EMAIL AUTOMATION SYSTEM

A PROJECT REPORT

Submitted by

LALIT PRASANNA G (220701142)

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RAJALAKSHMI NAGAR
THANDALAM
CHENNAI – 602 105

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RAJALAKSHMI ENGINEERING COLLEGE

CHENNAI - 602105

BONAFIDE CERTIFICATE

Certified that this project report **"EMAIL AUTOMATION SYSTEM"** is the bonafide work of **"LALIT PRASANNA G (220701142)"** who carried out the project work for the subject OAI1903 - Introduction to Robotic Process Automation under my supervision.

SIGNATURE

MRS.G.M.SASIKALA , M.E ,
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**

ABSTRACT

The **Email Automation System** is an advanced RPA solution developed using UiPath Studio to streamline email communication by extracting data from an Excel file and sending personalized emails automatically via SMTP. This system is designed to minimize manual effort, ensure timely communication, and improve operational efficiency in scenarios like student notifications, corporate updates, or customer outreach.

The automation begins by extracting recipient details, such as names, email addresses, and custom messages, from an Excel sheet. Using UiPath's capabilities, the bot iterates through each record, dynamically composing personalized email content. The email body is customized with relevant information, ensuring a tailored experience for each recipient.

The system leverages the **SMTP email protocol** for reliable and secure email delivery. Each recipient receives a unique message generated from the Excel data, eliminating the need for manual intervention. Additionally, robust error handling mechanisms are implemented to manage exceptions like invalid email addresses or missing data.

This system showcases the seamless integration of Excel for data handling and SMTP for communication within UiPath Studio. It provides a scalable, efficient, and user-friendly approach to automating repetitive email tasks, enhancing productivity and ensuring consistent and accurate information dissemination.

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LALIT PRASANNA G (220701142)

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LIST OF ABBREVIATIONS

ABBREVIATION	ACCRONYM
RPA	Robotic Process Automation
SMTP	Simple Mail Transfer Protocol

CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

In today's fast-paced environment, effective communication is essential for maintaining operational efficiency and delivering timely updates. The **Email Automation System** is a cutting-edge solution built with UiPath Studio, designed to automate the process of extracting data from Excel files and sending personalized emails via SMTP. This system eliminates the need for manual email composition, ensuring accuracy, consistency, and faster communication.

At its core, this system integrates two powerful tools:

1. **Excel**: For handling structured data, such as recipient names, email addresses, and customized messages.
2. **SMTP (Simple Mail Transfer Protocol)**: For transmitting emails securely and reliably across diverse platforms.

The automation workflow begins by reading data from an Excel sheet, where each row corresponds to a recipient and their specific message. Using UiPath, the bot processes the data and dynamically generates email content tailored to each recipient. The system then utilizes the SMTP protocol to send these emails, ensuring secure delivery.

Designed with flexibility and scalability in mind, this solution can cater to various use cases, including academic notifications, corporate updates, marketing campaigns, and more. Additionally, error-handling mechanisms ensure smooth operation, even when faced with invalid data or delivery failures.

This introduction highlights the Email Automation System as a transformative tool for organizations and individuals looking to streamline email workflows, reduce manual effort, and improve communication effectiveness.

In an increasingly digital world, automation plays a vital role in simplifying repetitive tasks, enhancing productivity, and minimizing errors. The **Email Automation System Using SMTP and Excel**, developed in UiPath Studio, represents an efficient and scalable solution tailored to modern communication needs. This system is especially valuable for organizations that require frequent, personalized, and reliable email correspondence, such as educational institutions, businesses, or customer service departments.

1.2 OBJECTIVE

The objective of the **Email Automation System Using SMTP and Excel in UiPath Studio** is to streamline the process of extracting recipient details and personalized messages from an Excel sheet and sending emails automatically using SMTP. This system aims to simplify communication workflows, reduce manual intervention, and ensure the accurate and timely delivery of messages. By dynamically composing tailored email content based on data extracted from Excel, it provides a scalable and efficient solution for organizations and institutions. Additionally, robust error-handling mechanisms are implemented to address invalid email addresses, missing data, or connection issues, ensuring smooth operation

1.3 EXISTING SYSTEM

automatically sends emails to the recipients listed in the sheet using the **Send SMTP Mail Message** activity. The Excel file contains details like Name, Email, Subject, and Message. The automation starts by opening the Excel file using the **Excel Application Scope** and reading the data into a **DataTable** with the **Read Range** activity. It then loops through each row of the DataTable using the **For Each Row** activity. For each row, it maps the recipient's email, subject, and message from the respective columns in Excel to the email fields in the **Send SMTP Mail Message** activity. The email is sent via SMTP using Gmail or another configured SMTP server. The process ensures that emails are sent automatically based on the data in the Excel sheet without manual intervention.

