AUTOMATED DEADLINE NOTIFICATION BOT

A PROJECT REPORT

Submitted by

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OAI1903 - INTRODUCTION TO ROBOTIC PROCESS AUTOMATION

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RAJALAKSHMI ENGINEERING COLLEGE

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CHENNAI – 602 105

NOVEMBER 2024

RAJALAKSHMI ENGINEERING COLLEGE

CHENNAI – 602105

BONAFIDE CERTIFICATE

Certified that this project report **" AUTOMATED DEADLINE NOTIFICATION BOT "** is the Bonafide work of **" KRITHIKA B (220701137) "** who carried out the project work for the subject OAI1903-Introduction to Robotic Process Automation under my supervision.

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INTERNAL EXAMINER **EXTERNAL EXAMINER**

ABSTARCT

The Automated Deadline Notification Bot is an innovative Robotic Process Automation (RPA) solution designed to enhance deadline management for projects. Built using UiPath, this intelligent bot automates the process of monitoring task deadlines and notifying relevant stakeholders via email. Users provide an Excel file containing task details, including task names, deadlines, responsible personnel, and their respective email addresses.

The bot efficiently reads and analyses the task data, identifying tasks with impending deadlines based on dynamic date calculations. It crafts personalized email notifications and sends them to the respective recipients, ensuring timely reminders. Each notification highlights the task details, deadline, and urgency, enabling proactive management. The bot can be scheduled to run periodically, ensuring seamless and continuous deadline tracking.

This project significantly reduces manual tracking efforts, improves team productivity, and minimizes the risk of missed deadlines. By harnessing the power of RPA, The Automated Deadline Notification Bot streamlines task management and fosters efficient collaboration in project execution.

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 **Thiru. S.Meganathan, B.E., F.I.E.,** our Vice Chairman **Mr. M.Abhay Shankar, B.E., M.S.,** and our respected Chairperson **Dr. (Mrs.) Thangam Meganathan, M.A., M.Phil., 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. G.M.Sasikala, M.E.,** Assistant Professor (SG), Department of Computer Science and Engineering for their valuable guidance throughout the course of the project. We are very glad to thank our Project Coordinators, **Dr. N.Durai Murugan , M.E., Ph.D.,** Associate Professor, and **Mr. B.Bhuvaneswaran, M.E.,** Assistant Professor (SG), Department of Computer Science and Engineering for their useful tips during our review to build our project.

KRITHIKA B (220701137)

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LIST OF ABBREVIATIONS

RPA	Robotic Process Automation
SMTP	Simple Mail Transfer Protocol
PMI	Project Management Institute
UI	User Interface
JSON	JavaScript Object Notation
API	Application Programming Interface
Excel	Refers to Microsoft Excel application
HTTP	Hyper Text Transfer Protocol
Gmail	Google Mail Service
IDE	Integrated Development Environment

CHAPTER 1
INTRODUCTION

1.1 INTRODUCTION

In project management, meeting deadlines is crucial for ensuring the timely completion of tasks and achieving overall success. However, manual tracking of deadlines and sending reminders can be time-consuming and prone to human error, often leading to missed deadlines and disruptions in workflows. To address these challenges, the Automated Deadline Notification Bot offers an innovative solution by leveraging Robotic Process Automation (RPA) to streamline and automate deadline management processes.

Developed using UiPath, this intelligent bot eliminates the need for manual intervention by automating the monitoring of task deadlines and sending timely notifications to relevant stakeholders. With the ability to analyse task data from an Excel file, the bot identifies tasks with impending deadlines and ensures stakeholders receive personalized email reminders, fostering accountability and proactive task management.

This project serves as a powerful tool for enhancing productivity and collaboration in team-based environments, minimizing the risk of delays, and ensuring tasks are completed within the stipulated timeframes. By automating repetitive and error-prone processes, the Automated Deadline Notification Bot not only saves time and effort but also significantly improves the efficiency and reliability of project management practices.

1.2 OBJECTIVE

The primary objective of the Automated Deadline Notification Bot is to streamline and enhance the efficiency of deadline management in project workflows by leveraging Robotic Process Automation (RPA). This solution aims to automate the process of tracking task deadlines, analysing their urgency, and notifying relevant stakeholders via personalized email alerts. By doing so, the bot ensures timely communication, fosters accountability, and minimizes the risk of missed deadlines, ultimately contributing to the seamless execution of projects.

1.3 EXISTING SYSTEM

In traditional project management, deadline tracking often relies on manual processes, such as maintaining task details in spreadsheets, shared calendars, or project management tools. Notifications about upcoming deadlines are either sent manually or depend on individuals' vigilance. This approach is time-consuming, prone to human error, and often leads to missed deadlines due to lack of timely reminders.

Existing systems may also lack integration, requiring team members to cross-reference multiple tools to stay updated on deadlines. The absence of automated notifications reduces efficiency, especially in projects involving large teams or numerous tasks. This disjointed process can result in reduced productivity, miscommunication, and compromised project outcomes.

While some advanced tools provide partial automation, they often require extensive configuration and might not cater to specific organizational needs, leaving room for improvement in scalability, accuracy, and ease of use

1.4 . PROPOSED SYSTEM

The Automated Deadline Notification Bot offers a streamlined and intelligent solution to overcome the limitations of traditional systems. Built using UiPath, the proposed system automates the process of monitoring task deadlines and sending personalized email reminders to stakeholders. By leveraging Robotic Process Automation (RPA), the bot dynamically reads task data from an Excel sheet, identifies tasks nearing their deadlines, and notifies responsible individuals through email.

This system ensures accuracy and timeliness, eliminating human error and manual intervention in deadline tracking. The bot operates on a schedule, continuously monitoring task progress and sending reminders, thereby fostering proactive management. Personalized email notifications include task details, deadlines, and urgency levels, enhancing communication and ensuring that stakeholders are informed well in advance.

The proposed system simplifies deadline management, enhances team collaboration, and improves overall project efficiency. Its automation capabilities not only save time but also minimize the risk of missed deadlines, ensuring the successful execution of tasks within the specified timeframes.

CHAPTER 2
LITERATURE REVIEW

2.1 Survey on Robotic Process Automation (RPA) in Task Management

Robotic Process Automation (RPA) is increasingly being applied across industries to streamline processes and improve operational efficiency. In task management, RPA has proven effective in automating repetitive and time-consuming activities, such as task scheduling, resource allocation, and notification systems. Despite its advantages, challenges remain in achieving seamless integration with legacy systems and handling dynamic workflows. The literature review of research papers related to RPA in task management is listed below:

[1] Research in **The Journal of Automation and Computing** highlights the transformative role of RPA in workflow automation. It discusses how RPA has enabled organizations to monitor and manage deadlines effectively by automating repetitive processes. This study emphasizes that RPA tools can process large datasets, such as task schedules, and send timely notifications, thereby enhancing productivity.

[2] A case study published in **IJASET** explores the implementation of an RPA-based solution for a project management company. The system automates task monitoring by extracting deadlines and responsible personnel details from project documentation. The study demonstrates that automating these processes reduces human error and improves adherence to deadlines, significantly enhancing project outcomes.

2.2 Survey on Automated Deadline Notifications

The automation of deadline notifications has been a focus area in recent years, as organizations aim to streamline task tracking and improve communication. While traditional systems rely heavily on manual updates and reminders, automation introduces dynamic tracking and notification systems. However, challenges include customizing notifications to meet specific organizational needs and integrating them with existing task management tools. The literature review of research papers related to automated deadline notifications is listed below:

[3] A study in the **Journal of Productivity and Automation** investigates the development of email-based automated reminder systems for project deadlines. The research presents a framework where RPA bots read task data from spreadsheets and dynamically send reminder emails. The study concludes that such systems improve task completion rates by up to 40% compared to traditional manual methods.

[4] An article in **Advances in Digital Transformation** discusses the design of an RPA bot for deadline tracking in collaborative environments. The bot integrates with Microsoft Excel and email clients to extract, analyse, and notify users of upcoming deadlines. The researchers highlight that the bot's ability to handle dynamic task updates and send personalized notifications improves team coordination and accountability.

