# CSC 554 – Human Computer Interaction Phase 2 – Requirement Gathering Report WiseWal.ai

(Expense tracker with AI based financial advisor)

<u>Team 2:</u> Manasi Bhagwat (mrbhagwa), Reshma Rajashekaraiah (rrajash), Aditya Sonar (ajsonar), Yuktasree Muppala (ymuppal2), Suraj Raghu Kumar (sraghuk)

# 1. Problem Overview and Solution Preview:

### 1.1 Problem Overview:

There are applications or web services that offer services of expense tracking systems as well as budget planners, and there are solutions which are mainly focused on providing financial advice or investment decision aids based on several reliable sources. However, there is a lack of integrated solutions that encompass both these essential aspects and help users with complete financial management.

# 1.2 Proposed Solution:

Our project **WiseWal.ai** mainly focuses on collaborating these two main needs for any financial management i.e., having an efficient and effortless expenses tracker/budget planner, and simultaneously having a highly reliable source of financial advice - all in one single application. The project mainly focuses on providing a seamless user interface in which a user can start off with adding/updating income and expenses on a periodic basis, visualize the financial status on the dashboard for a certain time period, plan or setup a budget as per their needs, and get reliable financial advices or guidance for budgeting, saving or investment plans from WiseWal.ai's AI integrated financial advising solution.

# 2. User Analysis:

# 2.1 Characteristics of the target user population:

Age:	Primarily between 25 and 40 years old.  Tech-savvy individuals comfortable with using smartphones.
Gender:	Balanced, but the persona of the one main chosen example is female.
Ethnicity:	Diverse, reflecting the general population.

Education:	College-educated or with some level of higher education.
Physical abilities:	No specific physical limitations assumed. The app should be accessible to users with various physical abilities.
General computer experience:	Moderate to high computer literacy. Familiar with using mobile applications.
Skills (typing? reading?):	Proficient in typing and reading. Comfortable with engaging in financial terminology.
Domain experience:	Varies, but likely individuals with office jobs, potentially in professional roles like marketing or similar fields. Some may have basic financial knowledge, but the app aims to cater to a broad range of expertise levels.
Application experience:	Comfortable with mobile applications, particularly those related to personal finance. May have experience with budgeting or expense tracking apps.
Work environment and other social context:	Likely urban dwellers with fast-paced lifestyles. May have a demanding work environment, seeking convenience in managing finances. Socially connected, possibly influenced by financial decisions of peers.
Relationships and communication patterns:	Potential for professional and social networks. Communication patterns may include seeking advice from friends, colleagues, or online communities.

# 2.2 The Primary Persona:

Sarah, a young adult with a passion for technology and a part-time job, is navigating the complexities of personal finance. With a burgeoning interest in computer science and a part-time job, she grapples with the challenges of managing a limited budget while aspiring towards future goals. Balancing a limited budget and future aspirations, she seeks a user-friendly tool to help manage her finances efficiently.

Sarah desires a solution that not only helps her budget and save but also provides valuable insights tailored to her lifestyle. With time and budget pressures weighing on her, she seeks an application to accompany her in her financial journey, one that guides her towards informed decisions and bolsters her confidence in reaching her goals.

