

# **Voice Finance Assistant**

A project submitted to

**UKA TARSADIA UNIVERSITY**

in partial fulfilment of the requirements for the degree of

**Master of Science**

in

**Information Technology**

for

**5 Years Integrated M.Sc.(IT)**

By

**Kalash Shah**

(202006100110040)

Guided by

**Dr. Sapan**

**Naik**

**Assistant**

**Professor**



**Babu Madhav Institute of Information Technology**  
**Uka Tarsadia University**

# CERTIFICATE

This is to certify that **Kalash Shah (202006100110040)** has submitted project entitled “**Voice Finance Assistant**” as the partial fulfilment for the award of the degree of Master of Science in Information Technology for 5 Years Integrated M.Sc.(IT) in 2023 – 2024.

**Date: 03/05/2024**

**Place: Uka Tarsadia University**

**Dr. Sapan Naik**

**Dr. Jitendra**

**Nasriwala**

Guide

Programme Coordinator

**External Examiner**

**Babu Madhav Institute of Information  
Technology, Uka Tarsadia University,  
Bardoli – 394350**

## Table of Content

Chapters	Particulars		Page no.
<b>1</b>	<b>Introduction</b>		
	1.1	Problem Definition	
	1.2	Project Objective	
	1.3	Product Scope	
<b>2</b>	<b>Overall Description</b>		
	2.1	Product Perspective/ Environment Description	
		2.1.1 Hardware <a href="#">Interface/</a> Hardware Specification	
		2.1.2 <a href="#">Software Interface/ Software</a> Specification	

3	System Specific Requirements			
	3.1	Functional Requirement		
	3.2	Non-functional Requirement		
4	UML Diagrams			
	4.1	Use case Diagram		
	4.2	Activity Diagram		
5	System Design			
	5.1	Database Design		
		5.1.1	Database Schema	
		5.1.2	Data Dictionary	
6	System Implementation			
	6.1	Screenshots		
7	Testing			
	7.1	Test Cases		
8	Future Enhancement			
	Conclusion			
	Bibliography			

## **Introduction:-**

### **Problem Definition: -**

In the Fast and Modern world, where everyone is fond of shortcuts, a normal Personal Finance Management Tool maybe fall out of the requirements of people. Also, when people don't have time to understand the whole web application including its pages features. Sometimes it may become problem for elderly people to fully understand the flow and functionalities of the Personal Finance management Tool including the design and style of the web application.

### **Project Objective: -**

This project aims to solve all the above listed problem with ease to understand. The project aims to enhance the user interactivity. This project includes voice assistant which can help the user with many ways like finding the page, creating budget, adding amount in budget, deducting amount from budget, open specific budget, give investment advises, greet and basic interactions with the Users in English using their voices and understanding what they want to say.

### **Scope:-**

The Scope of this System will be within India only.

## Overall Description:-

### Product Perspective/ Environment Description:-

#### Hardware Interface/ Hardware Specification:-

- 512 MB RAM
- CPU PROCESSOR 2.3 GHZ.
- Internet Connection

#### Software Interface/ Software Specification:-

- Compatible Web Browser
- Operating System : Windows or Mac or Linux

### System Specific Requirements:-

#### - Functional Requirements:-

RN	Description	Comments
FR1	System shall provide a Form to a new user to register themselves with the system by submitting below mentioned information.  Name, contact no ,email, password	User Registration
FR2	System shall authenticate and login users into the system.	User Login
FR3	Enable a registered user to manage their own profile which includes address, contact no, password etc.	Manage User Profile
FR4	System shall Enable a registered user to change password if user forgets password. System shall Send OTP through mail for user's verification.	Forgot password and Change Password

FR5	System Shall follow the voice commands of the user and perform few actions like redirecting to page, create budget, modify amount of budget, greet, give investment advice, etc	Voice Assistance
FR6	System Shall be able to create a budget and manage it according to user.	Manage Budget
FR7	System shall be able to add accounts of user like bank account, cash, etc and manage it according to user actions. (Not Directly)	Account Management
FR8	System shall be able to link investment and manage them. (Not Directly)	Investment Management
FR9	System shall set financial goals of user and track them according to user actions	Goal Management
FR10	System shall show the list of transactions done by the user in the past	Show Transactions

## **Non-Functional Requirement:-**

### **Usability:-**

System will be user-friendly and easy to operate and functions will be easily understandable.

### **Security:-**

The application will be password protected. User use the system after enters correct username and password.Password store in system after encryption.

### **Maintainability:-**

The System shall be designed in a maintainable manner. It will be easy to incorporate new requirements in the individual module.

### **Portability:-**

The application will be portable on different devices as well as different Operating Systems.

### **Performance:-**

System will give optimum performance.

### **Availability:-**

System shall be available online 24x7.

## System Design:-

### Database Schema:-

tbl\_users { id[PK], username, email, password, number }

tbl\_budget { bid[PK], id[FK], name, amount, description, remaining, date }

FD : id -> username, email, password, number

tbl\_records { rid[PK], bid[FK], type, name, amount }

FD : bid -> id, name, amount, description, remaining, date

tbl\_investments { iid[PK], name, type, rate\_of\_interest, returns, invested, total, data, id[FK]}