CHAPTER 3

SYSTEM DESIGN

3.1 SYSTEM FLOW DIAGRAM

A flowchart is a type of diagram that represents an algorithm, workflow or process. The flowchart shows the steps as boxes of various kinds, and their order by connecting the boxes with arrows. This diagrammatic representation illustrates a solution model to a given problem. The system flow diagram for this project is in Fig. 3.1.

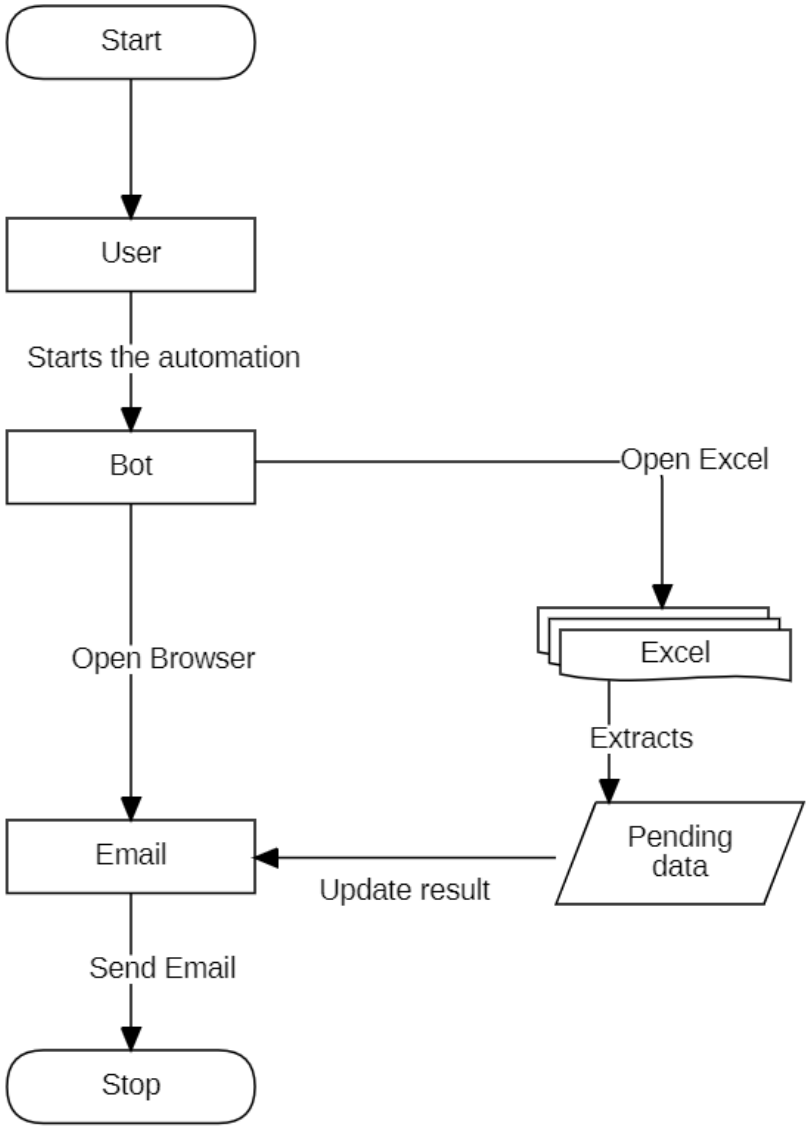


Fig. 3.1

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.

