Money Matters: A Personal Finance Management App

An Android application using Kotlin

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1. INTRODUCTION

1.1 Overview:

A feature-rich personal money management tool called Money Tracker was created to assist people in efficiently monitoring and controlling their financial situation. The software, which was created with Kotlin and coupled with Firebase, provides users with a safe and easy-to-use platform to keep an eye on their income, spending, and general financial activity.

Users of Money Tracker may easily keep track of and organize their transactions, create reports on their income and expenses within certain timeframes, see their financial data through interactive graphs, and protect their privacy by using secure authentication. The software offers crucial features that enable users the power to take charge of their finances and make wise financial decisions.

1.2 Purpose:

Money Tracker's goal is to make managing personal finances easier and more efficient. The app gives users a smooth experience and makes use of Firebase's database and authentication services to allow them to:

- Maintain and track transactions: With ease, users may input their income and spending, categorize each transaction, and see an exhaustive record of all their financial transactions.
- Transaction information and available visibility: Each transaction's complete details, including the date, category, amount, and any further remarks, are available to users. Additionally, they are free to decide whether transactions are visible to the public or not.
- Visual depiction of transaction details: Users' transaction data is shown visually in an eye-catching bar graph by Money Tracker. This makes it possible to quickly and intuitively assess trends in income, spending, and general financial health.
- Reports on income and expenses: Users are able to create personalized reports that provide an overview of their earnings and outlays for a given time frame. This function helps find possible savings opportunities, offers insightful information about financial habits, and facilitates budget planning. Secure account creation using an email address and password is made possible by Money Tracker's integration with Firebase's authentication services. This guarantees that their financial information is only accessible to those who are authorized.
- User-friendly interface: People of all financial backgrounds can easily explore and make efficient use of the app's capabilities thanks to its intuitive and user-friendly layout.

2. LITERATURE SURVEY

2.1 Existing problem:

The current issue with personal financial management is frequently that there isn't a simple, centralized platform for people to track and manage their money. A lot of conventional techniques rely on human record-keeping, which may be laborious and prone to mistakes. Moreover, it is difficult to draw conclusions that are significant from financial data in the lack of data visualization tools.

2.2 References

In the pursuit of understanding the landscape of personal finance management, various studies and articles provide valuable insights. For instance, "Consumer Behavior in Personal Finance Management" delves into the psychology and decision-making processes of individuals in managing their finances. This study illuminates key aspects that influence financial behaviors, offering essential knowledge for designing a user-friendly app.

Additionally, an in-depth analysis of existing personal finance apps contributes to the knowledge base. A comparative study, examining the strengths and weaknesses of popular apps, reveals the preferences and expectations of users. Such insights guide the development process, allowing for the incorporation of successful features while addressing the shortcomings of current solutions.

Moreover, an examination of challenges faced by users in current personal finance apps offers crucial lessons. Understanding user frustrations and limitations in existing tools provides a roadmap for creating an app that not only meets but exceeds user expectations. This approach ensures that the new app not only addresses common issues but also introduces innovative solutions for an enhanced user experience.

These references collectively serve as pillars, supporting the development of a robust personal finance management app by drawing from the rich knowledge base and experiences documented in academic studies and practical applications.

2.3 Problem Statement Definition

Within the current landscape of personal finance management, users encounter significant challenges that hinder their financial well-being and hinder the achievement of their monetary goals. A critical issue is the absence of a user-friendly solution that adeptly addresses the pervasive problem of overspending while simultaneously offering real-time tracking of budgets. Users find themselves grappling with disjointed financial information, making it difficult to gain a comprehensive understanding of their overall financial health.

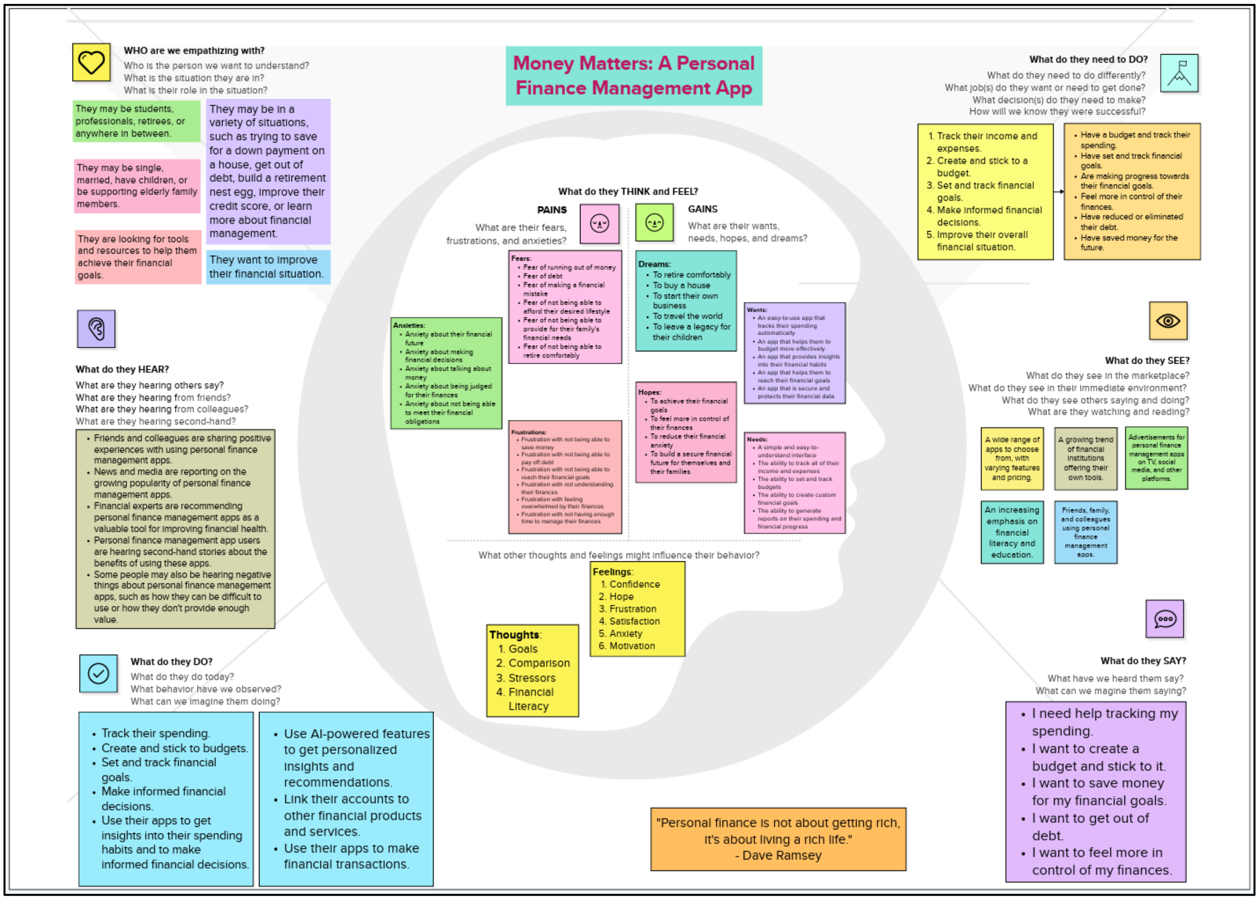
Existing apps often fall short in providing an intuitive platform that empowers users to take control of their finances. The lack of a holistic approach in current solutions results in users struggling to implement sustainable budgeting practices, leading to financial stress and hindered progress toward long-term financial objectives.