# 3. Contextual Inquiry:

# 3.1 List of questions asked in the contextual inquiry as follows:

- Do you agree to participate in the survey?
- Please select your appropriate age group
- Please select your current employment status
- Please select your income range per annum, as applicable
- What are your frequent/major expenditure categories? Please select all that apply
- Do you currently have any loans?
- If yes, what type of loans are you indebted to? Please select all that apply
- How are you currently managing your finances? Please give a brief response on how you are keeping a track of the inflow and outflow of your finances.
- Do you use any budgeting hack to save money? If yes, please describe. If no, please type as "N/A"
- How do you handle unexpected expenses, and do you have a strategy in place for building an emergency fund?
- Whom do you currently seek financial advice from? Please select all that apply
- How do you currently stay informed about financial trends, investment opportunities, or money-saving strategies? Please select all that apply
- Please brief about the challenges that you are facing in the routine of managing your finances right now.
- On a scale of 1 10, rate the need for an external application to manage your finances.
- Are you currently using any savings/expense tracker application?
- If yes, how well does the expense tracker app let you set things up based on your preferences and financial plans? Please rate on a scale of 1-10
- If you are using an application, what are the aspects of the app that you like the most? Please select all that apply.
- What are the aspects of the app that you don't like? (If you are not using an app, please type "N/A")
- On average, how much time per week do you spend using the application for financial management?
- Please select all the applications which you may have used among the ones listed below:
- On a scale of 1 10, how useful would it be to have an external application with AI integration to provide financial guidance.
- Have you used any applications that provide AI curated financial advice?
- If yes, did it help you to reach your financial goals or not? Please brief on how it helped or why it didn't. (Please type "N/A" if you haven't used any such apps)

#### 3.2 Overview of Interviewees Profile:

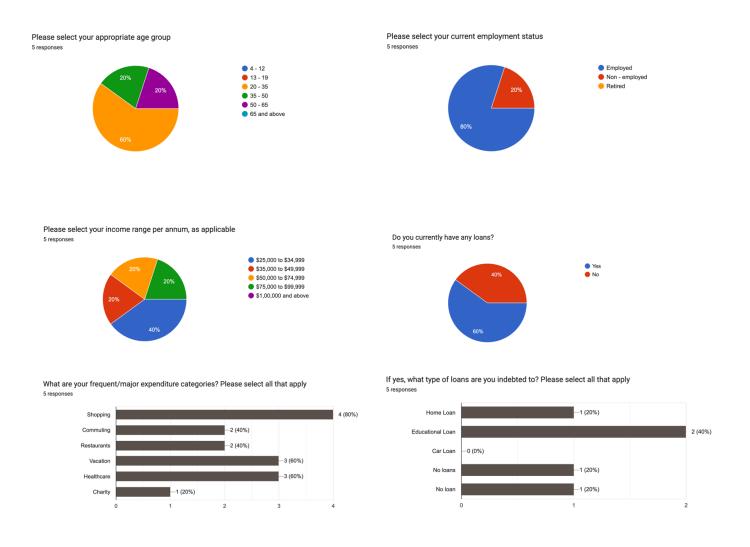
Interviewees	Age	Occupation	Education
Participant 1	21	Student/Part-time worker	Bachelors in Arts

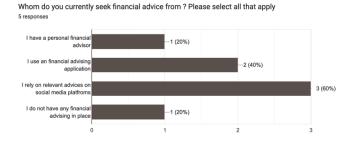
Participant 2	24	Freelancer	High School Diploma
Participant 3	56	Lawyer	Bachelor of Law
Participant 4	37	Corporate Employee	Master of Engineering
Participant 5	29	Unemployed	High School Diploma

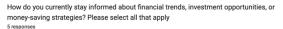
# 3.3 Observations from the responses of the interviewees:

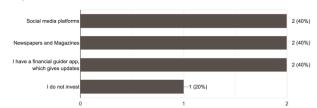
The above mentioned list of questions were asked to all the interviewees, and we observed several similarities and differences in their experiences of using applications, as well as the challenges they are currently facing in the prevailing system.

Based on the answers obtained from the interviewees, we shaped out a result representation for all the questions asked. The detailed overview of the answers obtained from them are as follows:

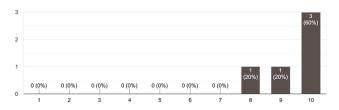




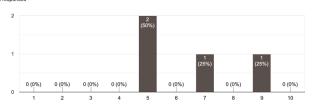




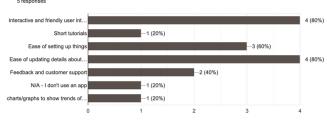
On a scale of 1 - 10, rate the need for an external application to manage your finances 5 responses



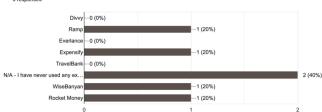
If yes, how well does the expense tracker app let you set things up based on your preferences and financial plans? Please rate on a scale of 1 - 10



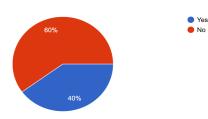
If you are using an application, what are the aspects of the app that you like the most? Please select all that apply.



