



# CS251

## Intro. to Software Engineering

### Personal Budgeting

### Software Requirements Specifications

### Version 1.0

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# CS251: Phase 1 - Smart budgeters

## Project: Personal Budgeting

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## Software Requirements Specifications

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### Document Purpose and Audience

#### Purpose

In this document, we focus and practice on the methods of specifying software requirements, how we collect the requirements, what the criteria for collecting the requirements are, and what the purpose of all of this is. This document will give us a lot of knowledge about the process of collecting the requirements, and we will apply this process to our project (Personal Budgeting). We will use the IEEE SRS document to do this.

#### Audience

- Stakeholders
- Software developers
- Software designers
- Anyone who wants to learn about the process of collecting requirements
- Professional users who are knowledgeable about the field

### Introduction

#### Software Purpose

Our purpose is to spread the culture of personal budgeting as a software application in the Arab world, particularly in Egypt. In Egypt and the Arab world, most people don't know about personal budgeting software and resort to old methods for calculating their personal budget, such as using pen and paper. These methods are outdated and inefficient.

Our goal is to improve this by providing software that helps track personal budgeting, making it easier to save money, set goals, and create a roadmap to achieve them.

#### Software Scope

Personal Budgeting is developed to help people who have no knowledge of personal budgeting, have basic computer skills, and want to manage their personal budget.

This software primarily targets Egypt and the Arab world. We aim to provide easy to use software with a friendly user interface. Additionally, we will integrate all Arabic digital wallets, including Egyptian wallets such as (Vodafone Cash and Orange Cash).



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We will create a personalized plan for you based on your goals and struggle to provide an effective budgeting strategy. You will also be able to track your budget, view your expenses and income, and follow steps to achieve your financial goals (e.g., performing Umrah, buying a home).

Furthermore, we will include Arabic language support for users who find English difficult.

### Definitions, acronyms, and abbreviations

Phrase	Definition
<b>Budget</b>	A financial plan with the expected income and expenses over a specified period.
<b>Income</b>	Money received from various sources (salary, side businesses, etc.).
<b>Expense Tracking</b>	Recording and categorizing expenses to monitor financial habits.
<b>Financial Goals</b>	Specific savings or targets, such as buying a new house.
<b>Analytics</b>	Visualizations of financial data to help users make decisions.
<b>Bank Integration</b>	A feature that links user accounts with financial institutions to automatically track transactions (Vodafone Cash, Etisalat Cash, Fawry, etc.).
<b>Reminders</b>	: Notifications about due payments, progress toward goals, and alerts about overspending.
<b>Security</b>	Protecting users' data and taking actions to prevent unauthorized access.
<b>Savings</b>	Money set aside for future use, emergencies, or planned expenses.
<b>Debt Management</b>	Strategies for handling borrowed money and repaying loans efficiently.
<b>Expense Categories</b>	Classification of expenses (e.g., rent, groceries, entertainment) to better manage finances.
<b>Automatic Payments</b>	Automatic periodic payments for subscriptions, bills, or loans.



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<b>Budget Change</b>	Modifying financial plans based on changes in income or expenses.
<b>Spending Limit</b>	A predefined maximum amount set for a specific category to control expenses.
<b>FR (Functional Requirement)</b>	A specific function or feature that the software must provide to meet user needs.
<b>RE (Requirements)</b>	The process of defining, documenting, and maintaining software requirements.

## Requirements

### Functional Requirements

ID	Requirement	Description
FR-01	User login	<ul style="list-style-type: none"> <li>•The user can <b>log in</b> to their account using a valid <b>email</b> or <b>username</b> and <b>password</b>. If the user enters <b>incorrect</b> credentials <b>three times</b>, the account will be <b>temporarily locked for 1 minute</b>.</li> <li>• Or sign up with valid credentials , if it is not valid he will receive a warning message.</li> <li>• The user can <b>recover</b> his account by <b>receiving a verification code via email</b>.</li> </ul>
FR-02	User Opens App	<ul style="list-style-type: none"> <li>• The user can set up <b>facial recognition, fingerprint authentication, or a password</b> to unlock the application and keep their information secure.</li> <li>• If the user exits the application without closing it, it will remain open for up to 15 minutes. After this period, they must authenticate using</li> </ul>



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		their fingerprint <b>to regain access</b> .
FR-03	<b>Set Income</b>	<ul style="list-style-type: none"> <li>• The user can add their income sources, specifying the amount and the date of receiving the money.</li> <li>• The user can add new income, edit existing income, and delete an income source.</li> <li>• The user can also mark an income as non recurring if it is a one time payment.</li> </ul>
FR-04	<b>Expense tracking</b>	<ul style="list-style-type: none"> <li>• The user can <b>add</b> items or budgets for which they spend money, such as <b>household supplies, transportation, gasoline expenses, food, school expenses, vacation expenses, and trips</b>.</li> <li>• The user can <b>mark</b> certain expenses as <b>recurring</b>, so they are <b>automatically deducted</b> from the <b>budget</b> when income is <b>received</b>.</li> <li>• The user can also <b>manually</b> add other expenses, <b>edit</b> existing ones, and <b>manage</b> expense records.</li> </ul>
FR-05	<b>Budget creation</b>	<ul style="list-style-type: none"> <li>• The user can set a budget limit, such as "I want to spend at most 10K this month."</li> <li>• The user can edit the budget and choose to make it fixed for a specific period.</li> <li>• The system will provide recommendations, including suggested actions, flowcharts, and diagrams for managing expenses during the current and previous periods. The user can select a specific period to review.</li> <li>• If the user exceeds the budget, they will receive a warning notification along with budget management recommendations, such as reducing vacation expenses to balance their spending.</li> <li>• The user can set budget limits for different categories, such as food, transportation, and entertainment, to better control</li> </ul>