In response to these challenges, the development of a comprehensive and intuitive personal finance management app becomes imperative. Such an app should bridge the existing gaps by offering a seamless experience for users to effectively address overspending, gain real-time insights into their budgets, and ultimately take charge of their financial destinies. By doing so, the app aims to empower individuals, providing them with the tools and knowledge necessary to achieve their financial goals and build a secure financial future.

This problem statement not only identifies the core issues faced by users but also establishes the vision and purpose of the proposed personal finance management app, setting the stage for its development with a clear and compelling objective.

3. IDEATION & PROPOSED SOLUTION

3.1 Empathy Map Canvas



Money Matters: A Personal Finance Management App

WHO are we empathizing with?
Who is the person we want to understand?
What is the situation they are in?
What is their role in the situation?

- They may be students, professionals, retirees, or anywhere in between.
- They may be single, married, have children, or be supporting elderly family members.
- They are looking for tools and resources to help them achieve their financial goals.
- They may be in a variety of situations, such as trying to save for a down payment on a house, get out of debt, build a retirement nest egg, improve their credit score, or learn more about financial management.
- They want to improve their financial situation.

What do they HEAR?
What are they hearing others say?
What are they hearing from friends?
What are they hearing from colleagues?
What are they hearing second-hand?

- Friends and colleagues are sharing positive experiences with using personal finance management apps.
- News and media are reporting on the growing popularity of personal finance management apps.
- Financial experts are recommending personal finance management apps as a valuable tool for improving financial health.
- Personal finance management app users are hearing second-hand stories about the benefits of using these apps.
- Some people may also be hearing negative things about personal finance management apps, such as how they can be difficult to use or how they don't provide enough value.

What do they DO?
What do they do today?
What behavior have we observed?
What can we imagine them doing?

- Track their spending.
- Create and stick to budgets.
- Set and track financial goals.
- Make informed financial decisions.
- Use their apps to get insights into their spending habits and to make informed financial decisions.

- Use AI-powered features to get personalized insights and recommendations.
- Link their accounts to other financial products and services.
- Use their apps to make financial transactions.

What do they THINK and FEEL?

PAINS
What are their fears, frustrations, and anxieties?

Fears:
- Fear of running out of money
- Fear of debt
- Fear of making a financial mistake
- Fear of not being able to afford their desired lifestyle
- Fear of not being able to provide for their family's financial needs
- Fear of not being able to retire comfortably

Anxieties:
- Anxiety about their financial future
- Anxiety about making financial decisions
- Anxiety about talking about money
- Anxiety about being judged for their finances
- Anxiety about not being able to meet their financial obligations

Frustrations:
- Frustration with not being able to save money
- Frustration with not being able to pay off debt
- Frustration with not being able to reach their financial goals
- Frustration with not understanding their finances
- Frustration with feeling overwhelmed by their finances
- Frustration with not having enough time to manage their finances

GAINS
What are their wants, needs, hopes, and dreams?

Dreams:
- To retire comfortably
- To buy a house
- To start their own business
- To travel the world
- To leave a legacy for their children

Wants:
- An easy-to-use app that tracks their spending automatically
- An app that helps them to budget more effectively
- An app that provides insights into their financial habits
- An app that helps them to reach their financial goals
- An app that is secure and protects their financial data

Hopes:
- To achieve their financial goals
- To feel more in control of their finances
- To reduce their financial anxiety
- To build a secure financial future for themselves and their families

Needs:
- A simple and easy-to-understand interface
- The ability to track all of their income and expenses
- The ability to set and track budgets
- The ability to create custom financial goals
- The ability to generate reports on their spending and financial progress

What other thoughts and feelings might influence their behavior?

Feelings:
1. Confidence
2. Hope
3. Frustration
4. Satisfaction
5. Anxiety
6. Motivation

Thoughts:
1. Goals
2. Comparison
3. Stressors
4. Financial Literacy

What do they need to DO?
What do they need to do differently?
What job(s) do they want or need to get done?
What decision(s) do they need to make?
How will we know they were successful?

1. Track their income and expenses.
2. Create and stick to a budget.
3. Set and track financial goals.
4. Make informed financial decisions.
5. Improve their overall financial situation.

- Have a budget and track their spending.
- Have set and track financial goals.
- Are making progress towards their financial goals.
- Feel more in control of their finances.
- Have reduced or eliminated their debt.
- Have saved money for the future.

What do they SEE?
What do they see in the marketplace?
What do they see in their immediate environment?
What do they see others saying and doing?
What are they watching and reading?

