THE BILL REMAINDER AUTOMATION BOT

A PROJECT REPORT

Submitted by

DHARSHINI P (220701065)

in partial fulfillment for the course

OAI1903 - INTRODUCTION TO ROBOTIC PROCESS AUTOMATION

for the degree of

BACHELOR OF ENGINEERING

in

COMPUTER SCIENCE AND ENGINEERING

RAJALAKSHMI ENGINEERING COLLEGE

RAJALAKSHMI NAGAR

THANDALAM

CHENNAI – 602105

NOVEMBER 2024

RAJALAKSHMI ENGINEERING COLLEGE

CHENNAI – 602105

BONAFIDE CERTIFICATE

Certified that this project report **"THE BILL REMAINDER AUTOMATION BOT "** is the Bonafide work of **"DHARSHINI P(220701065)"** who carried out the project work for the subject OAI1903- Introduction to Robotic Process Automation under my supervision.

Mrs.J.Jinu Sophia, M.E,(Ph.D),.

SUPERVISOR

Assistant Professor

Department of Computer Science and Engineering

Rajalakshmi Engineering College

Rajalakshmi Nagar

Thandalam

Chennai - 602105

Submitted to Project and Viva Voce Examination for the subject

OAI1903- Introduction to Robotic Process Automation held on_____

Internal Examiner External Examiner

ACKNOWLEDGEMENT

Initially we thank the Almighty for being with us through every walk of our life and showering his blessings through the endeavour to put forth this report. Our sincere thanks to our Chairman Mr. S.Meganathan, B.E, F.I.E., our Vice Chairman Mr. Abhay Shankar Meganathan, B.E., M.S., and our respected Chairperson Dr. (Mrs.) Thangam Meganathan, (Ph.D)., for providing us with the requisite infrastructure and sincere endeavouring in educating us in their premier institution.

Our sincere thanks to Dr. S.N.Murugesan, M.E., (Ph.D)., our beloved Principal for his kind support and facilities provided to complete our work in time. We express our sincere thanks to Dr. P.Kumar, M.E., (Ph.D)., Professor and Head of the Department of Computer Science and Engineering for his guidance and encouragement throughout the project work. We convey our sincere and deepest gratitude to our internal guides,

Mrs.J.Jinu Sophia, M.E,(Ph.D),Assistant Professor (SG), Department of Computer Science and Engineering, Rajalakshmi Engineering College for their valuable guidance throughout the course of the project. We are very glad to thank our Project Coordinator Dr.N.Durai Murugan,M.E., (Ph.d.), Professor and Mr.B.Bhuvaneswaran, M.E., Assistant Professor (SG), Department of Computer Science and Engineering for his useful tips during our review to build our project.

DHARSHINI P (220701065)

ABSTRACT

"The Bill Reminder and Payment Automation Bot" is an efficient Robotic Process Automation (RPA) solution developed using UiPath to streamline bill management and payment tracking. This intelligent bot automates sending timely reminders for upcoming bill payments and updates the payment status in an Excel report. Users input a parent folder containing bill details, and the bot automatically selects the necessary sub-folder and generates a comprehensive Excel report titled "Bill Report" to document the status of each bill. The bot analyzes the due dates of bills, identifies upcoming payments, and sends email notifications to the designated recipients, ensuring they are reminded in advance. Additionally, the bot updates the bill status in the Excel sheet once the reminders are sent. By automating this workflow, the bot reduces manual effort, enhances efficiency, and ensures timely bill payments, promoting financial management and preventing late payments. "The Bill Reminder and Payment Automation Bot" leverages the power of RPA to simplify and expedite the bill reminder process, ensuring accuracy and consistency in financial management.

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CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

"The Bill Reminder and Payment Automation Bot" is an innovative solution at the intersection of Robotic Process Automation (RPA) and financial management. As the complexity of managing recurring bill payments increases, ensuring timely payment and avoiding penalties has become a significant challenge. This bot, developed on the UiPath platform, provides an intelligent and efficient approach to automate the process of tracking upcoming bills, sending timely reminders, and updating payment statuses, all while minimizing human intervention.

For individuals and businesses struggling to stay on top of multiple bill payments, this bot offers a transformative solution. By automating the detection of due dates, sending reminder emails, and updating payment status in an Excel report, the bot not only streamlines the bill management process but also enhances accuracy and consistency in tracking financial obligations. It serves as a proactive tool to ensure that bills are paid on time, reducing the risk of late fees and ensuring a smooth financial flow.

UiPath, known for its pioneering role in automation, combines cutting-edge technologies such as AI, computer vision, and low-code development to automate repetitive tasks that would typically require human intervention. The UiPath platform, with its intuitive drag-and-drop interface, allows users to build and deploy automation workflows without extensive coding knowledge. With capabilities like integrated OCR (Optical Character Recognition) and email

automation, UiPath simplifies the automation of a wide range of business processes.

In this project, UiPath's powerful tools are harnessed to build a bot that automates the entire process of bill reminder and payment tracking, ensuring that users stay informed and in control of their financial commitments.

1.2 OBJECTIVE

The primary objective of "The Bill Reminder and Payment Automation Bot" is to automate the process of tracking and managing recurring bill payments, ensuring timely reminders and accurate payment status updates. By leveraging Robotic Process Automation (RPA), the bot aims to simplify financial management for individuals and businesses, minimizing human effort while ensuring that all bills are paid on time. The project seeks to provide a reliable and efficient solution for managing multiple bills, reducing the risk of late fees, and promoting financial responsibility.

1.3 EXISTING SYSTEM

Managing and tracking bill payments is a manual process for many individuals and businesses. This often involves keeping track of due dates, remembering to send reminders, and manually updating payment statuses. As the number of bills increases, the complexity of managing payments becomes overwhelming, and human error may result in missed payments or late fees. While some applications offer basic bill tracking, they often lack automation and integration, requiring constant manual oversight. The need for an automated solution that ensures timely bill payments and accurate recordkeeping is clear.

1.4 PROPOSED SYSTEM

"The Bill Reminder and Payment Automation Bot" is designed to address the inefficiencies and challenges of the current manual system. By utilizing UiPath's RPA capabilities, the bot will automatically track bill due dates, send timely email reminders to designated recipients, and update payment statuses in an Excel report. The proposed system will significantly reduce the need for manual intervention, providing a streamlined, efficient, and reliable solution for bill management. The bot will generate a comprehensive report

documenting each bill's payment status, including reminders sent and any missed payments. This system will enhance financial management by ensuring bills are paid on time, reducing the risk of late fees, and promoting overall financial well-being. Through this project, we aim to create a userfriendly automation tool that simplifies the bill payment process and ensures consistency and accuracy in managing financial obligations.