FD : id -> username, email, password, number

tbl\_goals { gid[PK], name, amount, achieved, id[FK]}

FD : id -> username, email, password, number

tbl\_accounts { number[PK], name, balance, type, id[FK]}

FD : id -> username, email, password, number



## Database Dictionary:-

### 1. *tbl\_user*:-

<i>Field Name</i>	<i>Data Type</i>	<i>Size</i>	<i>Constraints</i>	<i>Description</i>
<i>id</i>	<i>Int</i>	-	<i>Primary Key</i>	<i>Unique identity of User.</i>
<i>username</i>	<i>Varchar</i>	<i>50</i>	<i>Not null</i>	<i>Specifies name of User.</i>
<i>email</i>	<i>Varchar</i>	<i>150</i>	<i>Unique, not null</i>	<i>Specifies email id of User.</i>
<i>password</i>	<i>Varchar</i>	<i>256</i>	<i>Not null</i>	<i>Specifies password of User.</i>
<i>number</i>	<i>BigInt</i>	-	<i>Not null, Unique</i>	<i>Specifies contact number of User.</i>

### 2. *tbl\_budget* :-

<b>Field</b>	<b>Data Type</b>	<b>Size</b>	<b>Constraints</b>	<b>Description</b>
bid	Int	-	Primary Key	Unique identifier for each budget entry
id	Int	-	Foreign Key	References another table's id field (related entity)
name	Varchar	255	Not null	Name of the budget
amount	Decimal	-	Not null	Amount allocated for the budget
description	Text	-		Description or details about the budget
remaining	Decimal	-	Not null	Remaining amount available in the budget after expenses
date	Date	-		Date of creation or last update of the budget entry

### 3. *tbl\_records*

Field	Data Type	Size	Constraints	Description
rid	Int	-	Primary Key	Unique identifier for each record
bid	Int	-	Foreign Key	References another table's id field (related entity)
type	Varchar	50	Not null	Type of the record (e.g., income or expense)
name	Varchar	255	Not null	Name or description of the record
amount	Decimal	-	Not null	Amount associated with the record

#### 4. **tbl\_goals**

Field	Data Type	Size	Constraints	Description
gid	Int	-	Primary Key	Unique identifier for each goal
name	Varchar	256	Not null	Name of the goal
amount	Decimal	-	Not null	Target amount for the goal
description	Varchar	500		Description or details about the goal
achieved	Decimal	-	Not null, Default 0	Amount achieved towards the goal (starts at 0, can increase)
date	Date	-		Date of creation or last update of the goal entry

#### 5. **tbl\_account :**

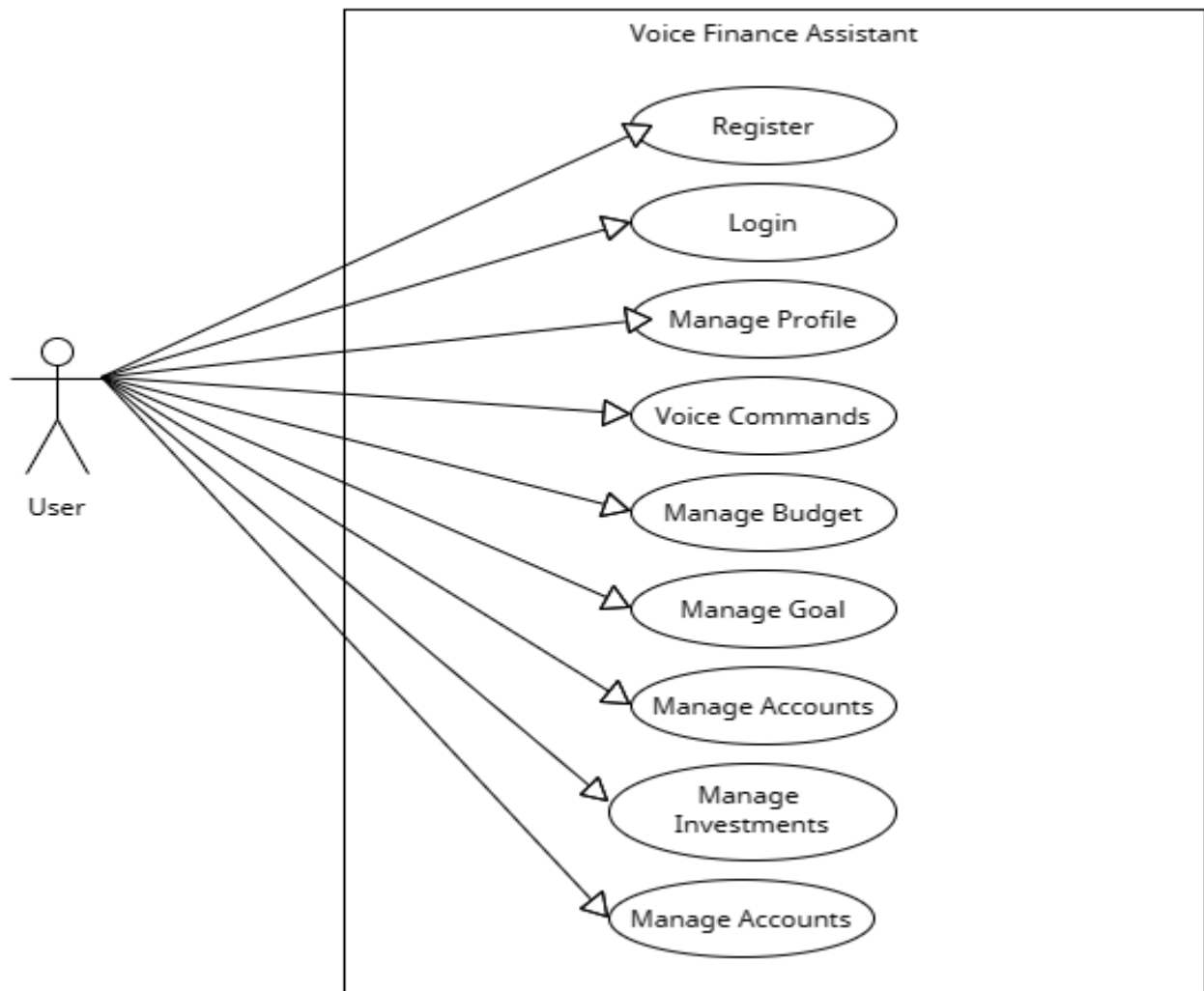
Field	Data Type	Size	Constraints	Description
aid	Int	-	Primary Key	Unique identifier for each bank account
id	Int	-	Foreign Key	References the id field of the tbl_user table
bank_name	Varchar	100	Not null	Name of the bank where the account is held
account_number	Varchar	50	Unique, not null	Account number assigned by the bank
account_type	Varchar	50	Not null	Type of the bank account (e.g., savings, checking)
balance	Decimal	-	Not null	Current balance of the bank account

