



كلية الهندسة جامعه حلوان

# Personal Finance Management System “PFMS”

1<sup>ST</sup> YEAR COMPUTER & SYSTEMS ENGINEERING DEP.  
(CSE 1709) ADVANCED PROGRAMMING  
SUPERVISOR: DR. HADEER AHMED

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## Introduction

In a few words, identify and address a problem and a proposed solution. You can focus on common dilemmas, new trends, changing techniques, industry comparisons, new entries to market, etc. How do you propose on solving this issue and what are your recommendations? The solution is based on a thorough examination of the problem and potential solutions.

Make sure you that you have your audience in mind when you write your white paper. Who is your audience and what are you trying to convey? Are they industry experts or is this an investment pitch to a business audience? This should help you set the tone and the correct verbiage for your paper.

## Feature

1. User authentication: Implement a secure login and signup page for users to access their financial data.
2. Expense tracking: Allow users to add and categorize their expenses, such as food, rent, utilities, entertainment, etc. They can also set a monthly budget for each category to track their spending.
3. Income tracking: Allow users to add their sources of income, such as salary, freelance work, investment income, etc. They can also set a target income for each month.
4. Budget planning: Help users plan their budget for the upcoming months based on their income, expenses, and savings goals.
5. Goal setting: Allow users to set short-term and long-term financial goals, such as paying off debt, saving for a down payment, or building an emergency fund

### 1. User Authentication

1. User registration: Create a registration page where users can create an account by providing their email address and password. We use password encryption and salting techniques to securely store user passwords.
2. Email verification: To ensure that users are providing a valid email address, we implement an email verification process. Once a user registers, an email will be sent to their email address with a verification code. The user must click enter a correct code to confirm their email address and activate their account.
3. Login page: Create a login page where users can enter their email address and password to access their account. We use session management techniques to keep the user logged in for a certain amount of time, so they don't have to enter their credentials after the registration process to use the application faster.
4. Password reset: Implement a feature where users can reset their password if they forget it. You can send a password in a message to the user's email address.
5. Password strength: To ensure that users are creating strong passwords, we implement password strength requirements, such as a minimum length is nine, use of special characters, and a mix of uppercase and lowercase letters.

## Screenshots

**LOGIN**

Email

Password

Login

Create your account?

Click

**REGISTRATION**

Login

Email

Username

Full Name

Password

Phone

Gender  Male  Female

Date of birth  Day  Month  Year

Submit

Egyptian number must start with "01" and his length equals 11  
 You must enter valid email to receive the verification code  
 Must be unique and not repeated  
 Must have at least a digit and upper and lower case letter and his length must be < 9

**REGISTRATION**

Email

Username

Full Name

Password

Phone

Gender  Male  Female

Date of birth  Day  Month  Year

Submit

Click

Verification Code

Back If click you will still have your data and you can edit it

**CONFIRM ACTION**

You should have received an email with a code. Enter the code below :

**Code**  
48693

**SUBMIT** **RESEND CODE**



Check your mail!

LOGIN

**This field will fill automatically**

Email: om11ussein@gmail.com

Password:

Login

Create your account?

LOGIN

Email: om11ussein@gmail.com

Password: 0123456789Aa

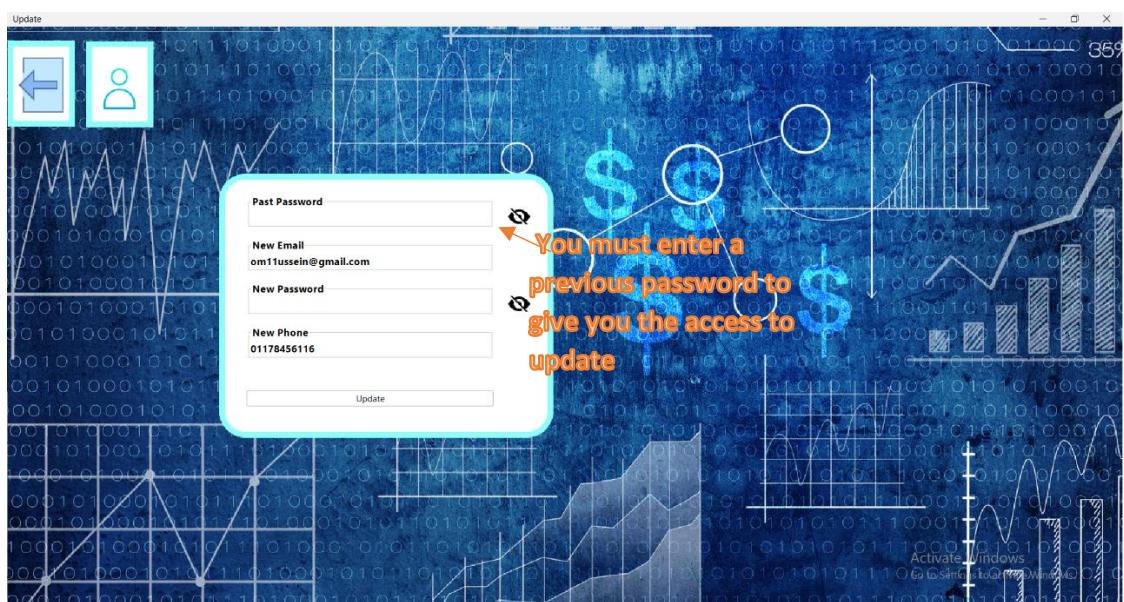
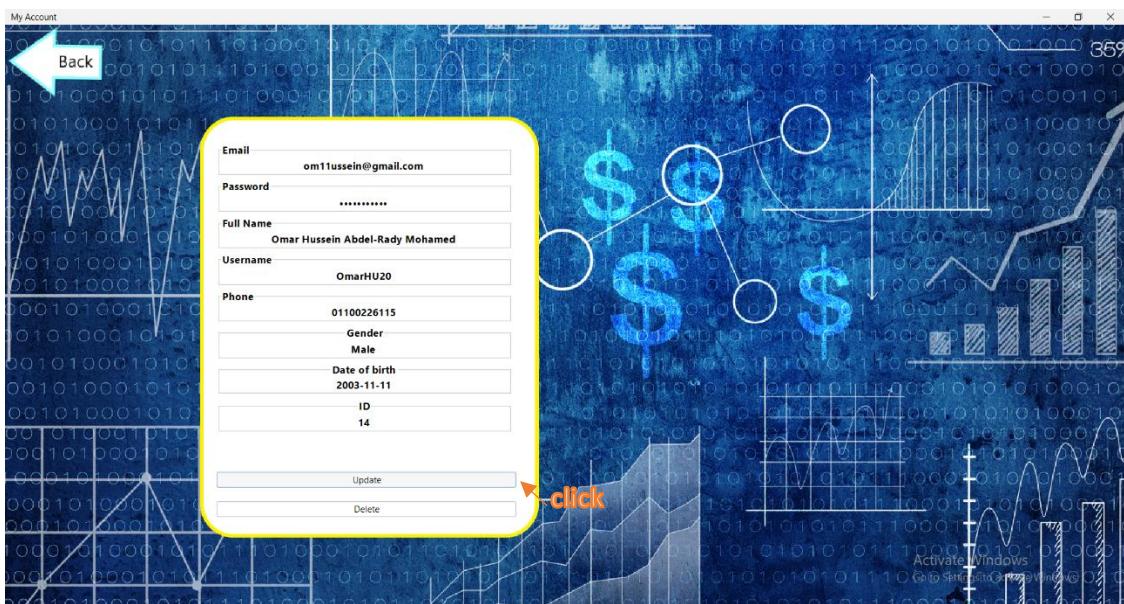
Login

