SOCIETE GENERALE

iHackMyPlace Hackathon

Automating VBA Macro Documentation and Transformation

Done By
Karthikeyan A S
715521104022
B.E. Computer Science and Engineering
PSG Institute of Technology and Applied Research
Coimbatore - 641062

Problem Statement

The problem statement is to develop a solution that automates the documentation and Understanding of legacy VBA macros used in critical processes across DFIN, facilitating their transformation into modern technologies and IT platforms.

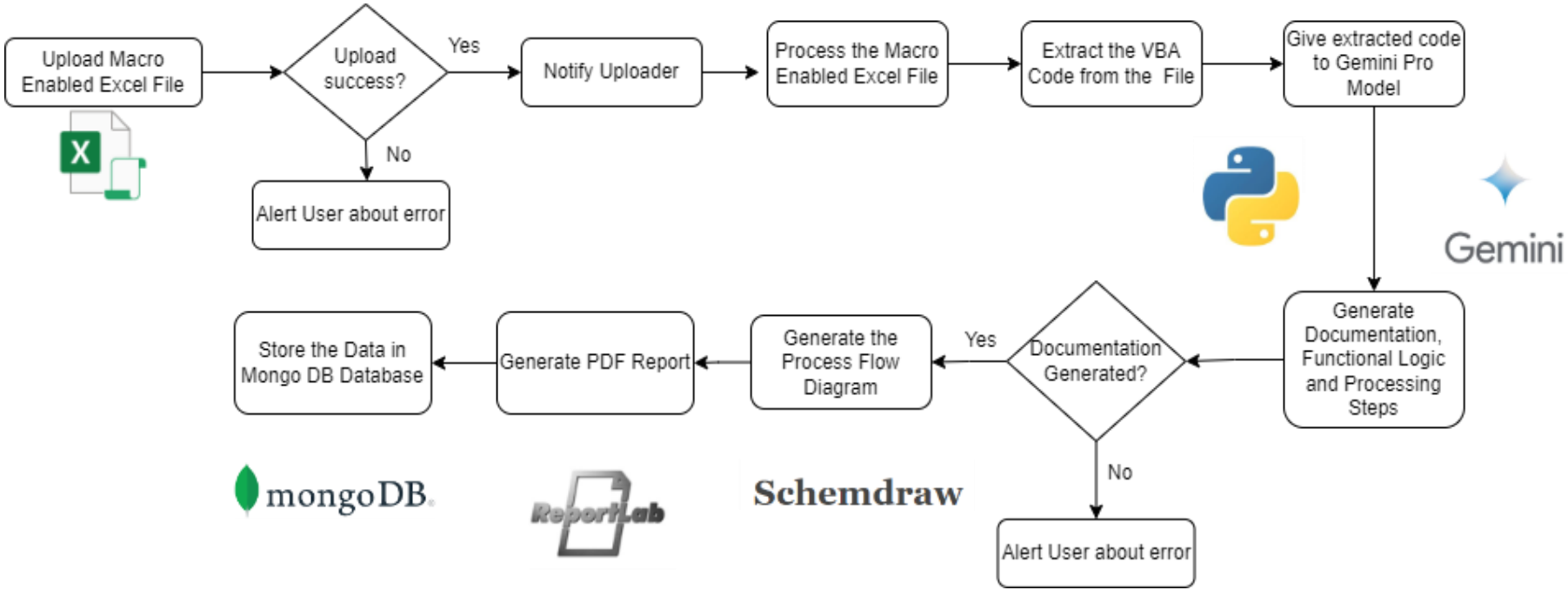
The problem statement involves developing a Macro Analysis Tool that :

1. Utilizes Gen AI or ML techniques to automate documentation process
2. Provides a interactive user interface that is easy to use
3. Generates reliable and accurate documentation

Proposed Solution

- In the solution proposed, a react application was developed .This application enables the user to upload a macro enabled excel file.
- The VBA macros are extracted using a python script .
- The extracted macro is given to a pre-trained Gemini-Pro model to analyze the code.
- The Gemini-Pro model is used to generate a comprehensive documentation that explains the process flow, data flow in the macro.
- The Gemini-Pro model extracts the function logic from the code and describes it in a easy to understand way.
- The function logic that is extracted is used to create a process flow diagram using the schemedraw tool. The documented code, functional logic and the flow diagram can be downloaded as a PDF file generated using the report lab tool.