## 6.       tbl\_investment:

Field	Data Type	Size	Constraints	Description
iid	Int	-	Primary Key	Unique identifier for each investment account
id	Int	-	Foreign Key	References the id field of the tbl_accounts table
institution	Varchar	100	Not null	Name of the financial institution where the account is held
account_number	Varchar	50	Unique, not null	Account number assigned by the institution
account_type	Varchar	50	Not null	Type of the investment account
balance	Decimal	-	Not null	Current balance of

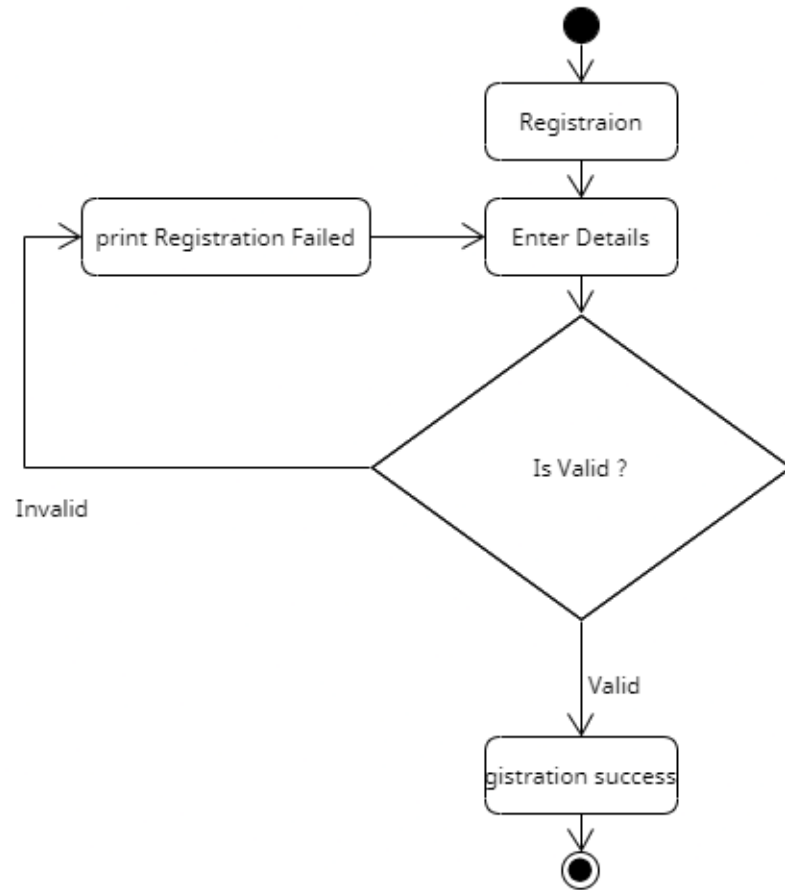
				the investment account
rate_of_interest	Decimal	-	Not Null	Current rate of interest applicable to the investment
Invested_amount	Decimal	-	Not Null	Amount invested in the scheme