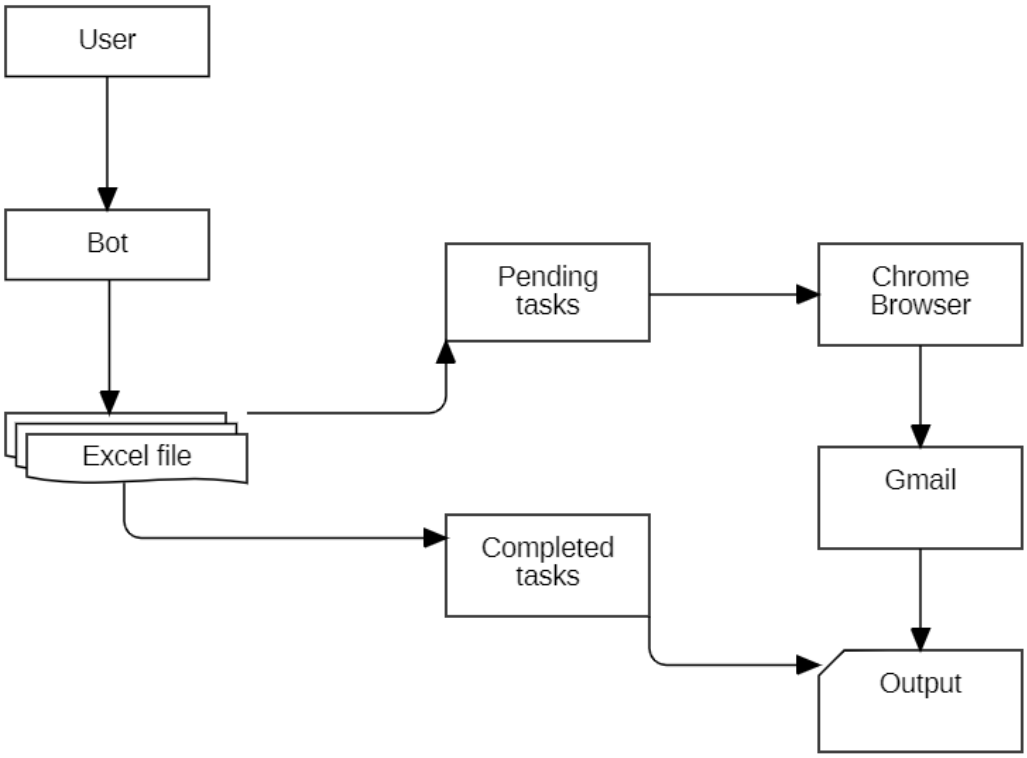


Fig. 3.2

3.3 SEQUENCE DIAGRAM

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

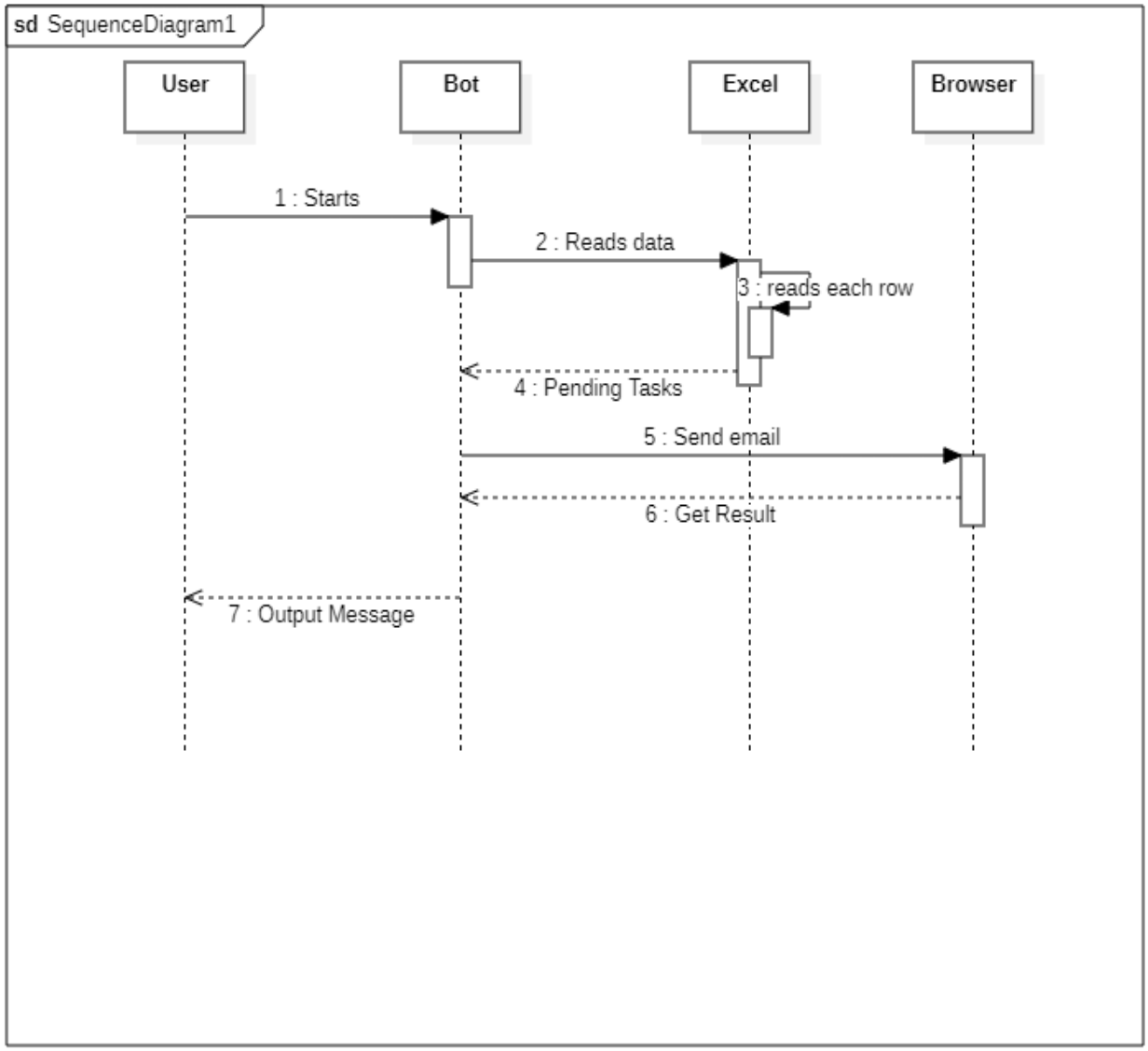


Fig. 3.3

CHAPTER 4

PROJECT DESCRIPTION

The Automated Deadline Notification Bot is a powerful Robotic Process Automation (RPA) solution designed to enhance task management by automating deadline tracking and notification processes. Developed using UiPath, this bot offers a streamlined approach to monitoring task deadlines and notifying relevant stakeholders, ensuring improved productivity and timely task completion.

4.1 MODULES

4.1.1 INPUT HANDLING

4.1.1.1 Excel File Input:

Allow users to provide the path to an Excel file containing task details, including task names, deadlines, responsible personnel, and email addresses.

4.1.1.2 Data Validation:

Validate the input Excel file to ensure it includes all required fields and adheres to the correct format. Handle missing or incorrect data entries gracefully by prompting users for corrections.

4.1.2 TASK ANALYSIS

4.1.2.1 Deadline Identification:

Read the task data from the Excel file and dynamically calculate tasks with approaching deadlines based on the current date.

4.1.2.2 Task Filtering:

Filter tasks based on urgency, prioritizing those with deadlines closest to the current date. Group tasks by personnel for efficient notification.

4.1.3 NOTIFICATION HANDLING

4.1.3.1 Email Composition:

Automatically draft personalized email notifications for each task, including task details, deadlines, and urgency levels.

4.1.3.2 Email Sending:

Send the notifications to the respective email addresses retrieved from the Excel file using integrated email services.

4.1.4 RESULT MANAGEMENT

4.1.4.1 Real-time updates:

Display real-time updates of the task analysis and email-sending process in UiPath logs or on-screen messages.

4.1.4.2 Notification Log:

Maintain a log of all sent notifications, including recipient details, task names, and timestamps, for tracking purposes.

4.1.5 COMPLETION AND REPORTING

4.1.5.1 Completion Message:

Conclude the operation with a message indicating the successful completion of task deadline notifications.

4.1.5.2 Report Generation:

Optionally generate an Excel report summarizing the notified tasks and their statuses for record-keeping or auditing.

CHAPTER 5

OUTPUT SCREENSHOT

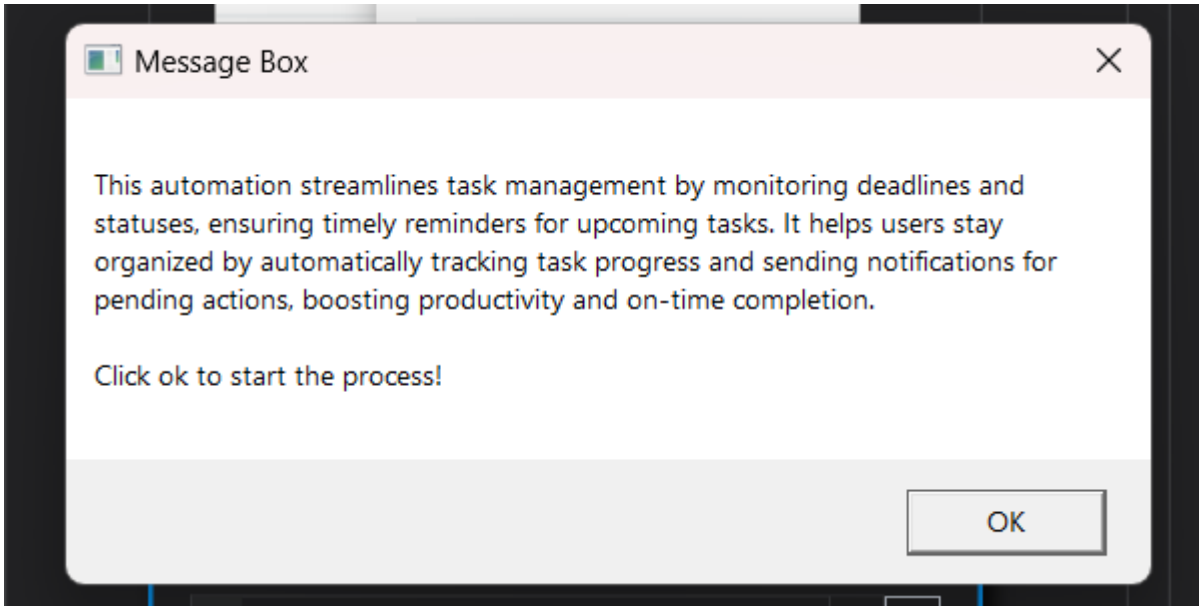
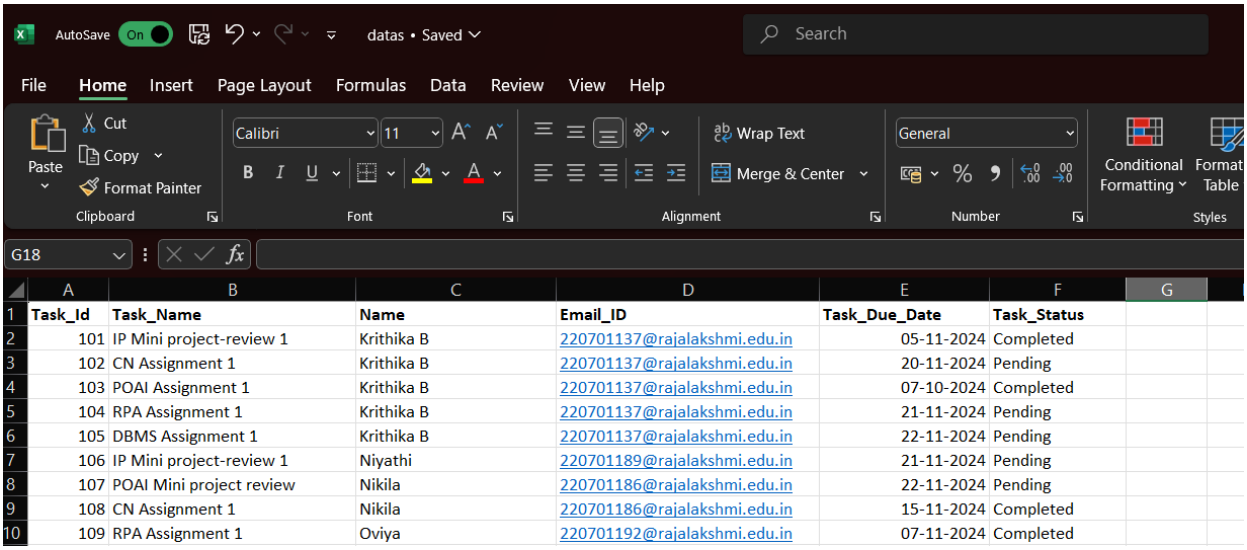