CHAPTER 2

LITERATURE REVIEW

2.1 Survey on Robotic Process Automation (RPA) in Financial Management:

Robotic Process Automation (RPA) has emerged as a transformative solution across various industries, including financial management, by automating repetitive tasks and reducing human error. In the realm of bill management and payment tracking, RPA offers significant potential to streamline workflows, ensuring timely bill payments and reducing the risk of late fees. The ability to automate tasks such as bill reminders, payment tracking, and status updates can greatly enhance efficiency, accuracy, and financial discipline. However, challenges remain in integrating RPA with diverse bill payment systems and ensuring data accuracy across different platforms. The literature review of research papers related to RPA in financial management is listed below:

[1]The research discusses the increasing use of RPA in streamlining financial processes. In industries like banking and retail, RPA is employed to automate tasks such as invoice processing, payment scheduling, and financial reporting. The paper highlights that RPA can significantly reduce operational costs and improve the accuracy of financial transactions by automating routine tasks. The education sector and small businesses are also beginning to adopt RPA for managing recurring payments, which has proven to enhance operational efficiency and reduce human error.

[2]A study from IJITEE explores an RPA solution for automating payment reminders and financial reporting in small businesses. The solution automates the process of sending reminders for upcoming payments, updating the payment status in Excel reports, and sending notifications to clients. The research concludes that RPA can optimize financial workflows, saving time and resources while ensuring that payment schedules are adhered to consistently and accurately.

In this context, the Bill Reminder and Payment Automation Bot leverages RPA to automate the tracking and management of recurring bills, offering businesses and individuals an efficient and reliable solution for financial management. The system reduces manual oversight, ensures timely payments, and provides comprehensive reports to track payment statuses. By automating these tasks, this project aims to improve financial discipline and enhance operational efficiency.

2.2 Survey on Robotic Process Automation (RPA) in Financial Management:

Robotic Process Automation (RPA) has gained prominence in the financial sector for its ability to automate repetitive and time-consuming tasks, improving efficiency and reducing human error. In the domain of bill management, RPA offers significant benefits by automating tasks such as payment reminders, invoice tracking, and updating payment records. However, challenges persist, such as integrating RPA systems with diverse financial platforms and ensuring data security in automated processes. The literature review of research papers related to RPA in financial management is listed below:

[1] A research paper discusses the adoption of RPA in financial operations, highlighting its application in automating repetitive tasks such as invoice

processing, bank reconciliations, and payment scheduling. The study underscores the role of RPA in reducing operational costs and improving compliance by ensuring timely and accurate financial transactions.

[2] Another study from the IJITEE explores the use of RPA for small and medium-sized enterprises (SMEs) to automate payment processes. The research demonstrates how RPA systems can streamline workflows, reduce dependency on manual intervention, and improve financial accuracy, making them cost-effective for smaller businesses.

2.3 Survey on Email Notification Systems for Financial Applications: Email notifications play a vital role in financial applications by keeping users informed about payment schedules, due dates, and payment confirmations. Automated email systems, when integrated with RPA, can ensure timely delivery of reminders and updates, reducing the likelihood of missed payments. The literature review of research papers related to email notification systems in financial applications is listed below:

[3] A study examines the integration of automated email systems with financial software to send payment reminders and overdue notices. The research highlights how such systems improve user experience and enhance financial accountability by providing real-time updates.

[4] Another article discusses the use of AI-driven notification systems to personalize and optimize email content, ensuring higher engagement rates and reducing the risk of users overlooking critical financial notifications.

2.4 Summary of the Intersection of RPA and Notification Systems for Bill Management:

"The Bill Reminder and Payment Automation Bot" bridges these areas by leveraging RPA to automate bill tracking and email notification systems. The project seamlessly integrates Excel-based data management with automated email reminders, ensuring timely notifications for upcoming payments and updates on payment status. This integration addresses the challenges of manual bill tracking and late payments, providing users with a streamlined and efficient solution.

The project's innovative approach aligns with the growing need for automated financial management solutions, offering a practical and userfriendly tool that enhances financial discipline and reduces human intervention. By combining RPA capabilities with robust email notification systems, the bot exemplifies the potential of automation in addressing contemporary challenges in bill management.

CHAPTER 3

SYSTEM DESIGN

3.1 SYSTEM FLOW DIAGRAM

A flowchart is a type of diagram that represents an automated workflow for bill tracking and payment management. The flowchart demonstrates the sequential steps as boxes, connected with arrows to illustrate the system's logical flow. Each box represents a specific action or decision in the automation process. The system flow diagram for the **Bill Reminder and Payment Automation Bot** project is shown in **Fig. 3.1**.

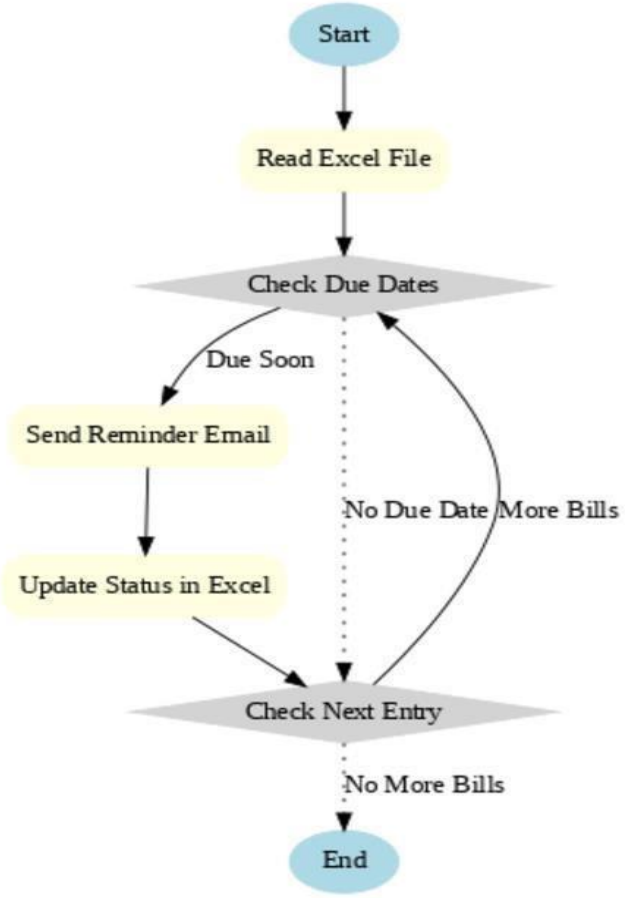


Fig 3.1 System Flow Diagram

3.2 ARCHITECTURE DIAGRAM

An architecture diagram is a graphical representation of a set of concepts, that are part of an architecture, including their principles, elements and components. The architecture diagram for this project is in Fig. 3.2.