1.4 PROPOSED SYSTEM

The proposed system enhances the existing email automation by introducing modular components for better scalability and reliability. It supports multiple Excel files as data sources, enabling complex workflows, and incorporates dynamic data validation to ensure accuracy before sending emails. Email

configuration details, such as SMTP settings, are stored in a configuration file, making them easy to update without modifying the workflow. Error handling is improved with a retry mechanism for failed emails, along with detailed logging and real-time alerts for failures. Additionally, the system allows for personalized email content and dynamic attachments. For large-scale operations, it includes batch processing to avoid throttling and integrates with cloud platforms for better performance.

CHAPTER 2

LITERATURE REVIEW

2.1 Survey on Robotic Process Automation (RPA) in email automation system:

Robotic Process Automation (RPA) is increasingly being utilized to automate repetitive and time-consuming tasks across various industries, and email automation is one of the key areas where RPA has shown significant benefits. In email automation systems, RPA helps streamline processes such as sending personalized emails, managing incoming messages, sorting emails, handling attachments, and ensuring that communication follows predetermined rules. The integration of RPA in email workflows provides several advantages, including improved efficiency, reduced human error, cost savings, and faster response times.

A survey of RPA applications in email automation reveals that the technology is commonly used to send bulk emails, process customer inquiries, and even track email responses

2.2 Survey on Automation in Student Notification Systems:

Automation in student notification systems has become increasingly prevalent as educational institutions seek to streamline communication, improve efficiency, and provide timely updates to students. By integrating technologies like Robotic Process Automation (RPA), machine learning, and artificial intelligence, educational institutions can automate various aspects of student communication, from assignment reminders to grades and event notifications.

A survey on automation in student notification systems reveals several key trends and benefits, as well as challenges faced in implementing such us:

1. **Automated Grading and Results Notifications**: One of the most common uses of automation in student notification systems is the automatic generation and distribution of exam results and grades. RPA bots can extract student data from academic management systems, calculate grades, and send personalized notifications to students. This reduces the workload of academic staff, eliminates errors in communication, and provides instant access to results.

2.3 Survey on Challenges in email automation system and Proposed Integration with RPA:

[1] A study investigates the challenges faced by educational institutions in manually sending student notifications, such as delays in communication and human error. It suggests that adopting email automation systems can significantly improve efficiency, ensuring timely and accurate delivery of student marks and updates.

[2] A paper discusses the limitations of existing email systems used for student notifications, such as the lack of personalization and manual effort required. It highlights how integrating Robotic Process Automation (RPA) into the email workflow can automate the distribution of student marks, ensuring accuracy, efficiency, and personalized communication for each student.

2.4 Summary of the Intersection of RPA and Attendance Management:

The intersection of Robotic Process Automation (RPA) and email automation systems represents a powerful convergence of technology aimed at enhancing efficiency, accuracy, and scalability in communication processes. RPA, with its ability to automate repetitive tasks and workflows, integrates seamlessly with email automation systems to streamline email-related operations, such as sending notifications, managing responses, and handling attachments.

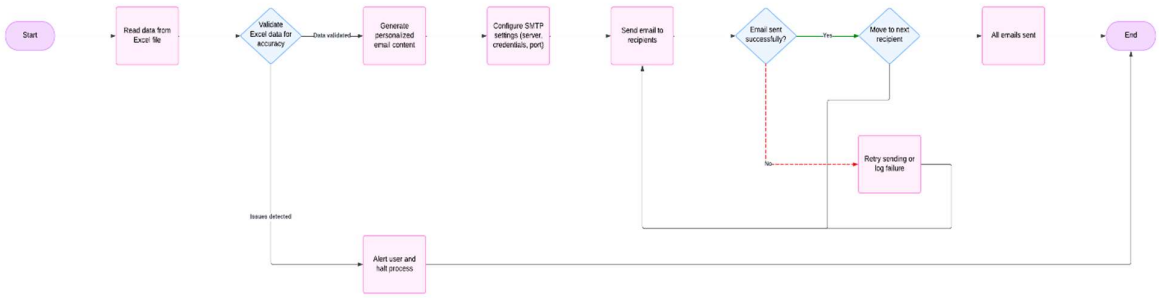
Email automation systems often rely on predefined rules and data sources to send personalized messages at scale. However, challenges such as data synchronization, personalization, error handling, and compliance remain prevalent in traditional email systems.