Please select all of the applications which you may have used among the ones listed below:



Have you used any applications that provide AI curated financial advice? 5 responses



# 3.4 Summarizing the Contextual Inquiry Outcomes:

- 1. The frequent form of expense among the interviewees was Shopping, which was about 80% of the users.
- 2. For the users using an expense tracker one thing they like the most about the application was adding/updating the details of expenses or income.
- 3. Around 60% of the users expressed that they seek financial advice based on the resources on social media platform

4. The sources from which the users stayed informed about financial trends/investment opportunities was observed to be diverse such as - applications used for expense tracking – diverse Type of loans indebted to – versatile (home loan, car loan, educational loan)

# 3.5 Similarities and differences features observed:

Below are the features for which users were seen to have similarity in some of their responses and simultaneously had diversely varying responses for a few questions. The unique points observed during the interviews are mentioned below in the *section 3.9* 

Similarities	Differences
Common Expense Category - Shopping	Sources for staying updated with financial trends
Source of Financial Advice - Social media	Category of loans indebted to
Agree to the need of an external app for financial tracking	Types of applications used for expense tracking and financial advice
Not used any financial advising app so far	Aspects that are most likable in a tracking app - (diverse) User Interface, Adding or Updating the income/expense details

# 3.6 Selection of Target Users:

The decision to conduct the contextual inquiry with a diverse age group ranging from 20 to 65 years was driven by the aim to ensure inclusivity and cater to a wide user base. By involving participants from various age brackets, the goal was to gather insights into the app's usability and user experience across different life stages and technological proficiencies.

### 3.7 Themes in Work Practices:

The work practices observed among the target audience mainly involved high financial management needs on a day to day basis, as well as the requirement to have a reliable source of financial guidance to reach their financial goals.

### 3.8 Problems in getting tasks accomplished:

During the contextual inquiry, the users expressed several problems that they have been facing in the current framework. Out of all those, the most common and majorly emphasized problem was the effort and unnecessary time needed in switching between two different apps for tracking their finances (on one app) and obtaining the financial guidance from the other. This showed the strong need for integration between tracking their finances as well as obtaining suggestions or reliable financial guidance, which the existing framework lacks.

### 3.9 Unique insights from each interview:

- Aditya's interview insight The interviewee expressed the need for one place for visualization of the current financial situation of the user, integrated with real time financial advice at the same time.
- Manasi's interview insight The interviewee emphasized the importance of seamless integration with other financial tools they use daily.
- Reshma's interview insight The participant highlighted concerns about data security and the need for transparent information on how the AI-based financial advisor operates.
- Yukta's interview insight The interviewee considers that the versatility of the budget planning mechanisms provided in an application helps for more systematic financial planning.
- Suraj's interview insight The participant, being a manual tracking enthusiast, made it clear that onboarding to a digital financial management platform requires a huge amount of user friendliness, especially for the users who interact with the interface for the first time.

These unique insights shaped our understanding of diverse user expectations and priorities.

# 3.10 Rationale Behind Unique Events:

The emphasis on integration stemmed from the user's workflow, showcasing that our app should seamlessly fit into their existing routines. The concern about data security highlighted the need to prioritize robust security measures and transparent communication to build user trust.