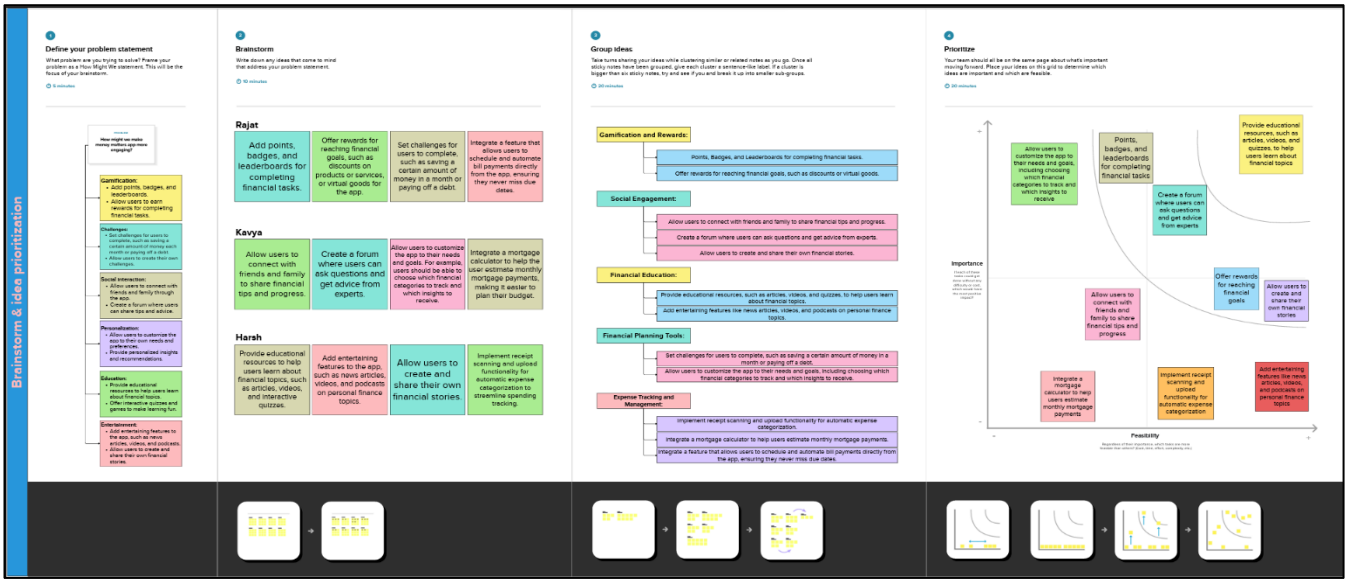
- A wide range of apps to choose from, with varying features and pricing.
- A growing trend of financial institutions offering their own tools.
- Advertisements for personal finance management apps on TV, social media, and other platforms.
- An increasing emphasis on financial literacy and education.
- Friends, family, and colleagues using personal finance management apps.

What do they SAY?
What have we heard them say?
What can we magine them saying?

- I need help tracking my spending.
- I want to create a budget and stick to it.
- I want to save money for my financial goals.
- I want to get out of debt.
- I want to feel more in control of my finances.

"Personal finance is not about getting rich, it's about living a rich life."
- Dave Ramsey

3.2 Ideation & Brainstorming



1 Define your problem statement
What problem are you trying to solve? Frame your problem as a How Might We statement. This will be the focus of your brainstorm.
5 minutes

How might we make money matters app more engaging?

Gamification:
- Add points, badges, and leaderboards.
- Allow users to earn rewards for completing financial tasks.

Challenges:
- Set challenges for users to complete, such as saving a certain amount of money each month or paying off a debt.
- Allow users to create their own challenges.

Social interaction:
- Allow users to connect with friends and family through the app.
- Create a forum where users can share tips and advice.

Personalization:
- Allow users to customize the app to their own needs and preferences.
- Provide personalized insights and recommendations.

Education:
- Provide educational resources to help users learn about financial topics.
- Offer interactive quizzes and games to make learning fun.

Entertainment:
- Add entertaining features to the app, such as news articles, videos, and podcasts.
- Allow users to create and share their own financial stories.

2 Brainstorm
Write down any ideas that come to mind that address your problem statement.
10 minutes

Rajat
- Add points, badges, and leaderboards for completing financial tasks.
- Offer rewards for reaching financial goals, such as discounts on products or services, or virtual goods for the app.
- Set challenges for users to complete, such as saving a certain amount of money in a month or paying off a debt.
- Integrate a feature that allows users to schedule and automate bill payments directly from the app, ensuring they never miss due dates.

Kavya
- Allow users to connect with friends and family to share financial tips and progress.
- Create a forum where users can ask questions and get advice from experts.
- Allow users to customize the app to their needs and goals. For example, users should be able to choose which financial categories to track and which insights to receive.
- Integrate a mortgage calculator to help the user estimate monthly mortgage payments, making it easier to plan their budget.

Harsh
- Provide educational resources to help users learn about financial topics, such as articles, videos, and interactive quizzes.
- Add entertaining features to the app, such as news articles, videos, and podcasts on personal finance topics.
- Allow users to create and share their own financial stories.
- Implement receipt scanning and upload functionality for automatic expense categorization to streamline spending tracking.

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

Gamification and Rewards:
- Points, Badges, and Leaderboards for completing financial tasks.
- Offer rewards for reaching financial goals, such as discounts or virtual goods.

Social Engagement:
- Allow users to connect with friends and family to share financial tips and progress.
- Create a forum where users can ask questions and get advice from experts.
- Allow users to create and share their own financial stories.

Financial Education:
- Provide educational resources, such as articles, videos, and quizzes, to help users learn about financial topics.
- Add entertaining features like news articles, videos, and podcasts on personal finance topics.

Financial Planning Tools:
- Set challenges for users to complete, such as saving a certain amount of money in a month or paying off a debt.
- Allow users to customize the app to their needs and goals, including choosing which financial categories to track and which insights to receive.

Expense Tracking and Management:
- Implement receipt scanning and upload functionality for automatic expense categorization.
- Integrate a mortgage calculator to help users estimate monthly mortgage payments.
- Integrate a feature that allows users to schedule and automate bill payments directly from the app, ensuring they never miss due dates.

