the month. It displays the payment methods that we have done during the transactions. Also it displays the statistics information about the day. Statistics information include the total number of transactions, average spending and average income per day.

- **Functionality**

- Display the Total Spending
- Display the Total Income
- Display All Transactions
- Month-Wise Spending
- Month-Wise Income
- Category-Wise Spending
- Category-Wise Income
- Stats and Payment Method

- **Photos of the implementation**



- **Design Principles/Universal Usability Principles**

- Strive For Consistency
 - All icons and buttons are clearly visible with different colors.
 - Icons are consistent.
- Prevent Errors and Constraints
 - System provides the proper guidelines for the payment method so that users can navigate easily.
- Visibility
 - Icons and layouts are clearly visible and clean.

- **Details of Interaction Style**

- Direct Manipulation
 - By pointing at visual representations of icons, users can carry out tasks rapidly and can observe the results immediately.
-

➤ **Feature 9 : Budgets**

The primary thing you need to do to begin setting aside cash is to make a spending plan. A budget is essentially a financial plan for a characterized period, typically a month. It goes by an estimation of the expenses to be made in a particular month, leaving a sufficient amount for savings. Using budgets we are controlling our expenses.

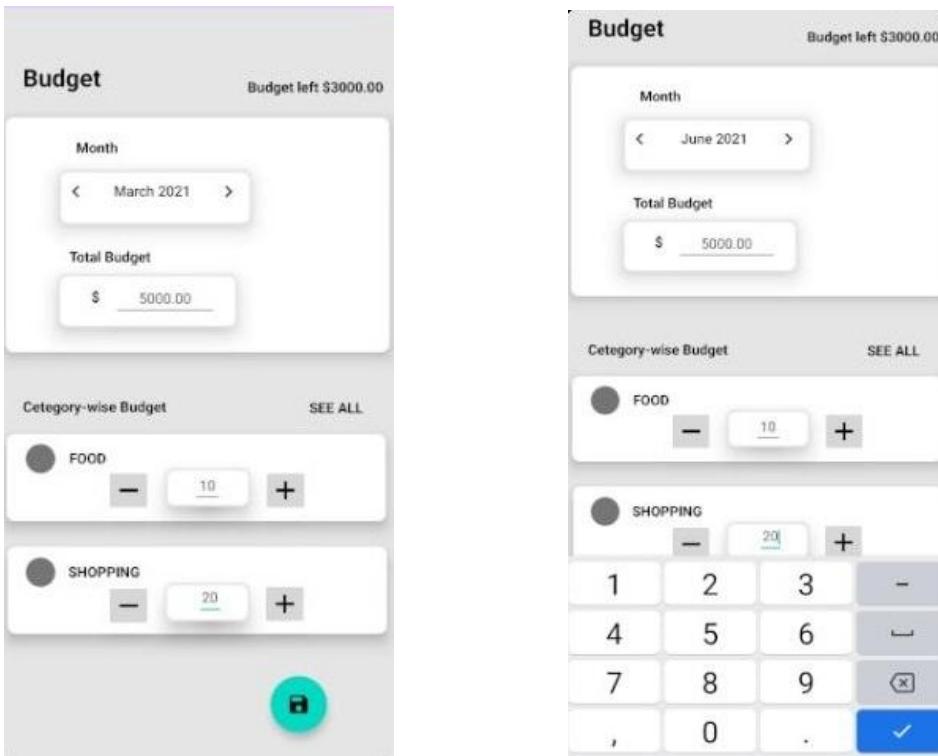
The HISAB-DIARY lets you create a budget by setting the total amount of money that you want to spend in a month. You can also set category-wise limits on your expenses by setting a category-wise budget. Setting a category-wise budget will also let you analyze your expenditure with respect to the budget, and can even alert you whenever you go off-track if you've enabled budget alerts.

- **Functionality**

- Add budget
- See category wise analysis
- Delete budget

- Update budget
- Display all budget
- Display monthly budget

- **Photos of the implementation**



- **Design Principles/Universal Usability Principles**

- Design Dialogues to Yield Closure
 - Sequences of actions are organized into groups with beginning to end.
- Permit Easy Reversal of Actions
 - Here all actions are reversible
- Visibility
 - Icon and button clearly visible

- Proper Color and font size
- **Details of Interaction Style**
 - Direct Manipulation
 - By pointing at visual representations of icons, users can carry out tasks rapidly and can observe the results immediately.
 - Form Fill-in
 - Select month, total budget, category wise budget for adding new budget.
-

➤ Feature 10 : Edit Budget

The HISAB-DIARY lets you create a budget by setting the total amount of money that you want to spend in a month. You can also set category-wise limits on your expenses by setting a category-wise budget. Setting a category-wise budget will also let you analyze your expenditure with respect to the budget.