# 3.11 Important results to be taken into consideration (prior to designing):

- From the results obtained, we can draw the conclusion that the users expect an integration in one app and this app should have a smooth and seamless transition from tracking/visualizing the expenses/income to obtaining the AI based financial advice on the same application of WiseWal.ai
- Now that the very need is the integration between these two, the transition plays a pivotal role in gaining the satisfaction of the users on using the app.
- Users expressed that a clear and concise visualization of their financial status, for a particular period, would help them in planning budgets or savings. Hence, the implementation of dashboard visualization also plays an important role in gaining the attention of the users.

# 4. Task Analysis

# 1. What tasks do the users perform now?

The current flow of tasks of users has the combination of different web services or applications viz. - one for managing/tracking the expenses or income; and the other for obtaining reliable financial advice.

### 2. What tasks are desired?

The desired task is that both these functionalities should be accessible from one place, and the user should be able to carry out the complete flow - starting from managing/tracking the expenses or income, to obtaining the financial advice or suggestions - all in one application.

### 3. How are the tasks learned?

Tasks are learned through the following:

- Onboarding tutorials curated for users
- In-app guidance and interactive tooltips.
- Users may also learn through trial and error and gradually become familiar with the app's features.

# 4. Where are the tasks performed?

The tasks performed in the WiseWal.ai application are mainly of two categories:

# Managing/Tracking the income or expenses:

This includes the tasks such as adding/updating the income on a periodic basis, adding and updating the expenses as and when they occur, planning or setting up a budget for a particular timeframe and within a defined amount,

# Obtaining the financial guidance from the built-in AI integrated advisor:

WiseWal.ai has a collaboration with AI to provide reliable financial suggestions. This section includes tasks such as initiating the process to generate financial advice, answering the on-prompt questions such as - current financial status (inflow and outflow of finance), domain in which the guidance is needed (budget, savings, investment ideas),

# 5. What is the relationship between the user and data?

The user interacts with financial data within the app, inputting transactions, setting budgets, and receiving AI-generated insights. The data serves as the foundation for informed financial decision-making.

#### 6. What other tools does the user have?

Users currently use other financial tools such as expense tracker applications (for example - Expensify, Ramp, etc.,), investment platforms, or spreadsheet software. Additionally, users are also observed to be using the social media platforms, newspapers, or magazines to obtain financial information and eventually extract financial advice. Some users also use apps which provide AI curated financial guidance based on the user's input regarding their financial status.

### 7. How do users communicate with each other?

Users in the WiseWal.ai community engage through a dedicated forum, where they can post questions, respond to queries, and participate in discussions related to personal finance management. This platform fosters collaboration and knowledge-sharing among users, empowering them to seek advice, share insights, and connect with like-minded individuals.

# 8. How often are the tasks performed?

WiseWal.ai users perform tasks ranging from daily expense tracking to periodic budget setup and review. The frequency of these tasks varies based on their nature and importance in personal finance management. **For example,** users may track their expenses daily or weekly to maintain accurate records, while setting up budgets and financial goals may occur less frequently, typically on a monthly or quarterly basis.

### 9. What are the time constraints on the tasks?

Tasks in WiseWal.ai are subject to various time constraints based on their frequency and importance in user's financial management routines. **For instance**, expense tracking tasks may have implicit deadlines, such as the end of the billing cycle, to ensure accurate recording of

transactions. Conversely, setting up budgets and financial goals typically have no strict time constraints, allowing users to plan and organize their finances at their own pace.

# 10. What happens when things go wrong?

WiseWal.ai is a more user-friendly application and has less chance of error making scenarios. Even in case of errors, the criticality of errors would be insignificant. However, for a worst case scenario, the project employs error handling mechanisms to address issues and mitigate disruptions in user's financial management activities. In the event of technical issues, data discrepancies or unexpected errors, users receive prompt error messages guiding them to troubleshoot the problem.

# 5. New and Existing Tasks:

# 5.1 Easy Task:

**Description:** Add income, edit or update the income, adding expenses, editing or updating expenses, setting reminders to get notified about adding/updating income or expense on a timely basis (daily/biweekly/monthly)

# Example:

Update salary to \$3,500 after a pay raise or Add car repair cost of \$350 as additional expense.