4 Prioritize
Your team should all be on the same page about what's important moving forward. Place your ideas on this grid to determine which ideas are important and which are feasible.
20 minutes

- Allow users to customize the app to their needs and goals, including choosing which financial categories to track and which insights to receive
- Points, badges, and leaderboards for completing financial tasks
- Provide educational resources, such as articles, videos, and quizzes, to help users learn about financial topics
- Create a forum where users can ask questions and get advice from experts
- Offer rewards for reaching financial goals
- Allow users to create and share their own financial stories
- Allow users to connect with friends and family to share financial tips and progress
- Integrate a mortgage calculator to help users estimate monthly mortgage payments
- Implement receipt scanning and upload functionality for automatic expense categorization
- Add entertaining features like news articles, videos, and podcasts on personal finance topics

4. REQUIREMENT ANALYSIS

4.1 Functional requirement

Functional requirements outline the specific features and capabilities that your app must have to address the identified problems and meet user needs. For a Personal Finance Management App, these could include:

- User Registration and Profile Management: Allow users to create accounts, providing a personalized experience with user profiles.
- Expense Tracking: Enable users to input and categorize their expenses, with the ability to view detailed breakdowns.
- Real-time Budget Monitoring: Implement a feature that allows users to set budgets for different categories and receive real-time updates on their spending against these budgets.
- Financial Goal Setting: Provide a platform for users to set and track financial goals, whether it's saving for a vacation or building an emergency fund.
- Alerts and Notifications: Incorporate notifications for overspending, upcoming bills, or reaching budget limits to keep users informed.
- Integration with Banking and Financial Institutions: Allow users to connect their bank accounts for automatic expense tracking and financial insights.
- Reports and Analytics: Provide comprehensive reports and analytics to give users a clear understanding of their financial health over time.

4.2 Non-Functional requirements

Non-functional requirements focus on aspects that are not directly related to specific features but are crucial for the overall performance, security, and user experience of the app. These could include:

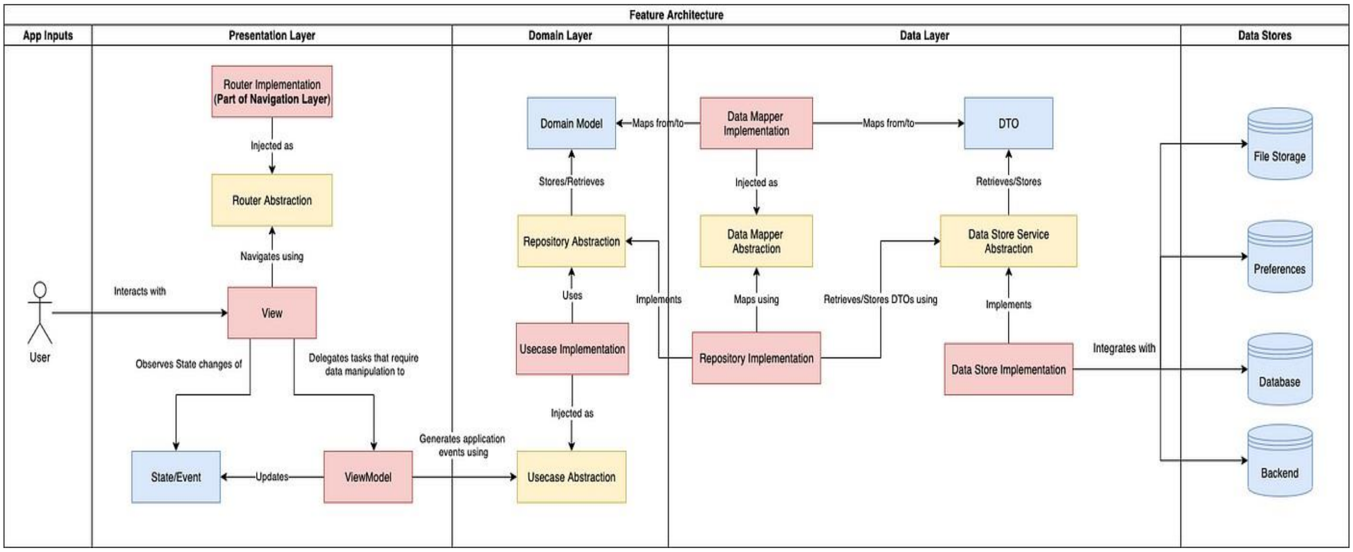
- Usability: Ensure the app is intuitive and user-friendly, catering to users with varying levels of financial literacy.
- Performance: Guarantee that the app functions smoothly, with quick response times and minimal downtime.
- Security: Implement robust security measures to safeguard user financial data and maintain user privacy.
- Scalability: Design the app architecture to handle potential growth in user base and data volume.
- Compatibility: Ensure the app is compatible with various devices and operating systems to reach a wider audience.
- Reliability: Build a reliable system that minimizes the risk of data loss or app crashes.

5. PROJECT DESIGN

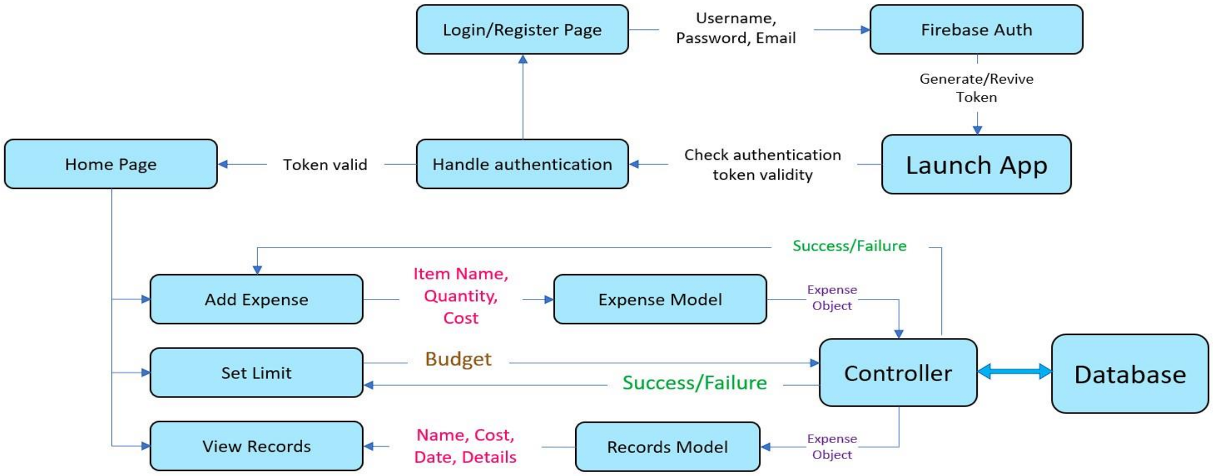
5.1 Data Flow Diagrams & User Stories

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.

