

# **ONLINE EXAM REGISTRATION REMINDER BOT**

## **A PROJECT REPORT**

*Submitted by*

**BALAMURUGAN M (220701516)**

*in partial fulfilment 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 – 602 105**

**NOVEMBER 2024**

# **RAJALAKSHMI ENGINEERING COLLEGE**

**CHENNAI - 602105**

## **BONAFIDE CERTIFICATE**

Certified that this project report **“ONLINE EXAM REGISTRATION REMINDER BOT”** is the bonafide work of **“BALAMURUGAN M (220701516)”** who carried out the project work for the subject OAI1903- Introduction to Robotic Process Automation under my supervision.

Mrs. J. Jinu Sophia

### **SUPERVISOR**

Assistant Professor (SG)

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**

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**Balamurugan M (220701516)**

## **ABSTRACT**

The Online Exam Registration Reminder Bot is an automation solution developed to streamline the process of notifying users about approaching exam registration deadlines. This bot reads exam schedules and deadlines from an Excel file, calculates the remaining days until each deadline, and sends personalized email reminders to students whose deadlines are within three days. By leveraging activities such as data extraction, conditional checks, and email automation, the bot ensures timely communication and reduces the risk of missed registrations. The project incorporates error handling, logging, and data updates, providing a robust and efficient workflow. Additionally, secure methods like credential storage and dynamic scheduling ensure data privacy and seamless daily execution. This bot is particularly useful for educational institutions and organizations, offering a scalable, reliable, and user-friendly way to manage registration notifications and enhance productivity.

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## **LIST OF ABBREVIATIONS**

### **ABBREVIATION**

### **ACRONYM**

RPA

Robotic Process Automation

AI

Artificial Intelligence

UI

User Interface

SMTP

Simple Mail Transfer Protocol

# **CHAPTER 1**

## **INTRODUCTION**

### **1.1 INTRODUCTION**

The rapid growth of online education and competitive exams has increased the need for streamlined processes to manage exam schedules and registrations. Missing an exam registration deadline can lead to unnecessary stress and missed opportunities for students. To address this issue, the Online Exam Registration Reminder Bot offers an automated solution. This bot integrates seamlessly with existing systems to manage and track exam registration deadlines. It reads schedules from an Excel file, calculates days remaining until deadlines, and sends timely email reminders to registered users. By automating the reminder process, the bot reduces manual errors, enhances communication efficiency, and ensures that no student misses an important deadline. With its secure handling of user credentials, dynamic scheduling capabilities, and error-handling mechanisms, the bot is a robust tool for educational institutions. This solution is especially valuable in scenarios with multiple exams and diverse student bases, providing scalability and reliability.

### **1.2 OBJECTIVE**

The primary objective of this project is to develop a bot that automates the process of sending reminders about exam registration deadlines. The bot ensures timely notifications, reduces dependency on manual follow-ups, and minimizes the risk of missed deadlines. Additionally, it aims to integrate seamlessly with existing exam management systems, offering a user-friendly and efficient approach to



communication. By automating this process, educational institutions can focus on other critical tasks, while students receive consistent and accurate updates.

### **1.3 EXISTING SYSTEM**

The existing system relies heavily on manual tracking and notifications, often using spreadsheets and emails managed by staff. This process is time-consuming, prone to errors, and lacks scalability. Delayed or missed notifications can result in student dissatisfaction and registration issues. Furthermore, maintaining consistency and accuracy across large datasets is a challenge.

### **1.4 PROPOSED SYSTEM**

The proposed system automates the reminder process using UiPath Studio. The bot reads data from Excel files, calculates deadlines, and sends personalized email reminders securely and efficiently. It eliminates manual errors, ensures timely notifications, and offers scalability for handling large datasets. With dynamic scheduling and error-handling mechanisms, this system enhances productivity and communication reliability.

## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **2.1 Survey on Robotic Process Automation (RPA) in Education:**

Robotic Process Automation (RPA) is increasingly recognized as a valuable resource in education, streamlining teaching processes. For instance, RPA has been successfully implemented in grading assignments and managing student records, significantly reducing the workload of educators. However, challenges remain, particularly in automating tasks that require social interaction and adaptation to individual learning needs. The literature review of research papers related to RPA in Education is listed below:

[1] The research discusses the rise of Artificial Intelligence (AI), robotics, and other digital technologies are creating a demand for new professions with evolved digital skills. Educational institutions must adopt these technologies to promote digital skills development and empower students to lead active and creative digital lives. The education sector is ready to witness a revolution with robotics process automation (RPA) technology. RPA focuses on the elimination of inefficiencies and the effort of human resources that is wasted while executing mundane tasks. RPA helps teachers, educators, students as well as parents directly or indirectly.

[2] A research paper from IJITEE proposes a Robotic Process Automation (RPA) solution for the education domain. It shows the automation process for result analysis of student's examination results. The automation process takes input as the university result in pdf form. The research concludes that RPA can help out here by saving time and under a budget which is a limited & crucial resource for educational institutes.

## **2.2 Survey on Online Exam Registration Reminder Systems:**

Automated systems for managing exam registration reminders have gained significant attention in recent years. Existing tools and platforms provide functionalities such as email notifications and deadline tracking, but challenges like scalability, personalization, and error handling remain. Robotic Process Automation (RPA) platforms, including UiPath, have proven effective in addressing these limitations by automating repetitive processes with high accuracy and efficiency. Below is a review of relevant studies:

[3] A research study by Sharma et al. (2021) explored the use of RPA in automating administrative tasks in educational institutions. The study demonstrated the efficiency of UiPath in handling large datasets and automating email reminders for academic deadlines. However, the authors noted challenges in ensuring secure credential management and scalability for larger institutions.