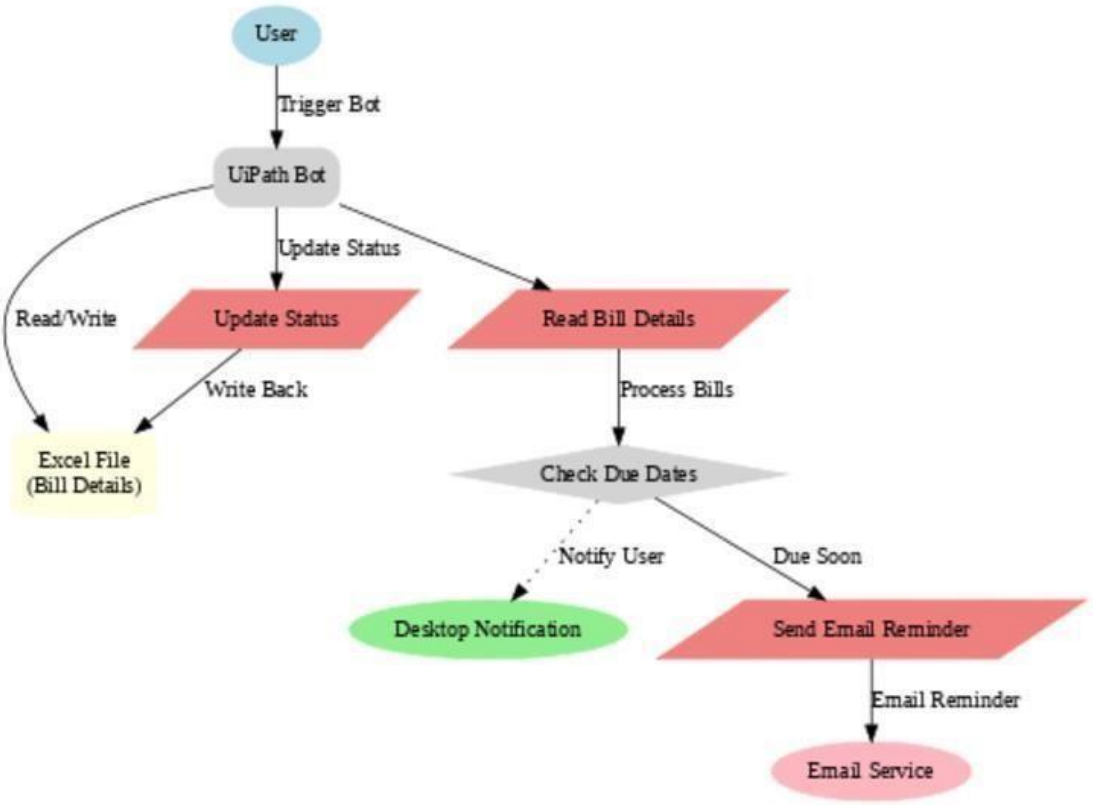


Fig 3.2 Architecture Diagram

3.3 SEQUENCE DIAGRAM

A sequence diagram is a type of interaction diagram because it describe and s how in what order a group of objects works together. The sequence diagram for this project is in Fig. 3.3.

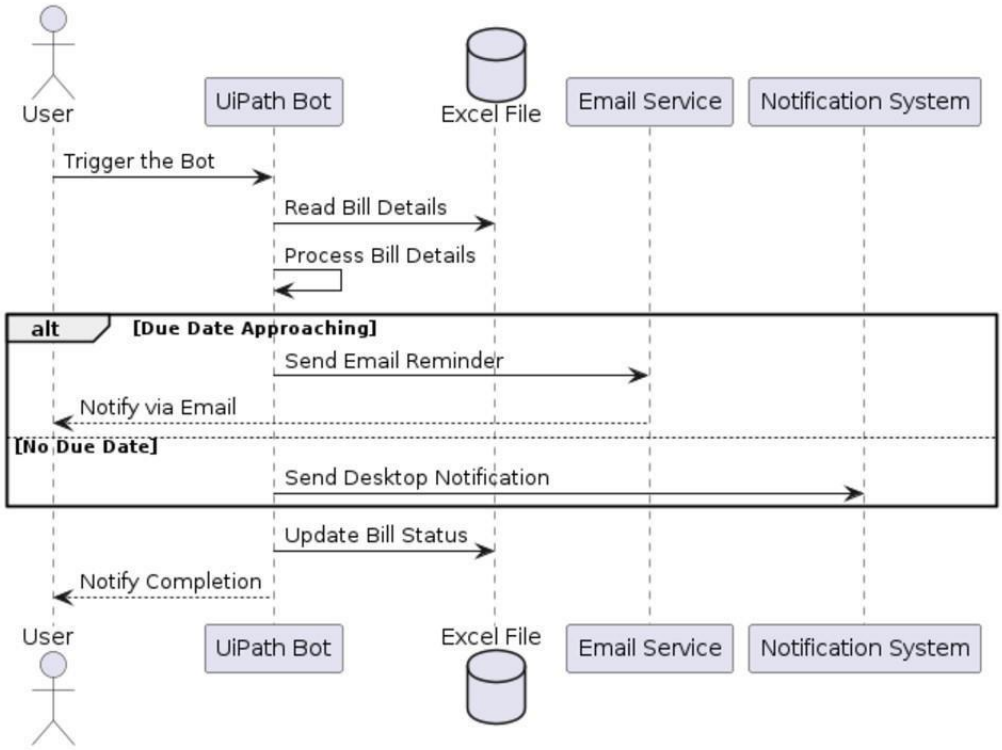


Fig 3.3 Sequence Diagram

CHAPTER 4
PROJECT DESCRIPTION

The "Smart Bill Reminder and Payment Automation Bot" is a cutting-edge Robotic Process Automation (RPA) solution designed to simplify bill management and ensure timely payments. Developed using UiPath, this intelligent bot addresses the common challenge of missed bill payments by automating reminders and payment tracking. It streamlines the process by integrating with email and desktop notification systems, creating a seamless experience for users while reducing manual effort.