General Architecture:



Data Flow Diagram :



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	Sprint-1
		USN-2	As a user, I will receive confirmation email once I have registered for the application	I can receive confirmation email & click confirm	High	Sprint-1
		USN-3	As a user, I can register for the application through Gmail		Medium	Sprint-1
	Login	USN-4	As a user, I can log into the application by entering email & password		High	Sprint-1
	Dashboard	USN-5	As a user, I should be able to see a dashboard after login	See 3 buttons – Add/View Expense & Set Budget	High	Sprint-1
	Add Expense	USN-6	As a user, I should be able to add an expense including name, quantity & cost.	Submit button that updates the DB	High	Sprint-2
	Set Limit	USN-7	As a user, I should be able to set a limit to my expense.	Updates the max budget in my DB	High	Sprint-3
	Notify	USN-8	As a user, I should be notified when doing over expenditure	Get a notification	Medium	Sprint-3
	View Records	USN-9	As a user, I should be able to view my past expenses	View at least last 3 expenditures	High	Sprint-4
	Security	USN-10	As a user, I want my data to be secured	Withstand SQL Injections & other malicious practices	Medium	Sprint-5
	Deployment	USN-11	I want the application available to download	Available on PlayStore	High	Sprint-6
Customer Care Executive	-	-	-	-	-	-
Administrator	-	-	-	-	-	-

5.2 Solution Architecture

Solution architecture is a complex process – with many sub-processes – that bridges the gap between business problems and technology solutions.

- **Solution** – our project includes a client-side Jetpack Compose UI, a backend API built with Kotlin and a secure database like SQLite or a cloud-based solution (e.g., Firebase) to store user financial data. We will implement user authentication, data encryption, and synchronization for a seamless and secure user experience.
- **Structure, Characteristics & Behavior** – It comprises a client-side mobile app built with Jetpack Compose and Kotlin, featuring an intuitive user interface for expense tracking and management. It communicates with a backend API, implemented in Kotlin or a compatible technology, which handles data storage, retrieval, and processing. The software ensures data security through user authentication, encryption, and synchronization with a database, enabling users to input, view, and manage their financial expenditures seamlessly while maintaining the privacy and integrity of their financial data.
- **Features, Development phases, and Solution requirements –**

  A) Features:

  - **Expense Tracking**: record and categorize expenses, including the date, amount etc.
  - **Budget Management**: Set and track budget limits for different spending categories
  - **User Authentication**: Secure login and registration to protect user data
  - **Notifications**: Send reminders for upcoming bills and budget limits
  - **Expense History**: Maintain a history of past transactions for reference
  - **Secure Data Storage**: Safeguard financial data using encryption

  B) Development Phase:

  - **UI/UX Design**: Create wireframes and design the user interface using Jetpack Compose.
  - **Frontend Development**: Build the mobile app with Jetpack Compose.
  - **Backend Development**: Develop the backend API for data storage and retrieval.
  - **Authentication**: Implement user authentication and security measures.
  - **Database Integration**: Set up the database (e.g., SQLite or a cloud-based solution).
  - **Synchronization**: Develop data synchronization mechanisms.
  - **Notifications**: Add notification features.

C) <u>Requirements</u>:

- **Security**: Implement strong encryption, secure authentication, and data privacy measures.
- **Scalability**: Design the architecture to handle a growing user base.
- **User-Friendly UI**: Create an intuitive and visually appealing user interface.
- **Performance**: Optimize for speed and responsiveness.
- **Offline Access**: Enable users to access and record data even when offline.
    - **Data Backup**: Provide a backup solution to prevent data loss.

- ***Solutions delivered via –***

1) Authentication – Firebase, Email & Phone Number
2) Expense Track, Budget Management, Visualization – Kotlin
3) Data Storage, Filter, Sort – SQLite
4) Notifications – AndroidX Core
5) User Profile, Data Synchronization – Firebase
6) Security – Android

Example - Solution Architecture Diagram:

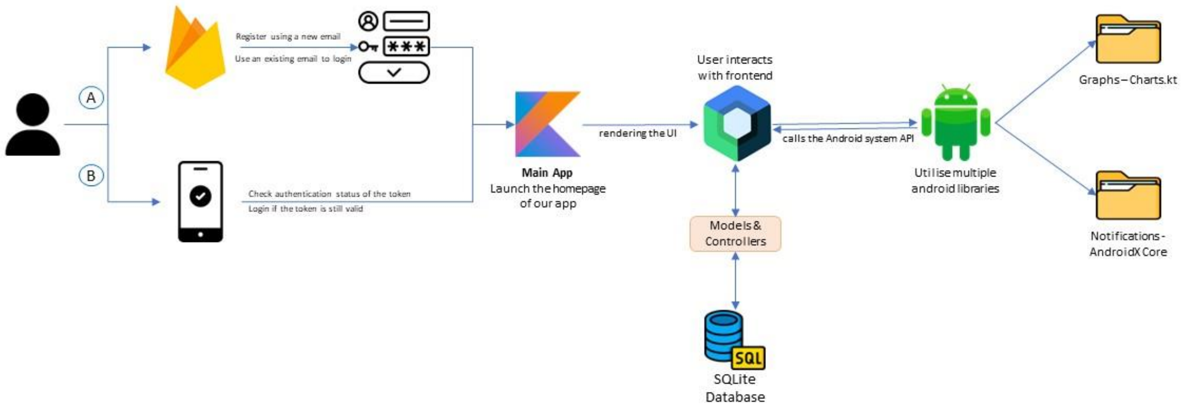

A
B
Register using a new email
Use an existing email to login
***
Check authentication status of the token
Login if the token is still valid
Main App
Launch the homepage of our app
rendering the UI
User interacts with frontend
calls the Android system API
Utilise multiple android libraries
Models & Controllers
SQL
SQLite Database
Graphs – Charts.kt
Notifications - AndroidX Core

Figure 1: Architecture of an app to manage financial expenditure of user

6. PROJECT PLANNING & SCHEDULING

6.1 Technical Architecture

The Deliverable shall include the architectural diagram as below and the information as per the table1 & table2