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		<p>spending.</p> <ul style="list-style-type: none"> <li>• The app can send notifications to inform the user when they have spent a certain percentage of their budget, like "You have spent 70% of your budget for this month."</li> <li>• The system can suggest saving plans based on the user's spending habits, such as "You spent too much on entertainment this month. Try reducing this category to save more."</li> <li>• The user can compare their current budget with previous months to track progress and improve financial management.</li> </ul>
FR-06	User goal	<ul style="list-style-type: none"> <li>• The user can set a goal, such as going to Umrah, visiting a new country, buying a new car, or purchasing a new home.</li> <li>• The user can choose how much to save each month for their goal, and the system will calculate how long it will take to achieve it.</li> <li>• Alternatively, the user can set a target date for their goal, and the system will create a saving plan showing how much to save each month and how much they can spend.</li> <li>• The user can add money to their goal or take out money if needed for urgent expenses, and the system will automatically update the plan and timeline.</li> <li>• The user can reallocate money from other budget categories (e.g., reducing transportation expenses to save more for their goal).</li> </ul>
FR-07	Put Credit or wallet	<ul style="list-style-type: none"> <li>• The user can <b>add their credit card or digital wallet</b> to the app to track their <b>budget, available money, and expenses</b>.</li> <li>• <b>The app will display</b> the current balance <b>and</b> transactions <b>from the connected credit card or wallet</b>.</li> </ul>



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FR-08	Financial reports	<ul style="list-style-type: none"> <li>• The system provides detailed analytics and reports on income, expense, and saving.</li> <li>• Users can view summaries, charts, and trends to better understand their financial habits.</li> <li>• The system can generate reports for specific time periods (daily, weekly, monthly, or year).</li> </ul>
FR-09	Q&A and Tutorial	<ul style="list-style-type: none"> <li>• The system provides chatbot as you can ask for a question related to the finance</li> <li>• There will be a tutorial part that will include also articles about finance that will be provided by the CBE.</li> <li>• There will be some motivating and interactive activities and questions.</li> </ul>

## Non Functional Requirements

Measure	Details
Performance	<ul style="list-style-type: none"> <li>• The <b>sign-in</b> and <b>app opening</b> process should take no more than <b>5 seconds</b>.</li> <li>• Every page in the system should load within <b>10 seconds</b>.</li> <li>• Checking the available balance in the <b>eWallet</b> should take no more than <b>15 seconds</b>, as it requires fetching data from an external service.</li> <li>• Generating and loading <b>financial reports or diagrams</b> should take no more than <b>10 seconds</b>.</li> <li>• Updates in income, expenses, and budgeting should be <b>reflected in real-time</b> or within <b>3 seconds</b>.</li> <li>• The system should respond to user interactions (clicking buttons, navigating pages)</li> </ul>





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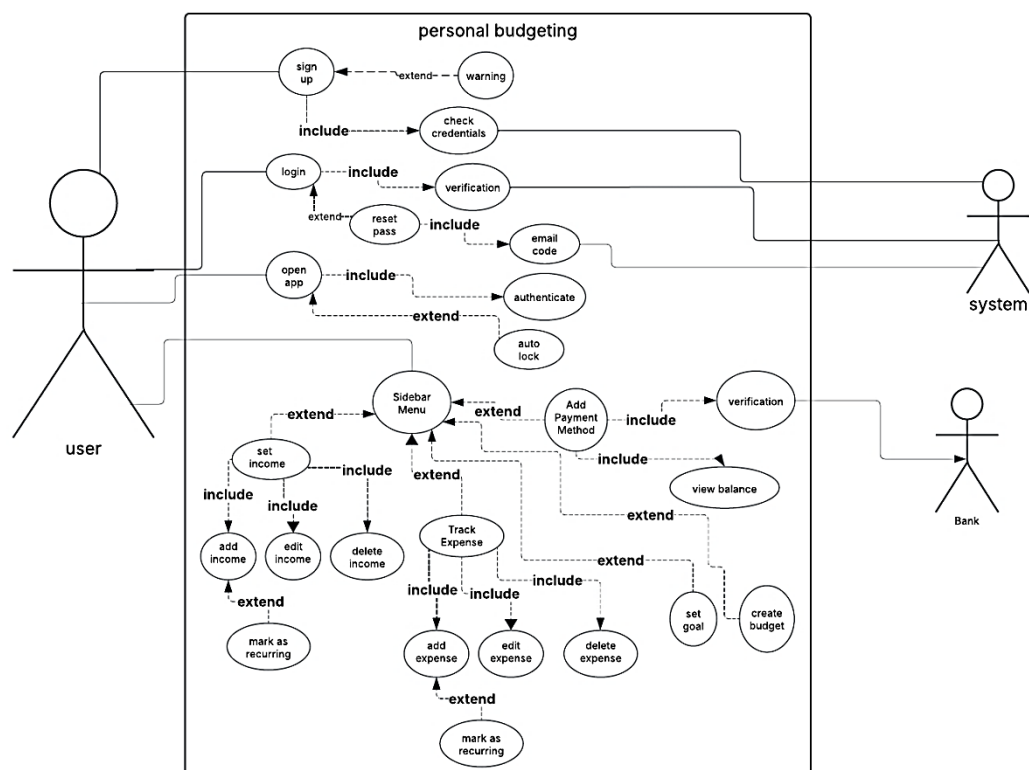
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## Software Requirements Specifications

	<p><b>within 1 second</b> for smooth usability.</p>
<b>Scalability</b>	<ul style="list-style-type: none"> <li>• The system should <b>support at least 1000 concurrent users</b> without a <b>drop in performance</b>.</li> <li>• It should be designed to <b>handle future growth</b> by allowing easy upgrades to support more users if needed.</li> </ul>
<b>Usability</b>	<ul style="list-style-type: none"> <li>• The system should have a friendly and easy-to-use interface to ensure a smooth user experience.</li> <li>• The design should be simple, easy to understand, and accessible for users with basic technical skills.</li> <li>• Icons, buttons, and navigation should be clear and well organized to help users complete tasks efficiently.</li> </ul>
<b>Security</b>	<ul style="list-style-type: none"> <li>• The system should use strong encryption to protect user data and bank or wallet details.</li> <li>• User passwords and sensitive information should be securely stored and not accessible to unauthorized users.</li> <li>• The app should support two factor authentication for additional security.</li> </ul>

## System Models

### Use Case Model





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## Software Requirements Specifications

### System:

- The system is the main manager of the application.
- It verifies operations (such as payment verification, sending notifications, and providing financial recommendations).

### User:

- The user is the person who uses the app to manage their budget and finances.
- They can add income sources, set a budget, track expenses, and receive financial alerts.

### Bank:

- The bank is the financial institution responsible for processing transactions related to credit cards and digital wallets.
- It allows users to link their bank accounts to the app to monitor their balance and spending.