4.1. MODULES:

4.1.1. INPUT HANDLING AND INITIALIZATION:

4.1.1.1. Folder Selection:

- Receive user input for the parent folder path.

4.1.1.2. Subfolder Selection:

- List subfolders within the parent folder.
- Allow the user to select the target subfolder.

4.1.1.3 Excel Report Generation:

- Dynamically create an Excel report named "Report" within the chosen subfolder.

4.1.2 CONTENT ANALYSIS:

4.1.2.1 Remainder Generation:

- Iterate through each bill listed in the Excel file.
- Identify bills with upcoming due dates (based on userdefined thresholds).
- Generate a notification (email or desktop) for each identified bill.

4.1.2.2 Status Update:

- Monitor the Excel file for any updates on payment statuses (e.g., user input or payment confirmation).
- Update the status column in the Excel file once payments are completed.
- Trigger a final notification to confirm successful payment or overdue status.

4.1.3 RESULT MANAGEMENT:

This module handles the generation and management of reminders and the maintenance of payment statuses.

4.1.3.1 Remainder Management:

- Regularly check for any upcoming bills nearing their due date.
- Resend reminders if the payment is not made within the specified reminder timeframe.

4.1.3.2 Real-time Update:

- Provide live updates on the reminder status, including pending reminders, upcoming bills, and payments.
- Show notification success/failure status (for emails and desktop alerts).

4.1.4 COMPLETION AND REPORTING:

4.1.4.1 Completion Message:

- Display a final message indicating the status of the entire process (all bills reminded and payments processed).

