MONTHLY FINANCE TRACKER BOT

A PROJECT REPORT

Submitted by

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BONAFIDE CERTIFICATE

Certified that this project report "**MONTHLY FINANCE TRACKER BOT**" is the bonafide work of **"SWETHA R (220701297)"** who carried out the project work for the subject OAI1903- Introduction to Robotic Process Automation under my supervision.

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ABSTRACT

The **Monthly Finance Tracker Bot** is an automated financial management tool developed using UiPath's Robotic Process Automation (RPA) platform. It simplifies budgeting and expense tracking for individuals and small businesses by automating tasks like expense categorization, budget calculation, and report generation, reducing manual work and human error.

The bot reads financial data from an Excel sheet, calculates income, expenses, and the remaining budget, and provides a comprehensive summary. It includes advanced features like expense categorization, alerts for overspending, and monthly trend analysis. Users can generate detailed reports in Excel or PDF formats, offering organized financial insights.

Real-time notifications, such as email alerts for exceeding budget limits, are integrated. The bot also supports external system integration, like Google Calendar, for recurring expense reminders. Additional features include savings tracking, currency conversion, and expense forecasting, helping users make informed financial decisions.

This project showcases the potential of RPA in addressing financial management challenges by offering a customizable and scalable solution. It reduces the complexity of manual budgeting and promotes financial discipline through data-driven insights. The Monthly Finance Tracker Bot saves time and aids in proactive financial planning, making it an invaluable tool for personal and business finance management.

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LIST OF ABBREVIATIONS

Abbreviation	Full Form
RPA	Robotic Process Automation
SMTP	Simple Mail Transfer Protocol
AI	Artificial Intelligence
DT	Data Table
YNAB	You Need A Budget
API	Application Program Interface

CHAPTER 1

INTRODUCTION

1.1 General

In today's fast-paced world, managing personal and professional finances effectively has become increasingly important. However, traditional budgeting methods often involve time-consuming manual calculations and are prone to human errors. To address these challenges, the Monthly Finance Tracker Bot leverages Robotic Process Automation (RPA) using UiPath Studio to simplify and enhance financial management. This project aims to automate routine budgeting tasks, offering an efficient and user-friendly solution for individuals and small businesses.

The bot is designed to process financial data from Excel sheets, calculate income, expenses, and remaining budgets, and provide actionable insights. Key features include automated expense categorization, spending alerts based on budget thresholds, and detailed financial reports. By integrating with email systems, the bot can notify users of critical financial updates, such as exceeding budget limits, ensuring timely awareness and control over spending habits.

Beyond basic functionality, the bot incorporates advanced features like monthly expense trend analysis, savings tracking, and forecasting future expenses based on historical data. These functionalities enable users to make informed financial decisions and plan for long-term goals. The project also supports customizable integrations, such as setting reminders for recurring expenses via Google Calendar or converting expenses into different currencies for international users.

The Monthly Finance Tracker Bot is a modern, automated approach to financial management, offering accuracy, convenience, and insights. It underscores how RPA technology can transform mundane tasks into streamlined processes, empoering users to take control of their finances effortlessly.

1.2 Overall

The Monthly Finance Tracker Bot is an RPA-driven financial management solution developed using UiPath Studio. It automates budgeting tasks such as income and expense tracking, categorization, and report generation, minimizing manual effort and errors. With features like spending alerts, savings tracking, and expense forecasting, the bot empowers users to make informed financial decisions. By integrating email notifications and customizable tools, it ensures proactive financial management, providing a fast, accurate, and user-friendly approach to personal and professional budgeting.

1.3 Existing System

The current system for managing finances largely depends on manual methods or basic tools like spreadsheets and simple financial software. These methods require users to input, calculate, and analyze data manually, making the process time-consuming and prone to errors. Tasks such as tracking income, categorizing expenses, and generating reports often lack automation, leading to inefficiencies.

Additionally, existing tools rarely offer features like real-time notifications, automated alerts for overspending, or advanced analytics such as expense trends and forecasts. Users must actively monitor their budgets, which can be overwhelming, especially for individuals and small businesses with multiple recurring expenses or complex financial structures.