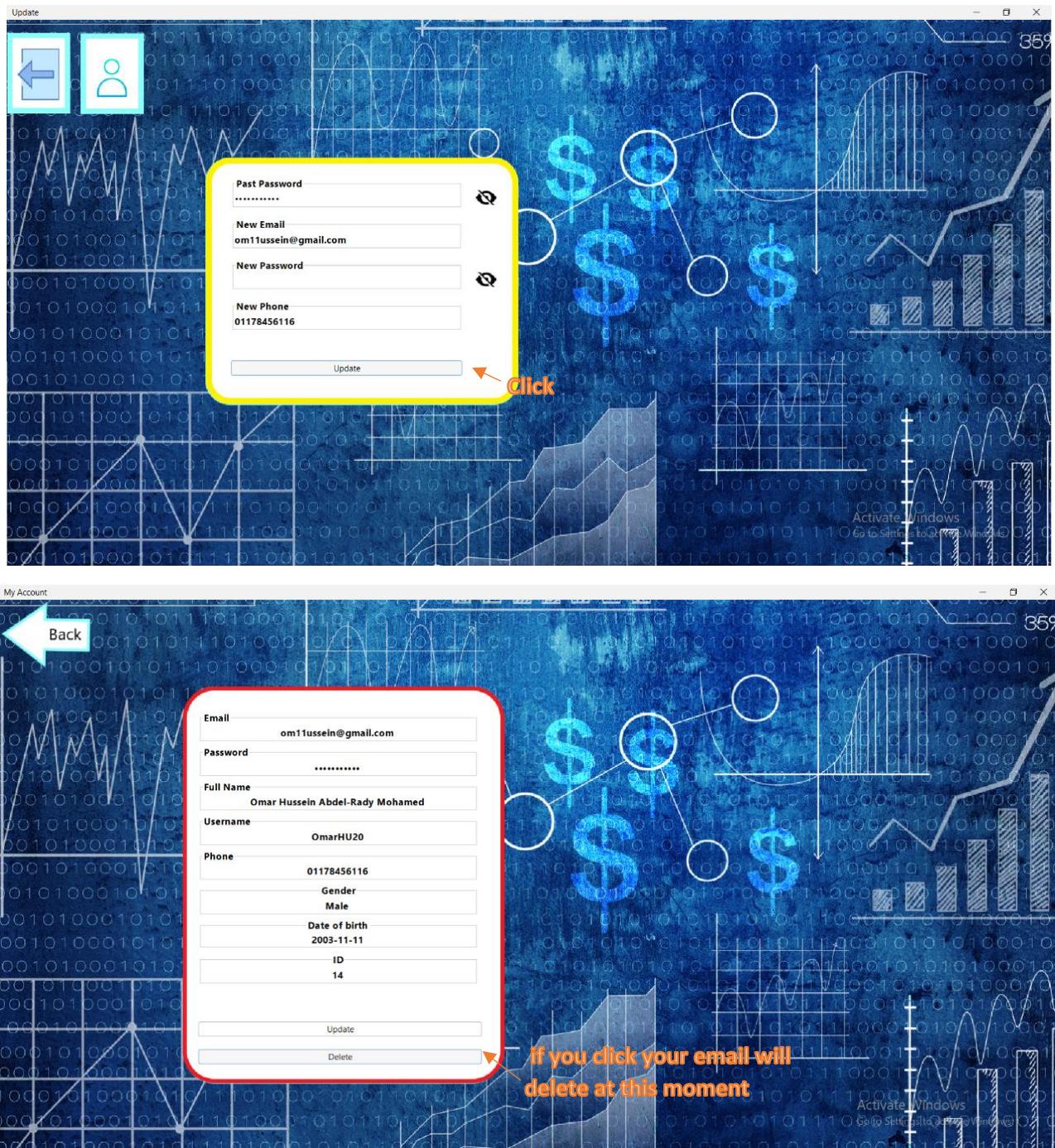
Create your account?

If you write a wrong password this button will appear if you want we send you a correct password



Check your mail!





## 2. Expense Tracking

1. add page: the user can add the name of the expense and the amount of the expense and add the main category from some categories, or he can specify one and the date until this expense finish, the description if he want to write something about the expense.
2. update page: the user can show the date by pressing a button and the data will show on table where user can choose a row to update the data or to delete the Expense if he wants.
3. search page: the user can search about a specific expense by name and the Category of the expense.

## Screenshots



**Add Expenses**

name of expense :

amount :  X

description :  OK

category :

date :

**add**

**When you finish adding the data you should press the add button to add the Data to database**

id	name	category	amount	date	description
11	playstation	entertain...	400	2023-06-14	new play...
11	dress	clothes	400	2023-06-14	
11	car	house	500000	2023-06-29	new car fo...

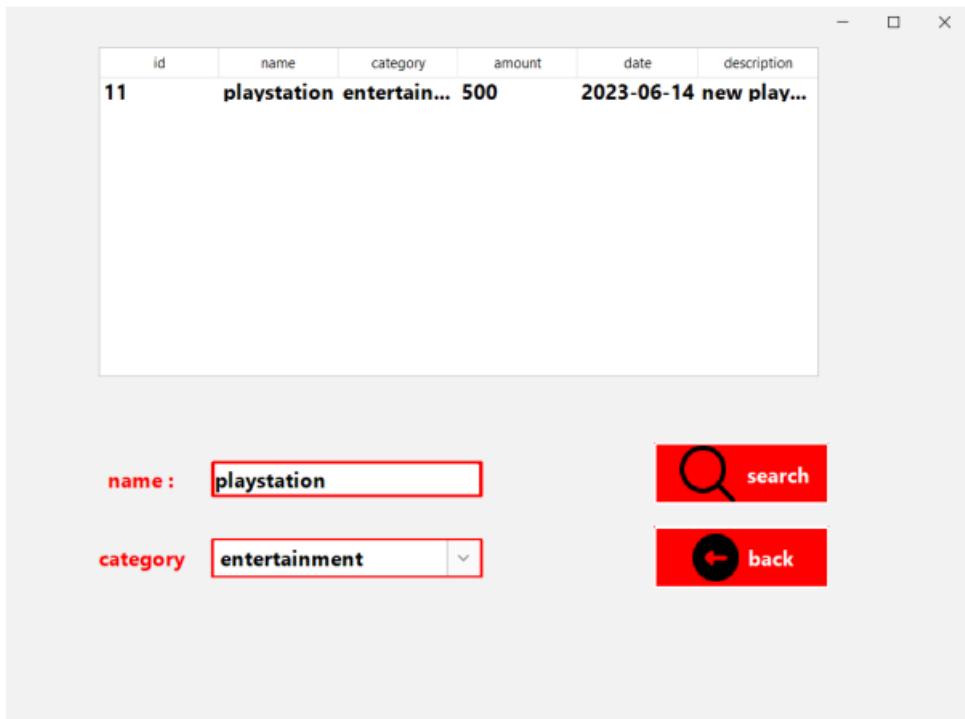
**id**  personal finance management X  
**name of expense :**  show  
**amount :**  update  
**category :**  delete  
**date :**  back  
**description :**