CHAPTER 3

SYSTEM DESIGN

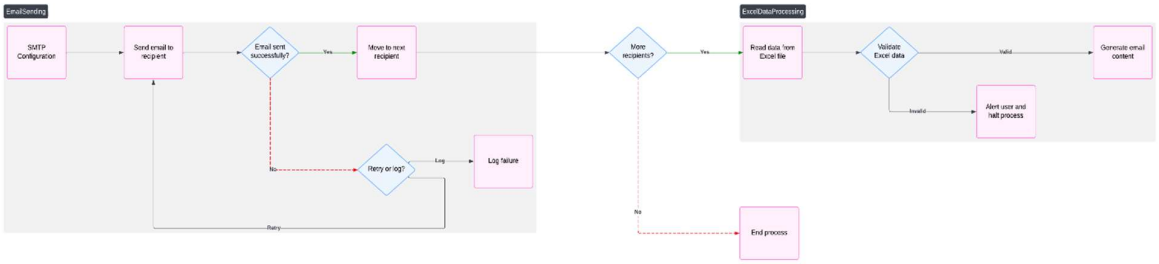
3.1 SYSTEM FLOW DIAGRAM

The flowchart for an email notification system that uses Excel data to send emails automatically begins by reading the data from the Excel file, which contains essential details like recipient names, email addresses, and other relevant information.



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.



3.3 SEQUENCE DIAGRAM

The sequence diagram for an email notification system using Excel data begins with the user initiating the process.

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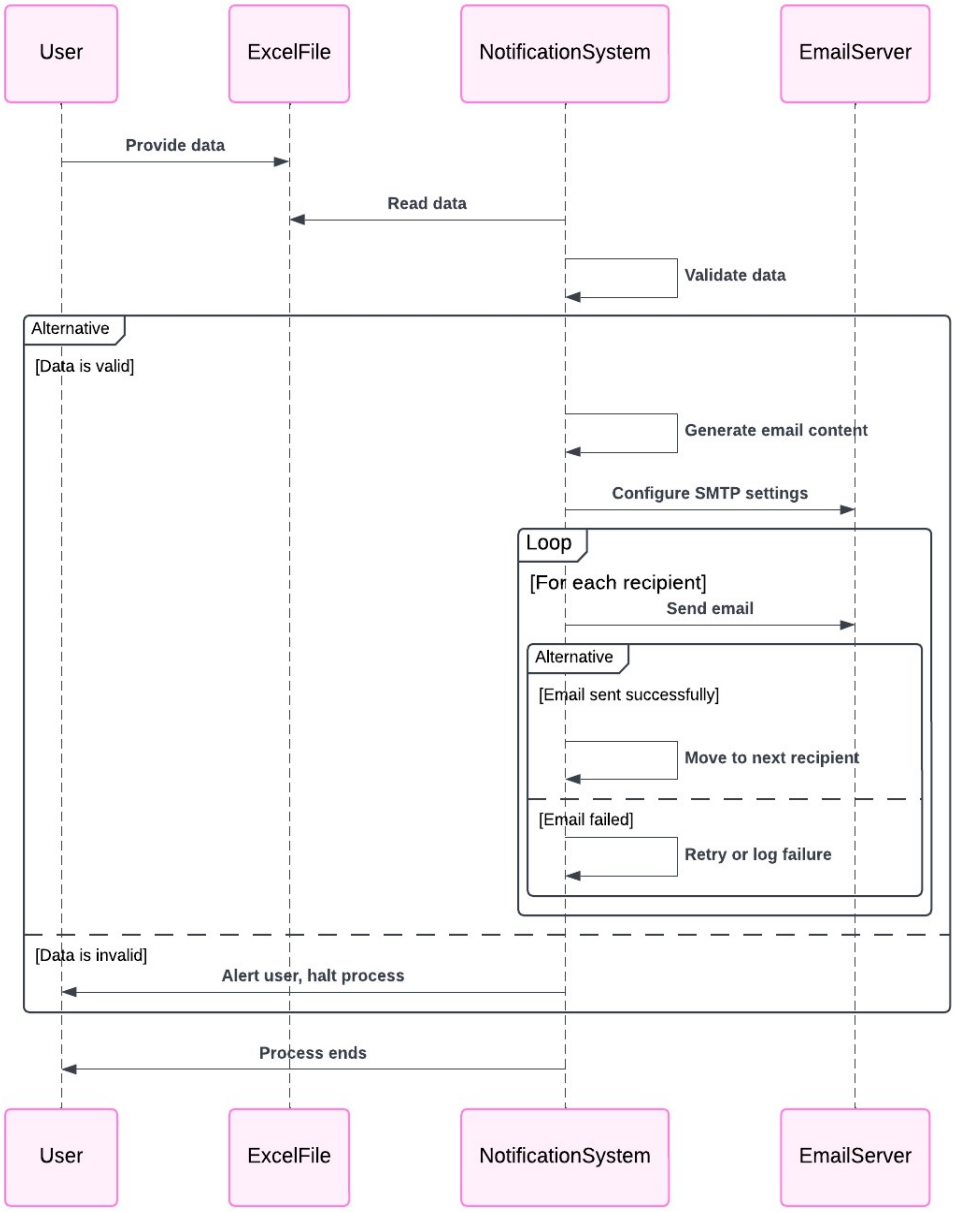