## Use case Diagram :-

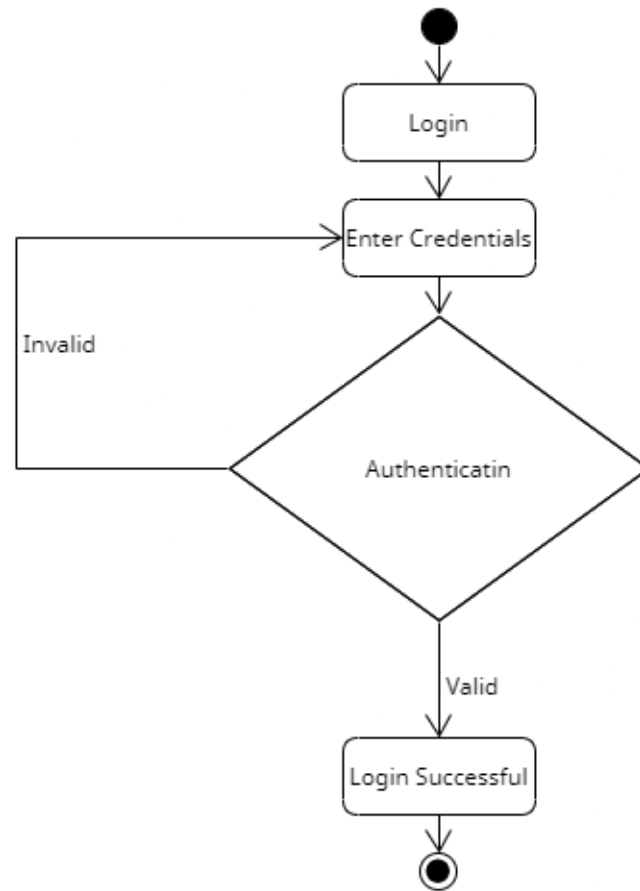


## Activity Diagram

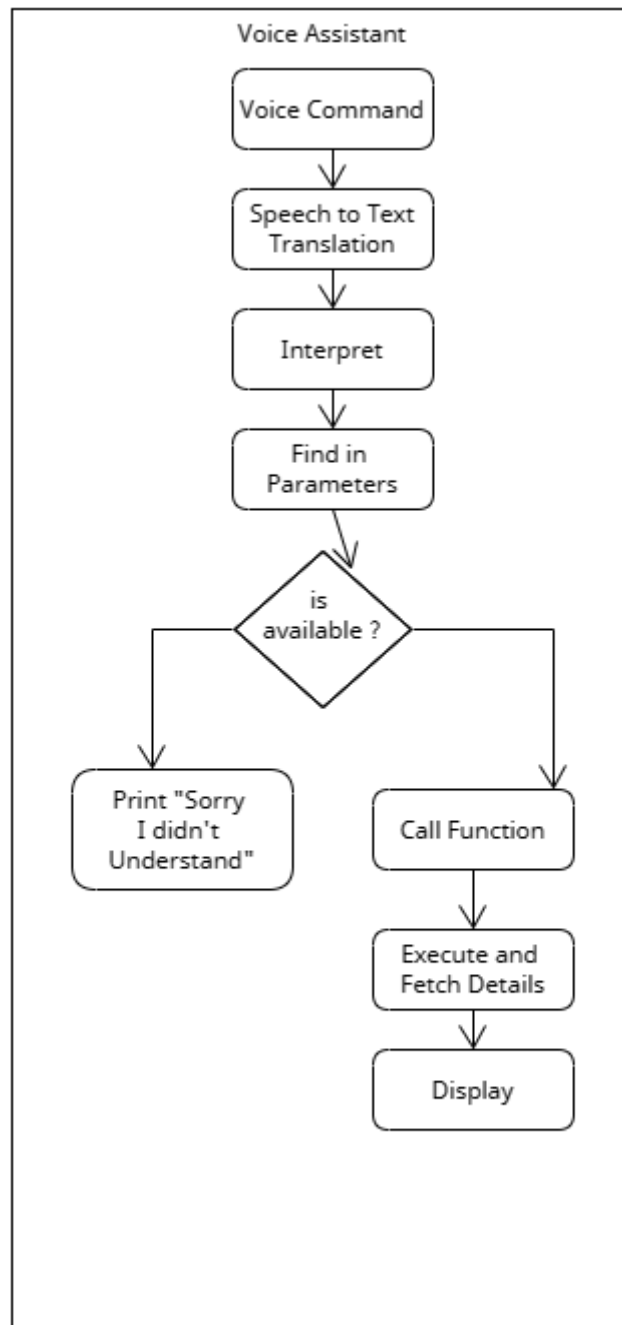
Register :-



## Login :-



## Voice Assistant :-





## Test cases

### Test case for login

Test Id	Component	Description	Input value	Expected output	Actual output	Remark
1	Email Enter	Email id	Null	Field is required	Field is Required	Pass
2	Email Enter	Email id	Invalid	Invalid input	Invalid input	Pass
3	Enter Email	Email id	Valid	Login successful	Login successful	Pass
4	Password	Password	Null	Field is Required	Field is Required	Pass
5	Password	Password	Invalid	Invalid input	Invalid input	Pass
6	Password	Password	Valid	Login successful	Login successful	Pass