Here the data have been successfully updated so when the user press yes button The data will be updated in both database and the table

id	name	category	amount	date	description
11	playstation	entertain...	500	2023-06-14	new play...
11	dress	clothes	400	2023-06-14	
11	car	house	500000	2023-06-29	new car fo...

**id**  personal finance management X  
**name of expense :**  show  
**amount :**  update  
**category :**  delete  
**date :**  back  
**description :**

Here the data have been successfully deleted so when the user press yes button The data will be deleted in both database and the table



**And here your can search about the expense**

### 3. Income Tracking

is an important feature of any personal finance management application. Some details on how you can implement income tracking in your application:

- 1- Income entry: is a page where users can add their income. Each income entry can have a category, a date, a description, and an amount.
- 2- Income categories: is a list of income categories, such as salary, rental income, investment income, and freelance income. Users can choose a category for each income entry they enter.
- 3- Income reporting: is a page where users can view their income and can also edit or delete data.

Screenshots



The image consists of two screenshots of a personal finance application interface.

**Income Entry Screenshot:**

- Top Left (Orange Box):** "From here you can choose a category". Points to the "Category" dropdown menu.
- Top Right (Dark Blue Box):** "Here you can write an amount of income". Points to the "Amount" input field.
- Middle Left (Orange Box):** "From here you can go back to entry page". Points to the "Back" button.
- Middle Right (Dark Blue Box):** "Here you can write a description for income". Points to the "Description" input field.
- Bottom Left (Orange Box):** "From here you can save your income data". Points to the "Save" button.
- Bottom Right (Dark Blue Box):** "From here you can show your income data". Points to the "Display Data" button.

**Income Reporting Screenshot:**

- Top Left (Orange Box):** "From here you can exit the project". Points to the "Exit" button.
- Top Middle (Orange Box):** "Here you can write an amount what you need for update". Points to the "Amount" input field.
- Top Right (Dark Blue Box):** "From here you can choose a category what you need for update". Points to the "Category" dropdown menu.
- Middle Left (Orange Box):** "Here you can write a description what you need for update". Points to the "Description" input field.
- Middle Center (Orange Box):** "From here you can enter a new data income". Points to the "Add New" button.
- Middle Right (Dark Blue Box):** "From here you can update a selected row". Points to the "Update" button.
- Bottom Right (Dark Blue Box):** "From here you can delete a selected row". Points to the "Delete" button.