## Enriched User Stories

### • User Story #1

User Story ID	US #1
User Story Name	Sign Up
Actors	New User
Description	<b>As</b> a new user I <b>like</b> to be able to create an account using my email and password <b>So</b> that I can securely access my budgeting information
Per condition	- The user is on the sign-up page. - The user does not already have an account.
Post condition	- The user account is successfully created. - The user is logged in and redirected to their dashboard.
Acceptance Criteria	<b>Given</b> I'm a new user and I'm on the Sign-Up page, <b>When</b> I fill in the "Email", "Username", and "Password" fields



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## Software Requirements Specifications

	with valid information and click the Sign-Up button, <b>Then</b> the system creates my account, logs me in, and redirects me to my dashboard.
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- Scenarios**

### Normal Scenario

Actor Action	System Response
1- User Enter email, username, and password 2- User clicks Sign-Up	
	3- System validates the email, username, password, and phone number. 4- System sends an OTP to the provided phone number.
5- User enters the OTP received via SMS.	6- System verifies the OTP and creates a new user account. 7- System logs the user in automatically. 8- System redirects the user to their dashboard.

### Exceptional Scenario

Actor Action	System Response
1- User Enters an invalid email 2- User clicks Sign-Up	
	6- System verifies the user information 7- System finds input information invalid 8- System displays "Please enter valid information." message



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## Software Requirements Specifications

- Screen Design

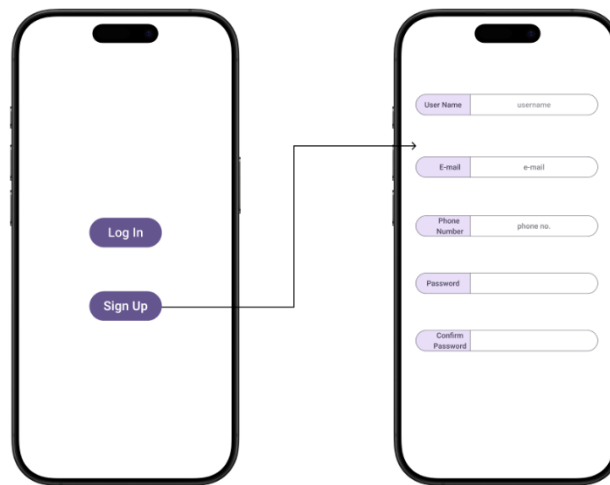


Figure 1 – Sign-Up page

- Data Dictionary:

Element Label	Type/Length	Data Validation / Business Rule
User Name	String(3-50 characters)	<ul style="list-style-type: none"> <li>- Must be between 3 and 50 characters.</li> <li>- Can contain letters, numbers, and special characters (e.g., underscores _ or hyphens -).</li> <li>- Must be unique (no two users can have the same username).</li> <li>- Cannot contain spaces.</li> <li>- Must be validated against a list of reserved or inappropriate usernames.</li> </ul>
Email	String(valid email format)	<ul style="list-style-type: none"> <li>- Must be a valid email address (e.g., contains "@" and a domain).</li> <li>- Must be unique (no two users can have the same email).</li> <li>- Must be verified via a confirmation email.</li> </ul>
Phone Number	String(16)	<ul style="list-style-type: none"> <li>- Must 16 digits.</li> </ul>



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Element Label	Type/Length	Data Validation / Business Rule
		<ul style="list-style-type: none"> <li>- Must follow a valid phone number format (e.g., +20 for Egypt, +1 for the US).</li> <li>- Must be unique (no two users can have the same phone number).</li> <li>- Must be verified via an OTP (One-Time Password) sent via SMS.</li> <li>- Can include optional formatting (e.g., spaces, hyphens, or parentheses).</li> </ul>
Password	String(8-16 characters)	<ul style="list-style-type: none"> <li>- Must be between 8 and 16 characters.</li> <li>- Must contain at least one uppercase letter, one lowercase letter, one number, and one special character.</li> <li>- Must be hashed and securely stored in the database.</li> </ul>
Confirm Password	String(8-16 characters)	<ul style="list-style-type: none"> <li>- Must match the "Password" field exactly.</li> <li>- Used to ensure the user did not make a typo when entering their password.</li> </ul>

### • User Story #2

<b>User Story ID</b>	US #2
<b>User Story Name</b>	Login
<b>Actors</b>	User
<b>Description</b>	<p><b>As a user</b></p> <p><b>I like</b> to be able to log in using my credentials</p> <p><b>So that</b> I can access my personalized dashboard</p>
<b>Per condition</b>	<ul style="list-style-type: none"> <li>-The user has already registered and created an account.</li> <li>-The user is on the login page.</li> </ul>
<b>Post condition</b>	<ul style="list-style-type: none"> <li>- The user is successfully logged in.</li> <li>- The user is redirected to their personalized dashboard.</li> </ul>
<b>Acceptance Criteria</b>	<p><b>Given</b> I'm a logged-out system user and I'm on the Sign-In page</p> <p><b>When</b> I fill in the "Username" and "Password" fields with my authentication credentials and I click the Sign-In button</p>



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## Software Requirements Specifications

**Then** the system signs me in and redirects me to my personalized dashboard.

### • Scenarios

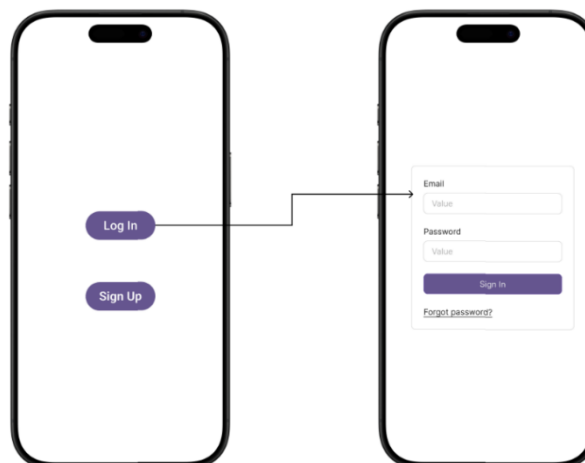
#### Normal Scenario

Actor Action	System Response
1- User Email and Password. 2- Click <b>Submit</b>	
	3- System Verify user data 4- System displays list of Mobile companies

#### Exceptional Scenario

Actor Action	System Response
1- User Enter Card and Password. 2- Click <b>Submit</b>	
	3- System detects that the card is invalid (e.g., expired or incorrect details). 4- System rejects the card and displays an error message: "Invalid card. Please check your card details and try again."