CHAPTER 4

PROJECT DESCRIPTION

The "Email Automation Bot" is an innovative Robotic Process Automation (RPA) project designed to streamline email communication processes in various domains, including educational institutions. Built using UiPath, the bot automates the repetitive and time-consuming tasks of sending personalized emails by extracting data from Excel files, generating customized email content, and dispatching messages through SMTP. By addressing inefficiencies such as manual email creation, errors, and delays, the bot ensures accurate, consistent, and timely communication, making it a valuable tool for scenarios like sending student marks, notifications, or other updates

4.1. MODULES:

4.1.1. INPUT HANDLING AND INITIALIZATION:

4.1.1.1. File Selection:

- Receive user input for the attendance Excel file path.

4.1.1.2. Data Initialization:

- Load the Excel file containing marks and email address records.
- Parse the data to identify headers and ensure compatibility.

4.1.2 EAMIL VALIDATION

4.1.2.1 Mail Validation:

- Iterate through each row of the Excel sheet.
- Extract and marks data for each student.

4.1.2.2 Threshold Evaluation:

Threshold evaluation is a process of determining the acceptable limits or criteria for performance, accuracy, or efficiency within a system. In the context of the **Email Automation System**, threshold evaluation helps define and assess the system's operational benchmarks to ensure reliability and effectiveness.

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4.1.3 EMAIL NOTIFICATION:

4.1.3.1 Email Preparation:

- Extract the student email addresses from the Excel file.
- Return the data in html code table form in the email message.