**Data Table from Income Reporting Screenshot:**

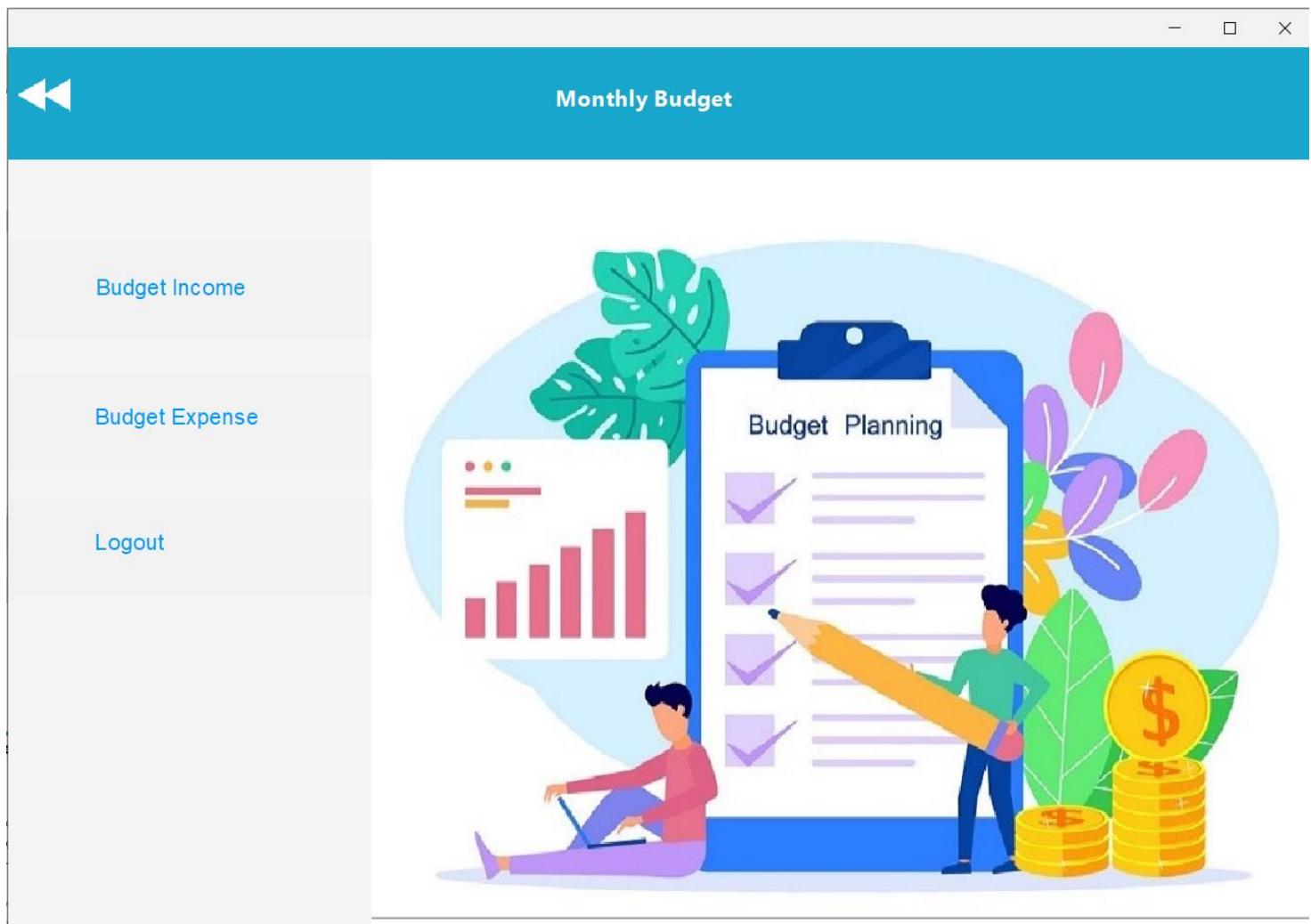
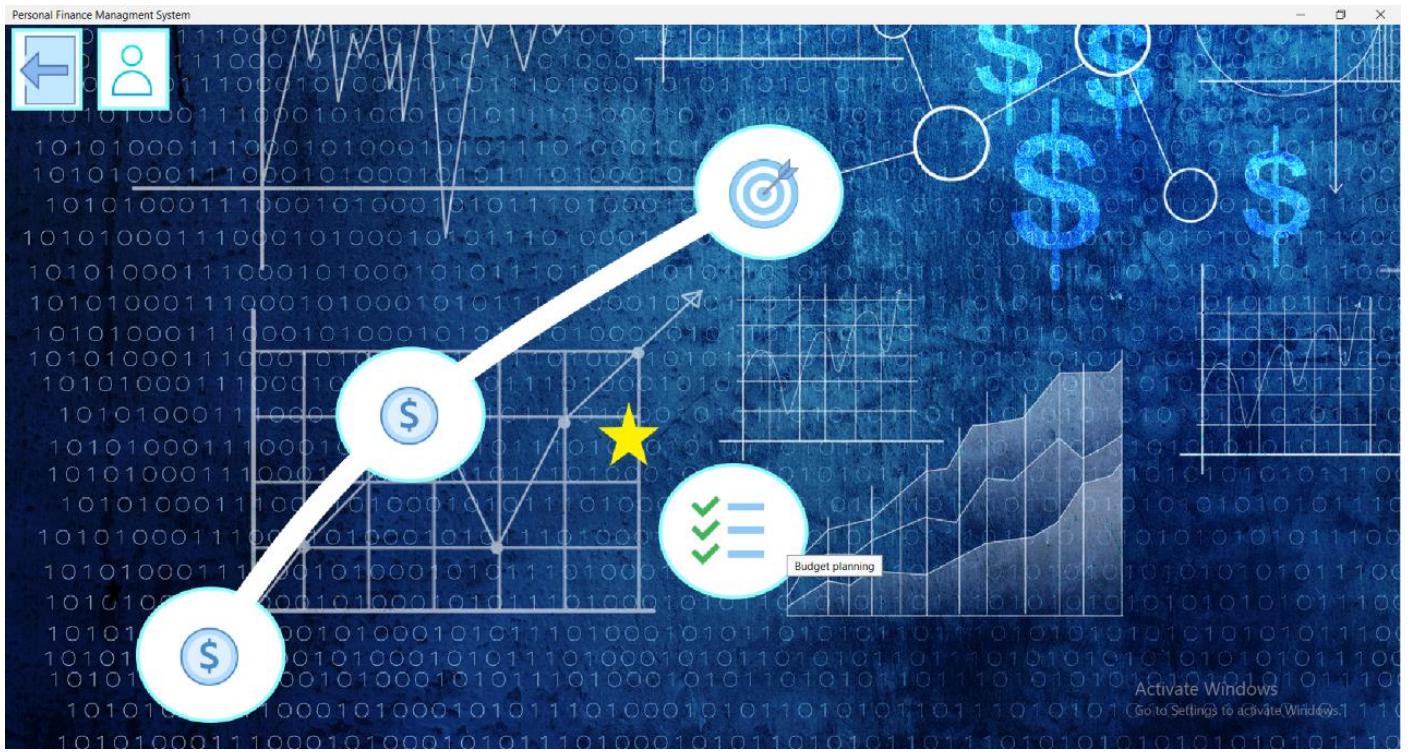
Category	Amount	Description	Entry Date
investment income	11313	jhsdjhjhshj	Mon May 22 17:42:...
rental income	6454561	ajsknmmnmxnm	Tue Jun 06 19:56:...
rental income	54564	kjdsjhjv554	Sat Jun 17 04:23:5...
investment income	564654	dlskjkd	Sat Jun 17 04:26:1...
investment income	646546	samkks	Sat Jun 17 04:26:3...
rental income	431321	jjhsjjnzxc	Sat Jun 17 13:19:2...

## 4. Budget Planning

Budget planning is an essential feature of any personal finance management application. Here are some details on how you can implement budget planning in your application:

1. **Budget creation:** Create a page where users can create a budget. Each budget can have categories, monthly income, and monthly expenses. You can use a form or a table to allow users to enter their budget. You can also add validation rules to ensure that users are entering valid data.
2. **Budget categories:** Create a list of budget categories, such as food, transportation, housing, entertainment, and savings. Users can allocate a budget amount for each category based on their income and expenses.
3. **Budget reporting:** Create a page where users can view their budget by category or month. You can add filters to allow users to narrow down their budget by category, month, or keyword.

## Screenshots



X

## BUDGET EXPENSE

Category Name  Actual

Date

Planned

Description

Category	Planned	Actual	Diff	Description	Date
house	300	200	100	for month	09-06-2023



## BUDGET INCOME

Category Name  Actual

Planned

Date

Description

Category	Planned	Actual	Diff	Description	Date
rental income	3000	2342	658	Electricity bill	21-06-2023
freelance income	15500	10000	5500	the difference mo...	20-06-2023

X



## BUDGET INCOME

Category Name  Actual

Planned

Date

Description

**Add**



**Search**

Category	Planned	Actual	Diff	Description	Date
salary	30000	25000	5000	bonus	22-06-2023
rental income	3000	2342	658	Electricity bill	21-06-2023
freelance income	15500	10000	5500	the difference mo...	20-06-2023

**UPDATE**

**DELETE**

X



## BUDGET EXPENSE

Category Name  Actual

Date

Planned

Description

**Add**



**Search**

Category	Planned	Actual	Diff	Description	Date
house	300	200	100	for month	09-06-2023
food	1500	2000	-500	rr	23-06-2023
entertainment	5000	3000	2000	roo	02-06-2023