CHAPTER 5

OUTPUT SCREENSHOTS

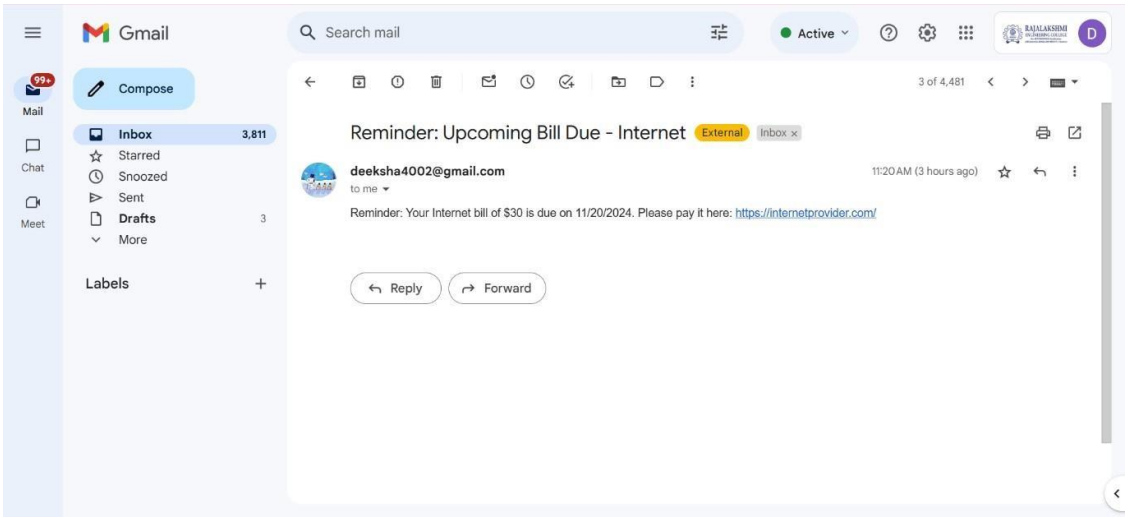


Fig 5.1 – Email Notification

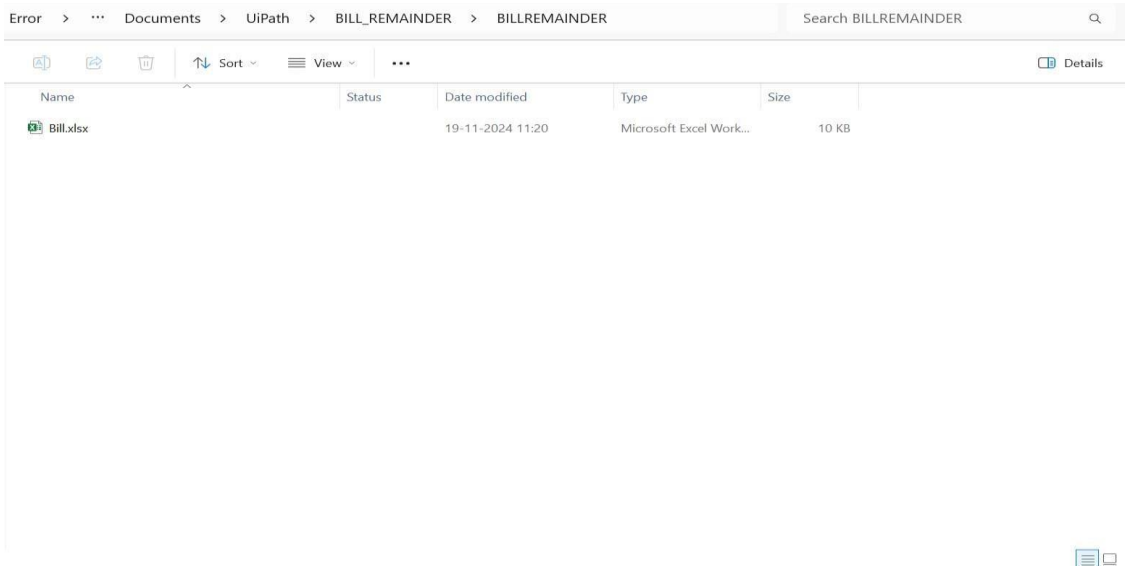


Fig 5.2 – Excel File Creation

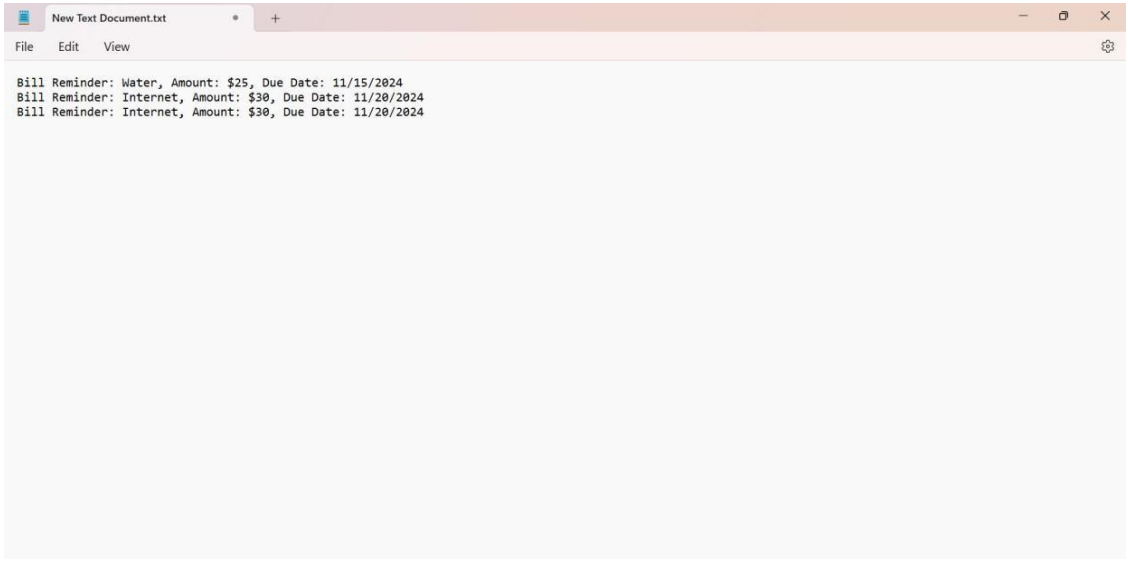


Fig 5.3 – Remainder Text Document

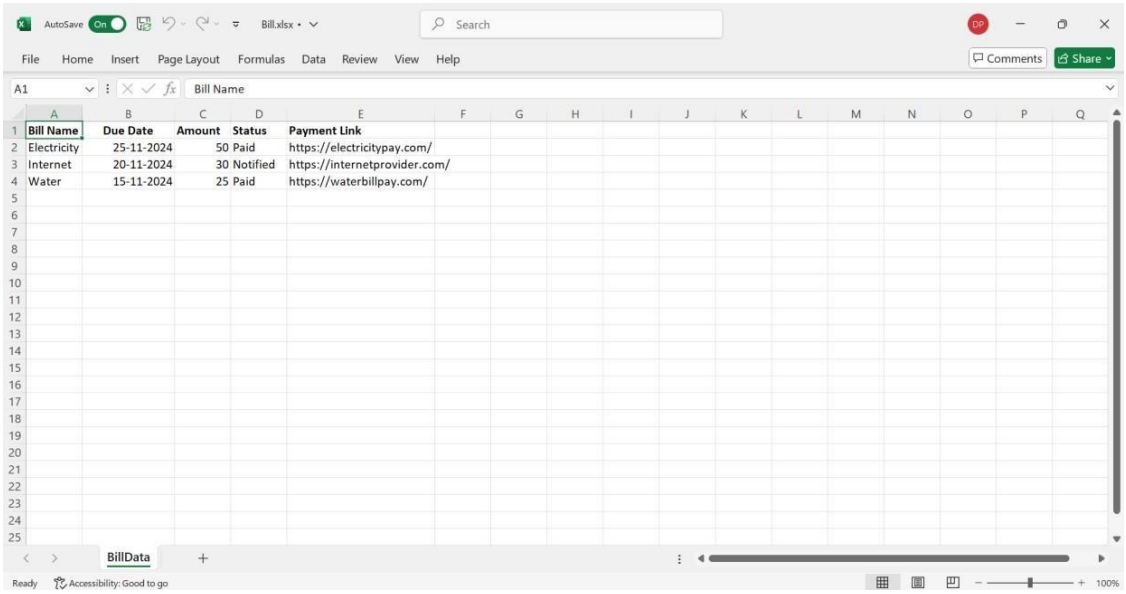


Fig 5.5 – Excel Report

CHAPTER 6

CONCLUSION

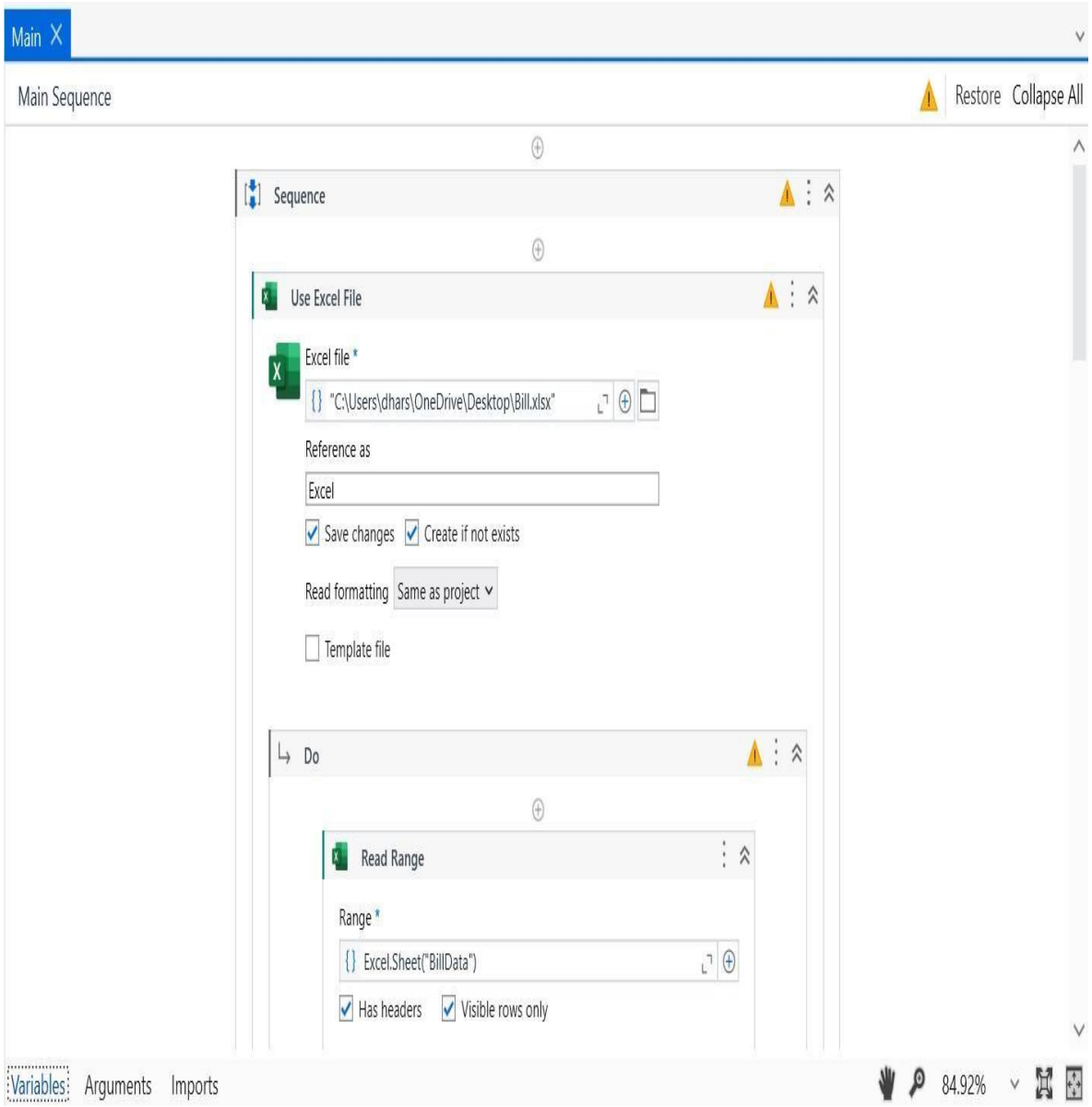
The **Smart Bill Reminder and Payment Automation Bot** offers an innovative solution to simplify and streamline the process of managing bills and ensuring timely payments. By leveraging UiPath's Robotic Process Automation (RPA) technology, this bot automates key aspects of the bill management workflow, making it efficient, reliable, and user-friendly. Through its real-time notifications and reminders, the bot ensures that users are consistently alerted about upcoming due dates, thus reducing the risk of missed payments. The integration of dynamic Excel reporting further enhances the transparency of the process, allowing users to track their bills, payment statuses, and reminders in an organized manner.