4.1.3.2 Email Dispatch:

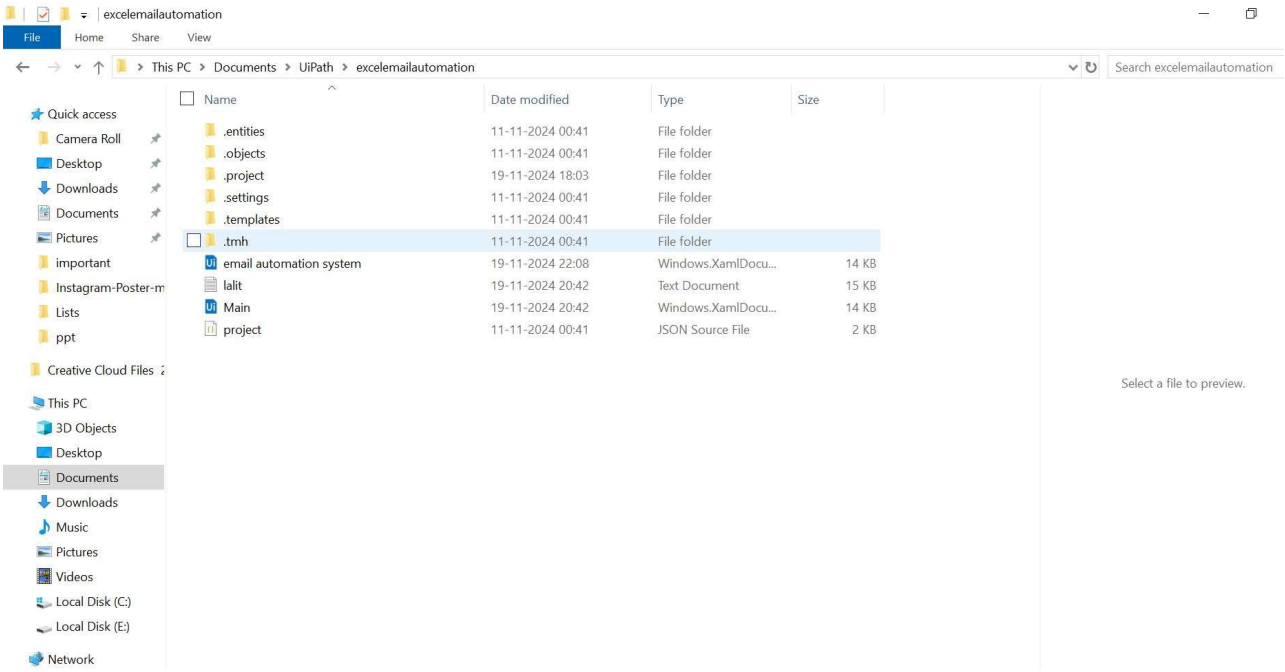
- Use SMTP services to send personalized emails to students with marks.

4.1.3.3 Completion Notification:

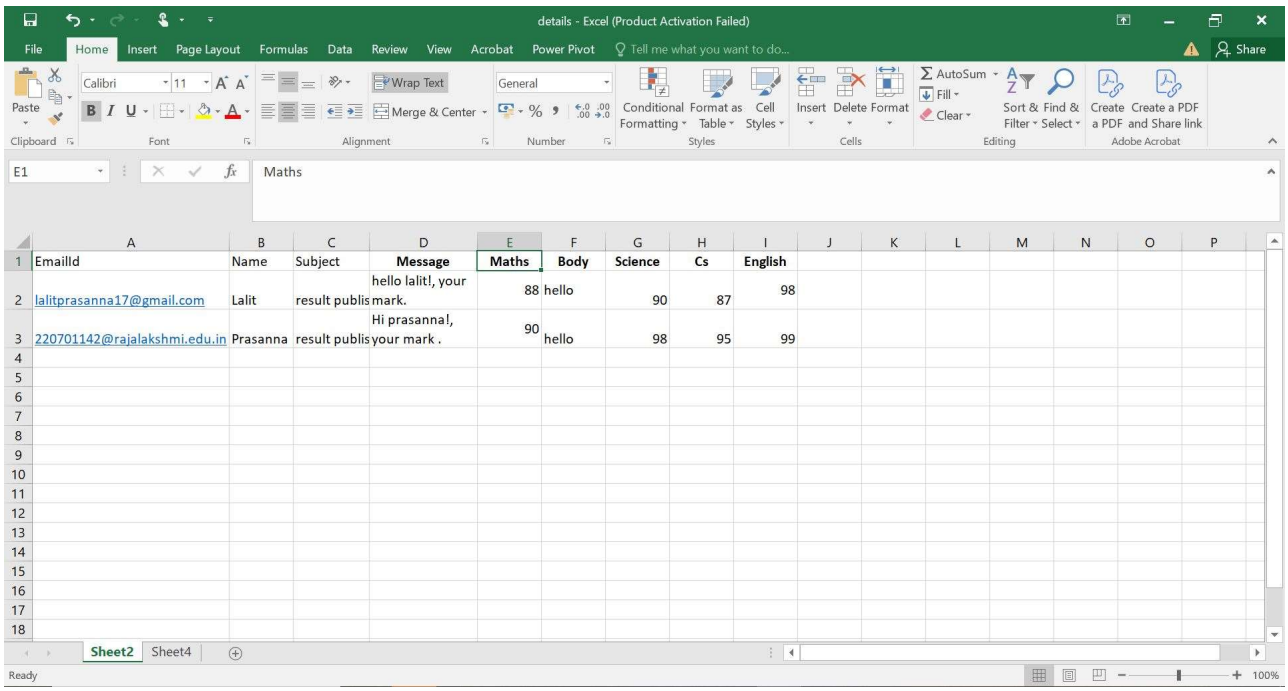
- Display a completion message upon successful email dispatch for all flagged students.