**UPDATE**

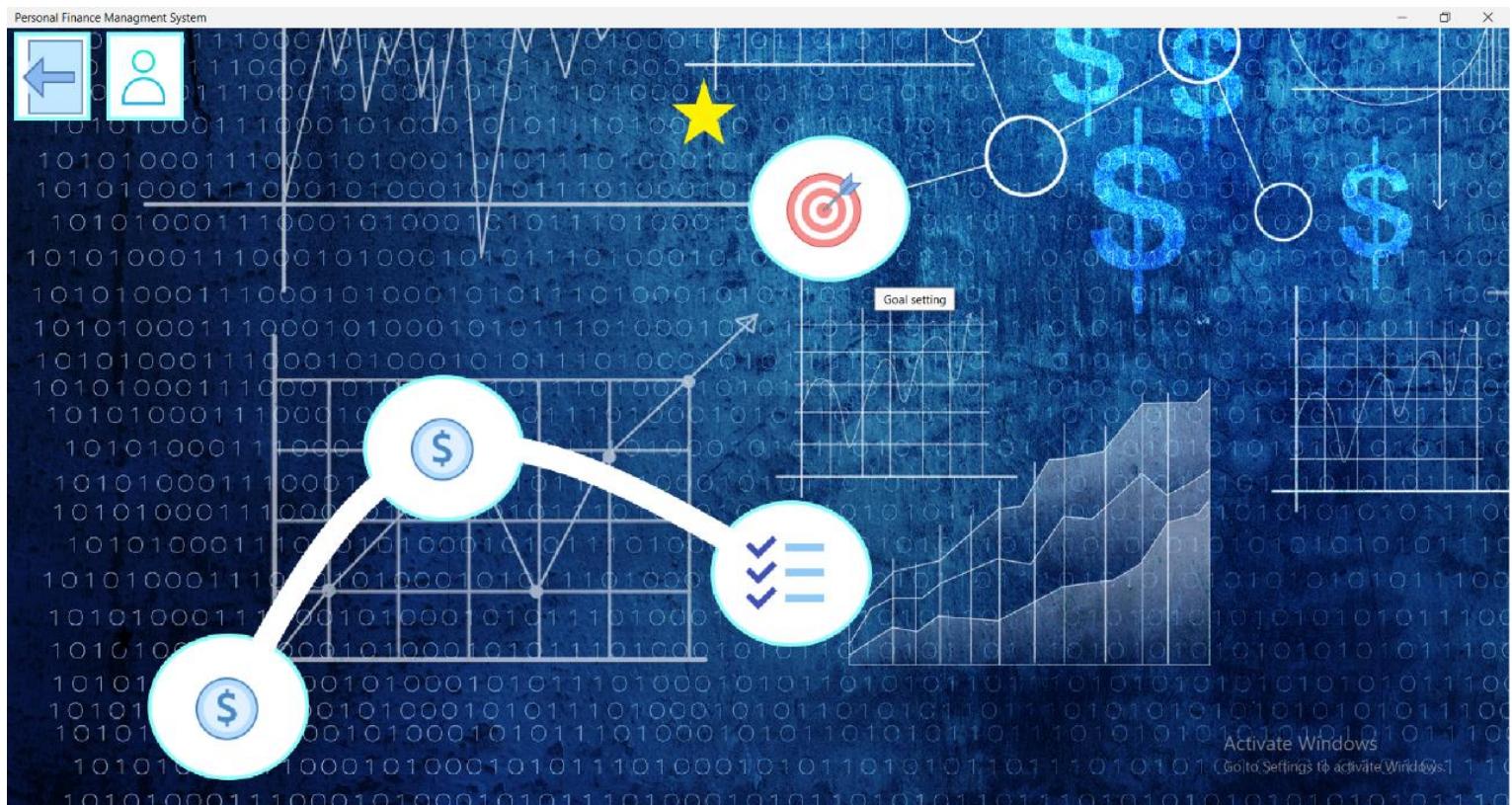
**DELETE**

## 5. Goal Setting

Goal setting is an important feature of any personal finance management application. The Section is composed of four sections to create and take control of your financial goals.

- 1) Goal planner: users can create their financial goals in this section. Each goal can have a name, category, a description, a target amount, and a deadline. There is a table to allow users to view their financial goals. In addition, there are validation rules to ensure that users are entering valid data.
- 2) Edit goals: a feature to adjust the goals based on changes in income and expenses. For example, if a user gets a raise or loses a job, they may need to adjust their goals accordingly. This can help users stay on track with their financial goals. Users can view their goals in the jable. Selecting a goal will fill the fields with the goal data and allow the users to edit their goals with ease. Pressing the Update button will update the goal's data in the database. On the other hand, delete button will delete the goal completely from the database.
- 3) Progress Viewer: Users can keep track of their goals in this section. Goal's progress is displayed in a progress bar and users can also observe the status of their goals. Pressing the complete button will pay the target amount of the goal and move it to the complete goals section.
- 4) Completed Goals: Users can see their completed goal in a jTable and have the option to delete a specific goal or clear the history of the completed goals completely.