[4] A study by the Department of Computer Science at the University of Cambridge investigated the integration of automated reminder systems in university settings. Data from over 500 students were used to evaluate the system's effectiveness. The research revealed that automated reminders reduced missed deadlines by 30% compared to manual methods but emphasized the importance of user-friendly interfaces for broader adoption.

[5] Researchers at Stanford University examined the role of email automation in improving student engagement. The study compared traditional email tools with RPA-based systems and concluded that bots like UiPath reduced human errors and improved message delivery rates by 40%. However, it highlighted the need for robust error-handling mechanisms to manage issues like invalid email addresses.

## **2.3 Summary of the intersection of RPA and Online Exam Registration Reminder Systems**

The Online Exam Registration Reminder Bot is an innovative automation solution leveraging Robotic Process Automation (RPA) to streamline the notification process for exam registration deadlines. The bot automates key tasks such as reading student data from Excel, calculating registration deadlines, and sending personalized email reminders. By integrating dynamic scheduling and secure credential management, the bot ensures timely notifications while addressing privacy concerns.

This project addresses the challenges faced by educational institutions in managing large volumes of registration data, minimizing manual errors, and ensuring consistent communication with students. The bot's ability to handle diverse datasets and send real-time notifications positions it as a reliable and scalable tool in academic settings.

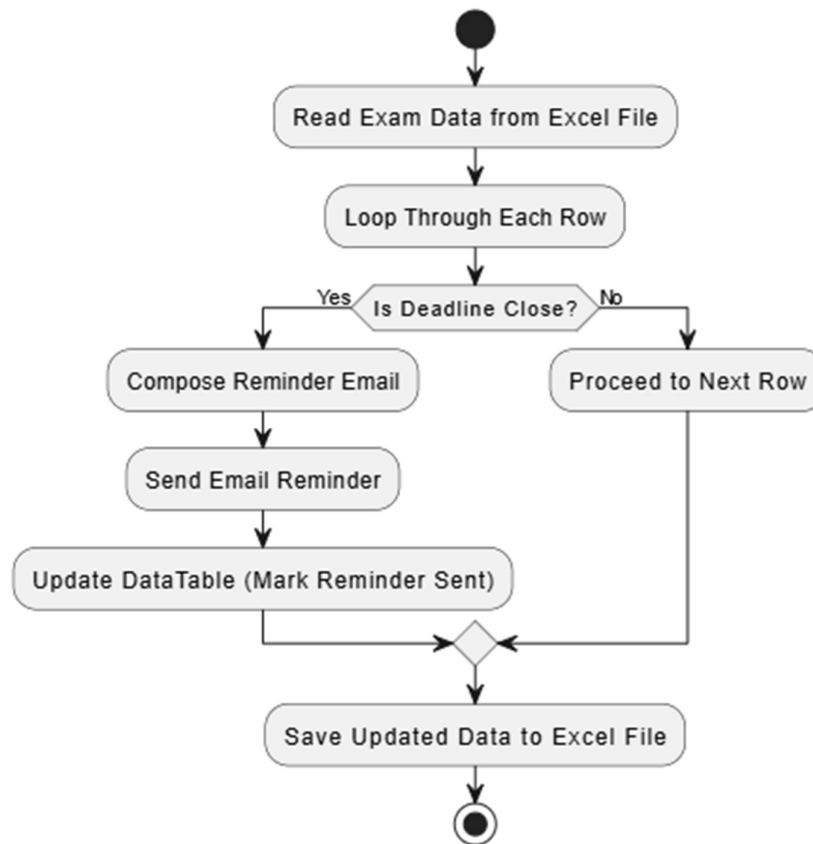
The Online Exam Registration Reminder Bot aligns with the broader goals of automating administrative processes in education, enhancing productivity, and reducing the risk of missed deadlines. Its innovative approach contributes to the evolving discourse on leveraging RPA for improving efficiency and student engagement, highlighting its relevance in modern educational environments.