The lack of integration with other platforms, such as email systems or calendars, further limits their effectiveness in managing reminders for payments or providing a holistic view of financial health. These shortcomings emphasize the need for an automated, user-friendly solution like the Monthly Finance Tracker Bot.

1.4 Proposed System

1. Automated Financial Management:

- Automates income and expense tracking, reducing manual effort and errors.
- Reads financial data directly from Excel sheets for efficient processing.

2. Expense Categorization:

- Groups expenses into user-defined categories for better understanding and organization.

3. Budget Threshold Alerts:

- Notifies users when spending exceeds predefined budget limits.

4. Advanced Insights:

- Features like expense trend analysis, s2avings tracking, and future expense forecasting provide actionable insights.

5. Real-Time Notifications:

- Sends alerts and financial summaries via email for timely updates.

6. Detailed Reporting:

- Generates comprehensive reports in Excel or PDF formats for easy review.

CHAPTER 2

LITERATURE REVIEW

2.1 General

Financial management is an essential aspect of personal and business operations, requiring meticulous tracking of income, expenses, and savings. Traditional methods, predominantly manual in nature, have evolved significantly with advancements in technology. This literature review explores the existing technologies and methodologies for financial planning and how Robotic Process Automation (RPA) can enhance these systems.

1. Traditional Financial Management Tools

For decades, spreadsheets like Microsoft Excel have been the cornerstone of financial management. These tools allow users to manually input, categorize, and calculate financial data. While Excel offers features like formulas, charts, and pivot tables, its reliance on manual effort makes it prone to human errors and time-consuming for complex financial structures. Studies indicate that up to 88% of spreadsheets contain errors, which can lead to significant financial mismanagement (Panko, 2020). Furthermore, traditional tools lack real-time notifications, automation, and predictive analytics.

2. Financial Management Software

Dedicated financial tools such as Mint, QuickBooks, and YNAB (You Need A Budget) provide enhanced features like automated categorization, budget tracking, and real-time synchronization with bank accounts. While these applications offer convenience, they often involve subscription costs, limited customizability, and dependency on internet connectivity. Additionally, these tools are designed for general users, making them less adaptable for specific individual or business requirements.

3. Robotic Process Automation (RPA) in Financial Management

RPA has emerged as a transformative technology capable of automating repetitive and rule-based tasks. Research highlights that RPA can significantly reduce human error, increase efficiency, and save time in financial operations (Willcocks et al., 2017). For instance, RPA can automate the extraction of financial data from various sources, perform calculations, and generate reports in real-time. Unlike traditional software, RPA offers greater flexibility as it can integrate with existing tools like Excel, email systems, and calendars without requiring extensive customization.

4. Application of RPA in Budget Planning

Recent advancements in RPA technology have led to its application in budget planning and expense tracking. Bots developed using platforms like UiPath can automate tasks such as income and expense categorization, threshold-based alerts, and detailed reporting. Unlike static software solutions, RPA workflows can adapt to changing user needs, such as integrating external APIs for currency conversion or forecasting expenses using machine learning models. Studies show that RPA can improve financial planning efficiency by up to 60% (Lacity & Willcocks, 2018).

5. Comparative Analysis of RPA with Existing Solutions

When compared to traditional tools and financial software, RPA offers distinct advantages. While traditional methods require user input for every step, RPA eliminates manual effort by automating data extraction and processing. Unlike generic financial software, RPA bots can be tailored to specific requirements, such as integrating email notifications, setting calendar reminders, or analyzing trends. Furthermore, RPA is cost-effective in the long term, especially for businesses managing large-scale financial data.

CHAPTER 3

SYSTEM DESIGN

3.1 System Flow Diagram

The system design for the **Monthly Finance Tracker Bot** outlines its architecture, components, and workflow, ensuring efficient financial management automation. It leverages UiPath Studio for Robotic Process Automation (RPA) and incorporates essential features such as data processing, budget tracking, notifications, and reporting.