During adding budget we make some kind of mistake for solving this problem we built this kind of feature. Edit budget is the feature of updating added budgets.

● Functionality

- Select the Total Balance
 - Select weekly budget
 - Form filling same as add budget
 - Select Monthly Budget
 - Notify Budget Limit
-
- **Photos of the implementation**

9:42 2 kB/s

Budget Left: \$0

Edit budget

Month

March, 2021

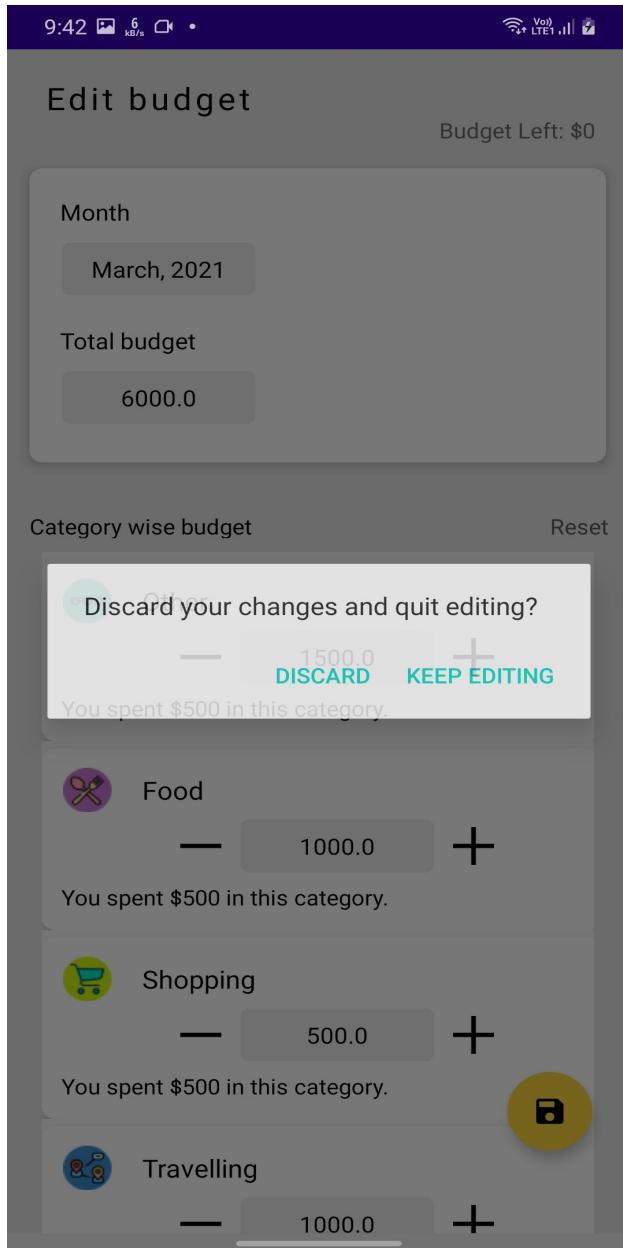
Total budget

6000.0

Category wise budget

Reset

 Other	—	1500.0	+
You spent \$500 in this category.			
 Food	—	1000.0	+
You spent \$500 in this category.			
 Shopping	—	500.0	+
You spent \$500 in this category.			
 Travelling	—	1000.0	+
			



- **Design Principles/Universal Usability Principles**

- **Visibility**

- Users can easily see the icons and all the images and text.

- Permit Easy Reversal of Actions
 - If User accidentally added the transaction which has some wrong value then the user can update that transaction.
- **Details of Interaction Style**
 - Form Fill-in
 - Select category, Amount, etc.
 - Direct Manipulation
 - By pointing at visual representations of icons, users can carry out tasks rapidly and can observe the results immediately.