CHAPTER 5

OUTPUT SCREENSHOTS

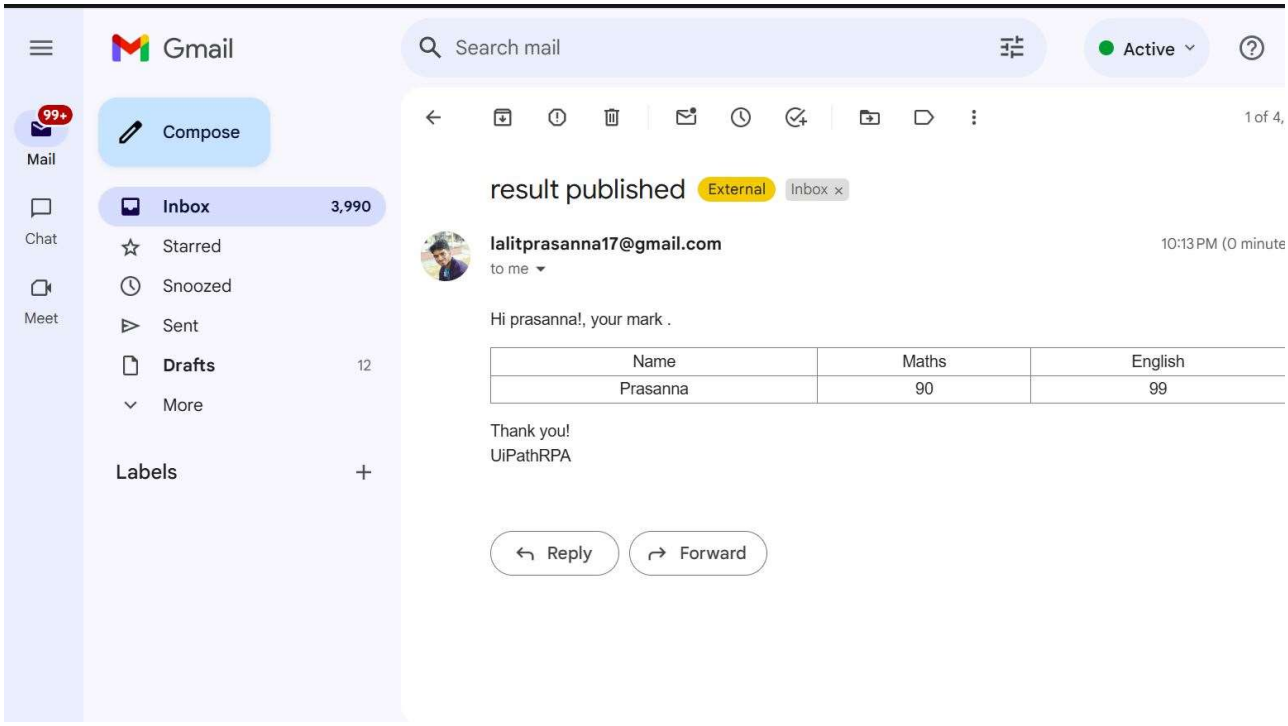


The location of the rpa xaml file.



	A	B	C	D	E	F	G	H	I
1	EmailId	Name	Subject	Message	Maths	Body	Science	Cs	English
2	lalitprasanna17@gmail.com	Lalit	result publis	hello lalit!, your mark.	88	hello	90	87	98
3	220701142@rajalakshmi.edu.in	Prasanna	result publis	Hi prasanna!, your mark .	90	hello	98	95	99

Excel data with mail address and marks



The output of the project successfully executed.

which is retrieved from Excel, and the email is sent to their address using the SMTP activity.