## CHAPTER 3

### SYSTEM DESIGN

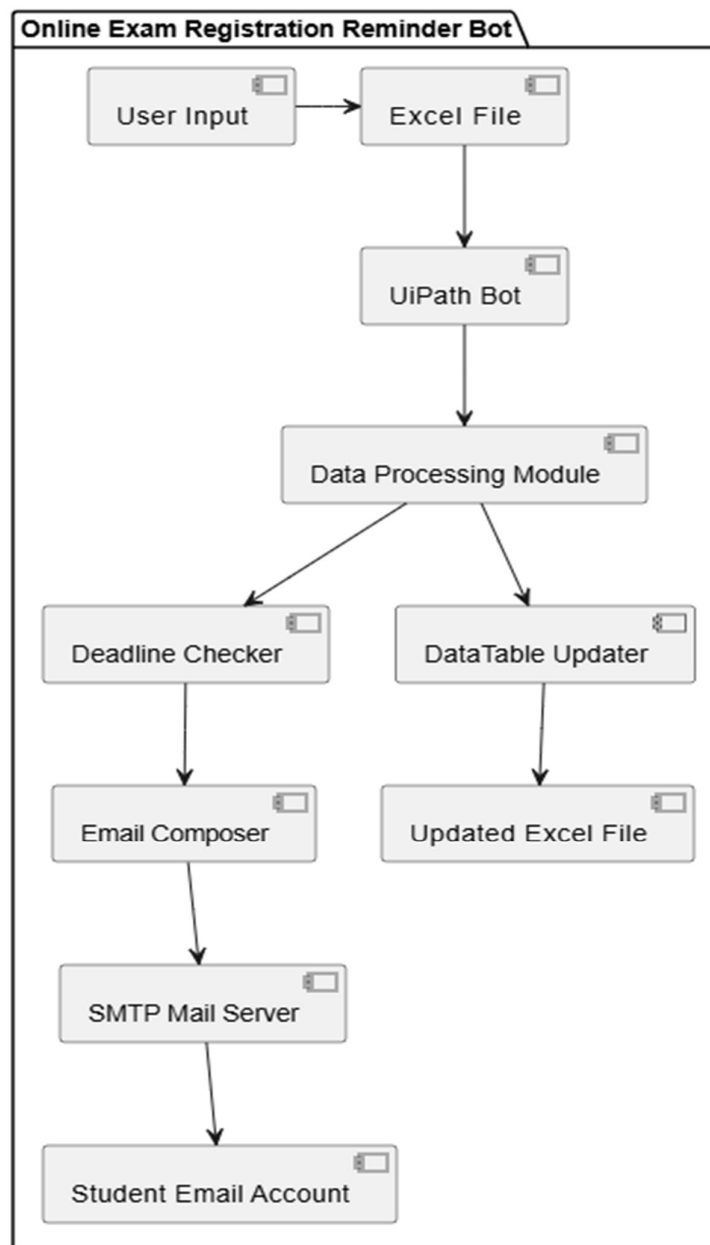
#### 3.1 SYSTEM FLOW DIAGRAM

The System Flow Diagram outlines the interactions and data flow between various system components in the Online Exam Registration Reminder Bot. The diagram provides a clear visual representation of how the system processes exam registration data, calculates deadlines, sends reminders, and updates the tracking information in the Excel file.



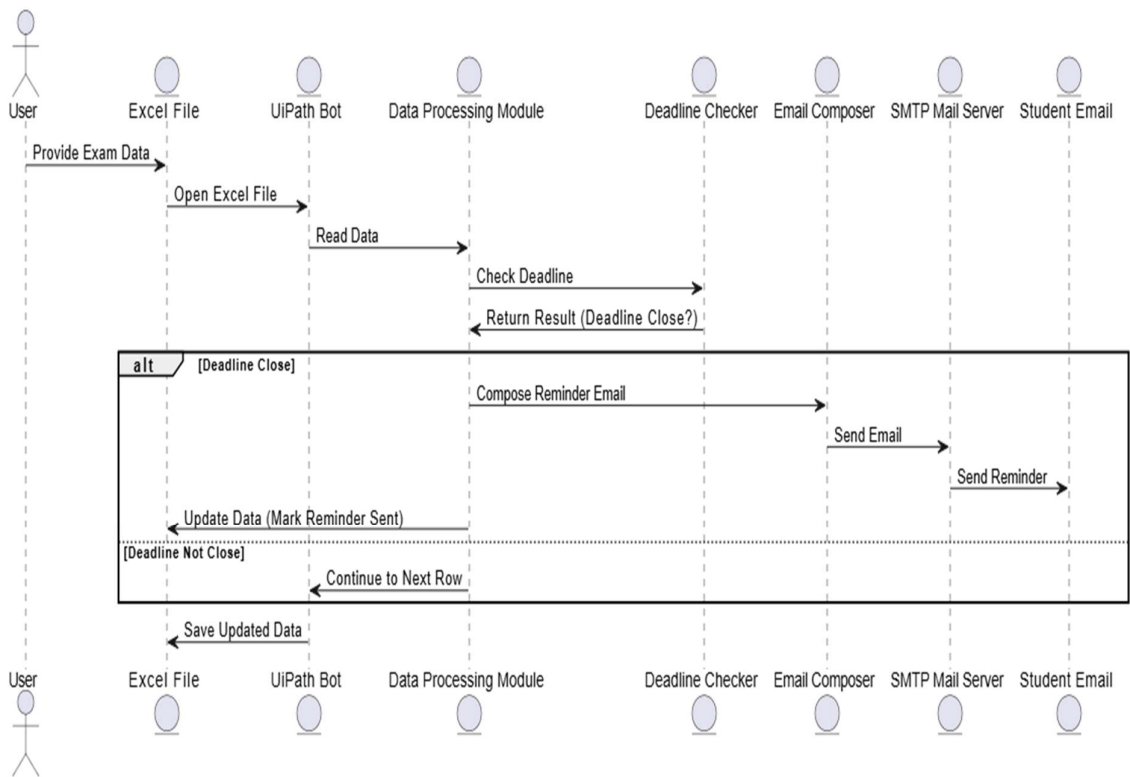
### 3.2 ARCHITECTURE DIAGRAM

The Architecture Diagram provides an overview of the system's components, their interactions, and how they work together to automate the exam registration reminder process. It highlights the integration of various tools and services that the Online Exam Registration Reminder Bot relies on to ensure the efficient and accurate sending of reminders to students.