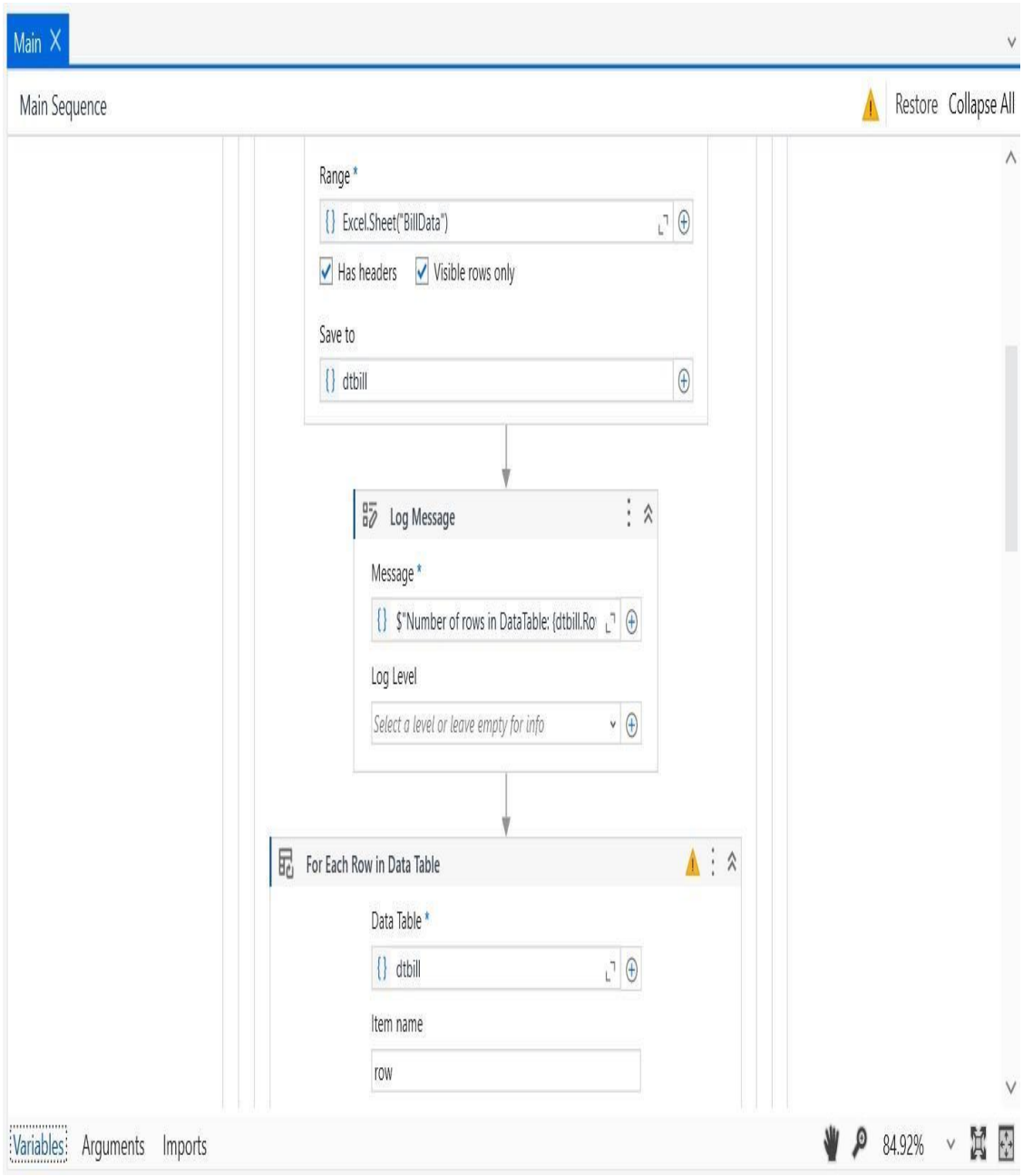
While the bot significantly reduces the manual effort associated with managing bills, it may face challenges in adapting to complex, irregular payment schedules or unforeseen exceptions. Continuous updates and improvements to the system will be essential to accommodate these scenarios and enhance the bot's capabilities.