### • Screen Design





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## Software Requirements Specifications

Figure 2 – Login Page

- **Data Dictionary:**

Element Label	Type/Length	Data Validation / Business Rule
Email	String(valid email formate)	<ul style="list-style-type: none"> <li>- Must be a valid email address (e.g., contains "@" and a domain).</li> <li>- Must be unique (no two users can have the same email).</li> <li>- Must be verified via a confirmation email.</li> </ul>
Password	String(8-16 characters)	<ul style="list-style-type: none"> <li>- Must be between 8 and 16 characters.</li> <li>- Must contain at least one uppercase letter, one lowercase letter, one number, and one special character.</li> <li>- Must match the user's stored password in the system.</li> </ul>

- **User Story #3**

<b>User Story ID</b>	US #3
<b>User Story Name</b>	Tracking Income
<b>Actors</b>	User
<b>Description</b>	<p><b>As a user</b></p> <p><b>I like to be able</b> to track my income sources and amounts</p> <p><b>So that</b> I can monitor my earnings and plan my budget accordingly</p>
<b>Per condition</b>	<ul style="list-style-type: none"> <li>- The user is logged in.</li> <li>- The user is on the "Income Tracking" page.</li> </ul>
<b>Post condition</b>	<ul style="list-style-type: none"> <li>- The income data is saved and displayed in the user's dashboard.</li> </ul>
<b>Acceptance Criteria</b>	<p><b>Given</b> I'm a logged-in user and I'm on the Income Tracking page,</p> <p><b>When</b> I enter my income source (e.g., salary, freelance) and amount, and click Save,</p> <p><b>Then</b> the system saves the income data and displays it in my dashboard.</p>



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- Scenarios

### Normal Scenario

Actor Action	System Response
1- User enters income source (e.g., salary) and amount. 2- User clicks Save.	
	3- System validates the income data. 4- System saves the income data. 5- System displays the income data in the user's dashboard.

### Exceptional Scenario

No exceptional scenario for this user story.

- Screen Design

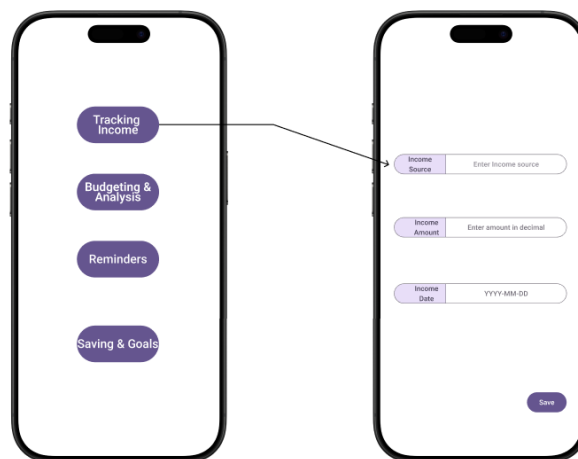


Figure 3 – Tracking Income Page

- Data Dictionary:

Element Label	Type/Length	Data Validation / Business Rule
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## Software Requirements Specifications

Element Label	Type/Length	Data Validation / Business Rule
Income Source	String(3-50 characters)	<ul style="list-style-type: none"> <li>- Must be between 3 and 50 characters.</li> <li>- Can contain letters, numbers, and spaces.</li> <li>- Must be a valid income source (e.g., salary, freelance, bonus).</li> </ul>
Income Amount	Decimal	<ul style="list-style-type: none"> <li>- Must be a positive number.</li> <li>- Must be in a valid currency format (e.g., 1000.00).</li> </ul>
Income Date	Date(YY-MM-DD)	<ul style="list-style-type: none"> <li>- Must be a valid date.</li> <li>- Cannot be a future date.</li> </ul>

### • User Story #4

User Story ID	US #4
User Story Name	Budgeting & Analysis
Actors	User
Description	<p><b>As a user</b></p> <p><b>I like to be able</b> to create a budget and analyze my spending</p> <p><b>So that</b> I can manage my finances effectively</p>
Per condition	<ul style="list-style-type: none"> <li>- The user is logged in.</li> <li>- The user has added income and expense data.</li> </ul>
Post condition	<ul style="list-style-type: none"> <li>- The budget is created and displayed in the user's dashboard.</li> <li>- Spending analysis is generated.</li> </ul>
Acceptance Criteria	<p><b>Given</b> I'm a logged-in user and I'm on the Budgeting page,</p> <p><b>When</b> I set a budget for a category (e.g., groceries) and click Save,</p> <p><b>Then</b> the system saves the budget and displays it in my dashboard.</p>

### • Scenarios

#### Normal Scenario

Actor Action	System Response
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1- User sets a budget for a category (e.g., groceries).	
2- User clicks Save.	
	3- System validates the budget data.
	4- System saves the budget.
	5- System displays the budget in the user's dashboard.

### Exceptional Scenario

No exceptional scenario for this user story.

- Screen Design**

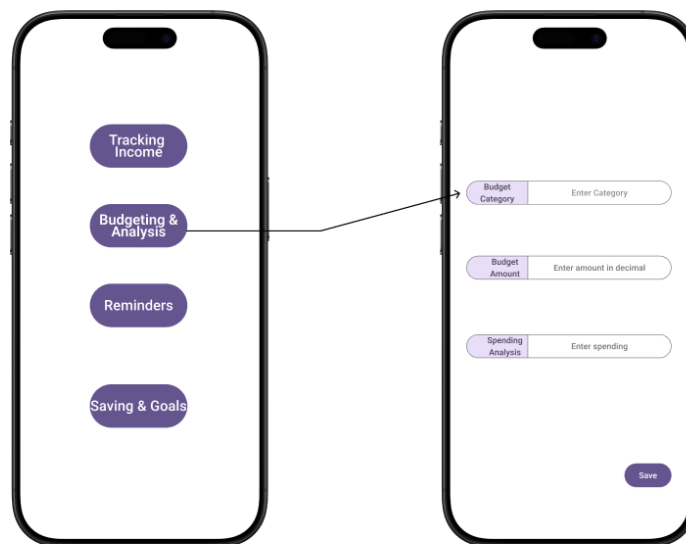


Figure 4 – Budgeting Page

- Data Dictionary:**

Element Label	Type/Length	Data Validation / Business Rule
Budget Category	String(3-50 characters)	<ul style="list-style-type: none"> <li>- Must be between 3 and 50 characters.</li> <li>- Can contain letters, numbers, and spaces.</li> </ul>



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Element Label	Type/Length	Data Validation / Business Rule
		- Must be a valid category (e.g., groceries, rent, entertainment).
Budget Amount	Decimal	- Must be a positive number. - Must be in a valid currency format (e.g., 500.00).
Spending Analysis	String (Variable length)	- Must display a summary of spending by category (e.g., "You have spent \$200 on groceries this month.").