### 3.3 SEQUENCE DIAGRAM

The Sequence Diagram illustrates the dynamic flow of interactions between the system components involved in the Online Exam Registration Reminder Bot process. It provides a step-by-step breakdown of how the bot retrieves, processes, and sends reminders to students based on their registration deadlines.



## **CHAPTER 4**

### **PROJECT DESCRIPTION**

The Online Exam Registration Reminder Bot is an automated solution designed to assist educational institutions in managing exam registration processes efficiently. Leveraging Robotic Process Automation (RPA), this bot streamlines the entire workflow, ensuring that students receive timely reminders about upcoming exam registration deadlines.

The bot reads student data and exam registration details from an Excel file, calculates the remaining days before the registration deadline, and sends personalized email reminders to students who are nearing the deadline. It ensures that no student misses an important deadline by automating the process of sending reminders, eliminating manual efforts, and minimizing the chances of human error.

#### **4.1 MODULES**

##### **4.1.1 DATA RETRIEVAL AND INITIALIZATION**

###### **4.1.1.1 Excel File Input**

- The user provides an Excel file containing student exam details (e.g., name, email, exam date, registration deadline).

###### **4.1.1.2 Data Validation**

- Ensure that the necessary columns (Name, Email, Registration Deadline) exist and are populated.
- If any required data is missing, prompt the user or log an error for further review.



## **4.1.2 DATA PROCESSING**

### **4.1.2.1 Loop Through Students**

- For each student, retrieve their name, email, and registration deadline from the corresponding columns.

### **4.1.2.2 Date Calculation**

- For each student, calculate the number of days remaining before the registration deadline using the current date.
- Check if the remaining days are within the reminder threshold (3 days or less).

## **4.1.3 EMAIL REMINDER PROCESSING**

### **4.1.3.1 Email Composition**

- If the registration deadline is near, compose an email message.
- The message body includes the student's name and the registration deadline.

### **4.1.3.2 Sending Email**

- Configure the SMTP properties such as recipient email, subject ("Exam Registration Reminder"), and email body.

## **4.1.4 DATA STORAGE AND UPDATE**

### **4.1.4.1 Update Excel File**

- After the email is sent, update the Excel sheet to mark the reminder as sent.

### **4.1.4.2 Real-time Status Update**

- Provide real-time status of the reminder sending process via logging or output messages.

## **4.1.5 COMPLETION AND LOGGING**

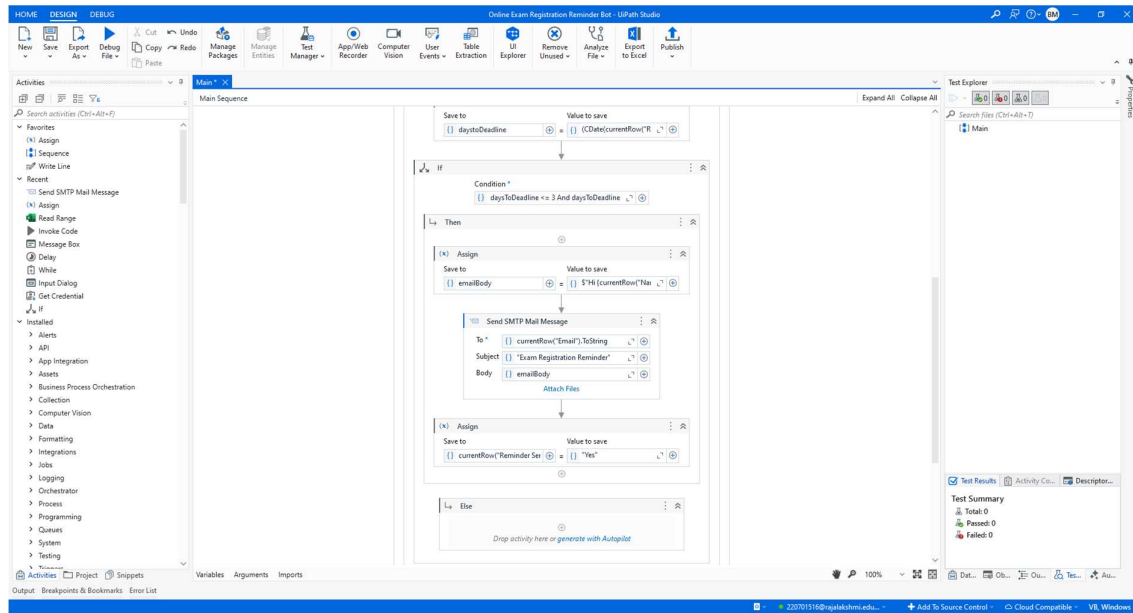
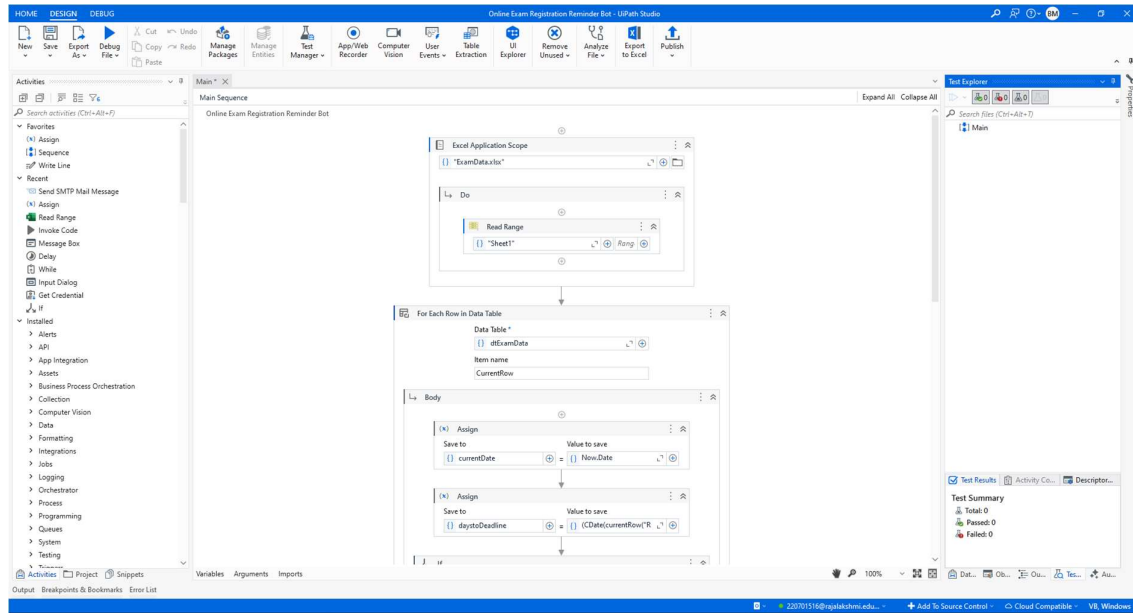
### **4.1.5.1 Completion Confirmation**