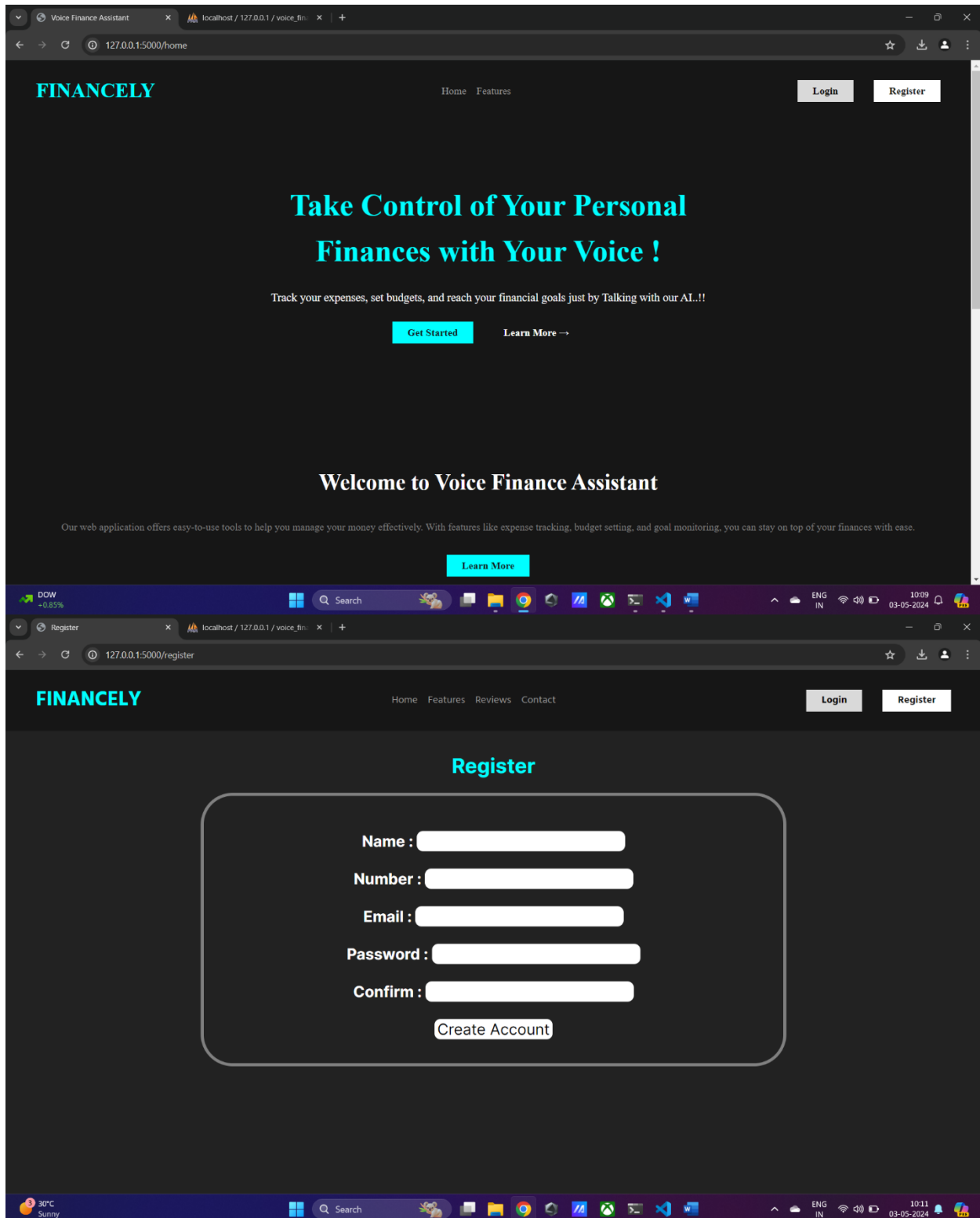
### Test case for registration

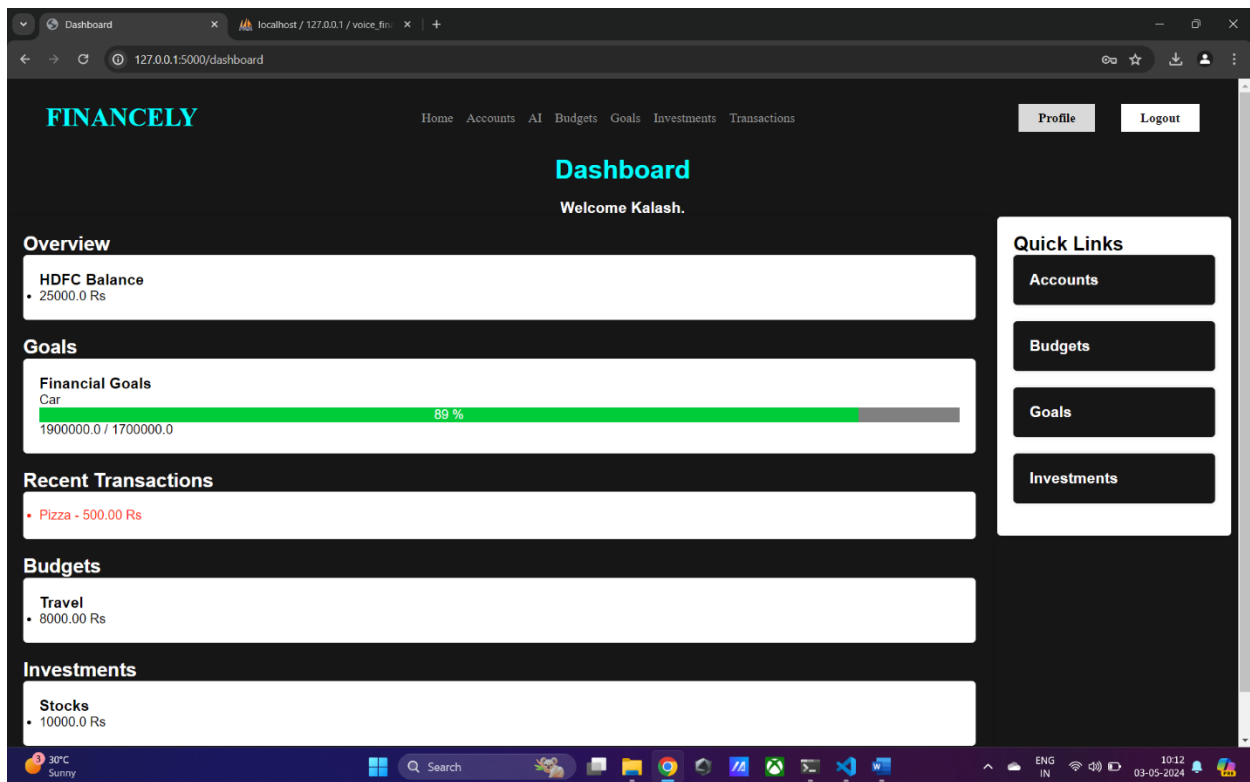
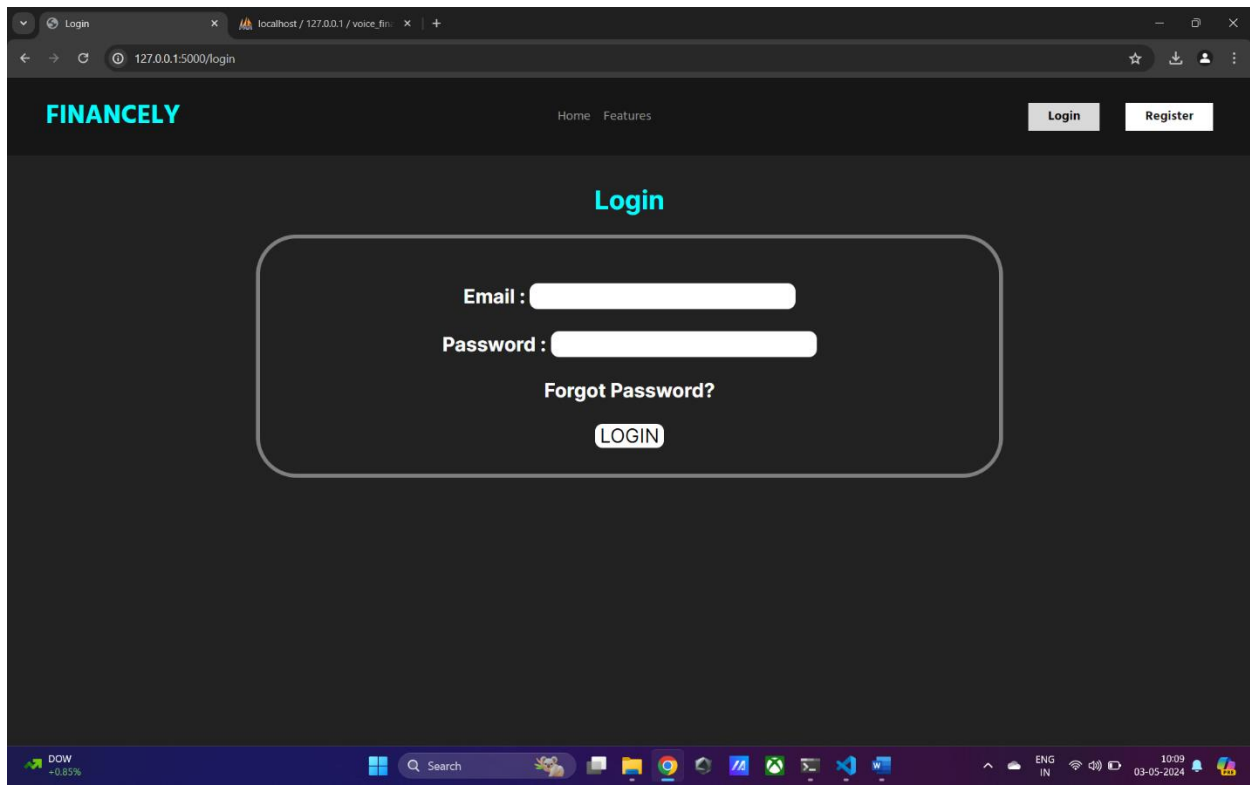
Test Id	Component	Description	Input value	Expected output	Actual output	Remark
1	Email	Enter email	Null	Field is Required	Field is Required	Pass
2	Email	Enter email	Invalid	Invalid input	Invalid input	Pass
3	Email	Enter email	Valid	Register successful	Register successful	Pass
4	Name	Enter name	Valid	Register successful	Register successful	Pass
5	Password	Enter password	Null	Field is Required	Field is Required	Pass
6	Password	Enter password	Valid	Register successful	Register successful	Pass