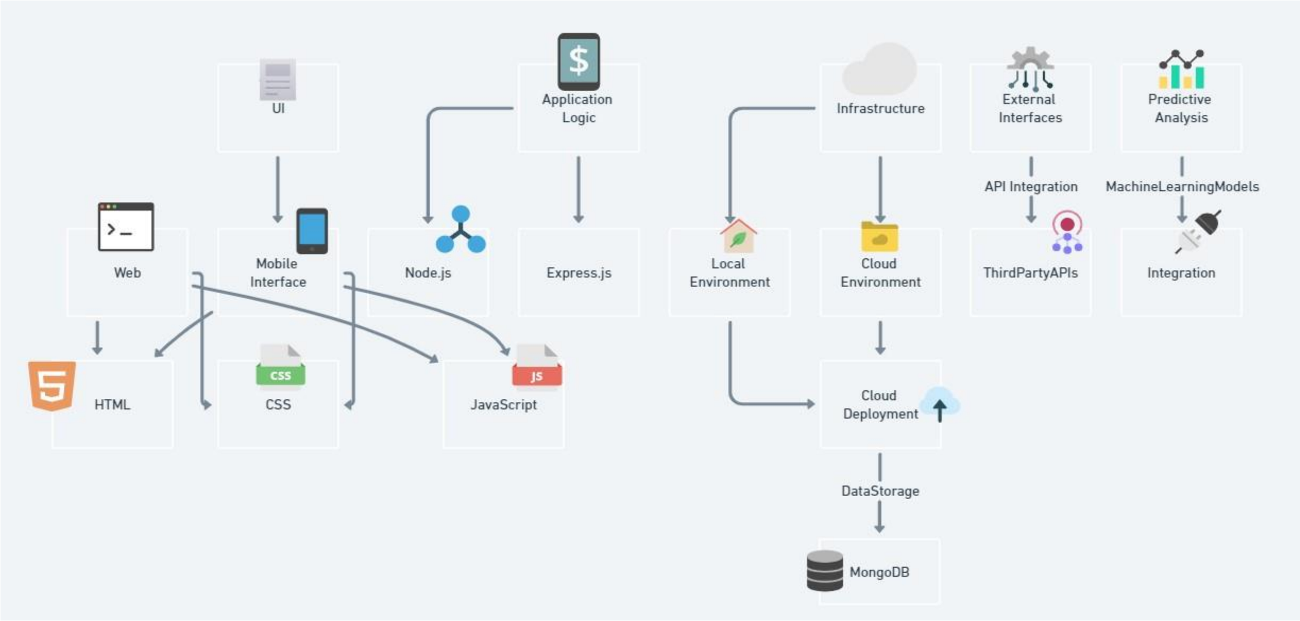


Table-1 : Components & Technologies:

SR.No	Component	Description	Technology
1.	User Interface	User-facing elements for web and mobile interaction	HTML, CSS, JavaScript, React Native
2.	User Registration	Logic and functionality for user registration	Node.js, Express, MongoDB
3.	User Authentication	Authentication and security features	JWT (JSON Web Tokens), OAuth2
4.	Expense Tracking	Features for tracking and categorizing expenses	React Native, Redux, Firebase
5.	Budget Management	Tools for setting and managing budgets	React, Node.js, MongoDB
6.	Financial Dashboard	Dashboard for providing financial summaries and insights	React, D3.js, Chart.js
7.	Data Storage (Local)	Local data storage for offline functionality	SQLite, AsyncStorage (for mobile)
8.	Cloud Data Sync	Synchronization of data with cloud servers	Firebase, AWS, Google Cloud
9.	External APIs (e.g., Financial Data)	Integration with external APIs for financial data	RESTful APIs, JSON

10.	Notification Services	Push notifications and alerts for financial updates	Firebase Cloud Messaging (FCM)

Table-2: Application Characteristics:

SR.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Utilization of open-source frameworks in the app	React Native, Node.js, Express, etc.
2.	Security Implementations	Implementation of security measures and access controls	Encryption, JWT, OAuth2, etc.
3.	Scalable Architecture	Design considerations for the app's scalability	Microservices, Load Balancing, CDN
4.	Availability	Measures taken to ensure high availability of the app	Load Balancers, Redundancy, Failover
5.	Performance	Design considerations for optimal app performance	Caching, Content Delivery Networks (CDN), etc.

6.2 **Sprint Planning & Estimation**

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Registration	USN-1	As a user, I can register for the application by entering my email, password, and confirming my password.	2	High	Rajat
Sprint-1		USN-2	As a user, I will receive confirmation email once I have registered for the application	1	High	Harsh
Sprint-2		USN-3	As a user, I can register for the application through Facebook	2	Low	Kavya
Sprint-2		USN-4	As a user, I can register for the application through Gmail	2	Medium	Harsh
Sprint-3	Login	USN-5	As a user, I can log into the application by entering email & password	1	High	Rajat
Sprint-3	Dashboard	USN-6	As a user, I can view a personalized financial dashboard with expense summaries.	3	High	Kavya
Sprint-4		USN-7	As a user, I can set monthly budgets for different expense categories.	2	Medium	Rajat
Sprint-4		USN-8	As a user, I can track my investment portfolios and view real-time updates.	3	High	Harsh

6.3 **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	10 Oct 2023	17 Oct 2023	20	13 Oct 2023
Sprint-2	20	6 Days	16 Oct 2023	24 Oct 2023	20	23 Oct 2023
Sprint-3	20	6 Days	23 Oct 2023	28 Oct 2023	20	26 Oct 2023
Sprint-4	20	6 Days	27 Oct 2023	9 Nov 2023	20	09 Nov 2023