➤ Feature 11 : Budget Show

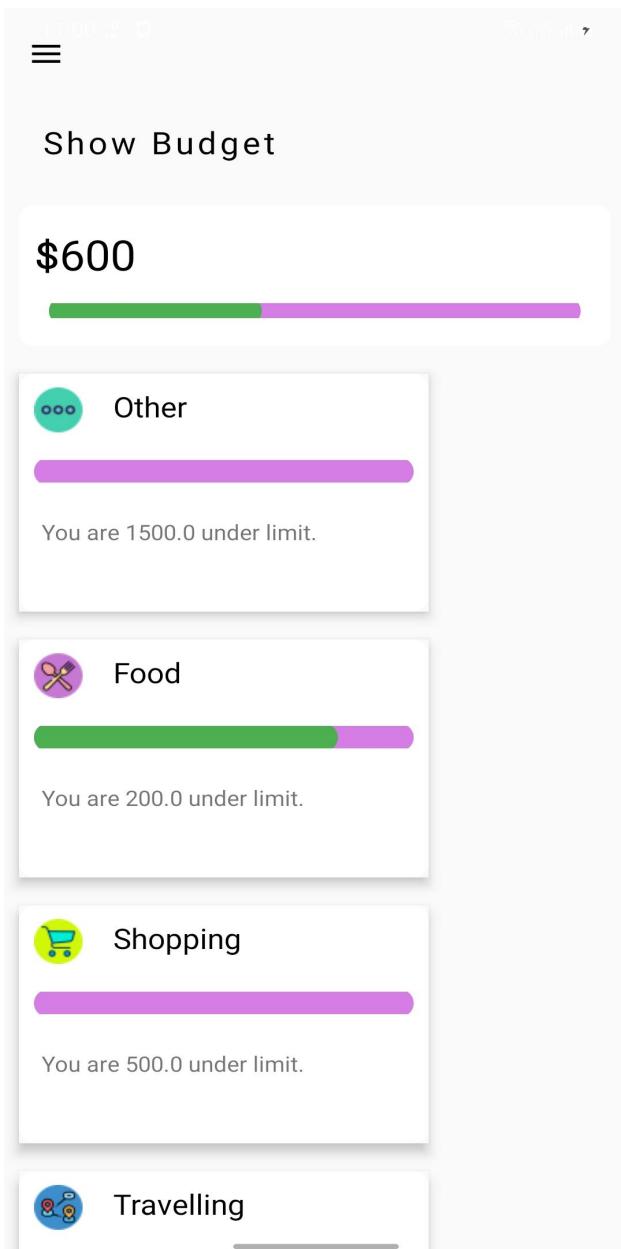
A budget is essentially a financial plan for a characterized period, typically a month. It goes by an estimation of the expenses to be made in a particular month, leaving a sufficient amount for savings. Using budgets we are controlling our expenses.

In HISAB-DIARY after creating a budget by setting the total amount of money that you want to spend in a month, You can also see category-wise limits on your expenses by setting a category-wise budget. Using budget shows you can see your created budgets in simple data view form. This form is easily understandable for our analysis.

- **Functionality**

- Show budget
- See category wise budget
- Display all budget
- Display monthly budget

- **Photos of the implementation**



- **Design Principles/Universal Usability Principles**

- Design Dialogues to Yield Closure
 - Sequences of actions are organized into groups with beginning to end.
- Permit Easy Reversal of Actions
 - Here all actions are reversible
- Visibility
 - Icon and button clearly visible
 - Proper Color and font size

- **Details of Interaction Style**

- Direct Manipulation
 - By pointing at visual representations of icons, users can carry out tasks rapidly and can observe the results immediately.

➤ **Feature 12 : Category Analysis**

In our application category analysis feature where users can easily categorize their Budgets. For categorising the budget, users have to perform the small process.

First the user has to select the category for seeing their category wise budgets. After that users need to select some kind of filter accordingly

for their category analysis. Also users have to choose the particular category like if users spent their money to buy food then users need to select the food category. There are a lot of categories available such as Food, Travelling, Shopping, Medical and etc.

- **Functionality**

- Show budget
- Show appropriate message like you crossed your limits
- Show total transactions and payment methods
- Also, show the stats

- **Photos of the implementation**



Categories



Others

Miscellaneous expenses



Food

Dairy product, Restaurant bills, etc



Shopping

Apparels shopping, Application shopping, etc



Travelling

Bus tickets, Train tickets, fuel bills, etc



Entertainment

Movie ticket, Gamezone tickets, etc



Medical

Doctor bills, medical bills, etc



Personal Care

Skin care products, hair products, cosmetics, etc



Education

Tuition fees, School fees, etc

The image shows a mobile application interface with a light gray background. At the top left is a menu icon consisting of three horizontal lines. Below the menu are eight rounded rectangular cards, each representing a category with an associated icon:

- Medical** (Icon: First aid kit) - Doctor bills, medical bills, etc.
- Personal Care** (Icon: Person with skincare products) - Skin care products, hair products, cosmetics, etc.
- Education** (Icon: Graduation cap) - Tuition fees, School fees, etc.
- Bills and Utilities** (Icon: Document with dollar sign) - Gas, Electricity, Water, Internet, etc.
- Investment** (Icon: Bar chart with upward arrow) - Stocks, Bonds, Mutual funds, etc.
- Rent** (Icon: House with 'RENT' sign) - House rent, Shop rent, etc.
- Taxes** (Icon: Tax document) - Income tax, House tax, etc.
- Gifts and Donation** (Icon: Gift box) - Gifts, Donations, etc.