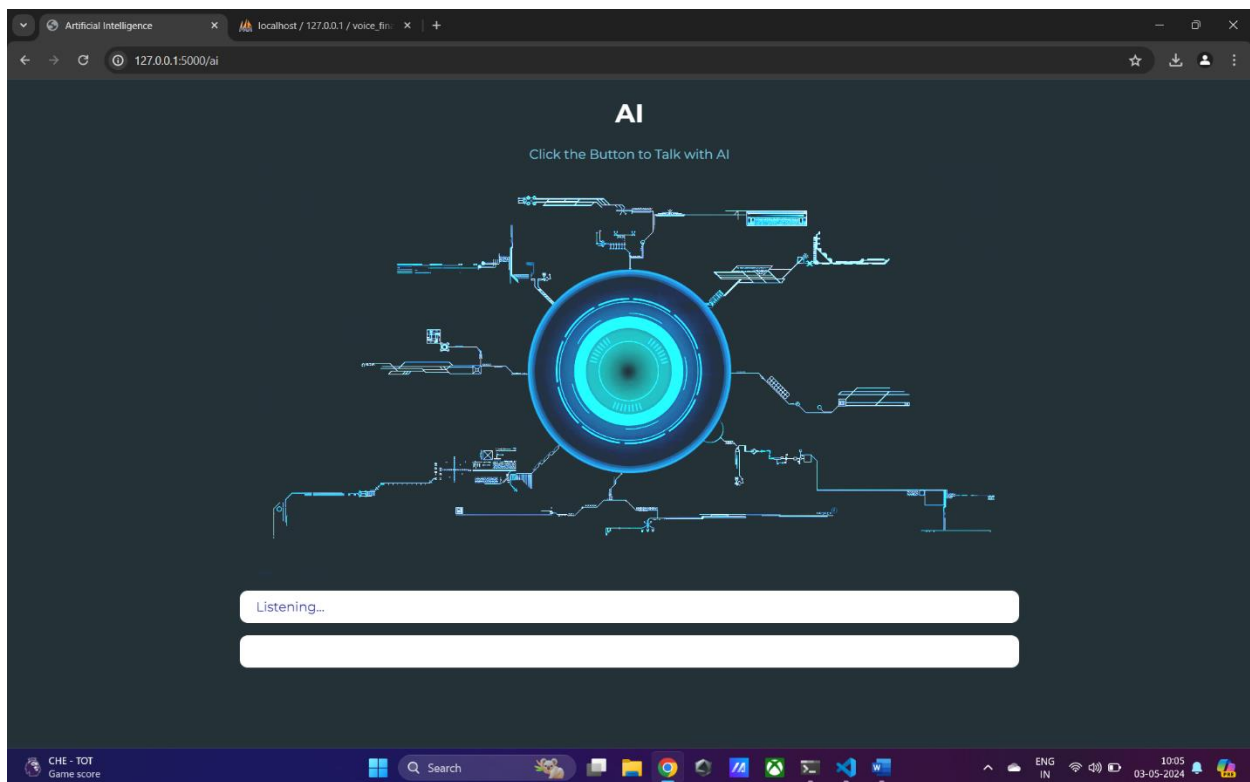
### Test case for Change Password

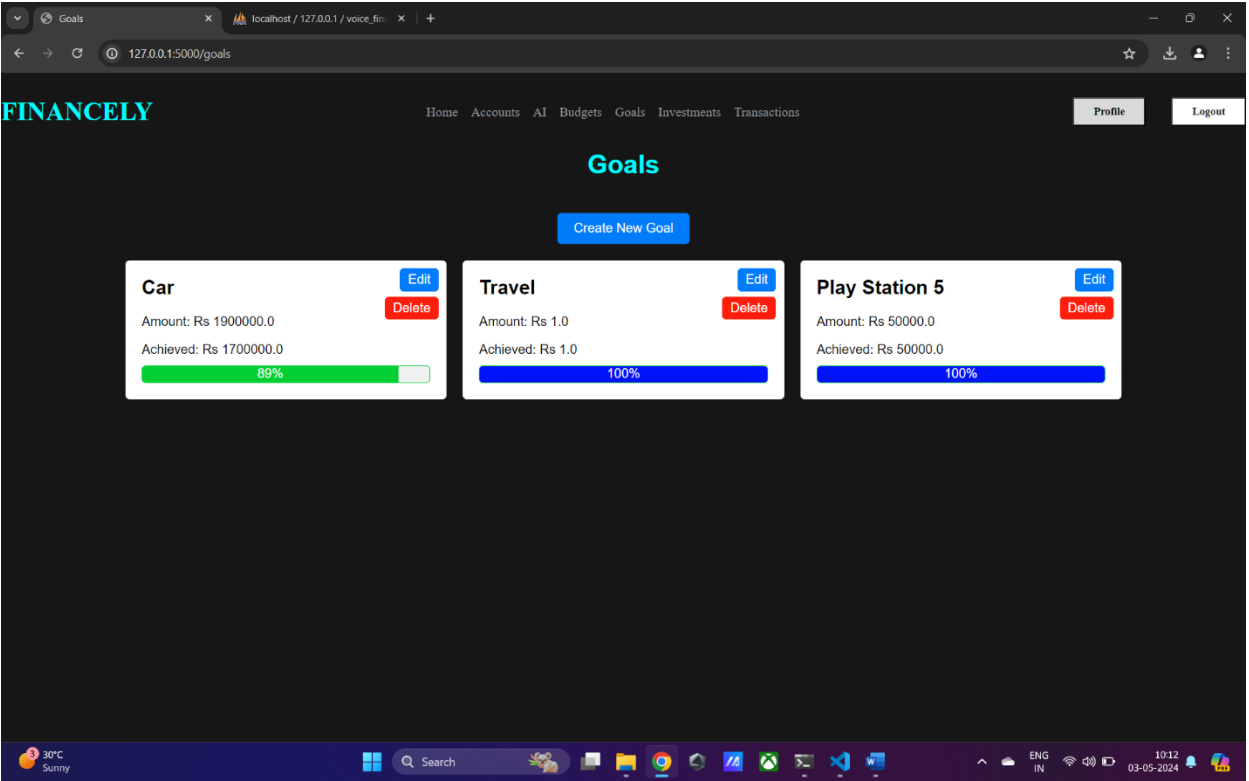
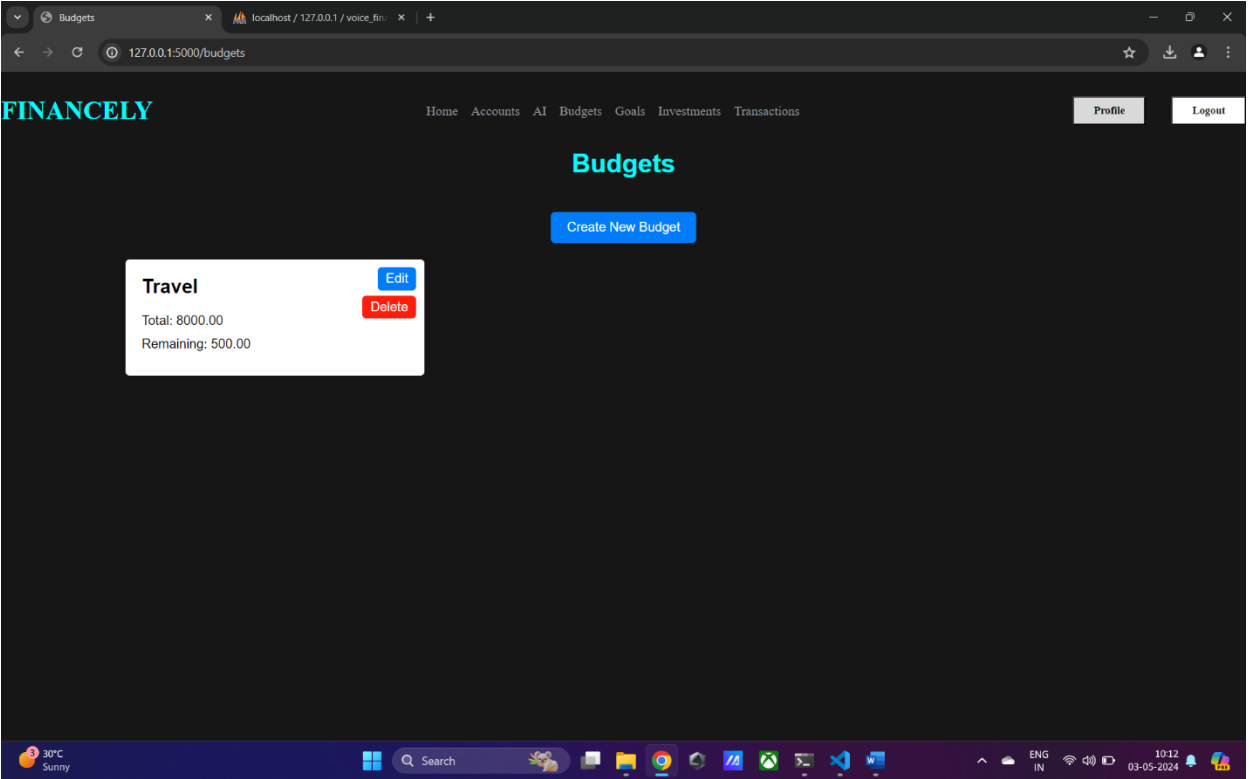
Test Id	Component	Description	Input value	Expected output	Actual output	Remark
1	Current password	Enter current password	Null	This field is required	This field is required	Fail
	Current password	Enter current password	Invalid	Enter valid password	Enter valid current password	Fail
	Current password	Enter current password	Valid	Accept	Accept	Pass
2	New password	Enter new password	Null	This field is required	This field is required	Fail
	New password	Enter new password	Invalid	Enter valid password	Enter valid password	Fail
	New password	Enter new password	Valid	Accept	Accept	pass