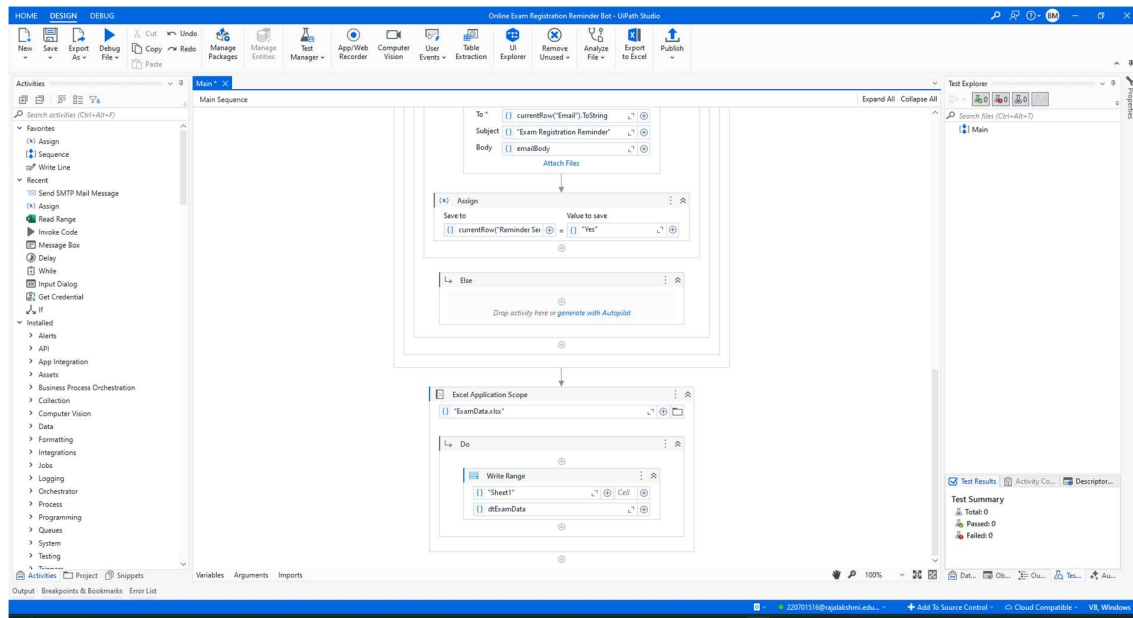
- After processing all records, display a message confirming the completion of the reminder task.