Fig. 5.1 Automation Initialization Message



	A	B	C	D	E	F	G
1	Task_Id	Task_Name	Name	Email_ID	Task_Due_Date	Task_Status	
2	101	IP Mini project-review 1	Krithika B	220701137@rajalakshmi.edu.in	05-11-2024	Completed	
3	102	CN Assignment 1	Krithika B	220701137@rajalakshmi.edu.in	20-11-2024	Pending	
4	103	POAI Assignment 1	Krithika B	220701137@rajalakshmi.edu.in	07-10-2024	Completed	
5	104	RPA Assignment 1	Krithika B	220701137@rajalakshmi.edu.in	21-11-2024	Pending	
6	105	DBMS Assignment 1	Krithika B	220701137@rajalakshmi.edu.in	22-11-2024	Pending	
7	106	IP Mini project-review 1	Niyathi	220701189@rajalakshmi.edu.in	21-11-2024	Pending	
8	107	POAI Mini project review	Nikila	220701186@rajalakshmi.edu.in	22-11-2024	Pending	
9	108	CN Assignment 1	Nikila	220701186@rajalakshmi.edu.in	15-11-2024	Completed	
10	109	RPA Assignment 1	Oviya	220701192@rajalakshmi.edu.in	07-11-2024	Completed	

Fig. 5.2 Excel

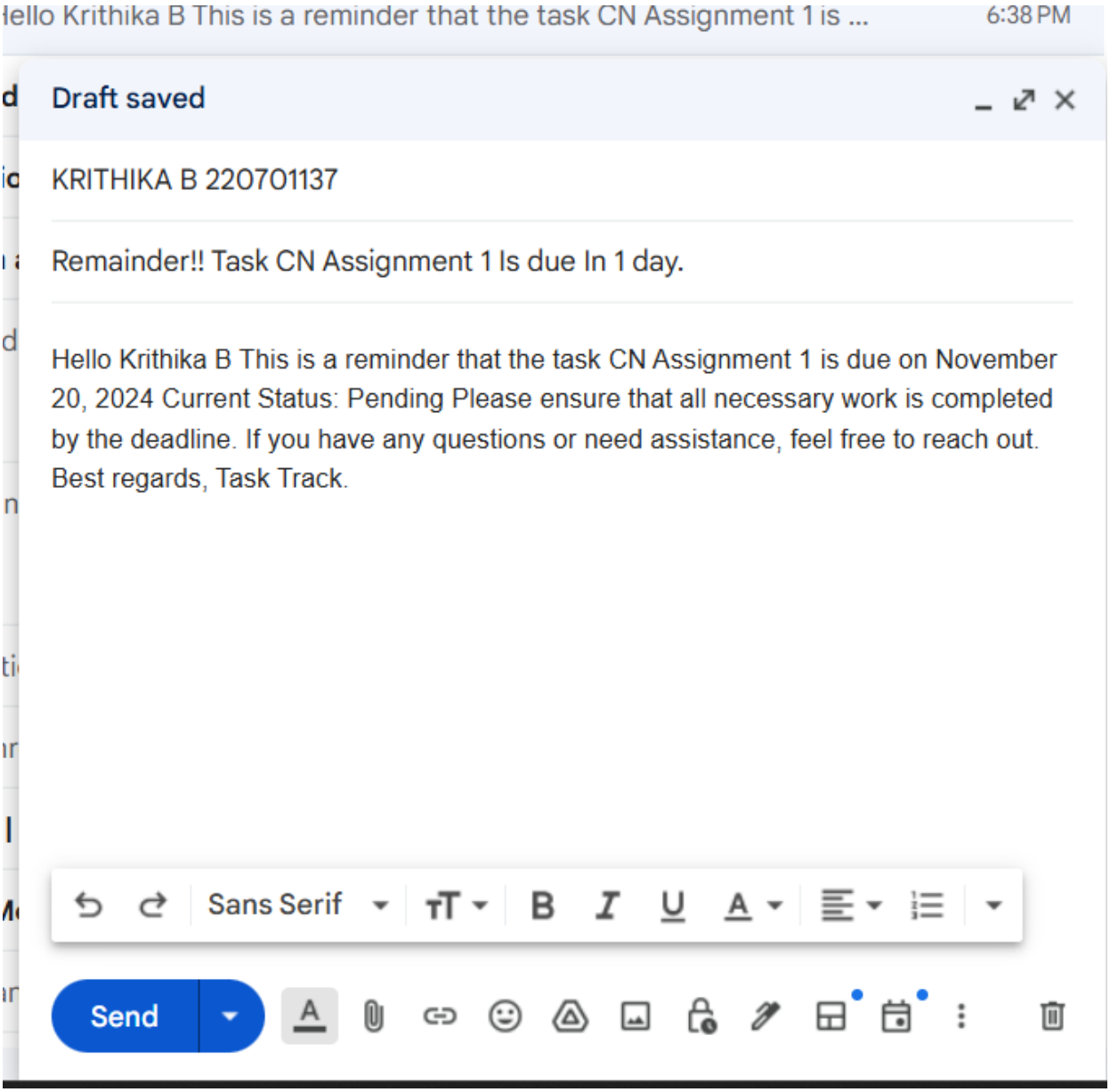


Fig. 5.3 Message in Gmail

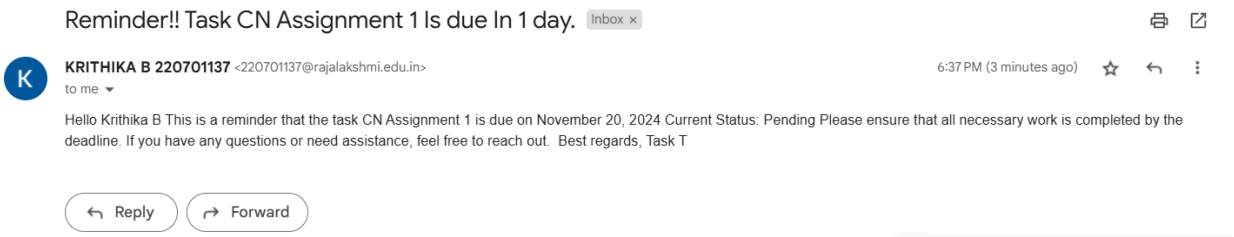


Fig. 5.4 Message in inbox

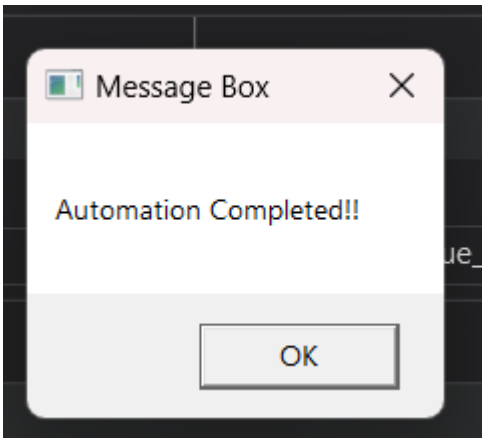


Fig. 5.5 Automation Completed Message

CHAPTER 6
CONCLUSION

The Automated Deadline Notification Bot serves as a transformative solution in project management by leveraging Robotic Process Automation (RPA) to streamline the process of tracking task deadlines and notifying stakeholders. By automating the identification of tasks with impending deadlines and sending personalized email notifications, the bot significantly reduces manual workload and the risk of missed deadlines.