CHAPTER 6

CONCLUSION

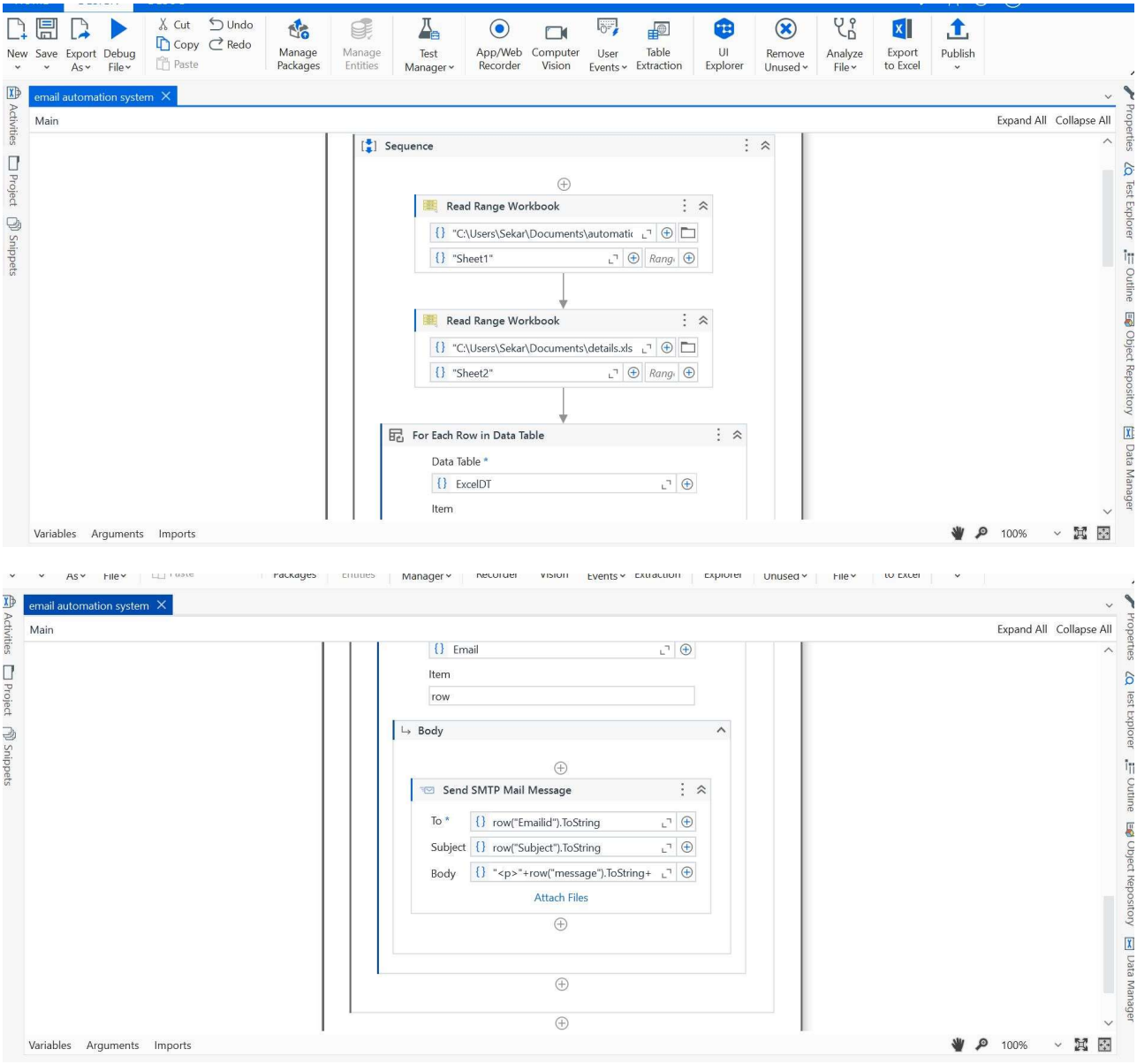
The implementation of the **Email Automation System** demonstrates the transformative potential of Robotic Process Automation (RPA) in streamlining communication processes. By automating the extraction of data from Excel files, generating personalized email content, and managing email delivery through SMTP, the system eliminates the inefficiencies of manual email handling, such as errors, delays, and repetitive workloads.

The project successfully addresses challenges like data synchronization, email personalization, error handling, and compliance with privacy regulations. With high accuracy, scalability, and real-time processing capabilities, the system ensures timely and consistent communication, particularly in scenarios like student notifications, performance updates, or organizational announcements.

In addition to enhancing operational efficiency, the Email Automation System significantly reduces manual intervention, allowing users to focus on more strategic tasks. The robust error-handling mechanisms and compliance adherence further underscore the reliability and practicality of this automation solution. Overall, the project delivers a scalable and efficient communication tool that can be customized for various domains, ensuring improved productivity and user satisfaction.

APPENDIX

PROCESS WORK FLOW



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