Flow Diagram

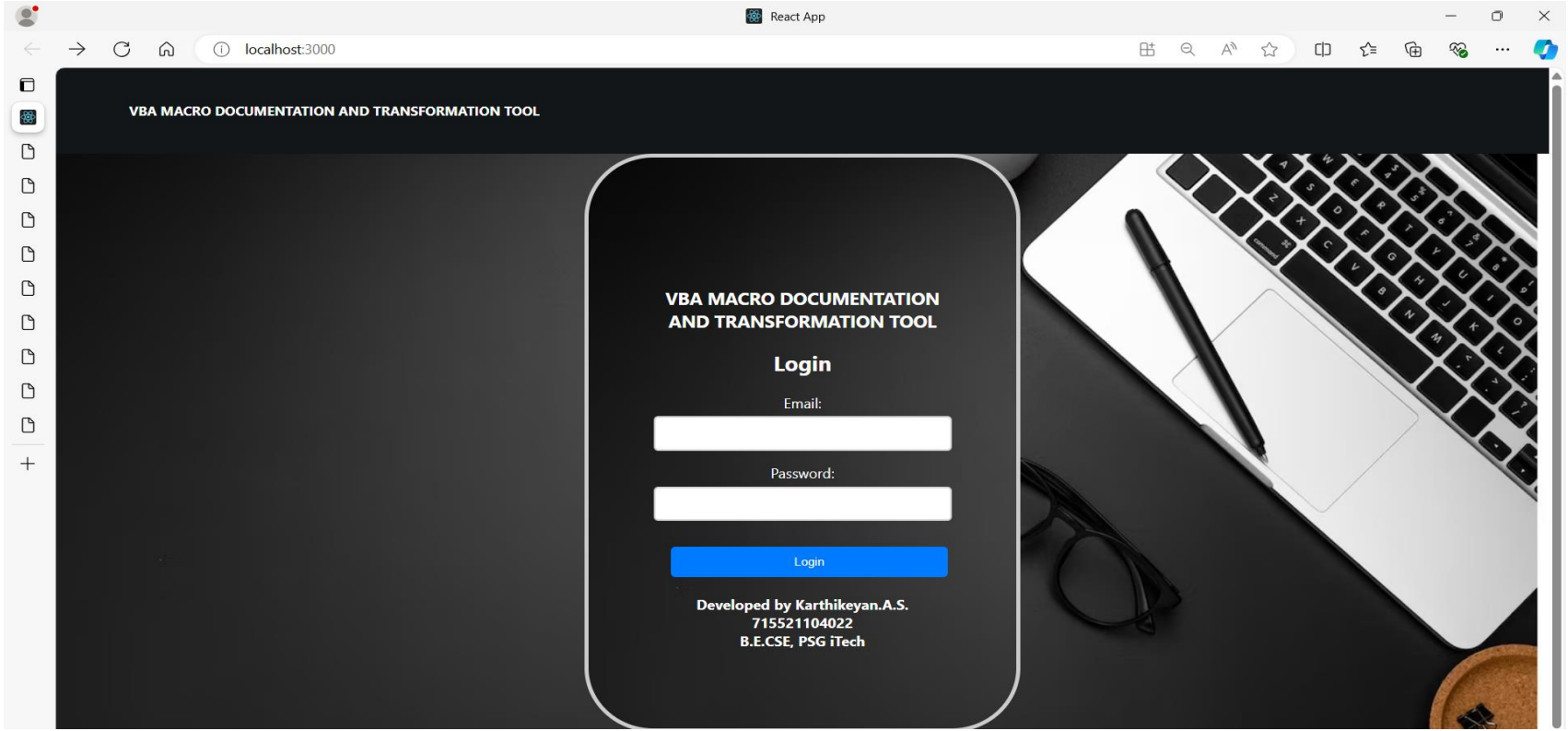


Benefits of the Proposed Solution

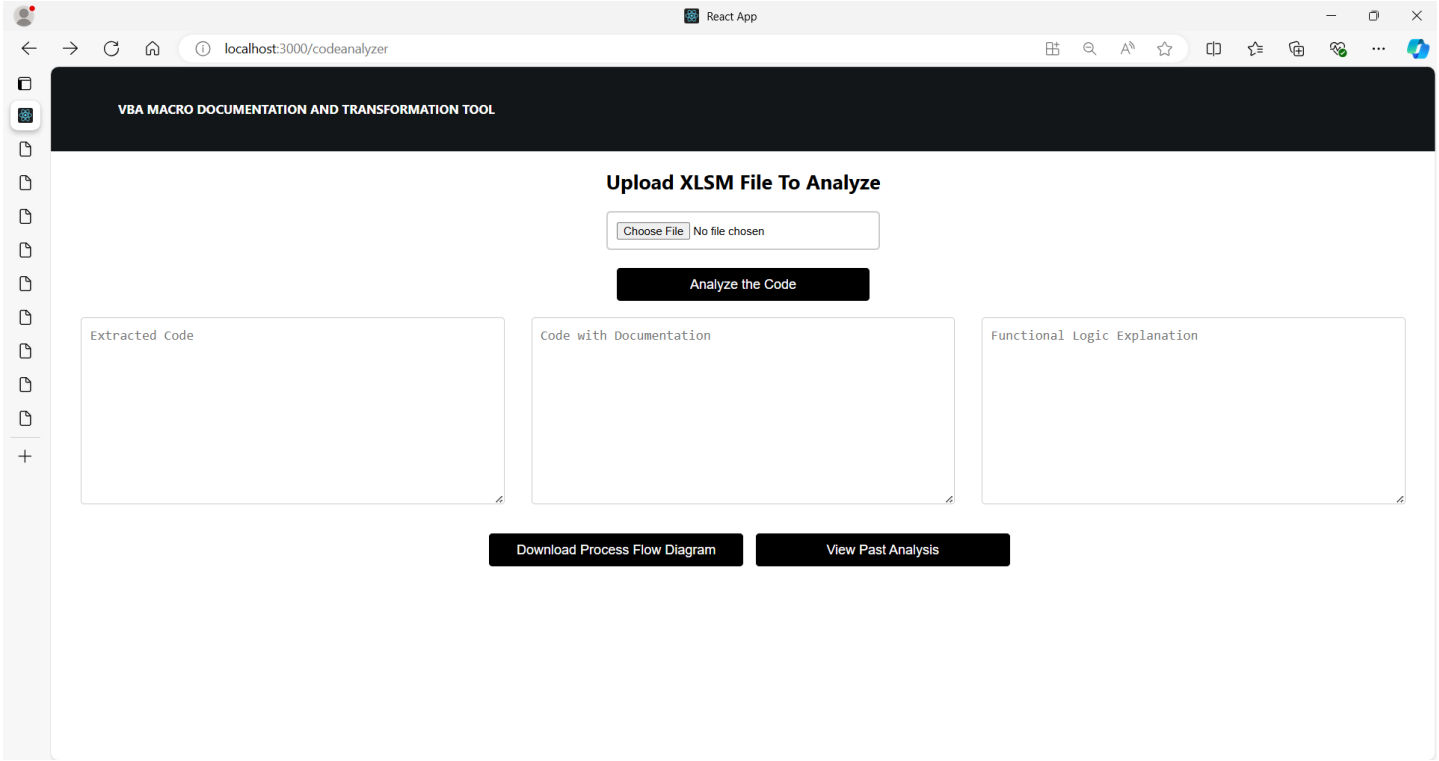
The following are the benefits of the proposed solution:

- Ease of use even to new users
- Comprehensive documentation and function logic extraction to simplify understanding of legacy code.
- Process flow diagrams provides visualization of the function logic that simplifies understanding.
- Generation of PDF reports that can be among team members to improve collaborative learning .