At the bottom of the screen, there is a small green decorative bar followed by the word "Others" in a black font.

- **Design Principles/Universal Usability Principles**

- Strive for Consistency
 - All icon and color are consistency
- Visibility
 - More visible icon and color
 - progress bar for budget

- **Details of Interaction Style**

- Direct Manipulation
 - By pointing at visual representations of icons, users can carry out tasks rapidly and can observe the results immediately.

➤ **Feature 13 : Year Analysis**

The Yearly Analysis feature integrates all the data that is done during a particular Year. Also this feature gives us better visualisation so that we are able to do some analysis. In our application, we are able to see which Year is the most expensive Year and which Year is the most income Year.

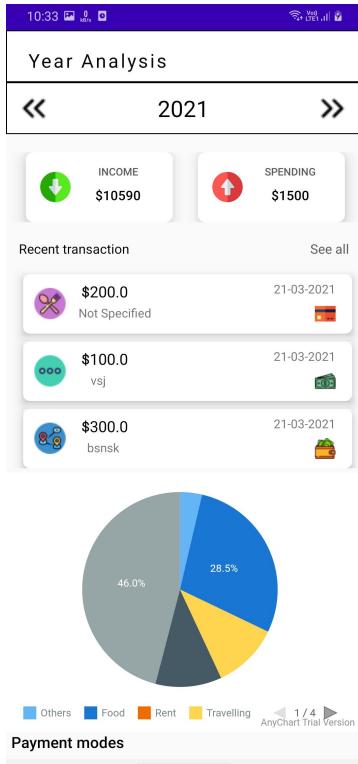
The Year analysis provides a summary of the particular one Year. The summary is nothing but the total spending and total income of the Year. It displays all the transactions that we have done during the Year. Also it

displays the statistics information about the day. Statistics information include the total number of transactions, average spending and average income per day.

- **Functionality**

- Display the Total Spending
- Display the Total Income
- Display All Transactions
- Year-Wise Spending
- Year-Wise Income
- Category-Wise Spending
- Category-Wise Income
- Stats and Payment Method

- **Photos of the implementation**



- **Design Principles/Universal Usability Principles**

- Strive For Consistency
 - All icons and buttons are clearly visible with different colors.
 - Icons are consistent.
- Prevent Errors and Constraints
 - System provides the proper guidelines for the payment method so that users can navigate easily.
- Visibility
 - Icons and layouts are clearly visible and clean.

- **Details of Interaction Style**

- Direct Manipulation

- By pointing at visual representations of icons, users can carry out tasks rapidly and can observe the results immediately.
-

➤ Feature 14 : FAQs

Full form of the FAQ is “Frequently Asked Questions.” FAQ is a list of commonly asked questions and answers on a website and application. In our app Using FAQ page we display some kinds of questions and their answers.

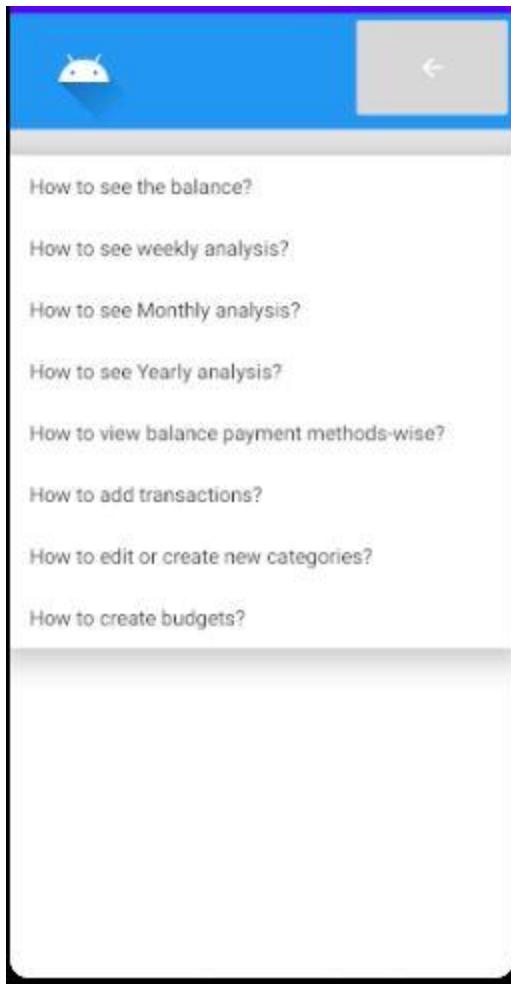
Questions:

- How to see the balance?
- How to see weekly analysis?
- How to see Monthly analysis?
- How to see Yearly analysis?
- How to view balance payment methods-wise?
- How to add transactions?
- How to edit or create new categories?
- How to create budgets?