Screenshots



Goal Setting

**Goal Planner**   **Edit Goals**   **Progress Viewer**   **Completed Goals**

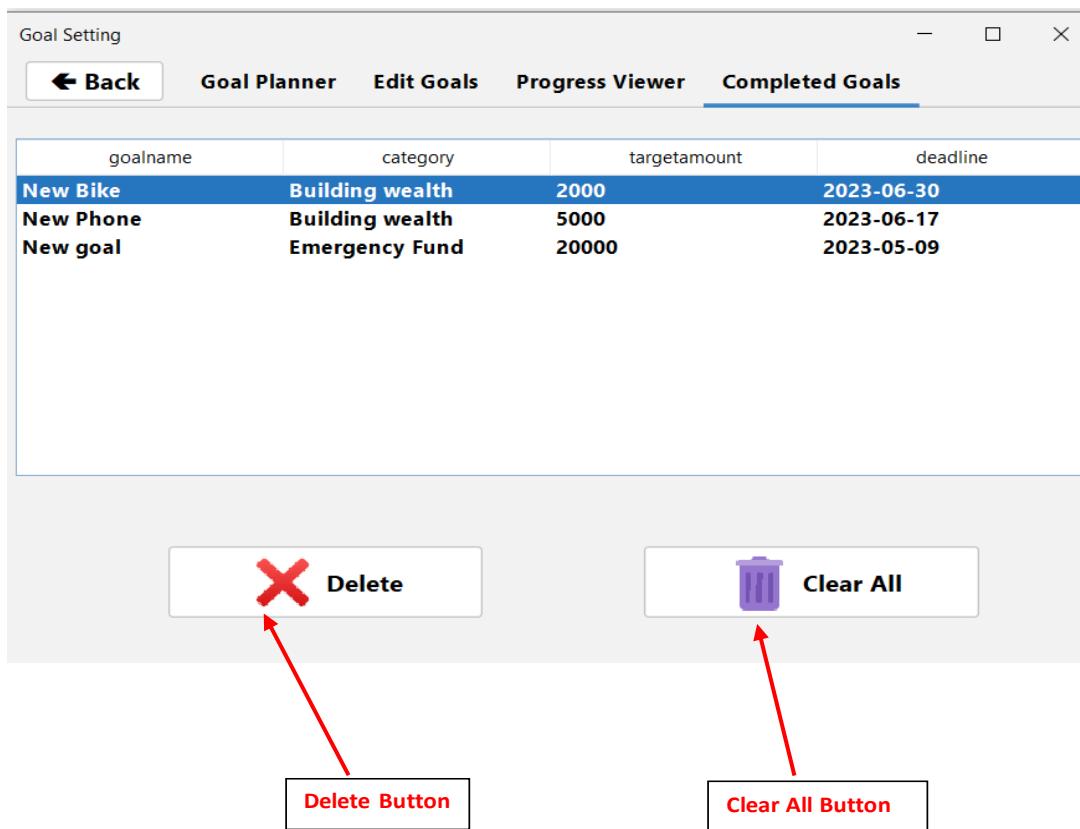
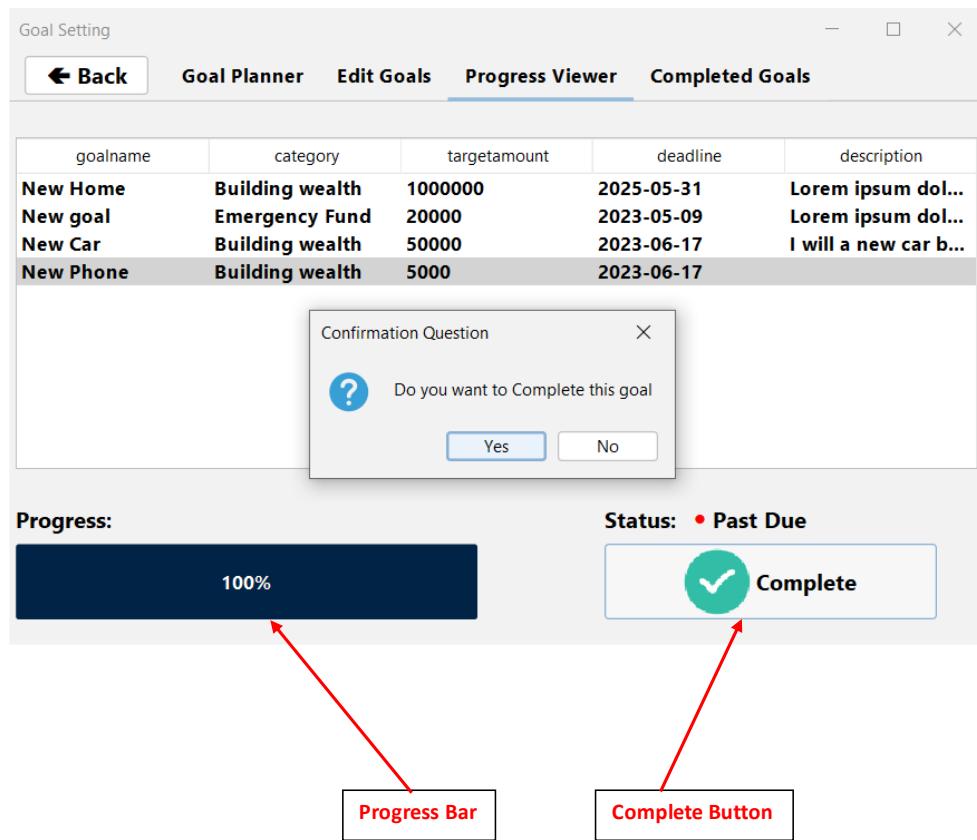
<b>Goal Name:</b>	New Car	<b>Target Amount:</b>	50000															
<b>Description</b>																		
<b>Goal Category:</b>	Building wealth	I will buy a new car by the end of the year.																
<b>Deadline:</b>	17/06/2023	Character Count: 40/200																
 <b>Save</b>																		
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>goalname</th> <th>category</th> <th>targetamount</th> <th>deadline</th> <th>description</th> </tr> </thead> <tbody> <tr> <td>New Home</td> <td>Building wealth</td> <td>1000000</td> <td>2025-05-31</td> <td>Lore ipsum dol...</td> </tr> <tr> <td>New goal</td> <td>Emergency Fund</td> <td>20000</td> <td>2023-05-09</td> <td>Lore ipsum dol...</td> </tr> </tbody> </table>				goalname	category	targetamount	deadline	description	New Home	Building wealth	1000000	2025-05-31	Lore ipsum dol...	New goal	Emergency Fund	20000	2023-05-09	Lore ipsum dol...
goalname	category	targetamount	deadline	description														
New Home	Building wealth	1000000	2025-05-31	Lore ipsum dol...														
New goal	Emergency Fund	20000	2023-05-09	Lore ipsum dol...														

By Clicking Save button, you can add the goal to the database and view the added goal in the jTable below.