### • User Story #5

User Story ID	US #5
User Story Name	Reminders
Actors	User
Description	<p><b>As a user</b></p> <p><b>I like to be able</b> to set reminders for bill payments and financial tasks,</p> <p><b>So that</b> I don't miss important deadlines.</p>
Per condition	<p>- The user is logged in.</p> <p>- The user is on the "Reminders" page.</p>
Post condition	- The reminder is saved and the user receives a notification at the specified time.
Acceptance Criteria	<p><b>Given</b> I'm a logged-in user and I'm on the Reminders page,</p> <p><b>When</b> I set a reminder for a bill payment (e.g., electricity bill) with a date and time, and click Save,</p> <p><b>Then</b> the system saves the reminder and sends me a notification at the specified time.</p>

### • Scenarios

#### Normal Scenario

Actor Action	System Response
1- User sets a reminder for a bill payment (e.g., electricity bill).	



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## Software Requirements Specifications

2- User clicks Save.	
	3- System validates the reminder data. 4- System saves the reminder data. 5- System sends a notification at the specified time.

### Exceptional Scenario

No exceptional scenario for this user story.

- Screen Design**

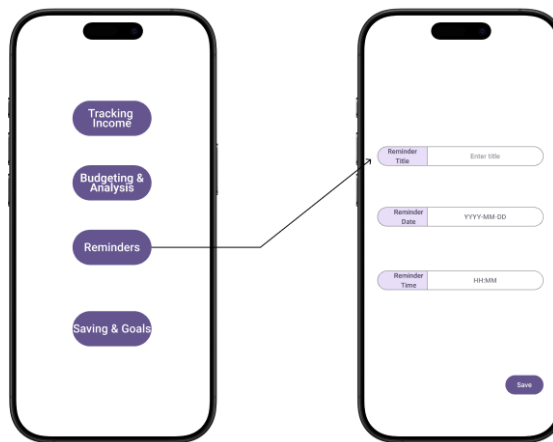


Figure 5 – Reminders Page

- Data Dictionary:**

Element Label	Type/Length	Data Validation / Business Rule
Reminder Title	String(3-50 characters)	- Must be between 3 and 50 characters. - Can contain letters, numbers, and spaces.
Reminder Date	Date(YYYY-MM-DD)	- Must be a valid future date.
Reminder Time	Time (HH:MM)	- Must be a valid time.



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## Software Requirements Specifications

- **User Story #6**

<b>User Story ID</b>	<b>US #6</b>
<b>User Story Name</b>	Savings & Goals
<b>Actors</b>	User
<b>Description</b>	<b>As a user</b> <b>I like to be able</b> to set savings goals and track my progress, <b>So that</b> I can achieve my financial targets.
<b>Per condition</b>	- The user is logged in. - The user is on the "Savings & Goals" page.
<b>Post condition</b>	- The savings goal is saved and progress is displayed in the user's dashboard.
<b>Acceptance Criteria</b>	<b>Given</b> 'm a logged-in user and I'm on the Savings & Goals page, <b>When</b> I set a savings goal (e.g., save \$1000 for a vacation) and click Save, <b>Then</b> the system saves the goal and displays my progress in the dashboard.

- **Scenarios**

### Normal Scenario

Actor Action	System Response
1- User sets a savings goal (e.g., save \$1000 for a vacation). 2- User clicks Save.	
	3- System validates the savings goal. 4- System saves the savings goal. 5- System displays the progress in the user's dashboard.

### Exceptional Scenario

No exceptional scenario for this user story.



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## Software Requirements Specifications

- Screen Design

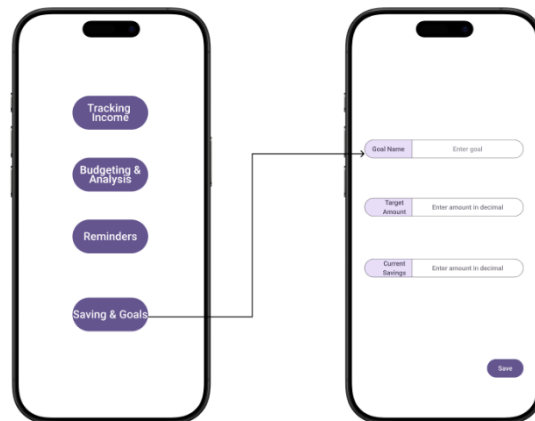


Figure 6 – Saving & Goals Page

- Data Dictionary

Element Label	Type/Length	Data Validation / Business Rule
Goal Name	String(3-50 characters)	<ul style="list-style-type: none"> <li>- Must be between 3 and 50 characters.</li> <li>- Can contain letters, numbers, and spaces.</li> </ul>
Target Amount	Decimal	<ul style="list-style-type: none"> <li>- Must be a positive number.</li> <li>- Must be in a valid currency format (e.g., 1000.00).</li> </ul>
Current Savings	Decimal	<ul style="list-style-type: none"> <li>- Must be a positive number.</li> <li>- Must be in a valid currency format (e.g., 500.00).</li> </ul>

- User Story #7

User Story ID	US #7
User Story Name	Expense Tracking
Actors	User
Description	<p>As a user</p> <p>I would like to be able to track my expenses</p>



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## Software Requirements Specifications

	<b>So that</b> I don't overspend my income and see where my money is going.
<b>Pre-conditions</b>	<ul style="list-style-type: none"> <li>- The user is logged in.</li> <li>- The user is on the "Track Expenses" page.</li> </ul>
<b>Post-conditions</b>	<ul style="list-style-type: none"> <li>- The expenses are recorded and stored in the system.</li> <li>- the user can view the updated expenses in their transaction history.</li> </ul>
<b>Acceptance Criteria</b>	<p><b>Given</b> I'm a logged-in user and I'm on the Expenses page,  <b>When</b> I enter a valid expense amount with its category and date and click save,  <b>Then</b> the system saves the expense and update the budget and display a confirmation message.</p>

- **Scenarios**

### Normal Scenario

Actor Action	System Response
1- User clicks on "Track Expenses" icon.	
3- add new expenses manually and its category	2- display the expenses .  4-display confirmation message that a new expense has been added .  5- display the expenses with its category , payment method and date.