- **Functionality**

- Display all type of questions
- Drop down menu for question selection
- Display Answer

- **Photos of the implementation**



- **Design Principles/Universal Usability Principles**

- Strive For Consistency
 - Back button is clearly visible and texts are clearly visible with different colors.
- Visibility
 - Icons and layouts are clearly visible and clean.

- **Details of Interaction Style**

- Drop down Selection
 - For questions select

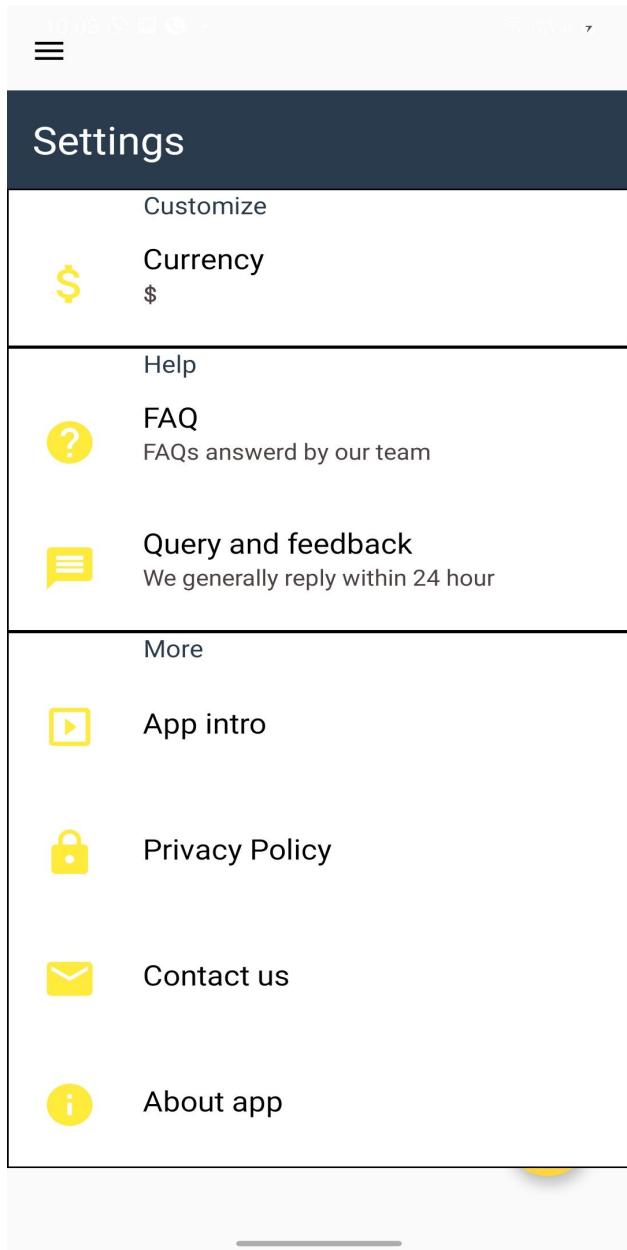
➤ Feature 15 : Settings

Using settings we manage some features of the app like we can set Currency type, set display themes, for notification we also set the daily reminder option, we also store our data backup and also restore the data. We can set Show net balance For see the balance. Here FAQ has a list of commonly asked questions and answers on an application. About App has Version of app, External library and developers info.

- **Functionality**

- Currency
- Show net balance
- Back Up
- FAQ
- About App

- **Photos of the implementation**



- **Design Principles/Universal Usability Principles**

- Strive For Consistency
 - All icons and buttons are clearly visible with different colors.
 - Icons are consistent.
- Visibility
 - Icons and layouts are clearly visible and clean

- **Details of Interaction Style**
 - Direct Manipulation
 - By pointing at visual representations of icons, users can carry out tasks rapidly and can observe the results immediately.
 - Menu Selection
 - For features
-

➤ Feature 16 : Application Introduction (Guide)

Appintro has a multi step form which gives the introduction about the app. This form also introduces some info of features like detailed analysis and statistics, budgets, etc.