3.1.1 System Flow Diagram

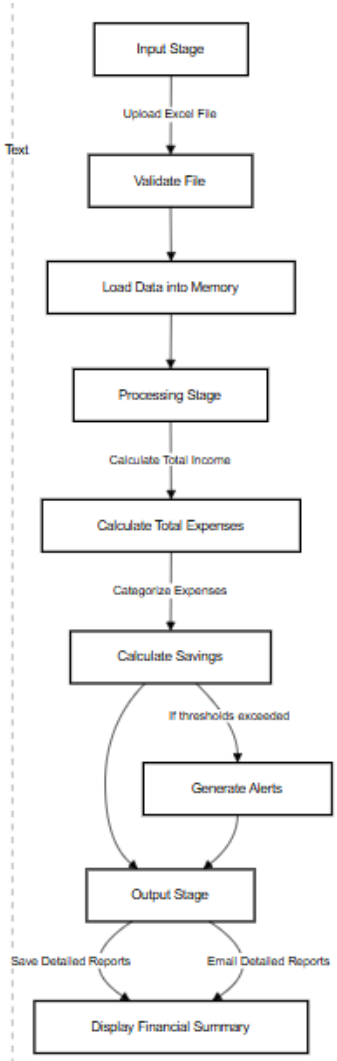

Fig 3.1.1 Workflow Diagram

3.1.2 Architecture Diagram

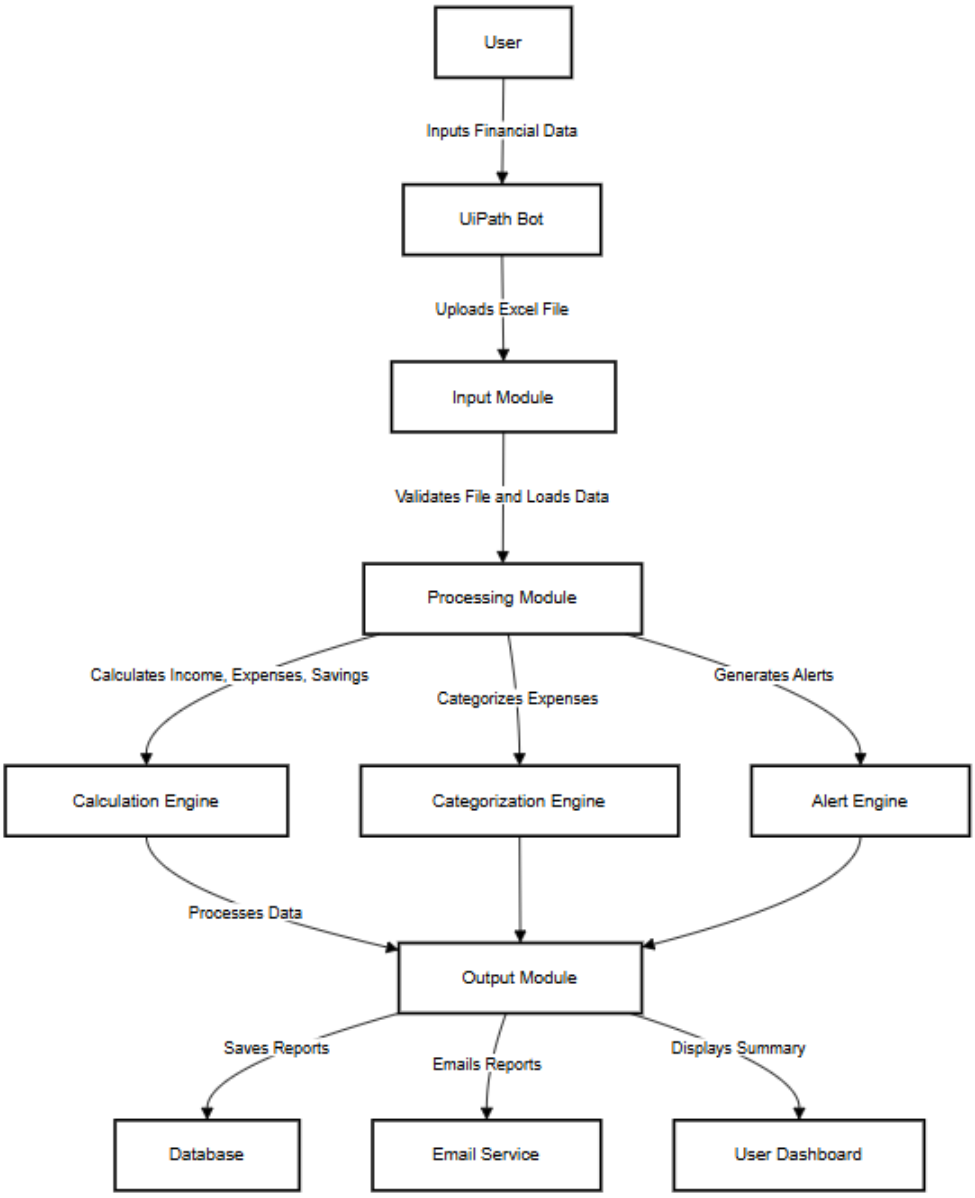

Fig 3.2.1 Architecture Diagram

3.1.3 Sequence Diagram

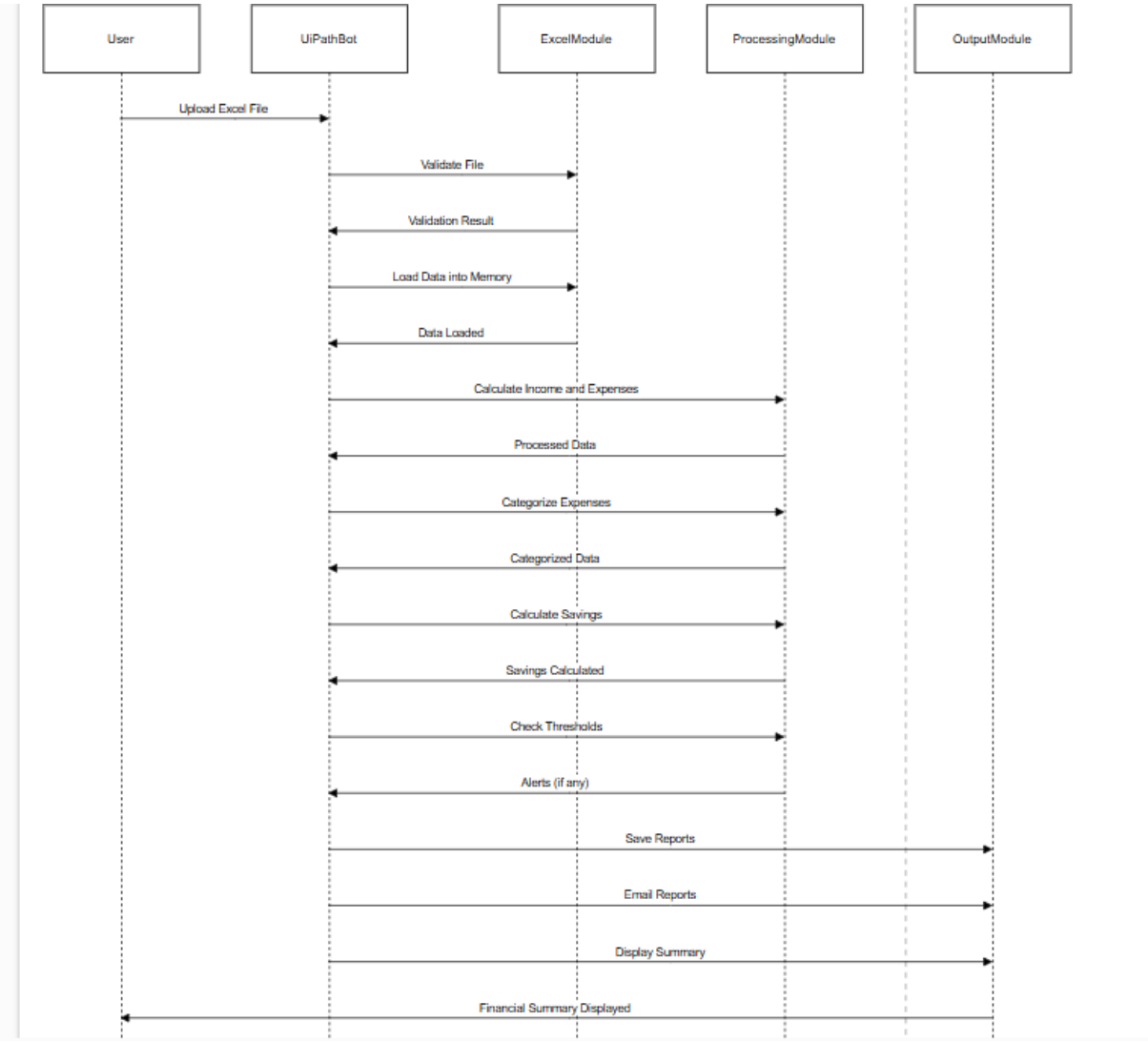

Fig 3.3.1 Sequence Diagram

CHAPTER 4

PROJECT DESCRIPTION

The **Monthly Finance Tracker Bot** is designed to automate the process of managing personal or business finances by tracking income and expenses, performing calculations, and providing insightful reports and alerts. This bot is built using **UiPath Studio**, leveraging Robotic Process Automation (RPA) technology to streamline budgeting tasks and provide an efficient solution for financial planning

4.1 Methodologies

1. **Robotic Process Automation (RPA)**:
    - UiPath is used to design workflows that automate repetitive tasks like reading data, processing calculations, and generating reports.
    - The bot operates on rule-based logic to ensure accurate and efficient financial data processing.
2. **Incremental Development**:
    - The bot is developed in stages, starting with core features such as data reading and expense tracking, followed by advanced modules like alerts and reporting.
    - This ensures continuous testing, user feedback incorporation, and refinement.
3. **Data-Driven Approach**:
    - Financial data is stored and processed in structured formats (e.g., Excel sheets) to facilitate easy access and manipulation.
    - Focuses on ensuring clean and validated input data for accurate outputs.

4.1.1 Modules

1. **Data Input and Validation Module**:
    - **Functionality**: Reads financial data from Excel using Excel Application Scope.
    - **Activities Used**:
        - Read Range for loading data.
        - Validation logic to check for empty cells, incorrect formats, or missing data.
2. **Data Processing Module**:
    - **Functionality**: Processes financial data for key calculations such as total income, total expenses, and remaining budget.
    - **Features**:
        - Categorization of expenses into predefined groups.
        - Calculation of savings and budget utilization.
    - **Activities Used**: Loops (For Each Row), arithmetic operations, and conditional statements.
3. **Expense Threshold Alert Module**:
    - **Functionality**: Monitors expenses against user-defined thresholds.
    - **Features**:
        - Generates alerts if spending exceeds limits.
        - Sends email notifications to inform users.
    - **Activities Used**:
        - If conditions for threshold checks.
        - Send SMTP Mail Message for notifications.

4. **Report Generation Module**:
    - **Functionality**: Creates financial reports summarizing income, expenses, and budget status.
    - **Features**:
        - Exports reports in Excel and PDF formats.
    - **Activities Used**:
        - Write Range for Excel reports.
        - Integration with PDF tools for export.
5. **Integration and Notification Module**:
    - **Functionality**: Sends email reports and integrates with external tools for reminders.
    - **Features**:
        - Email alerts with attachments for detailed reports.
        - Google Calendar integration for setting reminders (optional).
    - **Activities Used**:
        - Send SMTP Mail Message for emails.
        - API calls for external integrations.