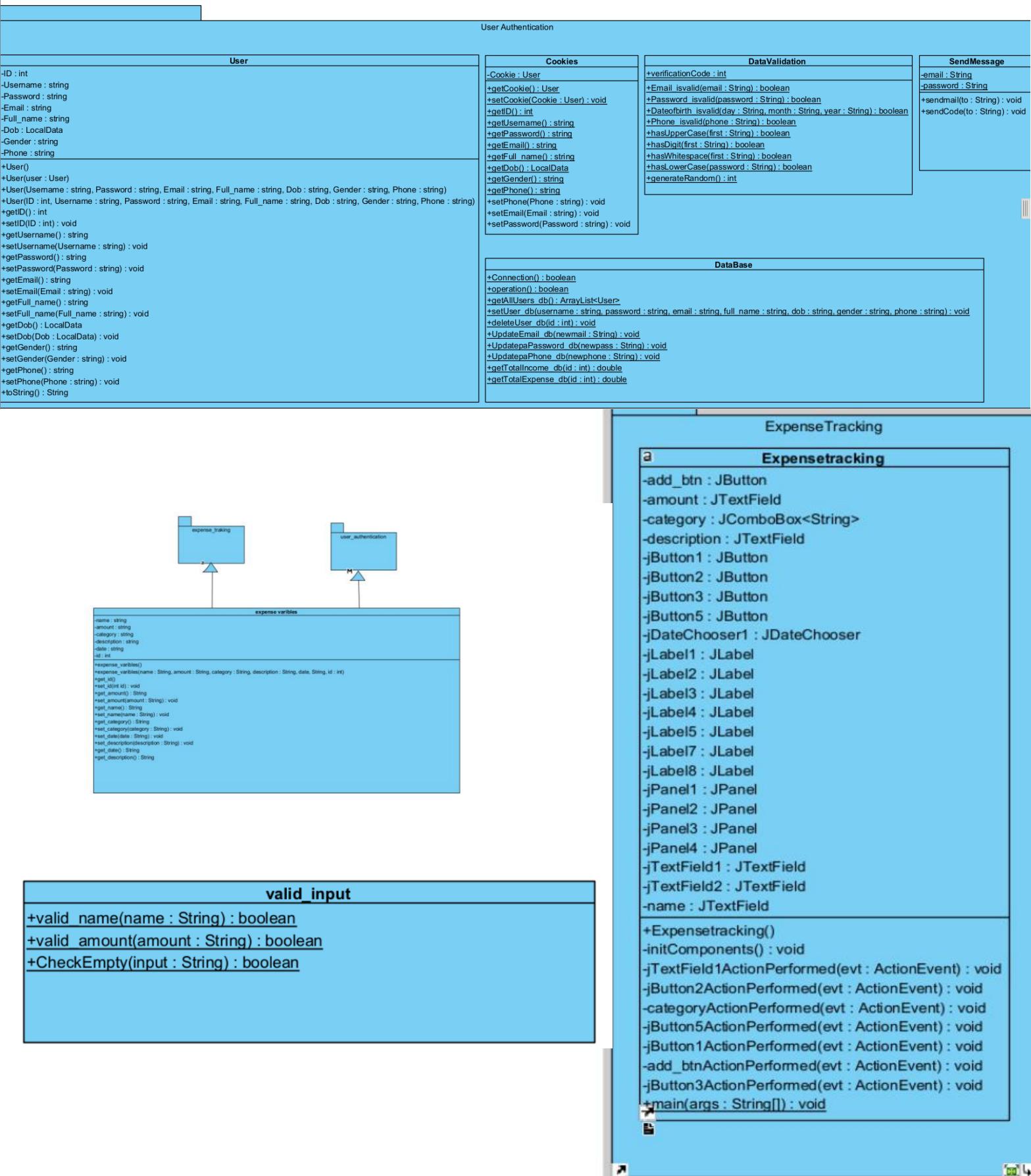
Goal Setting

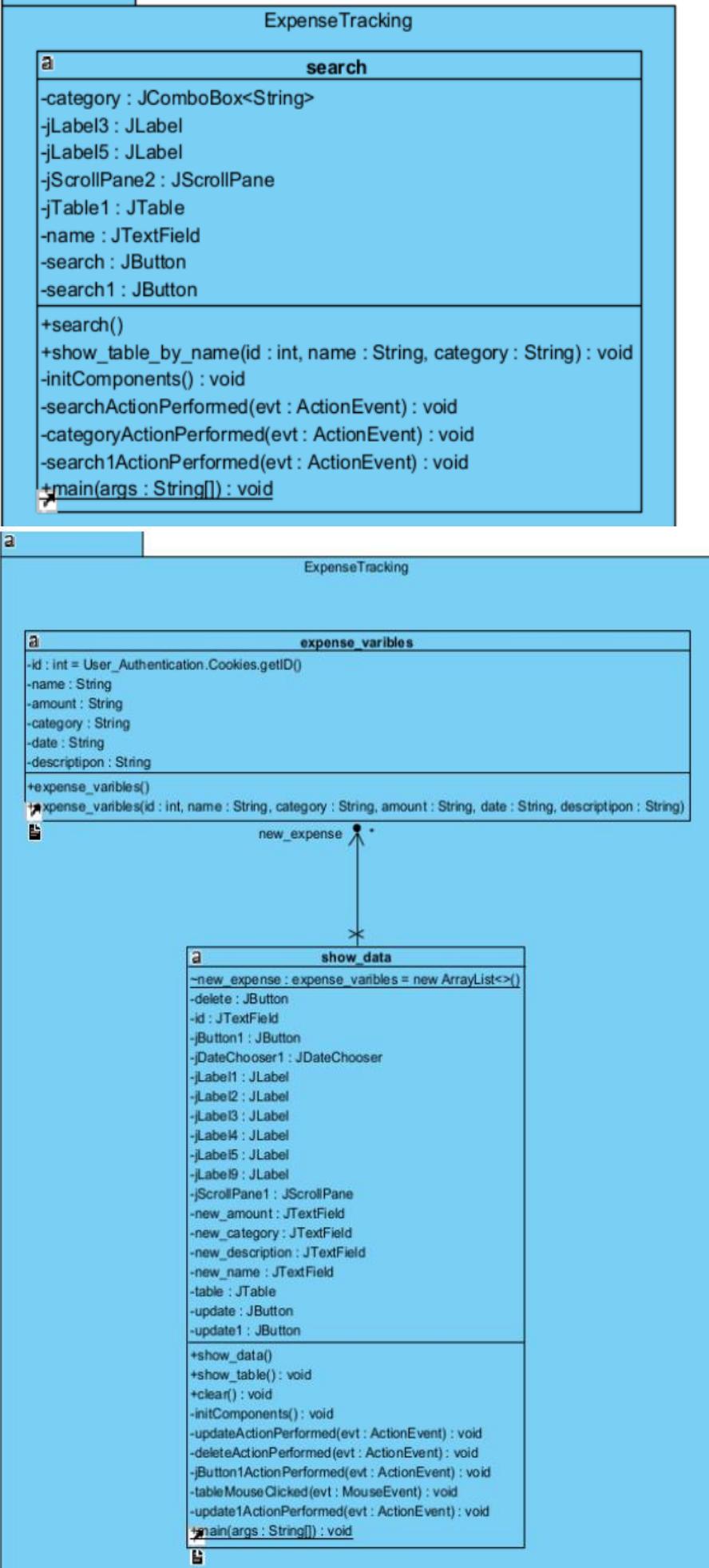
**Goal Planner**   **Edit Goals**   **Progress Viewer**   **Completed Goals**