- **Functionality**
 - Step by step guidance
 - Detailed info of some commands
- **Photos of the implementation**

Skip

Skip

Skip

No need to maintain a diary to track your expenses

Log your transactions within seconds using our clean and fast interface.

Get detailed analysis and statistics

See a complete analysis of your month's transactions, see trends for each category, and compare your data with different months.

Stay on track with budgets

Create a month-wise budget, and we will help you stay on track by sending you alerts whenever you go off track.

NEXT →

NEXT →

NEXT →

Your financial data never leaves your device!

Your privacy is our topmost concern and that's why we store your data only on your device.

GET STARTED

- **Design Principles/Universal Usability Principles**

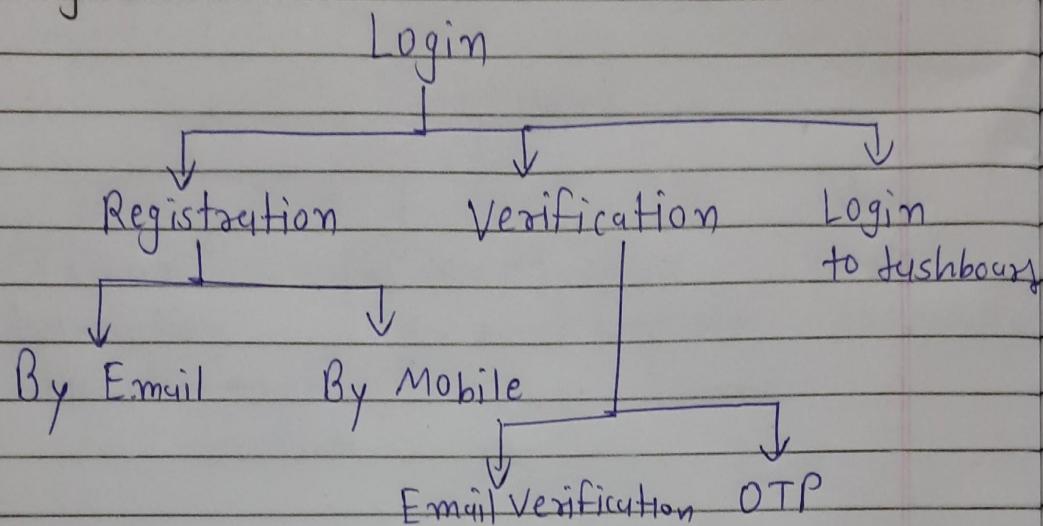
- Strive For Consistency
 - All text and buttons are clearly visible with different colors.
- Visibility
 - layouts are clearly visible and clean
- Permit Easy Reversal of Actions