7. CODING & SOLUTIONING (Explain the features added in the project along with code)

7.1 Feature 1

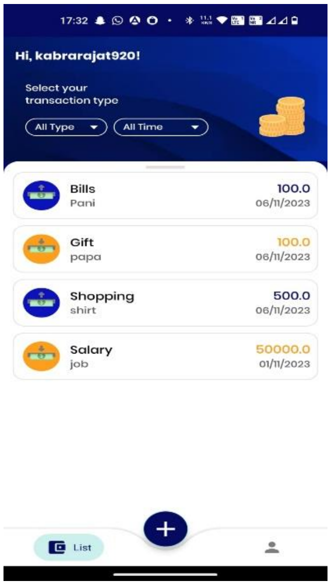
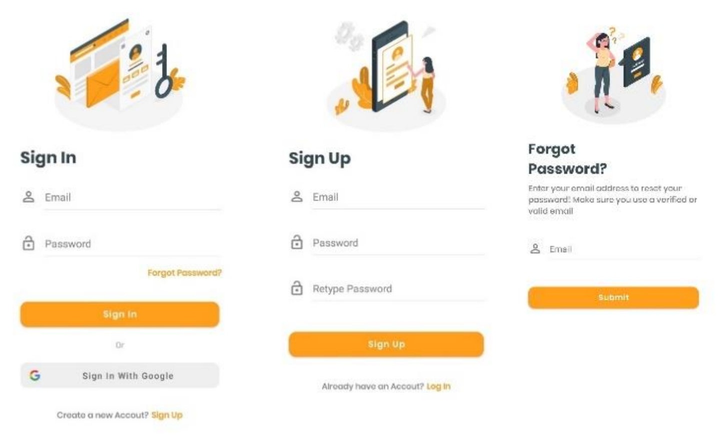
7.2 Feature 2

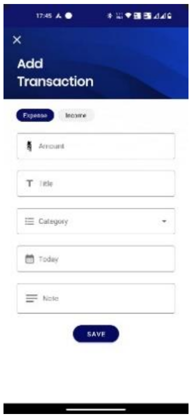
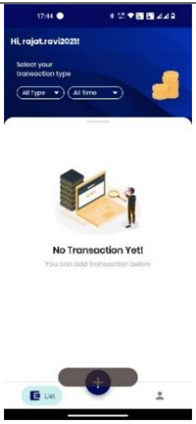
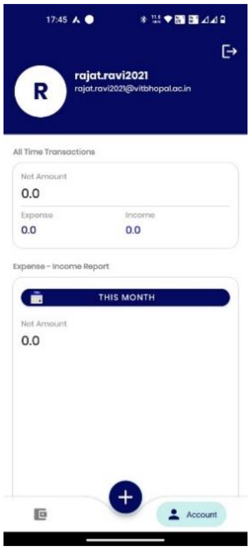
Database Schema (if Applicable)

There are multiple features added with database schema are explained in GitHub Link

8. PERFORMANCE TESTING

8.1 Performance Metrics

SR.No.	Parameter	Screenshot / Values
1.	Dashboard design	 17:32 Hi, kabrarajat920! Select your transaction type Bills Pani 100.0 06/11/2023 Gift papa 100.0 06/11/2023 Shopping shirt 500.0 06/11/2023 Salary job 50000.0 01/11/2023 No of Visualizations / Graphs -
2.	User Interface Design	 Sign In Email Password Forgot Password? Sign In Or Sign In With Google Create a new Accout? Sign Up Sign Up Email Password Retype Password Sign Up Already have an Accout? Log In Forgot Password? Enter your email address to reset your password! Make sure you use a verified or valid email
4.	Model Summary	"Money Matters" is a user-friendly and feature-rich personal finance app designed to empower individuals to

		take control of their financial well-being. Whether you're an experienced investor or just getting started on your financial journey, our app provides the tools and insights you need to manage your money effectively.
5.	Effective User Story	 17:45 Add Transaction Expense Income Amount Title Category Today Note SAVE  17:44 Select your transaction type All Type All Time List Hi, rajat.ravi2021! No Transaction Yet! You can add transaction below
6.	Descriptive Reports	 rajat.ravi2021 rajat.ravi2021@vitbhopal.ac.in All Time Transactions Net Amount 0.0 Expense 0.0 Income 0.0 Expense - Income Report Net Amount 0.0

9. RESULTS

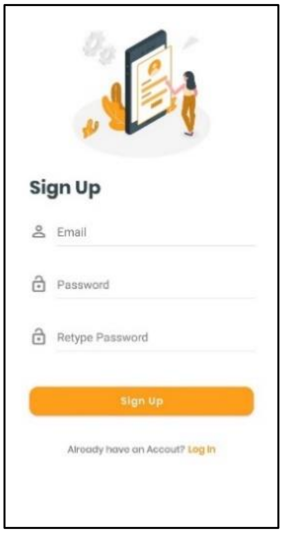
Improved Financial Management: Users of Money Tracker may experience improved financial management by having a centralized platform to track and manage their transactions. The app's features such as transaction details, bar graph representation, and customizable reports may provide users with valuable insights into their spending patterns and help them make informed financial decisions.

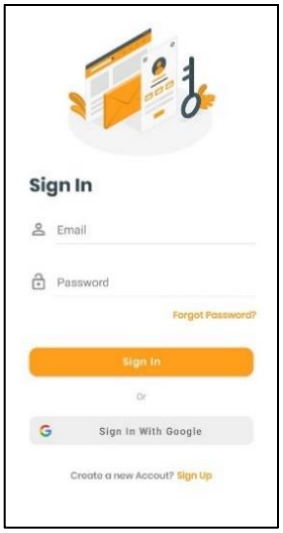
Enhanced Budget Planning: Users may benefit from the budget planning feature of Money Tracker, allowing them to set financial goals, track their progress, and receive recommendations for managing their expenses. This could lead to better budgeting habits and a more effective allocation of funds.

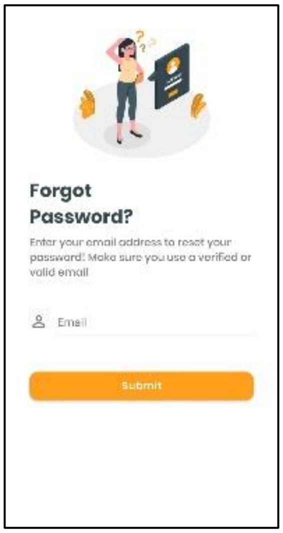
Time and Effort Savings: Money Tracker streamlines the process of transaction management and data analysis. Users may experience time and effort savings by having an organized platform to record and categorize their transactions, eliminating the need for manual calculations or spreadsheet management.

Secure and Convenient Authentication: Money Tracker utilizes Firebase authentication services.