This project demonstrates the practical application of RPA in enhancing productivity and ensuring timely task execution. The ability to dynamically analyse task data, generate real-time notifications, and maintain logs of communication ensures that all team members remain informed and aligned.

The bot not only simplifies deadline management but also fosters proactive collaboration, improving overall efficiency in handling projects. This solution highlights the potential of automation in addressing routine challenges, enabling organizations to focus on more strategic objectives while maintaining high standards of operational excellence.

REFERENCES

1. UiPath Documentation: https://docs.uipath.com

2. Microsoft Excel Integration in UiPath: https://docs.uipath.com/activities/docs/excel

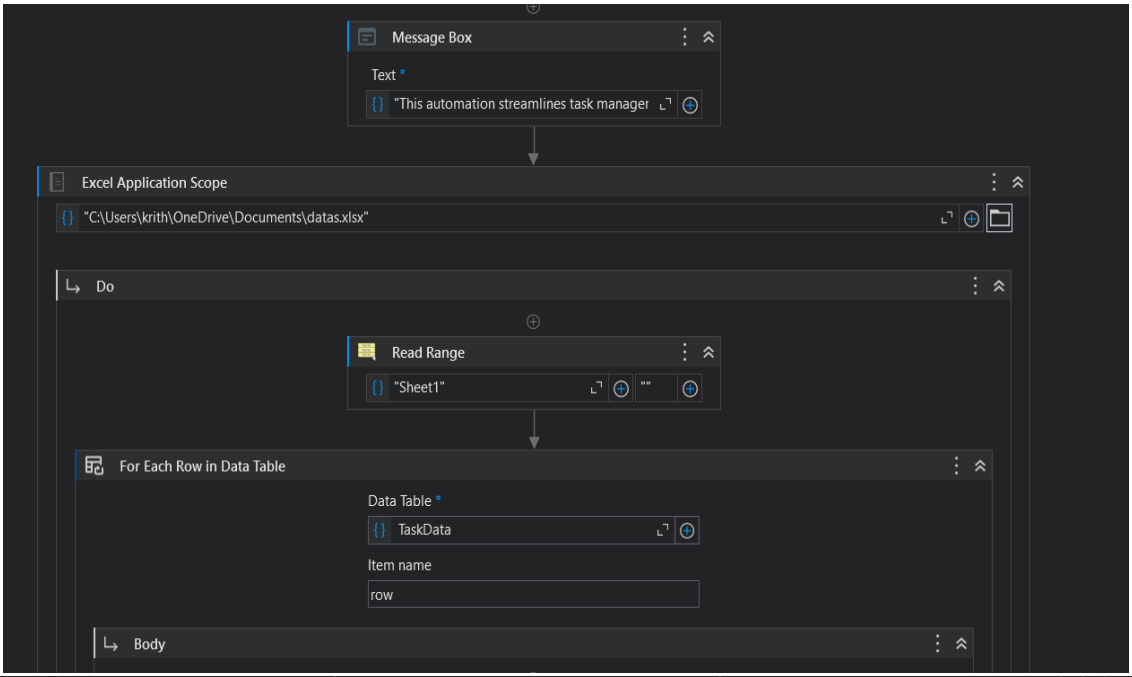
3. SMTP Email Automation: https://docs.uipath.com/activities/docs/send-smtp-mail-message