# CHAPTER 5

## OUTPUT SCREENSHOTS

### 5.1 WORK FLOW

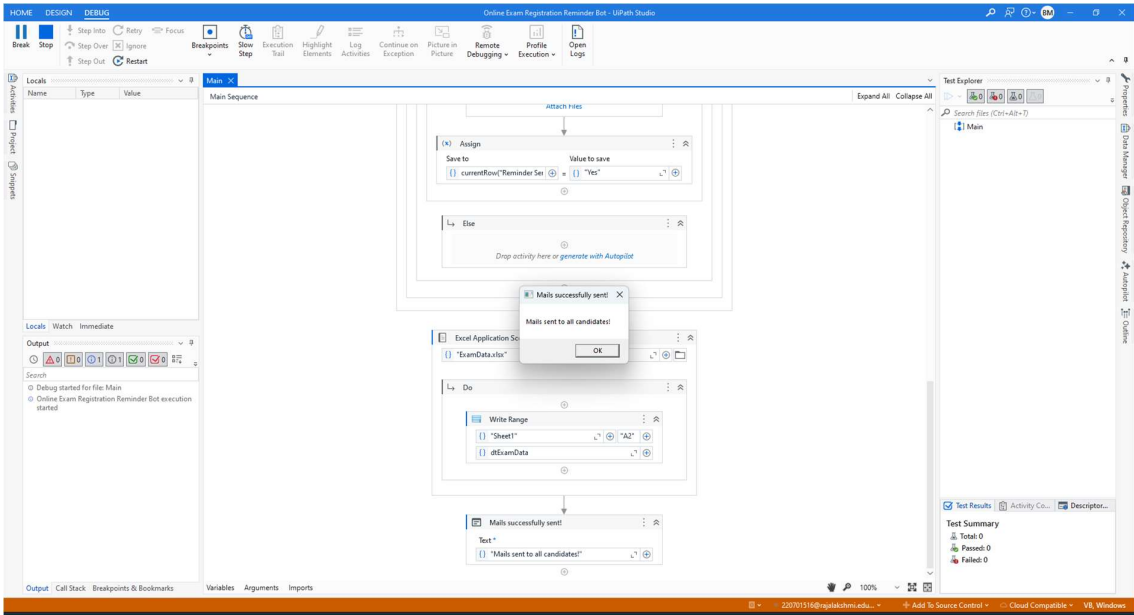




## 5.2 SAMPLE EXCEL SHEET

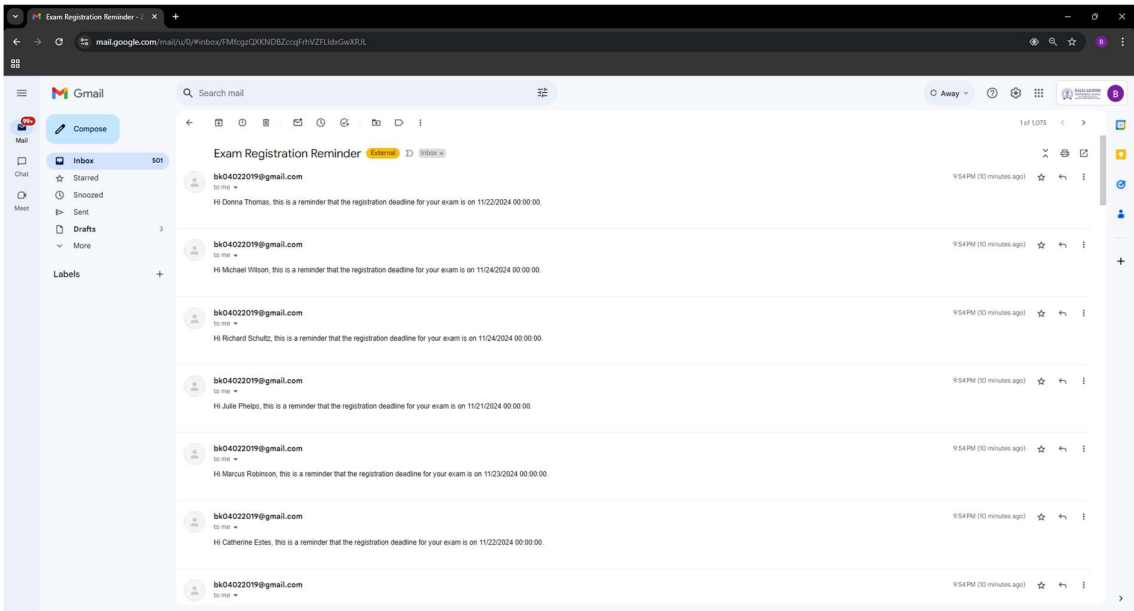
Name	Email	Exam Date	Registration Deadline	Reminder Sent
Matthew Hernandez	220701516@rajalakshmi.edu.in	2024-12-21	2024-11-29	No
Glenda Gray	220701516@rajalakshmi.edu.in	2024-12-26	2024-12-15	No
Joshua Bowen	220701516@rajalakshmi.edu.in	2024-12-26	2024-12-10	No
Donna Thomas	220701516@rajalakshmi.edu.in	2024-12-10	2024-11-22	No
Michael Wilton	220701516@rajalakshmi.edu.in	2024-12-11	2024-11-24	No
Paula Gardner	220701516@rajalakshmi.edu.in	2024-12-06	2024-12-11	No
Eric Maldonado	220701516@rajalakshmi.edu.in	2024-12-29	2024-11-20	No
Richard Schultz	220701516@rajalakshmi.edu.in	2024-12-11	2024-11-14	No
Richard Anderson	220701516@rajalakshmi.edu.in	2024-12-16	2024-12-14	No
Julie Phelps	220701516@rajalakshmi.edu.in	2024-12-11	2024-11-21	No
Arthur Hampton	220701516@rajalakshmi.edu.in	2024-12-16	2024-12-01	No
Donald Crosby	220701516@rajalakshmi.edu.in	2024-12-21	2024-11-20	No
Linda Myers	220701516@rajalakshmi.edu.in	2024-12-11	2024-12-07	No
Monica Smith	220701516@rajalakshmi.edu.in	2024-12-30	2024-12-09	No
Hailey Morrow	220701516@rajalakshmi.edu.in	2024-12-21	2024-12-02	No
Lindsey Curtis	220701516@rajalakshmi.edu.in	2024-12-20	2024-12-12	No
Angela Nelson	220701516@rajalakshmi.edu.in	2024-12-29	2024-12-08	No
Michael Thompson	220701516@rajalakshmi.edu.in	2024-12-01	2024-12-07	No
Marcus Robinson	220701516@rajalakshmi.edu.in	2024-12-06	2024-11-23	No
Jesse Taylor	220701516@rajalakshmi.edu.in	2024-12-22	2024-12-06	No
Catherine Estes	220701516@rajalakshmi.edu.in	2024-12-22	2024-11-22	No
Ashley Nash	220701516@rajalakshmi.edu.in	2024-12-26	2024-12-12	No
Emma Foster	220701516@rajalakshmi.edu.in	2024-12-01	2024-12-04	No
Justin Wright	220701516@rajalakshmi.edu.in	2024-12-08	2024-12-08	No
Jennifer Chavez	220701516@rajalakshmi.edu.in	2024-12-03	2024-12-04	No
Wendy Lewis	220701516@rajalakshmi.edu.in	2024-12-04	2024-11-28	No
Jeffery Stephens	220701516@rajalakshmi.edu.in	2024-12-23	2024-11-24	No
Linda Bailey	220701516@rajalakshmi.edu.in	2024-12-26	2024-12-13	No
Emily Johnson	220701516@rajalakshmi.edu.in	2024-12-10	2024-12-05	No
Paul Chapman	220701516@rajalakshmi.edu.in	2024-12-05	2024-12-09	No
Jesse Hernandez	220701516@rajalakshmi.edu.in	2024-12-19	2024-11-29	No
Dwaine Brock	220701516@rajalakshmi.edu.in	2024-12-19	2024-12-10	No
Terri Diaz	220701516@rajalakshmi.edu.in	2024-12-09	2024-12-11	No
Kenneth Walton	220701516@rajalakshmi.edu.in	2024-12-26	2024-12-06	No
John Romero	220701516@rajalakshmi.edu.in	2024-12-05	2024-11-27	No
Danielle Smith	220701516@rajalakshmi.edu.in	2024-12-17	2024-11-21	No