❖ Required Diagrams

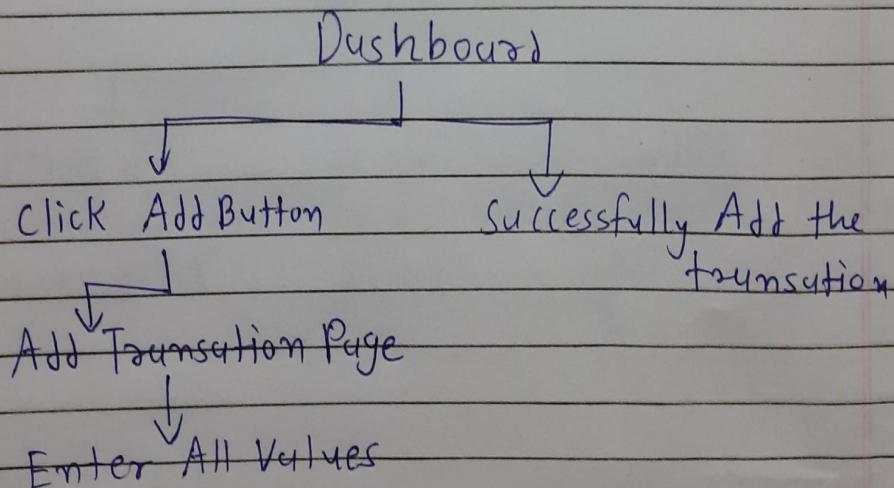


Hierarchical task Analysis

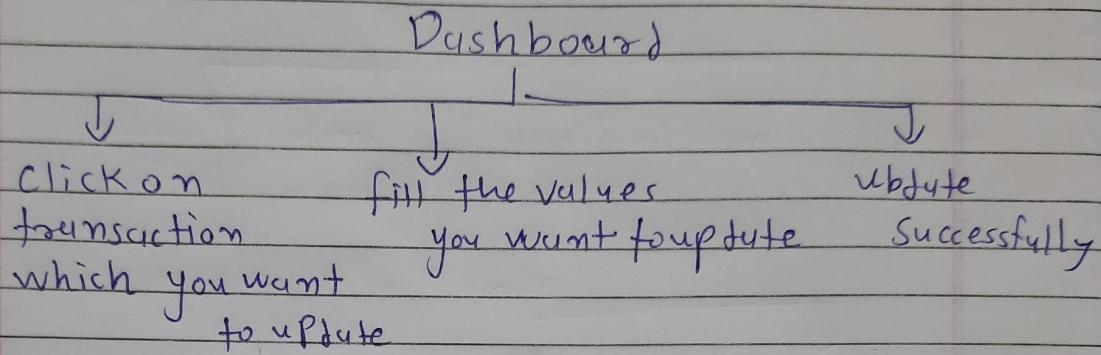
(ii) Login



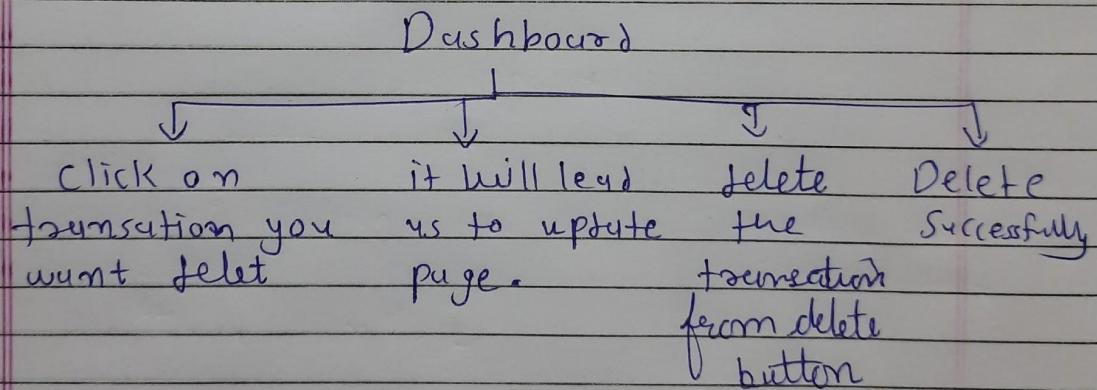
(ii) Add transaction



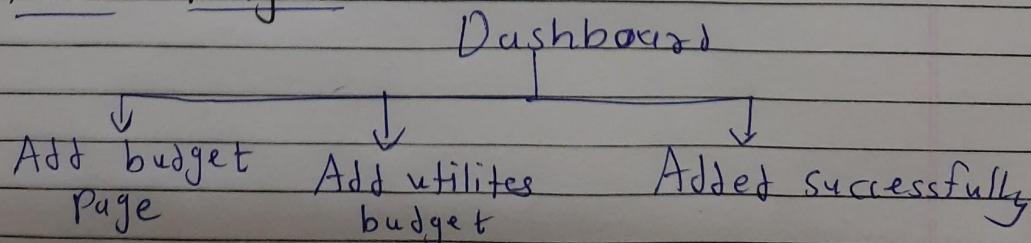
(iii) Update transaction



(iv) Delete transaction



(v) Add budget



Month analysis

category-wise spending trends Tags Payment modes

Average spending Average income

Show budget

category wise budget monthly budget Budgeting tip



Scanned with CamScanner

Edit Budget

set category-wise budget

Budget

Limit

Category Analysis

show budget

select category type

Filter

❖ Integration of all features

All group members have implemented different functionalities and after finalizing all the functionalities one of our group members implemented and integrated all the functionalities. We made a menu in the navigation drawer which will lead us to some of the functionalities and there are some buttons and text which itself will lead us to the remaining functionalities. Example is that if the user wants to update some translation then he can click on to the [SEE ALL](#) and it will lead the user to the ALL TRANSACTION page where the user can click on to the transaction whichever he wants to update. Our app does not require any login for guest users and if the user wants to get the data backup the user has to login through email verification or mobile verification. Then we have also integrated the budget functionality in which users can set the budget for different utilities like Food, Transportation, Travelling and other. When a user spends money on the Food then it will show that this much amount of money is remaining for food.