4. MySQL Database Integration with UiPath: https://docs.uipath.com/activities/docs/database

5. Email Notification Systems: https://developers.google.com/gmail/api

6. UiPath Forum: https://forum.uipath.com

APPENDIX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Text *
"This automation streamlines task manager
Excel Application Scope
"C:\Users\krith\OneDrive\Documents\datas.xlsx"
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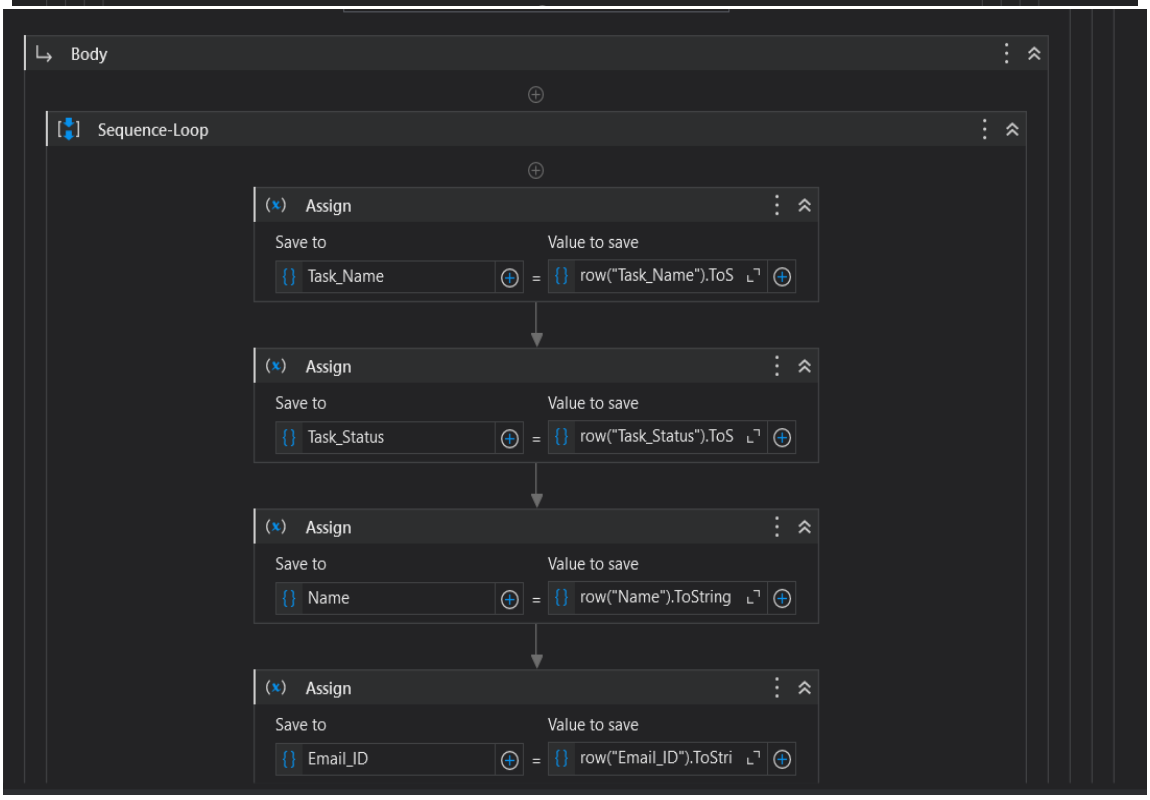
""
For Each Row in Data Table
Data Table *
TaskData
Item name
row
Body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Value to save
Task_Name
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Assign
Save to
Value to save
Task_Status
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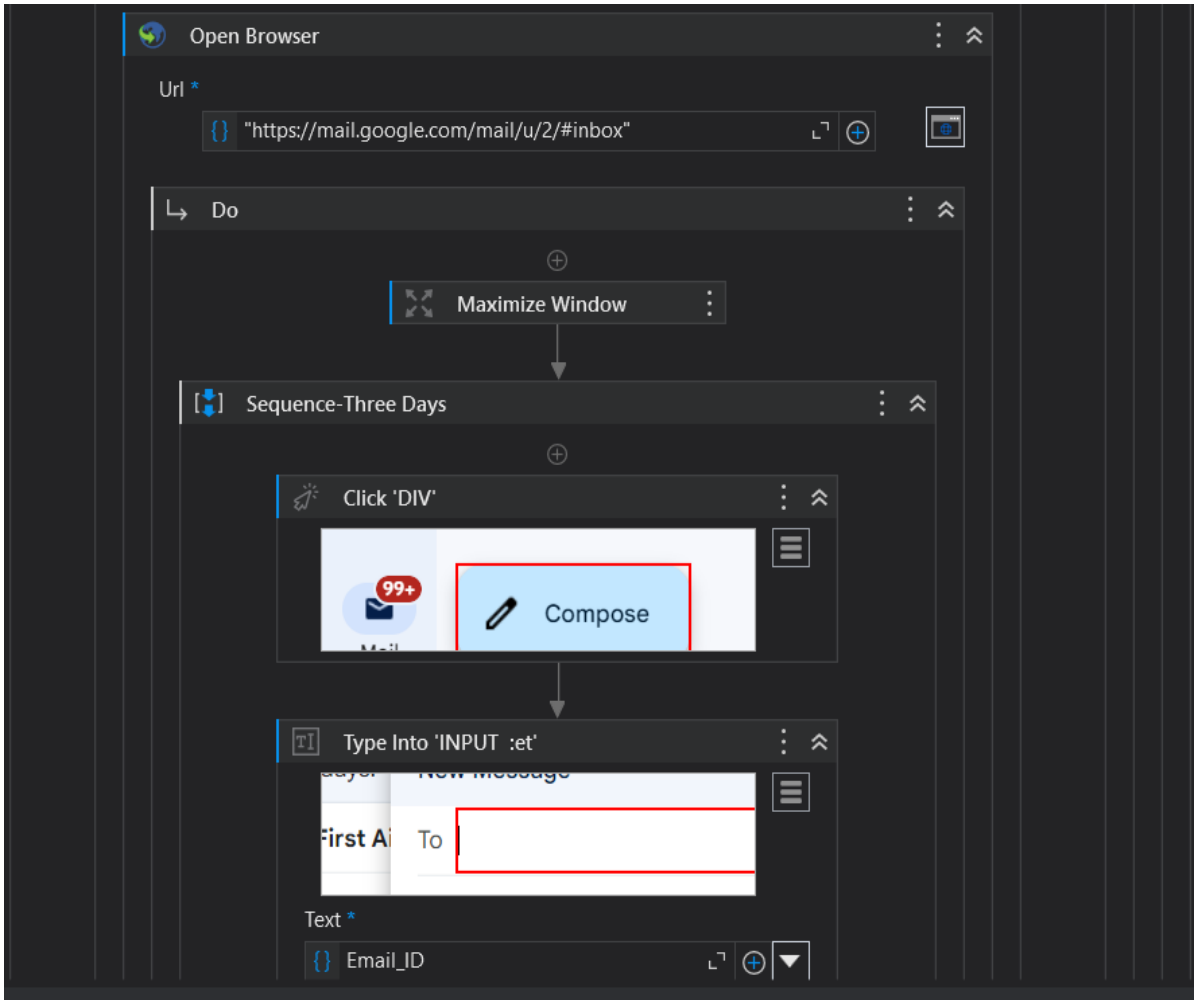
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Url *
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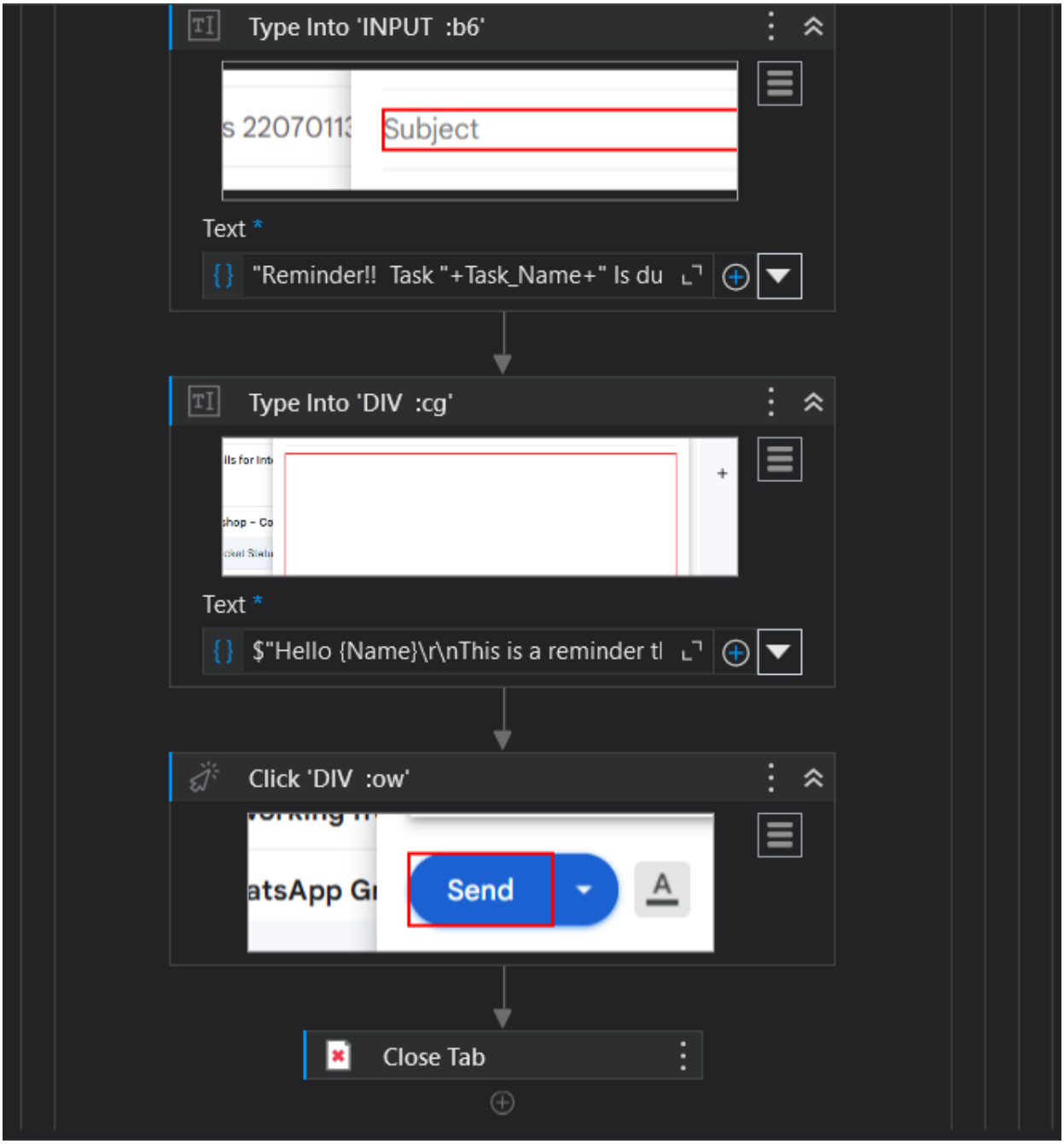