## 5.3 OUTPUT MESSAGE



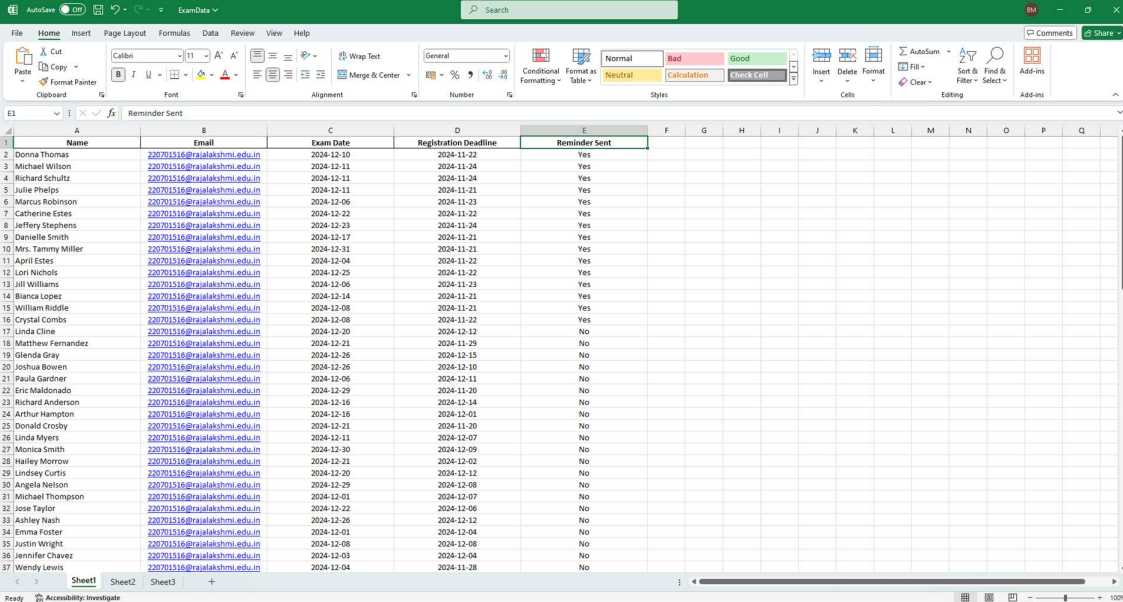
## 5.4 REMINDER MAILS BEING RECEIVED BY THE RECIPIENT

I've used my own email address in sender and recipient email address for testing



## 5.5 UPDATES IN THE SAMPLE EXCEL SHEET

Candidates' exams having their deadlines less than 3 days were sent reminder mails and the same is updated in the excel sheet (the reminder sent column is updated from “No” to “Yes”)