### Exceptional Scenario

No exceptional scenario for this user story

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## Software Requirements Specifications

### Screen Design

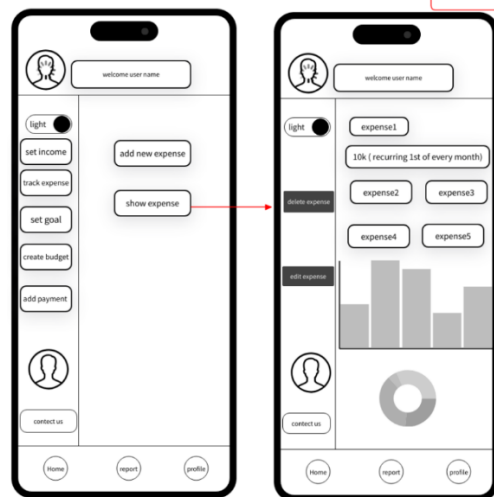


Figure 7 – Expenses Page

### • User Story #8

User Story ID	US #8
User Story Name	Debt Repayment
Actors	User
Description	<p><b>As a user</b></p> <p><b>I want a plan</b> to track my debts (e.g., loans..) and create a repayment plan to be debt free.</p>
Pre-conditions	<p>- The user is logged in.</p> <p>- The user must have at least one active debt or allow the user to add new debts.</p>
Post-conditions	<p>- The debt repayment plan is recorded and stored in the system.</p> <p>- the system updates the total user's debt.</p>
Acceptance Criteria	Given I'm a logged-in user and I'm on the debt repayment page,





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## Software Requirements Specifications

	<b>When</b> I enter a valid debt info and click save, <b>Then</b> the system saves the debt and display it on my debt tracker .
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- Scenarios

### Normal Scenario

Actor Action	System Response
1- User navigates to debt repayment section. 2- User adds debt and click Save.	
	4- System saves the debt. 5- System displays the debt in the user's dashboard. 6- system track payments and adjust the remaining balance accordingly to free the user from their debt.

### Exceptional Scenario

Actor Action	System Response
1- User navigates to debt repayment section. 2- User enters debt value with a negative number or 0.	
	3 – display a message to the user that “debt amount must be a non negative/zero number”.



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## Software Requirements Specifications

### Screen Design

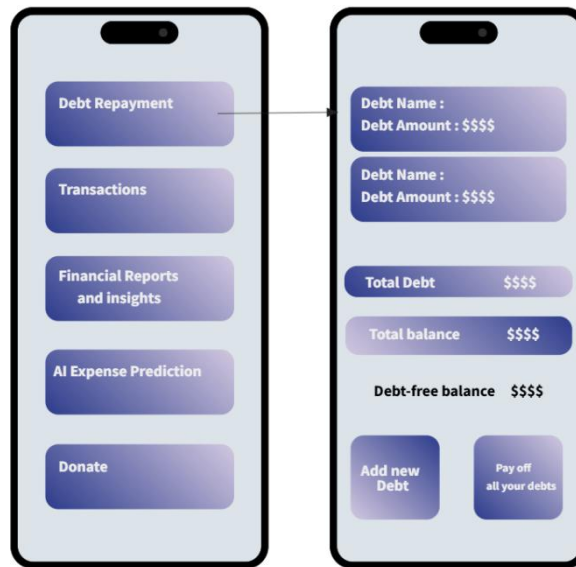


Figure 8 – Debt Repayment Page

- **Data Dictionary**

Element Label	Type/Length	Data Validation / Business Rule
Debt Name	String	- required. -user defined name for the debt.
Total debt amount	Decimal	- Must be greater than zero.
Remaining balance	decimal	- Must be greater than zero.

- **User Story #9**

<b>User Story ID</b>	US #9
<b>User Story Name</b>	Transactions
<b>Actors</b>	User
<b>Description</b>	As a user I want to set up recurring income and expense transactions so that



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## Software Requirements Specifications

	I don't have to enter them manually
<b>Pre-conditions</b>	<ul style="list-style-type: none"> <li>- <b>The user is logged in.</b></li> <li>- <b>The user must have</b> at least one income or expense category already set up.</li> </ul>
<b>Post-conditions</b>	<ul style="list-style-type: none"> <li>- <b>The system successfully</b> schedules the recurring transaction.</li> <li>-<b>the Transaction is automatically</b> recorded on the due data .</li> </ul>
<b>Acceptance Criteria</b>	<p><b>Given</b> I'm a logged-in user and I'm on the debt repayment page,  <b>When</b> I set up a recurring transaction with valid details,  <b>Then</b> the system should schedule the transaction and execute it automatically on the specified dates .</p>

- **Scenarios**

### Normal Scenario

Actor Action	System Response
1- User enters the "Transactions" section. 2- User adds transaction details then confirms and saves.	
	4- System saves the transaction. 5- System schedule the transaction and add it to the budget plan . 6- on the due date the system informs the user with a notification that the transaction has been recorded.

### Exceptional Scenario

Actor Action	System Response
1- User enters Transactions system . 2- user tries to cancel recurring transaction	



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## Software Requirements Specifications

3 – system allows cancellation but asks for confirmation and entering the password.

### Screen Design



Figure 9– Transactions Page

- Data Dictionary

Element Label	Type/Length	Data Validation / Business Rule
Transaction ID	Integer	- unique identifier for each recurring transaction .
Category	String(3-50 characters)	- Must be predefined or user-created category.
Date Range	Date	- Must be in YYYY/MM/DD format. Cannot be in the future -starts with todays date or any future date ( not necessarily to add end date).