Compose
Type Into 'INPUT :et'
To
Text *
Email_ID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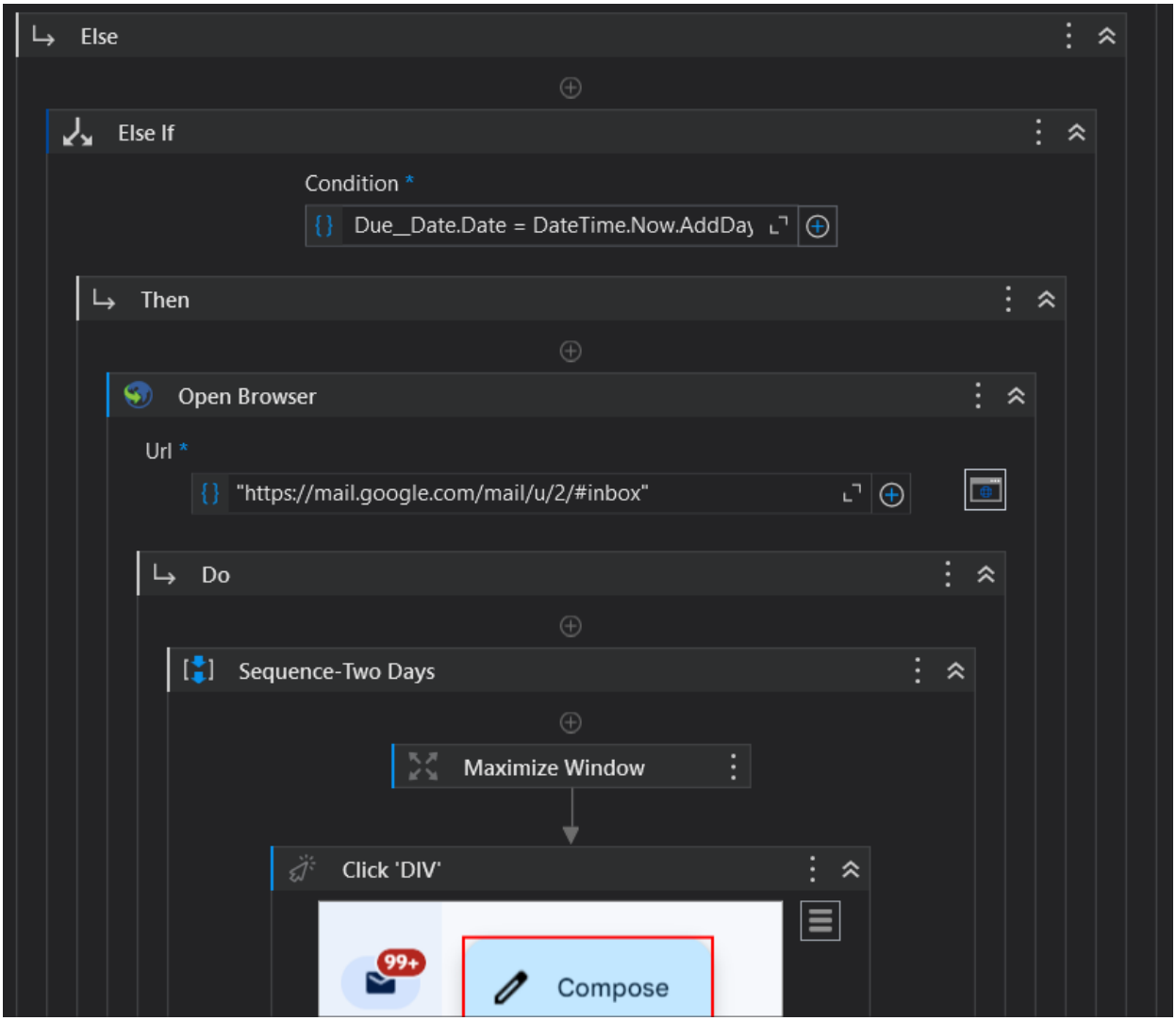
Type Into 'DIV :cg'
Text *
$"Hello {Name}\r\nThis is a reminder tl
Click 'DIV :ow'
Send
Close Tab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Click 'DIV'
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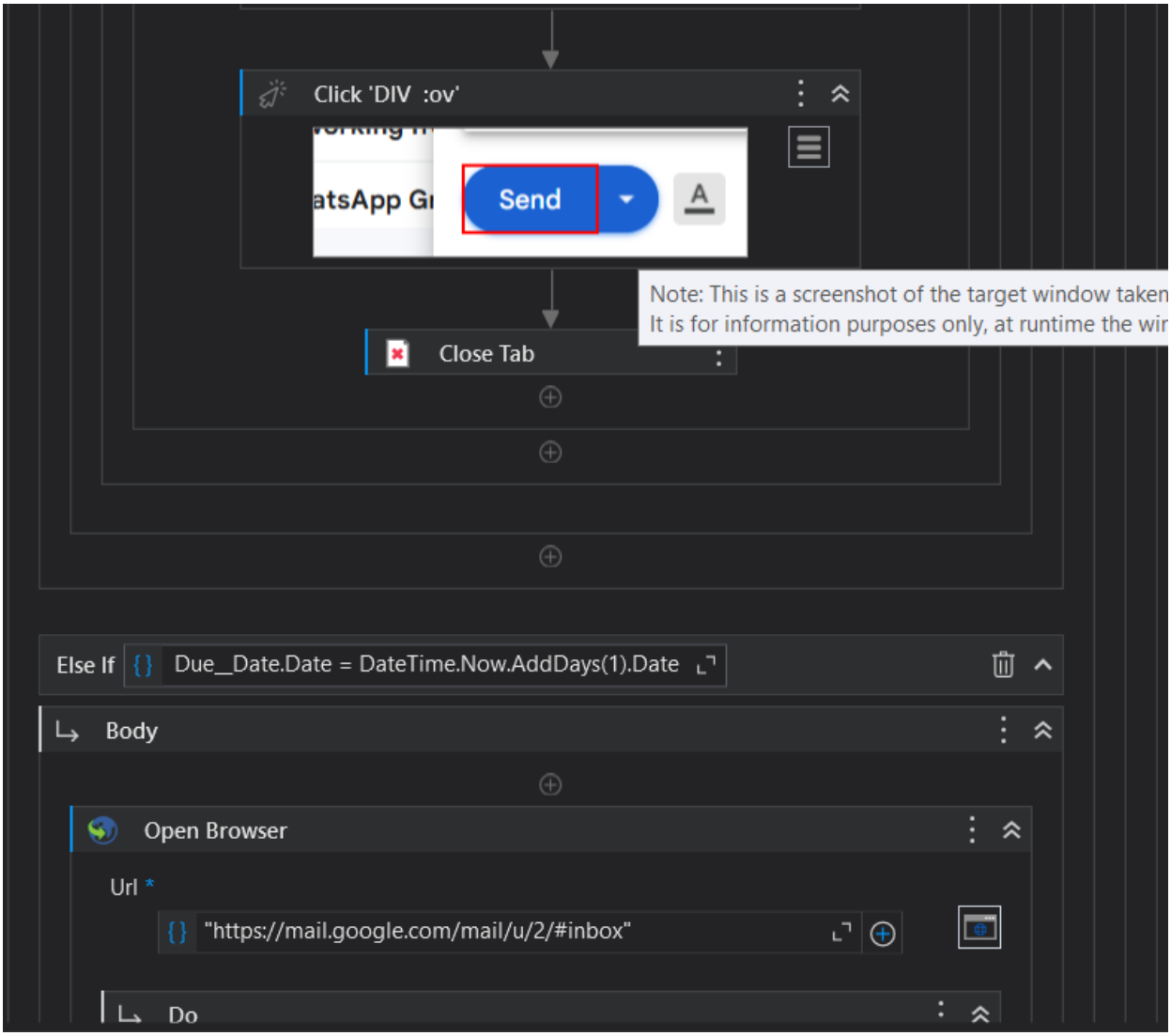
Compose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Send
Note: This is a screenshot of the target window taken
It is for information purposes only, at runtime the wir
Close Tab
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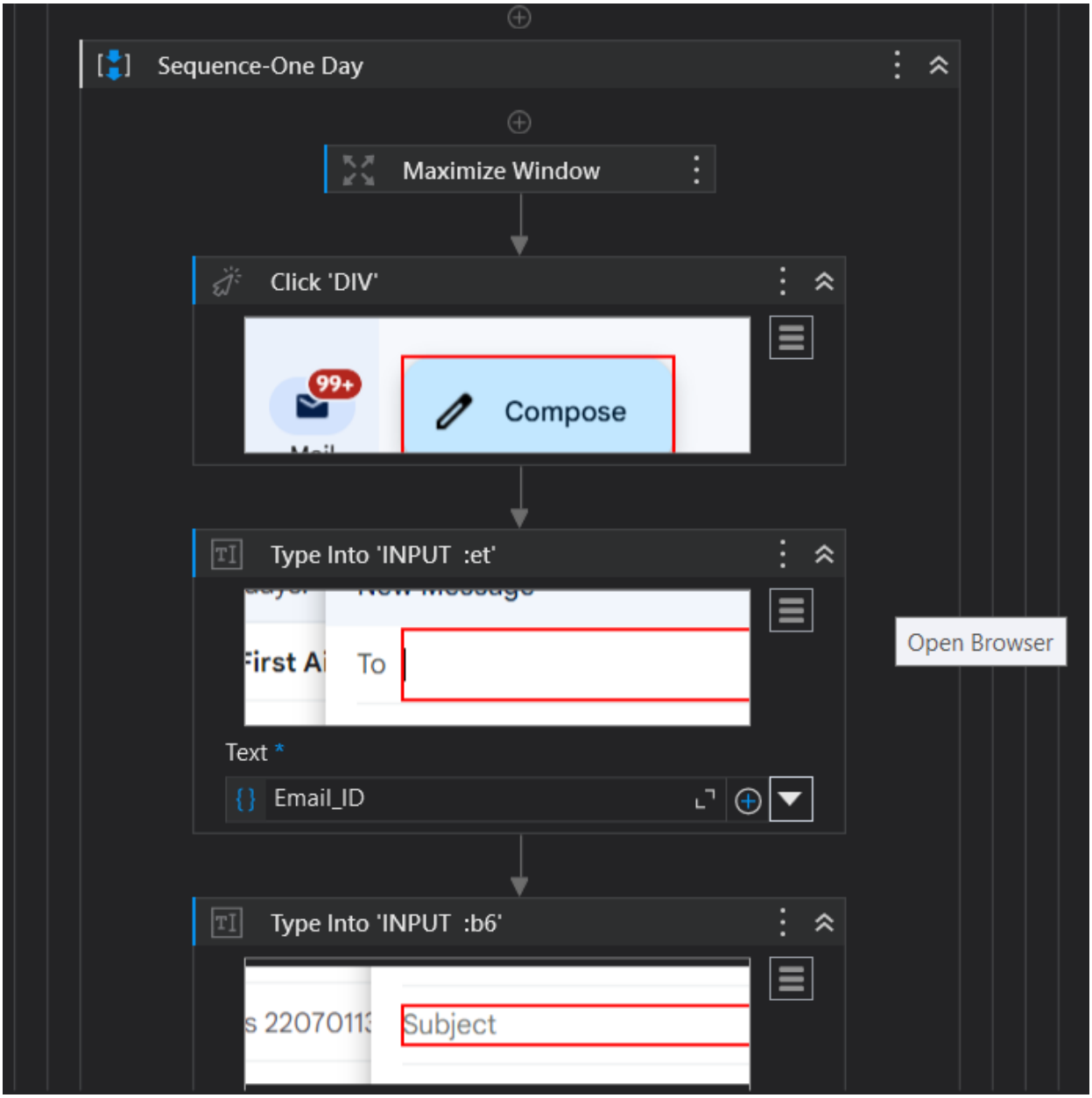
Do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99+
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To
Text *
Email_ID
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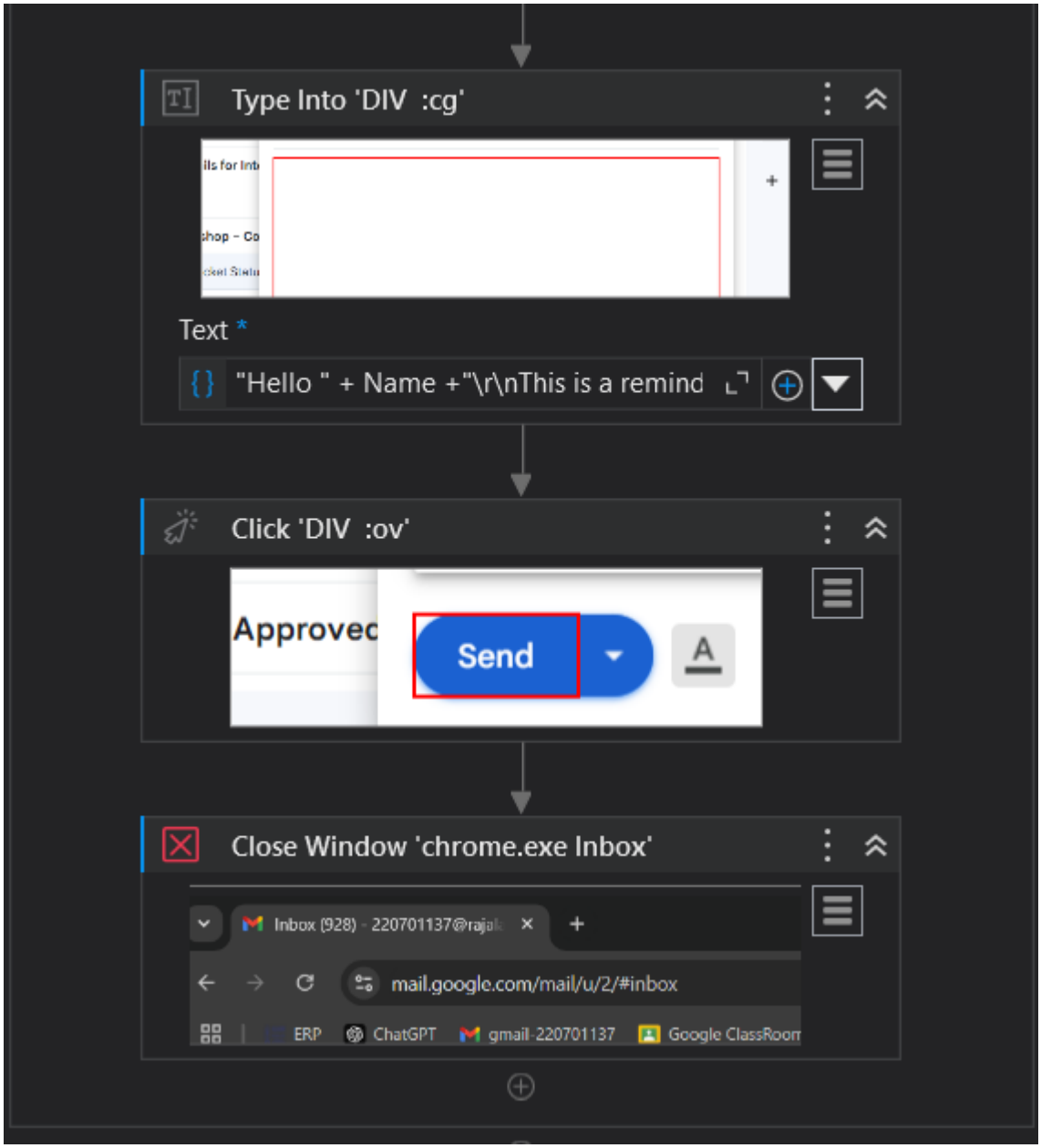
Open Browser