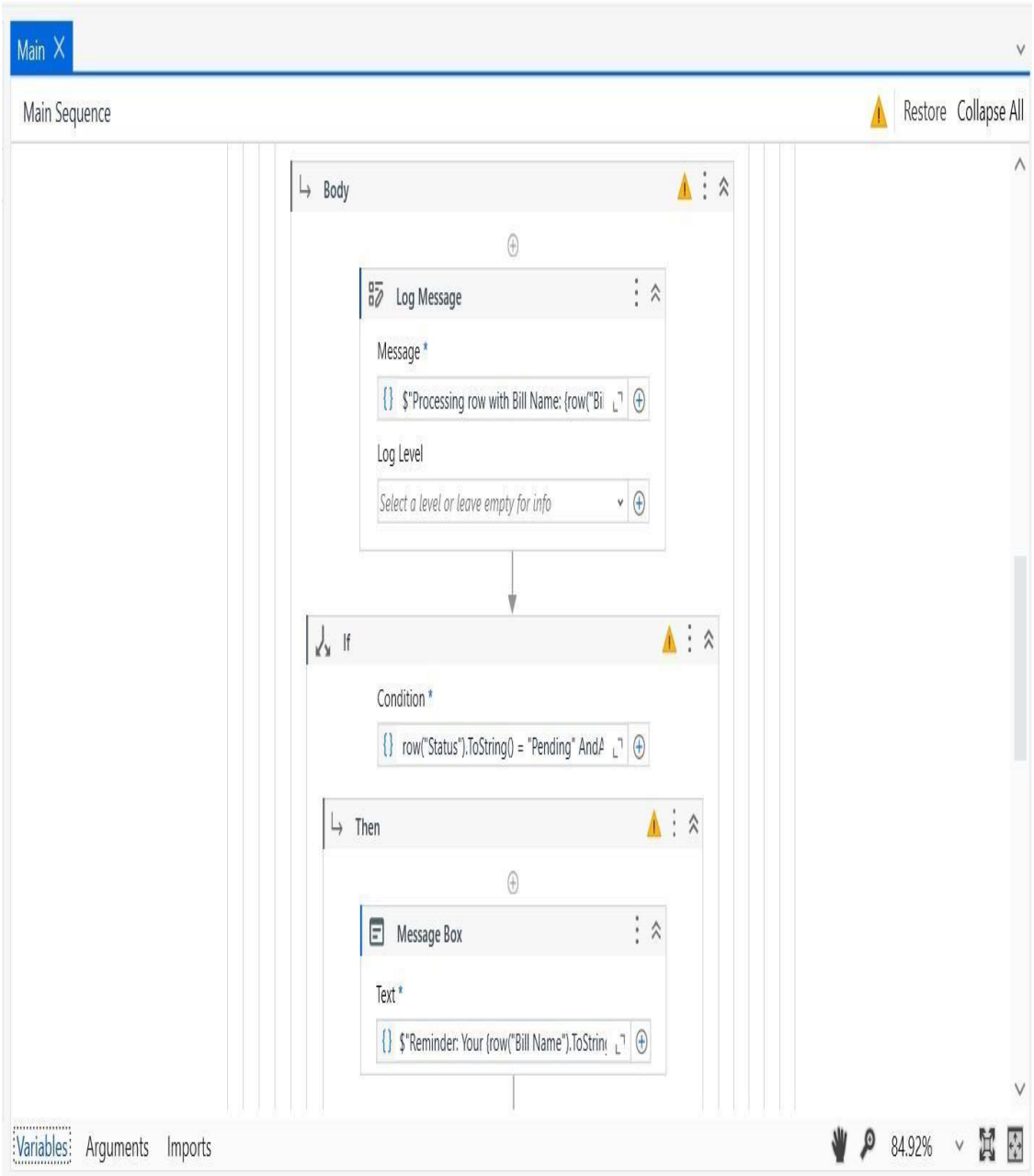
Overall, the **Smart Bill Reminder and Payment Automation Bot** marks a significant step forward in automating routine financial tasks, enabling users to maintain better control over their bill payments while saving time and minimizing human error. This project contributes to the ongoing evolution of personal finance automation, aligning with the increasing trend of leveraging AI and RPA for enhanced efficiency and convenience.

APPENDIX

PROCESS WORKFLOW




Main
Main Sequence
Restore
Collapse All
Range *
Excel.Sheet("BillData")
Has headers
Visible rows only
Save to
dtbill
Log Message
Message *
$"Number of rows in DataTable: {dtbill.Ro
Log Level
Select a level or leave empty for info
For Each Row in Data Table
Data Table *
dtbill
Item name
row
Variables
Arguments
Imports
84.92%