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## Software Requirements Specifications

Element Label	Type/Length	Data Validation / Business Rule
Transaction Type	Enum	- Must be (income- Expense)
amount	Decimal	- Must be greater then zero.

### • User Story #10

<b>User Story ID</b>	<b>US #10</b>
<b>User Story Name</b>	Financial Reports and insights.
<b>Actors</b>	User
<b>Description</b>	<p><b>As a user</b></p> <p><b>I want</b> generated reports and insights so I can understand better my financial situation.</p>
<b>Pre-conditions</b>	<p>- <b>The user is logged in.</b></p> <p>- <b>The user must have</b> financial data (income- expense-debt - savings).</p>
<b>Post-conditions</b>	<p>- <b>The system</b> generate the financial report showing categorized spending ,income sources and debt status.</p> <p>-<b>the system</b> provides insights and recommendations.</p>
<b>Acceptance Criteria</b>	<p><b>Given</b> I'm a logged-in user ,</p> <p><b>When</b> I request a financial report,</p> <p><b>Then</b> the system should display the reports and the insights.</p>

### • Scenarios

#### Normal Scenario

Actor Action	System Response
1- User enters the "Financial Reports and Insights " section.	
2-user request for report and insights.	
	3- System displays the reports and the insights .
4-user asks for financial recommendation	



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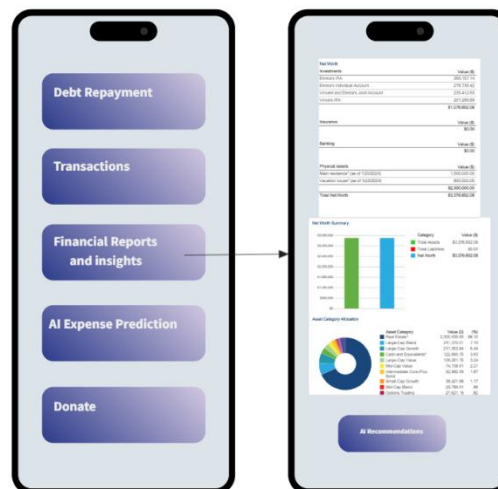
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## Software Requirements Specifications

5- the user gets AI recommendations.

### Exceptional Scenario

Actor Action	System Response
1- User asks for financial report with no recorded transactions	



2 – system informs the user that they must have recorded transactions.

### Screen Design

#### • Data Dictionary

Element Label	Type/Length	Data Validation / Business Rule
Total income	Decimal	- sum of income transactions
Total expense	Decimal	- sum of expense transactions
Spending categories		-Spending categories in percentage



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## Software Requirements Specifications

### • User Story #11

<b>User Story ID</b>	<b>US #11</b>
<b>User Story Name</b>	AI-Powered Expense Prediction
<b>Actors</b>	User
<b>Description</b>	<p><b>As a user</b></p> <p><b>I want the system</b> to analyze my spending patterns and predict upcoming expenses.</p>
<b>Pre-conditions</b>	<p>- <b>The user is logged in.</b></p> <p>- <b>The user recorded</b> at least 3 months of financial transactions.</p> <p>- <b>AI Prediction</b> is enabled for the user.</p>
<b>Post-conditions</b>	<p>- <b>The system successfully</b> schedules the recurring transaction.</p> <p>- <b>the Transaction is automatically</b> recorded on the due data .</p>
<b>Acceptance Criteria</b>	<p><b>Given</b> the user ( I ) has previous recorded financial data,</p> <p><b>When</b> I request an expense prediction,</p> <p><b>Then</b> the system provides estimated expenses for the next month.</p>

### • Scenarios

#### Normal Scenario

Actor Action	System Response
1- User requests expense prediction	
	<p>2-system analyzes past spending trends .</p> <p>3- The system displays estimated expenses per category.</p> <p>4-system alerts the user if the expenses exceed the budget.</p>



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## Software Requirements Specifications

### Exceptional Scenario

Actor Action	System Response
1- User requests prediction with no previous data recorded.	
	2- system notify the user that there has to be at least 3 months of data recorded.

### Screen Design



Figure 11 – AI Expense Prediction page

- Data Dictionary





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## Software Requirements Specifications

Element Label	Type/Length	Data Validation / Business Rule
Prediction date	Date	- the generated prediction date
Predicted expenses		- store the predicted expenses in different categories
Confidence level	Decimal(0 ,1)	-percentage score for accuracy

### • User Story #12

<b>User Story ID</b>	US #12
<b>User Story Name</b>	Donate
<b>Actors</b>	User
<b>Description</b>	As a user I want to be able to donate to charities and get monthly reminders for it.
<b>Pre-conditions</b>	- The user is logged in. - The user has linked payment method for donation tracking .
<b>Post-conditions</b>	- The system successfully logs all donation transactions. - the user can view donation history.
<b>Acceptance Criteria</b>	Given I want to donate, When I enter donation transaction, Then the system records it in the donation page.

### • Scenarios

#### Normal Scenario

Actor Action	System Response
1- User clicks at donation section 2-users enters a new donation	
	3- System records donation and update the balance



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## Software Requirements Specifications

### Exceptional Scenario

Actor Action	System Response
1- User tries to donate an amount that exceeds their available budget	
	2- system warn the user and suggest adjusting the donation number.

### Screen Design

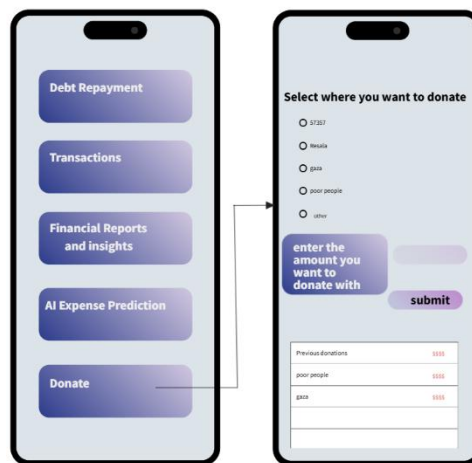


Figure 12 – Donation page

### • Data Dictionary

Element Label	Type/Length	Data Validation / Business Rule
System alert	boolean	- if the input number exceeds the budget return false
Recipient name	string	- required , the user must enter the organization they want to donate to.
Donation amount	Decimal	-greater than zero