# Why is the task categorized as easy?

- Adding a new income source or expense by the user is very straightforward and quick.
- The interface is designed in a very intuitive manner, allowing users to input the necessary details effortlessly.
- The ease of completing this task is essential for users to track their financial transactions regularly and accurately.

# **5.2 Moderate Task:** Setting/Planning or tracking budgets:

**Description:** Initiate the budget creation process, defining the budget amount, setting the time frame for the budget (monthly/quarterly/yearly), adding the pre-planned expenses and expected sources of income.

# Example:

In starting the budget creation process, the user inputs a budget amount of \$1,500, selecting a monthly time frame. Pre-planned expenses, such as rent (\$800) and utilities (\$100), are added, along with expected income from salary (\$2,000) and freelance work (\$500). This streamlined input facilitates efficient budgeting within the app, offering simplicity while ensuring key financial aspects are covered.

# Why is the task moderately difficult?

- Though the task is just about budget management it requires a bit more engagement than expected.
- Budget tracking, setting, and monitoring budgets have more detail oriented user interactions which are moderately complex in nature.

- The interface should guide users in setting up budgets for different categories, for a range of time frames requested by users and should also provide clear visuals on their spending compared to the allocated limits.
- Users might need a moderate level of familiarity with the app to effectively manage their budgets.

# **5.3 Difficult Task:** Obtaining the AI – curated financial advice:

**Description:** Initiate a request for financial advice under the "AI guidance" section, specify the type of advice needed (Long term investing, Short term investing), the user is prompted to configure the duration of financial planning, inputting precise dates through a calendar interface(Quarterly, monthly, yearly). Input current expenses with categorization(Essential Expenses and Discretionary spending) and prioritize income sources(primary, Secondary, Tertiary) and input if any income fluctuations in these sources under the variable income section associated with each of the sources. Input existing debts (loans, credit cards, and other financial obligations). As a next step, users need to adjust the filters to finely tune risk tolerance, with options of conservative, balanced and aggressive. Finally, users need to input preferences on how the AI should consider prevailing market conditions in textual format for the response. Analyze the AI's response and follow up for further doubts.

# Example:

Users initiating a long-term investment AI advice request, sets duration of financial planning as "Quarterly", categorize the expenses under each category (Essentials - \$1,200 for rent, \$150 for Health Insurance), Discretionary spending (\$1000 for shopping, \$500 for dining-out). User prioritizes income sources ("Salary" as primary, "Freelance" as secondary), Later input the income fluctuations (potential \$500 bonus for the primary source, monthly fluctuation of \$200-\$500 for the secondary source), and input debts (\$10,000 student loan, \$500 credit card). As a next step, input Fine-tuning risk tolerance with sliders towards a "balanced approach" and express a preference as "stability during high market volatility and growth in favorable conditions". The AI responds with a diversified investment suggestion.

# Why is the task very difficult?

- The feature of AI based financial advice has a great importance in this application. But simultaneously, the task involves a higher level of complexity for users.
- Extracting the most of this feature is dependent on the extent to which the person is tech-savvy and aware of the ethical implications of the AI based advice.
- Understanding and implementing AI-curated financial advice requires a certain level of financial literacy and trust in the AI system.

# **APPENDIX**

Note: The people in the interview conducted and the people on the personas are not the same

# Notes on the interviews conducted are as follows:

Interviewer	Aditya Sonar
Interviewee	Participant 1
Summarized notes of the interview	The first participant, is a 21 year old student who works for a part-time job, earning roughly around \$28,980 per annum, manages expenses related to commuting and healthcare without any loans. The user's financial tracking involves the use of Excel Spreadsheets, and they do not employ specific budgeting hacks. Challenges include coping with a low income, navigating increased inflation, and grappling with a complicated investment market. With a rating of 10, they express a high need for an external application for financial management but currently do not use any expense tracker app.