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
	Name	Email	Exam Date	Registration Deadline	Reminder Sent												
1	Donna Thomas	220701516@rajalakshmi.edu.in	2024-12-10	2024-11-22	Yes												
2	Michael Willson	220701516@rajalakshmi.edu.in	2024-12-11	2024-11-24	Yes												
3	Richard Schultz	220701516@rajalakshmi.edu.in	2024-12-11	2024-11-24	Yes												
4	Julie Phelps	220701516@rajalakshmi.edu.in	2024-12-11	2024-11-21	Yes												
5	Marcus Robinson	220701516@rajalakshmi.edu.in	2024-12-06	2024-11-23	Yes												
6	Catherine Estes	220701516@rajalakshmi.edu.in	2024-12-22	2024-11-22	Yes												
7	Jeffery Stephens	220701516@rajalakshmi.edu.in	2024-12-23	2024-11-24	Yes												
8	Danielle Smith	220701516@rajalakshmi.edu.in	2024-12-17	2024-11-21	Yes												
9	Mrs. Tammy Miller	220701516@rajalakshmi.edu.in	2024-12-31	2024-11-21	Yes												
10	April Estes	220701516@rajalakshmi.edu.in	2024-12-04	2024-11-22	Yes												
11	Lori Nicholls	220701516@rajalakshmi.edu.in	2024-12-25	2024-11-22	Yes												
12	Jill Williams	220701516@rajalakshmi.edu.in	2024-12-06	2024-11-23	Yes												
13	Bianca Lopez	220701516@rajalakshmi.edu.in	2024-12-14	2024-11-21	Yes												
14	William Riddle	220701516@rajalakshmi.edu.in	2024-12-08	2024-11-21	Yes												
15	Crystal Combs	220701516@rajalakshmi.edu.in	2024-12-08	2024-11-22	Yes												
16	Linda Cline	220701516@rajalakshmi.edu.in	2024-12-20	2024-12-12	No												
17	Matthew Fernandez	220701516@rajalakshmi.edu.in	2024-12-21	2024-11-29	No												
18	Glenda Gray	220701516@rajalakshmi.edu.in	2024-12-26	2024-12-15	No												
19	Joshua Bowen	220701516@rajalakshmi.edu.in	2024-12-26	2024-12-18	No												
20	Paula Gardner	220701516@rajalakshmi.edu.in	2024-12-06	2024-12-11	No												
21	Eric Maldonado	220701516@rajalakshmi.edu.in	2024-12-29	2024-11-20	No												
22	Richard Anderson	220701516@rajalakshmi.edu.in	2024-12-16	2024-12-14	No												
23	Arthur Hampton	220701516@rajalakshmi.edu.in	2024-12-16	2024-12-01	No												
24	Donald Crosby	220701516@rajalakshmi.edu.in	2024-12-21	2024-11-20	No												
25	Linda Myers	220701516@rajalakshmi.edu.in	2024-12-11	2024-12-07	No												
26	Monica Smith	220701516@rajalakshmi.edu.in	2024-12-30	2024-12-09	No												
27	Wiley Morrow	220701516@rajalakshmi.edu.in	2024-12-21	2024-12-02	No												
28	Lindsey Curtis	220701516@rajalakshmi.edu.in	2024-12-20	2024-12-12	No												
29	Angela Neilson	220701516@rajalakshmi.edu.in	2024-12-29	2024-12-08	No												
30	Michael Thompson	220701516@rajalakshmi.edu.in	2024-12-01	2024-12-07	No												
31	Jesse Taylor	220701516@rajalakshmi.edu.in	2024-12-12	2024-12-06	No												
32	Ashley Nash	220701516@rajalakshmi.edu.in	2024-12-26	2024-12-12	No												
33	Emma Foster	220701516@rajalakshmi.edu.in	2024-12-01	2024-12-04	No												
34	Justin Wright	220701516@rajalakshmi.edu.in	2024-12-08	2024-12-08	No												
35	Jennifer Chavez	220701516@rajalakshmi.edu.in	2024-12-03	2024-12-04	No												
36	Wendy Lewis	220701516@rajalakshmi.edu.in	2024-12-04	2024-11-28	No												

## **CHAPTER 6**

### **CONCLUSION**

The Online Exam Registration Reminder Bot provides an efficient and automated solution to ensure that students receive timely reminders about their exam registration deadlines. By leveraging UiPath Studio, this bot uses a combination of Excel data manipulation, email automation, and date-based logic to track and notify students of upcoming registration deadlines. The bot seamlessly integrates with Excel to read student data, check for approaching deadlines, and send personalized email reminders.

The project enhances the exam registration process by eliminating manual tracking and reducing the chances of missing registration deadlines. It ensures that students are promptly reminded, allowing them to take necessary actions on time. Furthermore, it saves administrative effort and enhances communication within educational institutions.

In conclusion, the Online Exam Registration Reminder Bot not only demonstrates the practical use of Robotic Process Automation (RPA) in managing critical workflows but also contributes to the overall efficiency and effectiveness of exam registration management systems. Through continuous enhancements and adaptations, such a bot could be further expanded to handle additional functionalities, ensuring a smooth and streamlined experience for both students and administrators.

## **APPENDICES**

### **Appendix 1: Tools and Technologies Used**

- UiPath Studio: Used for designing, developing, and deploying the automation workflow for exam registration reminders.
- Microsoft Excel: Serves as the data repository, storing student details, exam dates, and registration deadlines.
- SMTP Server: Utilized for sending email reminders to students about their registration deadlines.
- UiPath Orchestrator (Optional): Used for scheduling, monitoring, and managing the execution of the bot at predefined intervals (e.g., daily).

### **Appendix 2: Process Overview**

This appendix provides a detailed flow of the process followed by the Online Exam Registration Reminder Bot, from data extraction from Excel to the sending of reminder emails. The bot reads the Excel file, evaluates the exam registration deadlines, and sends emails based on conditions. It also updates the Excel sheet to reflect which students have received their reminders.

### **Appendix 3: Testing Logs**

This section includes the detailed testing logs, documenting:

1. Test Case IDs: A unique identifier for each test case conducted.
2. Test Steps: The sequence of actions carried out during each test scenario.
3. Expected vs. Actual Results: A comparison between the anticipated results and the actual behaviour of the bot during testing.



4. Notes on Identified Issues and Resolutions: Any issues encountered during testing, along with their respective solutions or workarounds.

## REFERENCES

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