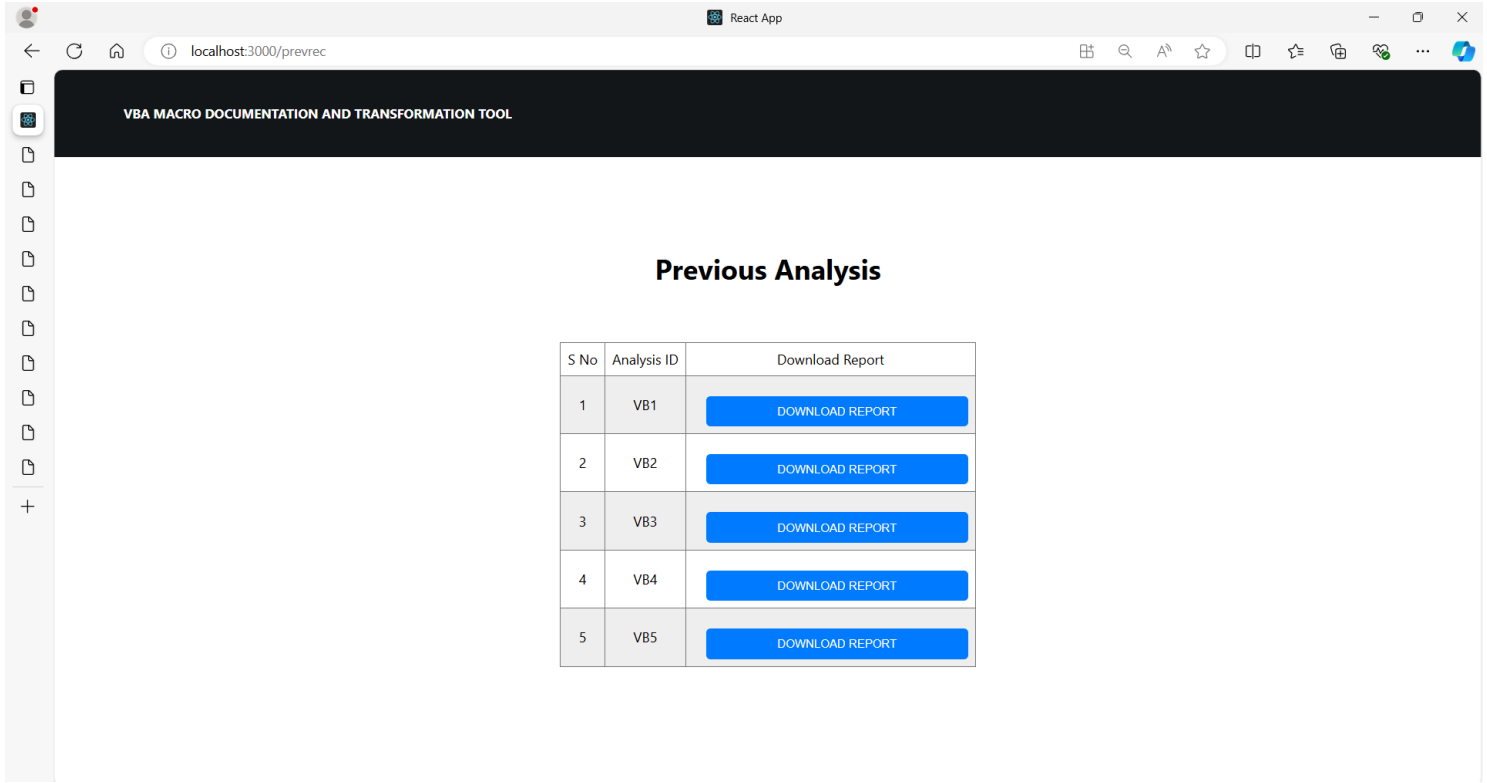
Output


React App
localhost:3000
VBA MACRO DOCUMENTATION AND TRANSFORMATION TOOL
VBA MACRO DOCUMENTATION AND TRANSFORMATION TOOL
Login
Email:
Password:
Login
Developed by Karthikeyan.A.S.
715521104022
B.E.CSE, PSG iTech

Output


React App
localhost:3000/codeanalyzer
VBA MACRO DOCUMENTATION AND TRANSFORMATION TOOL
Upload XLSM File To Analyze
Choose File
No file chosen
Analyze the Code
Extracted Code
Code with Documentation
Functional Logic Explanation
Download Process Flow Diagram
View Past Analysis

Output


React App
localhost:3000/prevrec
VBA MACRO DOCUMENTATION AND TRANSFORMATION TOOL
Previous Analysis
S No
Analysis ID
Download Report
1
VB1
DOWNLOAD REPORT
2
VB2
DOWNLOAD REPORT
3
VB3
DOWNLOAD REPORT
4
VB4
DOWNLOAD REPORT
5
VB5
DOWNLOAD REPORT

Output

Automated VBA Code Documentation and Transformation

Extracted Code

```
Attribute VB_Name = "Module1"
Private Sub say_helloworld_Click()
    Dim num1 As Double
    Dim num2 As Double
    Dim sum As Double

    num1 = InputBox("Enter the first number:")
    num2 = InputBox("Enter the second number:")

    sum = num1 + num2

    MsgBox "The sum is " & sum
End Sub
```

Documented Code

```
```vba
' Module Name: Module1
' Purpose: This module demonstrates basic arithmetic
operations by adding two numbers entered by the user.

' Declare variables
Private Sub say_helloworld_Click()
    Dim num1 As Double ' Declares a variable called num1
    Dim num2 As Double ' Declares a variable called num2
    Dim prod As Double ' Declares a variable called to store the result

    ' Get the first number from the user
    num1 = InputBox("Enter the first number:")

    ' Get the second number from the user
    num2 = InputBox("Enter the second number:")

    ' Calculate the sum of num1 and num2
    sum = num1 + num2

    ' Display the result in a message box
    MsgBox "The sum is " & sum
End Sub
```
```

Functional Logic

```
The VBA code provided has a function to calculate the sum of
two numbers and display the result in a message box.
Here's the logic of the function:

1. Declare variables: The code declares three double-precision variables:
`num1`, `num2`, and `sum`.
These variables will  be used to store the input
numbers and the result of the sum.

2. Get input from the user: The code uses the `InputBox` function to
prompt the user to enter two numbers. The input numbers
are stored in the `num1` and `num2` variables.

3. Calculate the sum: The code calculates the sum
of the two input numbers and stores the result in the `sum` variable.

4. Display the result: The code uses the
`MsgBox` function to display the result of the sum in
a message box. The message box displays the text "The sum
is" followed by the value of the `sum` variable.
```

Process Flow Diagram