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Interviewer	Manasi Bhagwat
Interviewee	Participant 2
Summarized notes of the interview	The second participant, is a 24-year-old freelancer, with an income of \$67,560, spends on shopping, commuting, and vacation and has an educational loan. The user occasionally uses an app but prefers a simple Excel format. Challenges include a lack of time and no proper source for personalized feedback. They rate the need for an external app at 8 and currently use Ramp for expense tracking, but express dissatisfaction with its insights.

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Interviewer	Reshma Rajashekaraiah
Interviewee	Participant 3
Summarized notes of the interview	The third participant, a 56-year-old lawyer with an average income of around \$89,909, has diverse expenses such as shopping, restaurants, vacation, healthcare, and charity, without any loans. Using a digital financial tracker, they adhere to the 50/30/20 rule for budgeting. Challenges are infrequent unexpected expenses, and they highly rate the need for an external app at 10. Currently, they use two apps for expense tracking and financial guidance.

\*\*\*\*\*

Interviewer	Yuktasree Muppala
Interviewee	Participant 4
Summarized notes of the interview	The fourth participant, aged 37 and employed with an income of roughly \$45,960, spends on shopping, vacation, and healthcare, holding a home loan. Their financial management is facilitated through the Rocket Money app, and they rely on friends for financial advice. Challenges include difficulty estimating monthly expenses, and they rate the need for an external app at 10, currently using Rocket Money for expense tracking.

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Interviewer	Suraj Raghu Kumar
Interviewee	Participant 5
Summarized notes of the interview	The fifth participant, aged 29 but non-employed with an income of \$26,120, spends on shopping and restaurants and holds an educational loan. Financial management involves a manual spreadsheet, with a portion of their income allocated monthly to an emergency fund. Challenges include resisting impulsive spending and adapting to unexpected financial changes. They rate their need for an external app at 9 and, similar to the first participant, do not currently use any expense tracker app.

# Personas created are as follows:

# > Suraj's Persona:

# Sarah Conner



AGE 22

EDUCATION **Bachelor of Computers** 

STATUS Single OCCUPATION Student LOCATION California TECH LITERATE High

Meet Sarah, the savvy student navigating the halls of academia with a digital edge, chasing dreams, and turning financial goals into reality."

### **Personality**

Goal-Oriented Thinker

Spender Tech-savy

#### Bio

She is a computer science student pursuing a bachelor's degree, interested in personal finance and is keen on building good financial habits early. She works part-time and manages a limited budget. she is tech savvy, always looking for smart tools to simplify her life.

#### Core needs

- To prepare for future aspirations by intelligently managing her finances and setting aside funds for upcoming personal projects.
- · Consistent saving and prudent spending

She aims for a solution that facilitates a continuous learning

• journey, providing financial tips and insights that align with her student lifestyle

#### **Frustrations**

- Limited income and tight budget constraints.
- · Lack of guidance on effective saving and budgeting strategies.
  - Likes to multitask and analyze her spend patterns to cut short on
- unnecessary expenses, but don't have enough time for different activities due to her busy schedule.
- Faces shortage of funds right around when she plans a trip.

### Payment medium





#### **Platform**





Website Mobile App

# > Reshma's Persona:

# **Park Jimin**



**EDUCATION** Masters in Business

STATUS Single

OCCUPATION Singer, Dancer - KPOP

Los Angeles LOCATION

TECH LITERATE High

Keep trying until you can't do it anymore.

## **Personality**

Introvert Thinker

Spender Tech-savy

Adventurous Generosity

#### Bio

He is a South Korean singer-songwriter and record producer under Big Hit Music. He is a member in the boy group BTS, and has the positions of vocalist and dancer. He has released selfcomposed songs - "Promise" in 2018 & "Christmas Love" in 2020.

#### Core needs

- Prefers mobile applications for convenience
- Values personalized recommendations
- Requires a more efficient financial management tool to handle his inflow and outflow of finances.

#### Challenges

- · Difficulty in identifying unnecessary expenses.
- Lack of confidence in making investment decisions
- · Overwhelmed by financial jargon.