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## Software Requirements Specifications

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- **User Story #13**

<b>User Story ID</b>	<b>US #13</b>
<b>User Story Name</b>	Q&A and Tutorial
<b>Actors</b>	User
<b>Description</b>	<p><b>As a user</b></p> <p><b>I like to be able</b> to ask question or , learn more about finance or do some educational activity.</p> <p><b>So that</b> I can achieve the financial education target.</p>
<b>Pre-conditions</b>	<ul style="list-style-type: none"><li>- The user is logged in.</li><li>- The user is on the “Q&amp;A and tutorial” page.</li></ul>
<b>Post-conditions</b>	<ul style="list-style-type: none"><li>- The educational goal is achieved and reached to the information that he needed.</li></ul>
<b>Acceptance Criteria</b>	<p><b>Given</b> I’m a logged-in user and I’m on the Q&amp;A and tutorial page, <b>When</b> I ask the question and click submit , <b>Then</b> the system should answer to my question.</p> <p><b>When</b> I search for certain article, <b>Then</b> the system should opens for me the article that related to my purpose.</p> <p><b>When</b> I click to start certain educational activity to make it, <b>Then</b> the system should opens for me the page that includes that activity.</p>

- **Scenarios**

### Normal Scenario



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## Software Requirements Specifications

Actor Action	System Response
1- User logs into the system 2- User navigates to the "Q&A and Tutorial" page 3- User selects tutorial	
5- User searches for a tutorial article  7- User answers a Q&A question  9- User clicks on an educational activity	4- System displays the selected financial documentation  6- System opens the related article  8- System validates the answer and awards points if correct  10- System opens the page for that activity

### Exceptional Scenario

Actor Action	System Response
1- User tries to access the "Q&A and Tutorial" page without logging in	
3- User submits a Q&A answer without selecting any option  5- User searches for an article that doesn't exist  7- User selects an educational activity that cannot be loaded	2- System redirects the user to the login page  4- System shows an error message: "Please enter a question"  6- System displays: "No articles found related to your search"  8- System displays: "Unable to load activity. Please try again later"



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## Software Requirements Specifications



### Screen Design

Figure 13 – Q&A and Tutorial Page

- **Data Dictionary**

Element Label	Type/Length	Data Validation / Business Rule
Documentation Title	String(100)	User must select documentation from Central Bank to view financial concepts
Documentation Content	Text	System should display selected Central Bank financial documentation
Question Text	String(500)	User must enter question before submitting
Answer Options	Array[String]	System must provide multiple choice answers for finance questions
User Selection	String	User must select an answer option before submitting



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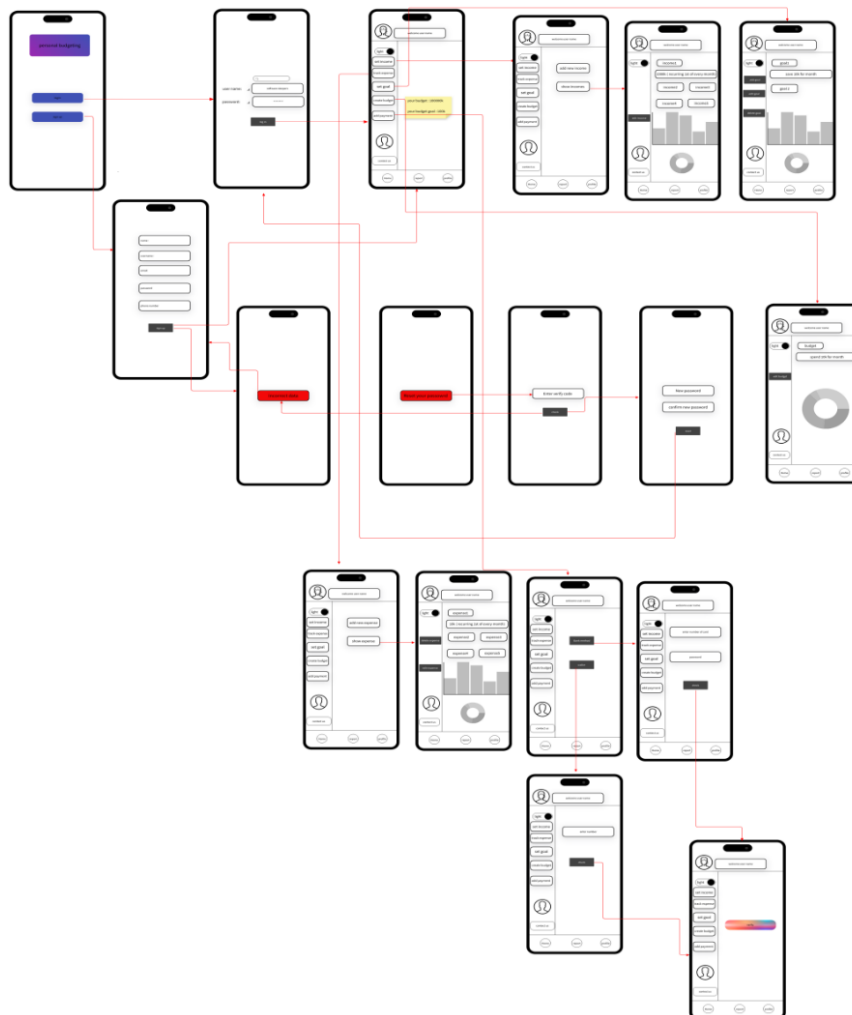
## Project: Personal Budgeting

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## Software Requirements Specifications

Element Label	Type/Length	Data Validation / Business Rule
Points Awarded	Integer	System awards points based on correct answers to finance questions
Article Title	String	system opens article related to search query
Activity Title	String	user clicks to start educational activity

### System Navigation Map





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## Software Requirements Specifications

You can zoom for more details:

[https://drive.google.com/file/d/1yZFcYush3yEnM4HeuVmWHrK6JD8x\\_XLn/view?usp=drive\\_link](https://drive.google.com/file/d/1yZFcYush3yEnM4HeuVmWHrK6JD8x_XLn/view?usp=drive_link)

### Tools

- [www.mockflow.com](http://www.mockflow.com) for System Navigation Map
- <https://lucid.app/> for use case