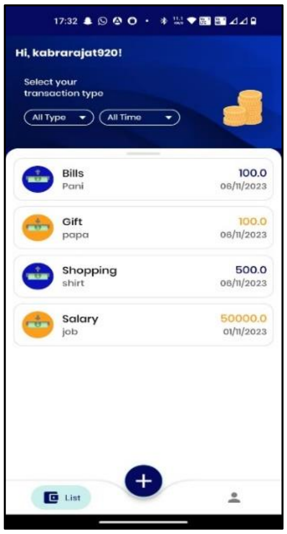
9.1 Output Screenshots



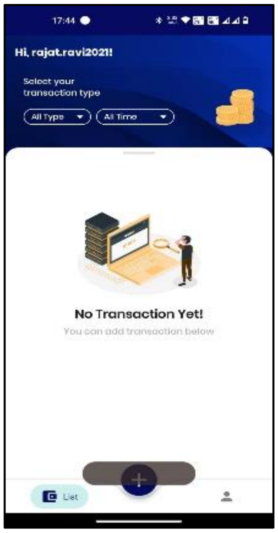




Enter your email address to reset your password! Make sure you use a verified or valid email

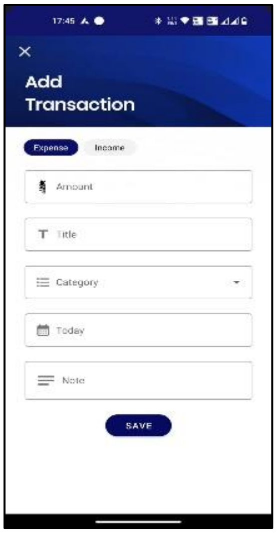


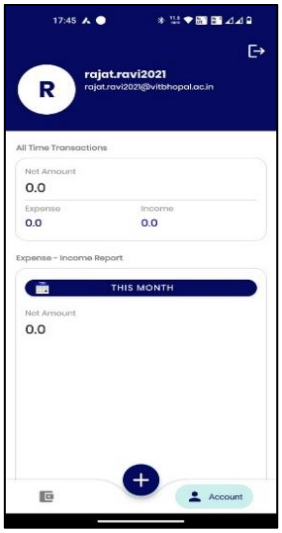
Bills Pani	100.0 06/11/2023
Gift papa	100.0 06/11/2023
Shopping shirt	500.0 06/11/2023
Salary job	50000.0 01/11/2023



No Transaction Yet!

You can add transaction below





10. ADVANTAGES & DISADVANTAGES

Advantages of the Proposed Solution:

- User-Friendly Interface: Money Tracker offers an intuitive and easy-to-use interface, making it accessible to users of varying financial expertise.
- Efficient Transaction Management: Users can effortlessly insert and manage their transactions, categorize them, and view detailed transaction information.
- Visual Representation of Data: The app provides visually appealing bar graphs that represent transaction details, enabling users to understand their financial patterns at a glance.
- Customizable Reports: Users can generate expense and income reports for specific time periods, gaining valuable insights into their financial habits and aiding in budget planning.
- Secure Authentication: The integration of Firebase's authentication services ensures secure user authentication and protects sensitive financial data.
- Firebase Database Integration: Money Tracker utilizes Firebase's database capabilities for efficient and reliable storage of transaction data.
- Flexibility in Transaction Visibility: Users can choose the visibility of transactions, allowing them to keep certain transactions private or share them publicly.

Disadvantages of the Proposed Solution:

- Internet Connectivity Requirement: Money Tracker requires an internet connection for authentication and data synchronization with the Firebase database.
- Dependency on Firebase: The app relies on Firebase services for authentication and data storage, making it essential to maintain a stable connection with Firebase servers.
- Limited Offline Functionality: Without an internet connection, certain features may be limited or unavailable until a connection is reestablished.
- Data Privacy: While Money Tracker implements secure authentication, users need to ensure the privacy of their login credentials to protect their financial information.

11. CONCLUSION

In conclusion, Money Tracker, developed using Kotlin and integrated with Firebase, is a powerful personal finance management app that simplifies and streamlines the process of tracking and managing finances. The app offers a user-friendly interface, efficient transaction management, visual representation of data, customizable reports, and secure authentication through Firebase services. While the app has the advantage of convenience and insightful financial analysis, it does have certain limitations such as the need for internet connectivity and dependency on Firebase services.

Through usability testing, performance testing, security testing, and user feedback, Money Tracker has undergone continuous improvement to ensure a robust and user-friendly solution. The app finds applications in personal finance management, budgeting, expense tracking for businesses, financial analysis, and financial education. Overall, Money Tracker empowers individuals to take control of their finances, make informed decisions, and achieve their financial goals effectively.

12. FUTURE SCOPE

Money Tracker lays the foundation for further enhancements and future development. Some potential areas for future improvements and features include:

- Goal Tracking: Introducing a goal tracking feature that allows users to set financial goals, track their progress, and receive notifications and reminders to stay on track.
- Budget Recommendations: Implementing an intelligent budget recommendation system that analyzes user spending patterns and provides personalized budget suggestions and tips for saving money.
- Integration with Financial Institutions: Enabling users to connect their bank accounts or credit cards to automatically import transactions, providing a more seamless and accurate transaction management experience.
- Expense Categorization and Machine Learning: Leveraging machine learning algorithms to automatically categorize expenses based on past behavior, reducing the need for manual categorization and improving efficiency.
- Bill Reminders and Notifications: Introducing reminders and notifications for upcoming bills or payment due dates, helping users avoid late payments and potential penalties.
- Expense Sharing and Splitting: Adding the ability for users to split expenses and share them with friends or family members, making it easier to manage shared expenses or group activities.
- Cloud Sync Across Devices: Implementing a cloud synchronization feature that allows users to access their financial data across multiple devices seamlessly.
- Financial Insights and Recommendations: Providing users with personalized financial insights and recommendations based on their spending habits, financial goals, and market trends to support better financial decision-making.

13. REFRENCES

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Source Code:- https://github.com/smartinternz02/SI-GuidedProject-587265-1696856877

GitHub & Project Demo Link:- https://github.com/smartinternz02/SI-GuidedProject-587265-1696856877