Users can set the budget limit for transactions if spending comes near the budget limit then the system notify the user. Also users are able to see the weekly analysis. The week analysis provides a total spending, total income and all the transactions that we have done during the week. We made the budget functionality in which the user can set the budget and the user can update the budget. We integrate the functionality of giving feedback of budget for example if the user had set the Food budget as 1000 and user have used 400 then it will show that you are 600 under the limit. We integrated the page of categories where users can see all the categories which are available in the app

with its brief description. We integrate the functionality of Month analysis in which it will show the stats and other details of that month.

Chapter 5 : Difficulties Encountered and Resolved

❖ Description of debugging/trouble-shooting

We encountered so many difficulties while doing the coding of this application.

1. How to open different fragments in recyclerview click.

Fragments are used to managing and optimizing a lot of different screens. Also they are easily organised by parent activity. One of the most important is that the fragments are reusable and combined.

When we use fragments in drawerlayout it is very difficult to use recyclerview and if one click on the item of that recyclerview, another fragment will open and we need to pass the values of that selected item from recyclerview.

To solve this problem we used fragment.replace and we also notifyDataSetChanged in the recyclerview.

<https://guides.codepath.com/android/Fragment-Navigation-Drawer>

2. If the size of images or icons are too large then the app will crash.

App needs many images and icons. We use high quality images and icons so that the app looks good. And sometimes apps crash because of the big size of images.

To solve this problem we can use Bitmap format.

<https://blog.fossasia.org/checking-image-size-to-avoid-crash-in-android-apps/>

3. Firebase integration

We got many errors while integrating the online firebase database. There was a json file messing in integration. So we added that json file and it was running quite well. Still we can't use the login through google.

<https://stackoverflow.com/questions/40577122/android-app-does-not-connect-to-firebase>

4. App crashes when we close the navigation drawer.

We close the navigation drawer using the onbackpressed method, and the app closes automatically. To solve this error, we use a boolean for navigation drawer. Like if the navigation drawer is open and the user calls the onbackpressed method then only the drawer will close so the app will remain live as it is.

Chapter 6 : Real Life Implementation Perspectives

❖ Details of problems for real life implementation

1. Premium Libraries :

To implement some inbuilt functionalities like chart and others we need to purchase the premium libraries. So when we implement in real life we need all the premium libraries. We can't use trial versions in real life.

2. Online database limited space , limited user

So when we use an online database like firebase, firebase only allows trial version storage so after reaching high users we need to upgrade the firebase database or online database platform.

3. For group expense tracking, we need to use an online database.

Group expense tracking features allow multiple people to do expense tracking. This feature allows users to calculate all the transactions or expenses which are done by each group

member. It will take the lead into discipline and organization of application. So for that we need, online database with different tables for each members.

4. Link bank account

We can link the bank account with the app and the app will store all the transaction details and that's how users can track every transaction he made online. Also we need to update payment modes in applications such as credit card, debit card, etc.

Chapter 7 : References

- [1] N. Sabiyath Fatima, D. Steffy, D. Stella and S. Nandhini Devi, "Enhanced Performance of Android Application Using RecyclerView", Advances in Intelligent Systems and Computing, pp. 189-199, 2020. Available: 10.1007/978-981-15-1483-8_17 [Accessed 22 March 2021].
- [2] V. Patel, "Working with Fragments in Android Applications - Developer.com", Developer.com, 2021. [Online]. Available: <https://www.developer.com/ws/android/programming/working-with-fragments-in-android-applications.html>. [Accessed: 22- Mar- 2021].
- [3] S. Kantamani, "Android Navigation Drawer", Medium, 2020. [Online]. Available: <https://medium.com/@pavan.careers5208/android-navigation-drawer-4ea0e6bee4ab>. [Accessed: 22- Mar- 2021].
- [4] I. Musleh, S. Zein, M. Nawahdah and N. Salleh, "(PDF) Automatic Generation of Android SQLite Database Components", ResearchGate, 2018. [Online]. Available: https://www.researchgate.net/publication/328334315_Automatic_Generation_of_Android_SQLite_Database_Components. [Accessed: 22- Mar- 2021].
- [5] C. Khawas and P. Shah, "Application of Firebase in Android App Development-A Study", International Journal of Computer Applications, vol. 179, no. 46, pp. 49-53, 2018. Available: 10.5120/ijca2018917200 [Accessed 22 March 2021].
- [6] M. Yener and O. Dundar, "Android Application Development With Android Studio", Research gate, 2017. [Online]. Available: https://www.researchgate.net/publication/316657119_Android_Application_Development_With_Android_Studio. [Accessed: 22- Mar- 2021].