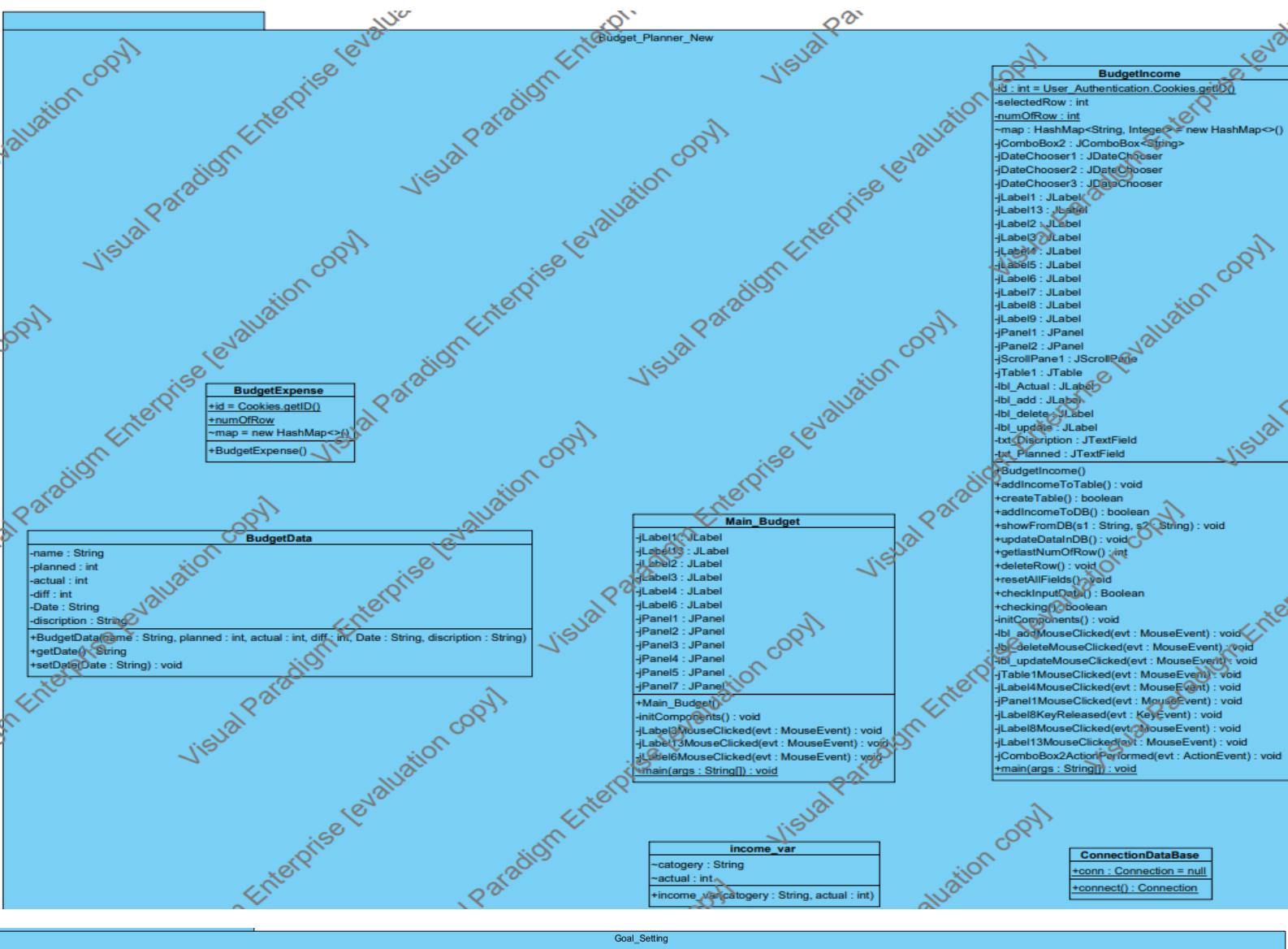
<b>Goal Name:</b>	New Home	<b>Category:</b>	Building wealth	<b>Target Amount:</b>	1000000	<b>Deadline:</b>	2025-05-31	<b>Description:</b>	Lore ipsum dol...
<b>Goal Category:</b>	Building wealth	<b>Deadline:</b>	31/05/2025	<b>Target Amount:</b>	1000000	<b>Description:</b>	<div style="display: flex; justify-content: space-around;"> <span><b>Update Button</b></span> <span><b>Delete Button</b></span> </div>		
<p><b>Description</b></p> <p>Lore ipsum dolor sit amet, consectetuer adipiscing elit. Aenean commodo ligula eget dolor. Aenean massa.</p>					<div style="display: flex; justify-content: space-around;"> <span> <b>Update</b></span> <span> <b>Delete</b></span> </div>				
Character Count: 105/200									



## UML diagrams







```

Goal_Setting
Goal_Planner
-charLimit : int = 200
-value1 : String
-value2 : String
-value3 : String
-value4 : String
-value5 : String
-rowIndex : int
-Back_Button : JButton
-Back_Tab : JPanel
-Delete_Button : JButton
>Edit_Goals : JPanel
-Goal_Planner : JPanel
-Progress_Visual : JPanel
-Save_Button : JButton
-Update_Button : JButton
-charCountLabel : JLabel
-charCountLabel1 : JLabel
-ComboBox1 : JComboBox<String>
-ComboBox2 : JComboBox<String>
-DateChooser1 : JDateChooser
-DateChooser2 : JDateChooser
-Label1 : JLabel
-Label10 : JLabel
-Label11 : JLabel
-Label12 : JLabel
-Label13 : JLabel
-Label14 : JLabel
-Label15 : JLabel
-Label16 : JLabel
-Label17 : JLabel
-Label18 : JLabel
-Label19 : JLabel
-Panel5 : JPanel
-ScrollPane1 : JScrollPane
-ScrollPane2 : JScrollPane
-ScrollPane3 : JScrollPane
-ScrollPane4 : JScrollPane
-TitledBorder1 : JTabbedPane
-JTable1 : JTable
-JTable2 : JTable
-JTextArea1 : JTextArea
-JTextArea2 : JTextArea
-JTextField1 : JTextField
-JTextField2 : JTextField
-JTextField3 : JTextField
-JTextField4 : JTextField
-total : int
-targetAmount : int
-selectedDate : String
-JButton1 : JButton
-JButton2 : JButton
-JButton3 : JButton
-Label13 : JLabel
-Label14 : JLabel
-Label15 : JLabel
-Panel1 : JPanel
-ProgressBar1 : JProgressBar
-ScrollPane5 : JScrollPane
-ScrollPane6 : JScrollPane
-JTable3 : JTable
-JTable4 : JTable

+Goal_Planner()
+initComponents() : void
+Save_ButtonActionPerformed(ActionEvent evt : ActionEvent) : void
+JTextField2ActionPerformed(ActionEvent evt : ActionEvent) : void
+ComboBox1ActionPerformed(ActionEvent evt : ActionEvent) : void
+JTextField1ActionPerformed(ActionEvent evt : ActionEvent) : void
+Back_ButtonActionPerformed(ActionEvent evt : ActionEvent) : void
+ComboBox2ActionPerformed(ActionEvent evt : ActionEvent) : void
+JTextField3ActionPerformed(ActionEvent evt : ActionEvent) : void
+JTextField4ActionPerformed(ActionEvent evt : ActionEvent) : void
+Update_ButtonActionPerformed(ActionEvent evt : ActionEvent) : void
+Delete_ButtonActionPerformed(ActionEvent evt : ActionEvent) : void
+mailingArgs : String[]() : void
+JButton1ActionPerformed(ActionEvent evt : ActionEvent) : void
+JButton2ActionPerformed(ActionEvent evt : ActionEvent) : void
+JButton3ActionPerformed(ActionEvent evt : ActionEvent) : void

```

## IncomeData

```

-ID:int
-Category:String
-Amount:int
-Description:String
-Date:String

-IncomeData(category:String,amount:int,date:String)
+getID():int
+getCategory():String
+getAmount():int
+getDescription():String
+getDate():String
+setCategory(String Category):void
+setAmount(int Amount):void
+setDescription(String Description):void
+setDate(String Date):void

```