### **Frustrations**

- Limited to no time for manual tracking of expenses and budgets
- Uncertain and has minimal idea about investment opportunities
- · Struggles with impulse spending on unnecessary stuff

## Payment medium







**Platform** 



Website Mobile App

#### **Brands**











# > Aditya's Persona:

# **Daniel Houston**



**Economics EDUCATION** 

Married STATUS

OCCUPATION Accountant

LOCATION **New York** 

TECH LITERATE Moderate to High

I would like to spend some time with my kids instead of keep going over bills.

#### Personality

Introvert Thinker

Saver

Simple-Minded

#### Bio

Daniel works at a mid-size accounting firm in New York. He lives with his Wife Michelle and two kids Leon (4) and Emma (2). He uses smartphone frequently and pays off bills online. Being an accountant, Daniel has better idea on evaluating funds in terms of returns.

#### Core needs

- Need to find good long-term investment option to save for kids' education.
- A retirement plan, an emergency fund and a good term insurance to take care of the family.
- A hassle free platform to manage bills, investments, expenses and mortgages.

### **Frustrations**

- Switching between excel sheets and apps while going over bills.
- Security concerns using the app and online payment.
- Missing Bill Payment Deadlines, Stress due to mortgage and other expenses.

# **Social Media Apps**





### Payment medium





Cash/Cheque Digital Payment

#### **Platform**



Website

# > Manasi's Persona:

### Leena Rao



AGE 42

EDUCATION Bachelors of

Management

STATUS Married

OCCUPATION Small Business Owner

LOCATION Boston, MA
TECH LITERATE Moderate

I am used to tracking expenses, but I do not know where to get financial advise from.

#### Personality

Passionate Traditional

Smart Tech-savy

#### Bio

- Leena is a 42 year old small business owner who runs a fashion boutique. She is passionate about her business and wants to expand.
- Leena uses a smartphone mainly for calls and emails, not much else. She likes simple, traditional, or hands-on methods like registers or Excel.
- A bit doubtful about technology but she is willing to give it a shot if it brings benefits or useful advice for her small business.

#### Core needs

- · Growth of her small business and financial stability.
- Fast implementation of budgeting and expense tracking.

She prefers tools that are easy, learnable and intuitive due to her

 technological limitations. Desires a user-friendly tool that not only tracks expenses but also provides actionable insights.

#### **Frustrations**

- Leena struggles with technology beyond basic functions and so she holds reservations and doubts about the benefits.
- She faces a time constraint while managing business and personal matters, seeking quick solutions.
- She strives for financial stability, but is questioning how technology or Al can be of help or relevance.

#### **Brands**















### Payment medium





Cash/Cheque Digital Payment

#### **Platform**

Website





# > Yukta's Persona:

# Sophia John



AGE 35

EDUCATION Bachelors in Marketing

STATUS Married

OCCUPATION Marketing Professional LOCATION San Diego, California

TECH LITERATE Highly proficient

Meet Sophia John, the savvy digital marketer balancing budgets and bytes."

### Personality

Goal-Oriented

Dynamic

Resourceful

Ambitious

#### Bio

Sophia is a digital marketing specialist with a passion for creativity and data-driven strategies. Armed with a Bachelor's Degree in Marketing, she thrives in the fast-paced environment of an urban city center, where she navigates the intersection of technology and marketing to drive results for her clients.

#### Core needs

- Efficient financial management tools to stay organized.
- User-friendly interfaces that simplify complex financial tasks.
- Access to real-time insights and recommendations to optimize her financial decisions.

#### **Frustrations**

- Dealing with cumbersome financial management tools that lack intuitive design.
- Ensuring accuracy and consistency in expense tracking across various accounts.
- Balancing multiple projects and deadlines while managing personal finances.
- Finding time to analyze financial data amidst a busy schedule.

### Payment medium





Cash/Cheque Digital Payment

### **Platform**