Main
Main Sequence
Restore
Collapse All
Body
Log Message
Message *
$"Processing row with Bill Name: {row("Bi
Log Level
Select a level or leave empty for info
If
Condition *
row("Status").ToString() = "Pending" AndA
Then
Message Box
Text *
$"Reminder: Your {row("Bill Name").ToStrin
Variables
Arguments
Imports
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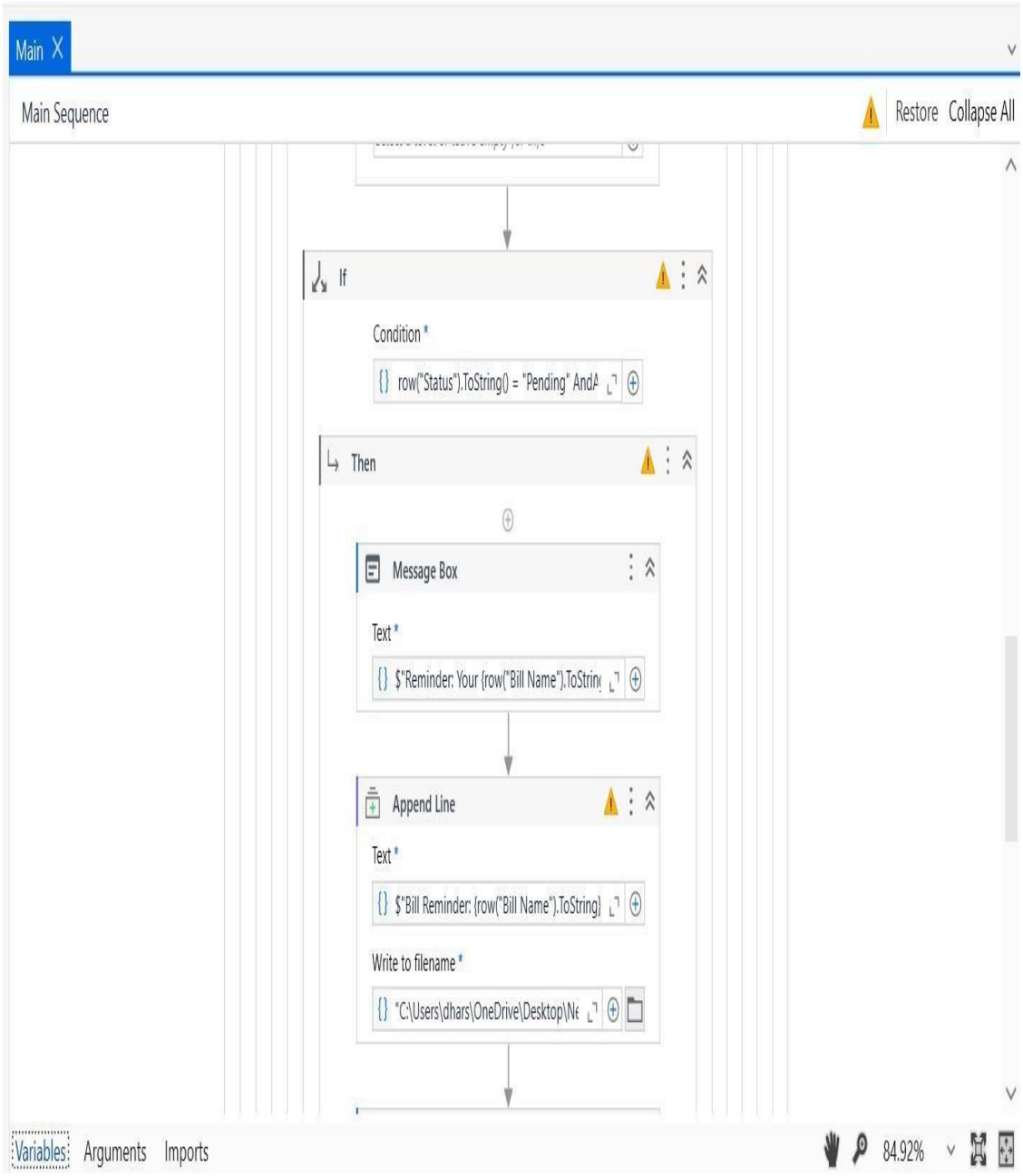
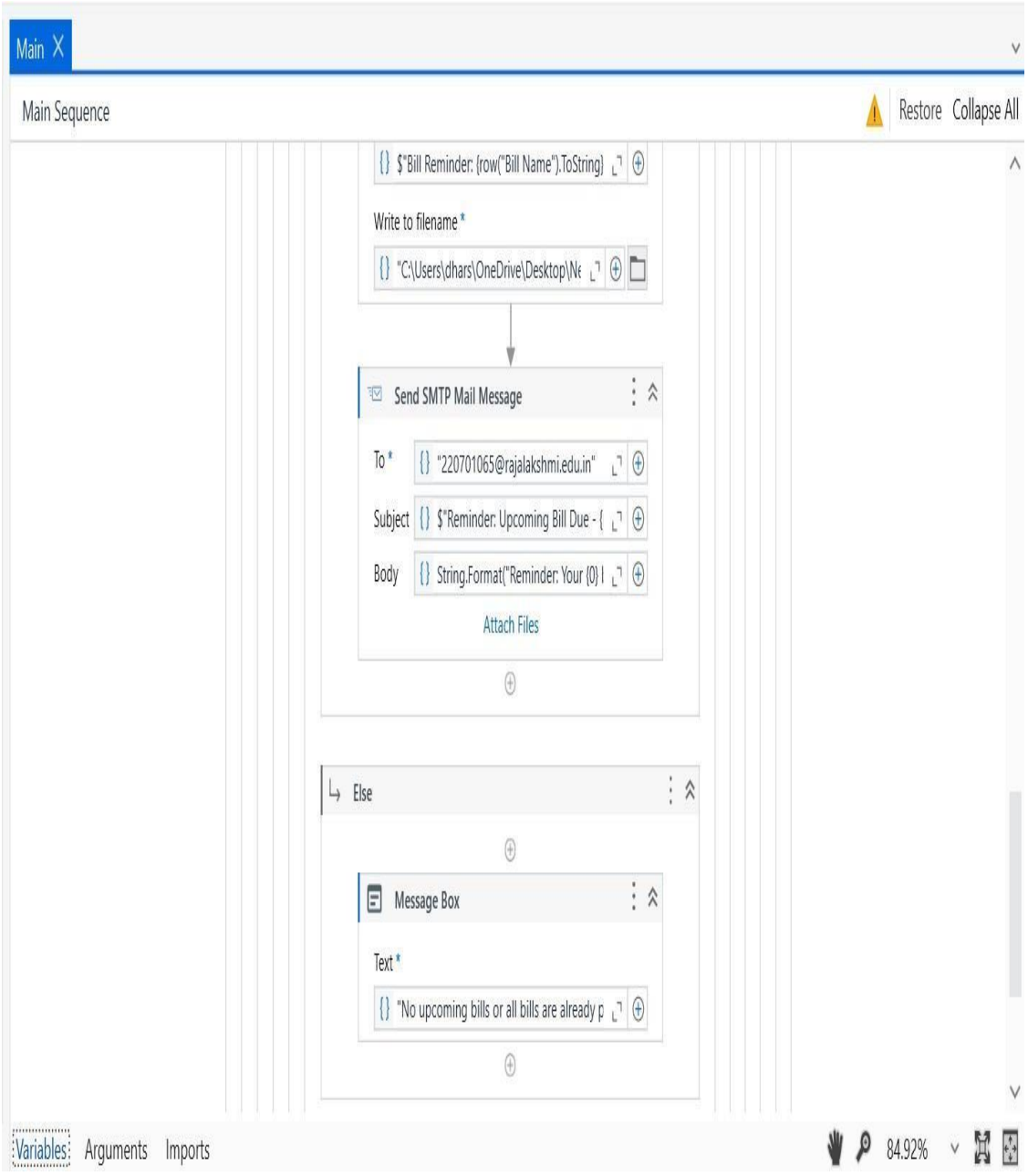

Main
Main Sequence
Restore
Collapse All
If
Condition *
row("Status").ToString() = "Pending" AndA
Then
Message Box
Text *
$"Reminder: Your {row("Bill Name").ToStrin
Append Line
Text *
$"Bill Reminder: {row("Bill Name").ToString}
Write to filename *
"C:\Users\dhars\OneDrive\Desktop\Ne
Variables
Arguments
Imports
84.92%


Main
Main Sequence
Restore
Collapse All
{} $"Bill Reminder: {row("Bill Name").ToString}
Write to filename *
{} "C:\Users\dhars\OneDrive\Desktop\Ne
Send SMTP Mail Message
To *
{} "220701065@rajalakshmi.edu.in"
Subject
{} $"Reminder: Upcoming Bill Due - {
Body
{} String.Format("Reminder: Your {0} I
Attach Files
Else
Message Box
Text *
{} "No upcoming bills or all bills are already p
Variables
Arguments
Imports
84.92%

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