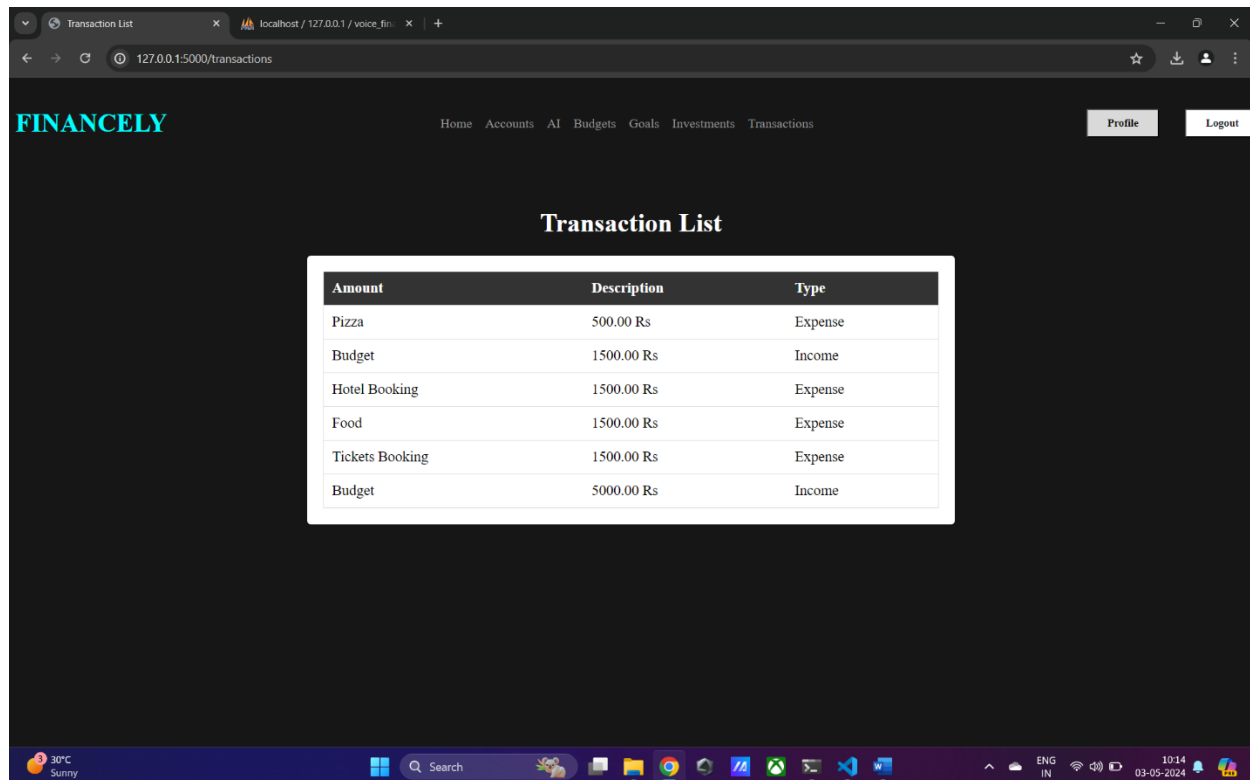
## Screenshots :











## Future Enhancements

- **Activate on Wake Word**
- **More parameters**
- **Enhanced Interaction**
- **Machine Learning**

## Conclusion

- **This project is developed to make the finance available and easy on the voice commands with minimum hand interaction and to avoid time consumption.**

## References

- **[chat.openai.com/chat](https://chat.openai.com/chat)**



- **[gemini.google.com](https://gemini.google.com)**
- **[geeksforgeeks.com](https://www.geeksforgeeks.com)**