CHAPTER 5

OUTPUT

5.1 Output Screenshot

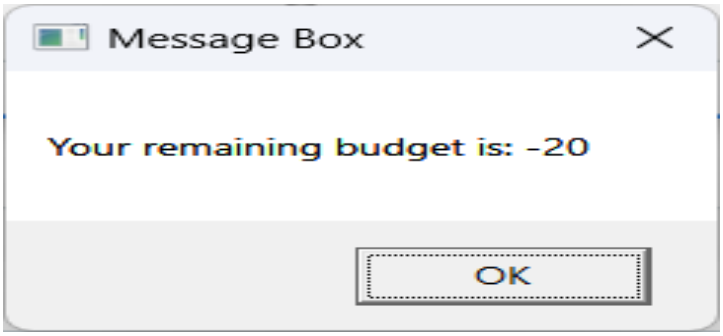

Fig 5.1 Output Message

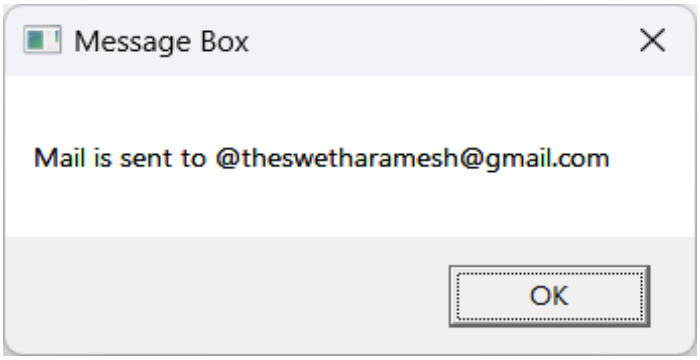

FIG 5.2 Output

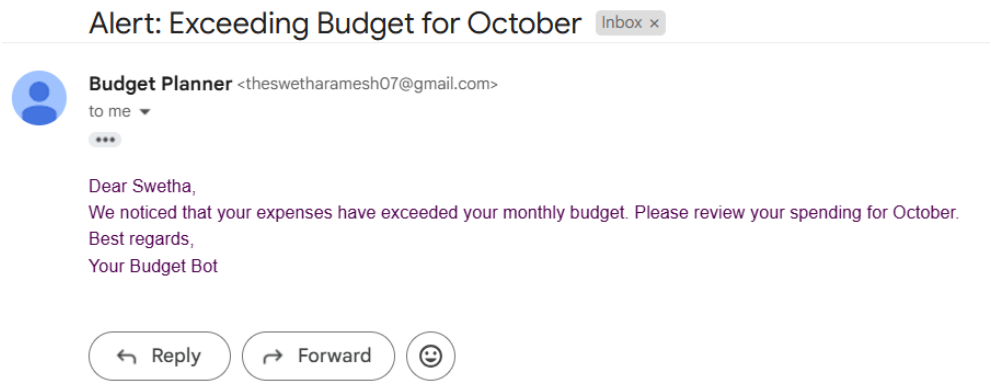

FIG 5.3 Output Mail

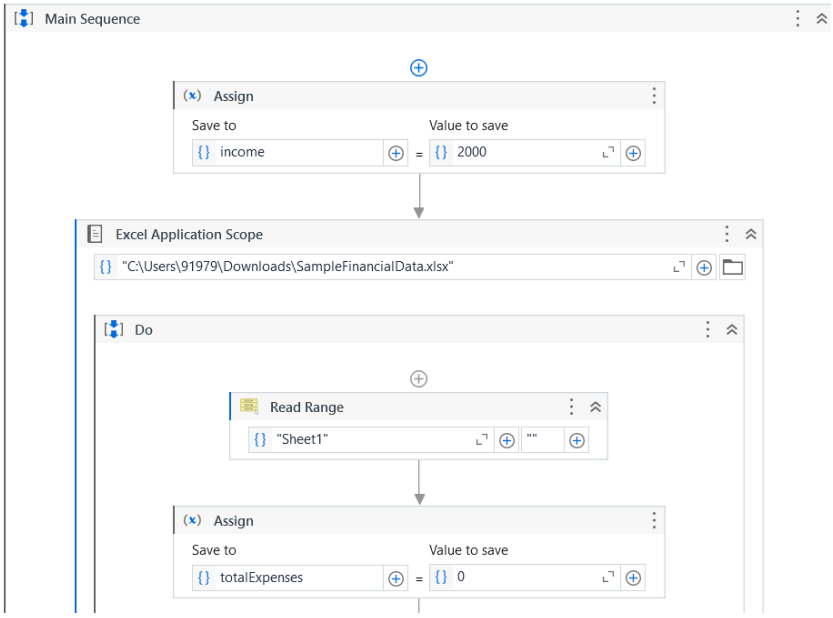

FIG 5.4 WORKFLOW SCREENSHOT 1

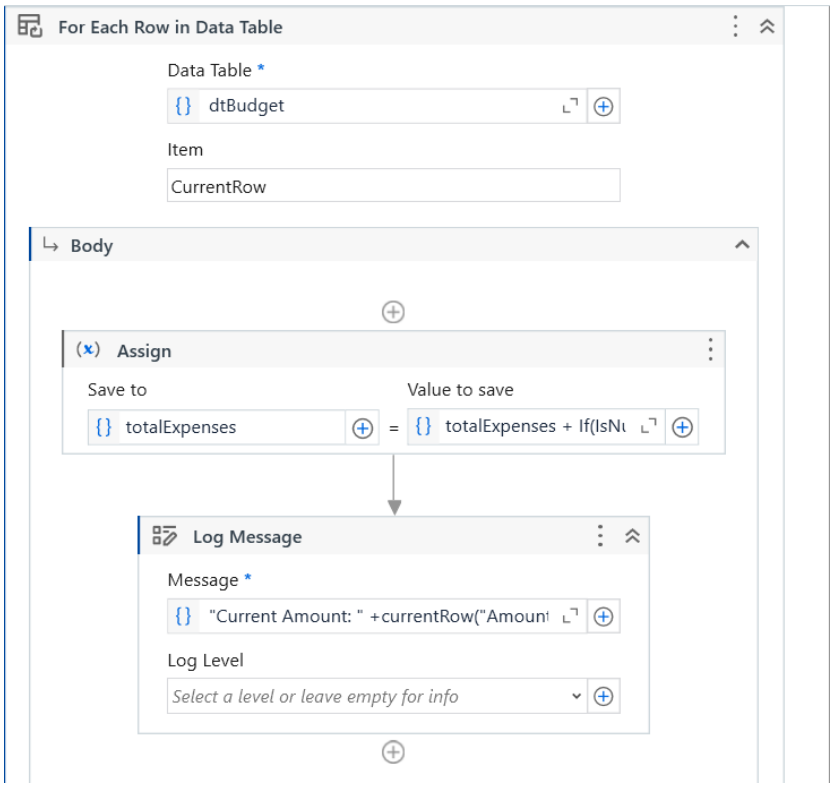

FIG 5.5 WORKFLOW SCREENSHOT 2

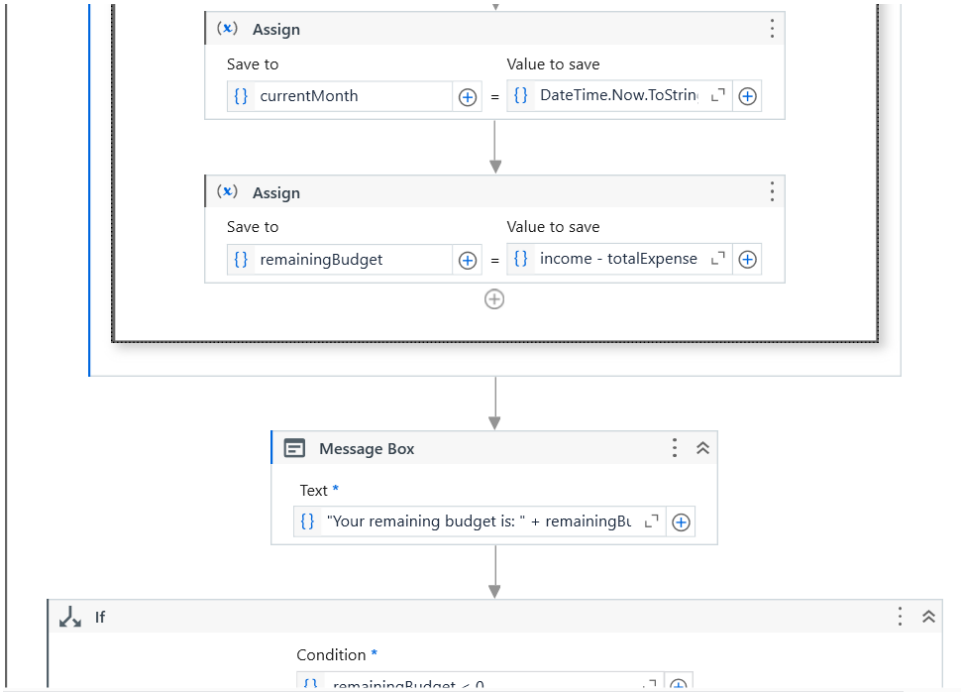

FIG 5.6 WORKFLOW SCREENSHOT 3

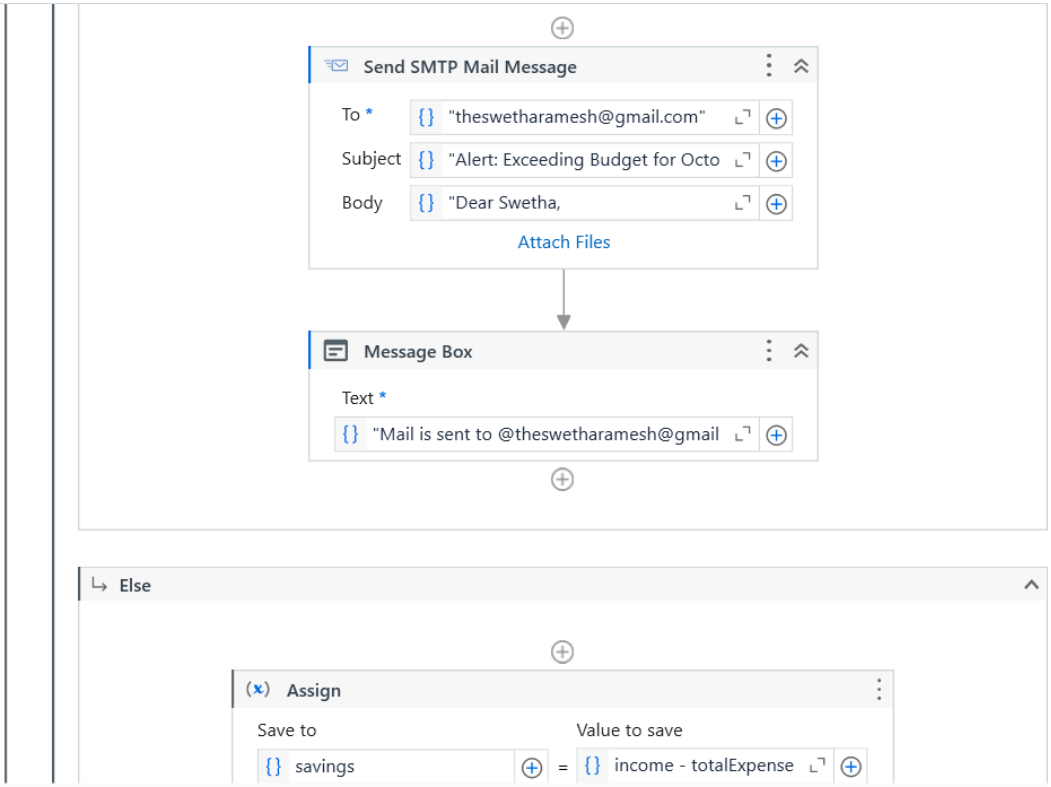

FIG 5.7 WORKFLOW SCREENSHOT 4

CHAPTER 6

CONCLUSION

6.1 General

The **Bot** developed using **UiPath Studio** offers a robust and automated solution for managing personal or business finances. By automating the process of collecting income and expense data, calculating total expenses, checking for overspending, and generating detailed reports, this bot significantly streamlines financial management tasks. The use of **Robotic Process Automation (RPA)** ensures efficiency, accuracy, and consistency, reducing the likelihood of human error and saving time on routine financial tasks.

The bot's ability to handle exceptions, send alerts, and generate reports in **Excel** provides a comprehensive tool for users to monitor their financial health on a regular basis. Whether used for personal budgeting or by small businesses, this RPA solution offers an easy-to-use and scalable approach to financial tracking and analysis.

In conclusion, the **Monthly Finance Tracker Bot** demonstrates the power of RPA to automate and optimize everyday financial processes. It empowers users with valuable insights, ensuring they stay within budget while providing transparency and control over their finances.

6.2 Future Enhancement

Future enhancements for the **Monthly Finance Tracker Bot** include multi-month or yearly budgeting to track long-term trends and expense categorization for better analysis. Add budget threshold alerts to notify users when spending exceeds limits. Integrate financial APIs for real-time data synchronization with bank accounts or external tools like Google Sheets. Introduce data visualization with pie charts or graphs for insights. Incorporate predictive analytics using machine learning to forecast future expenses and savings, helping users make informed financial decisions.

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