Type Into 'DIV :cg'
Text *
"Hello " + Name +"\r\nThis is a remind
Click 'DIV :ov'
Approvec
Send
Close Window 'chrome.exe Inbox'
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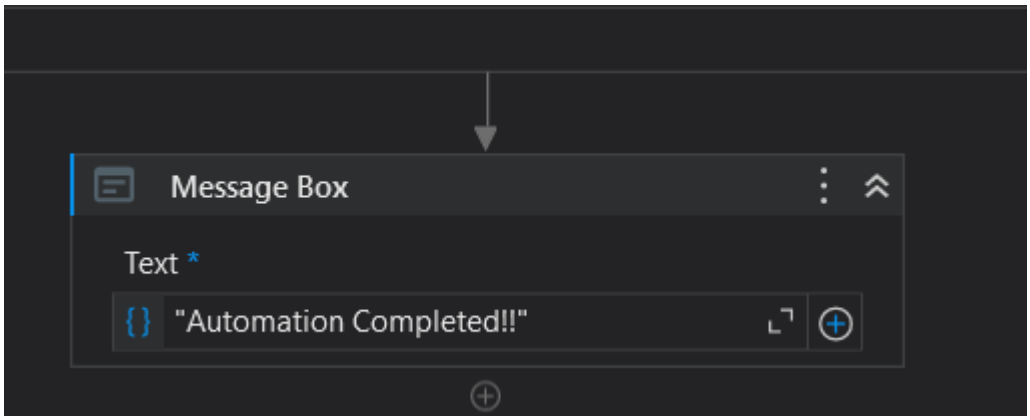
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