

A Project/Disseratation

Report On

Email Automation Using RPA

Submitted in partial fulfillment of the
requirement for the award of the degree of

(BACHELOR OF ENGINEERING & TECHNOLOGY)

COMPUTER SCIENCE AND ENGINEERING)



(Established under Galgotias University Uttar Pradesh Act No. 14 of 2011)

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SCHOOL OF COMPUTING SCIENCE AND ENGINEERING

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GALGOTIAS UNIVERSITY GREATER NOIDA



**SCHOOL OF COMPUTING SCIENCE AND
ENGINEERING**

GALGOTIAS UNIVERSITY, GREATER NOIDA

CANDIDATE'S DECLARATION

I/We hereby certify that the work which is being presented in the project, entitled "Mail Automation using RPA" in partial fulfillment of the requirements for the award of the **BACHELOR OF TECHNOLOGY IN COMPUTER SCIENCE AND ENGINEERING** submitted in **the School of Computing Science and Engineering** of Galgotias University, Greater Noida, is an original work carried out during the period of **JULY-2021 to DECEMBER-2021**, under the supervision of **Mr.Ravinder Ahuja , Assistant Professor, Department of Computer Science and Engineering** of School of Computing Science and Engineering , Galgotias University, Greater Noida

The matter presented in the project has not been submitted by me/us for the award of any other degree of this or any other places.

18SCSE1010746 - VISHAL VIKRAM
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This is to certify that the above statement made by the candidates is correct to the best of my knowledge.

(Mr.Ravinder Ahuja, Assistant Professor)

CERTIFICATE

The Final Thesis/Project/ Dissertation Viva-Voce **18SCSE1010746-**

VISHAL VIKRAM, 19SCSE1010882 - NIKHIL ANAND has been held on

_____ and his/her work is recommended for the award of

BACHELOR OF TECHNOLOGY IN COMPUTER SCIENCE AND ENGINEERING.

Signature of Examiner(s)

Signature of Supervisor(s)

Signature of Project Coordinator

Signature of Dean

Date:

Place:

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ABSTRACT :-

Project on:- Uses of RPA

Title:- Generate and Send Customer Support Email using RPA

What is RPA?

The Process of automating the workflows with the help of robots/software to reduce the involvement of humans is said to be Robotic Process Automation. Over here there are mainly three terms that you need to understand: Robotic, Process and Automation. Let me explain you each of these terms one by one.

Robotic: Entities which mimic human actions are called Robots.

Process: Sequence of steps which lead to a meaningful activity. For example, the process of making tea or your favorite dish, etc.

Automation: Any process which is done by a robot without human intervention. In any organization, a support team has to deal with humongous amount of tickets generated on a daily basis. These tickets could be raised on various issues. Now, each of these tickets have to be replied back immediately to maintain good client relationship. Obviously, a manual employee cannot reply to all those emails single handily on a day to day basis. This would be quite tiresome and will enough cost a good amount of money. Instead, you can just automate this task. In this Project , We are going to show you, how to automate this task using UiPath.

The research in literature has mentioned a few definitions of RPA. Robotic Process Automation bots have a set of digital skills similar to humans — and then others. Think of RPA bots as a Digital Workforce that can work with any system or application. For example, bots can copy-paste, rip web data, perform statistics, open and move files, analyze emails, login programs, connect to APIs, and extract random data. And because bots can adapt to any visual connection or workflow, there is no need to change business plans, applications, or existing processes to automate them.

Robotic Process Automation bots have the same digital skillset as people—and then some. Think of RPA bots as a Digital Workforce that can interact with any system or application. For example, bots are able to copy-paste, scrape web data, make calculations, open and move files, parse emails, log into programs, connect to APIs, and extract unstructured data. And because bots can adapt to any interface or workflow, there's no need to change business systems, applications, or existing processes in order to automate.

RPA bots are easy to set up, use, and share. If you know how to record video on your phone, you'll be able to configure RPA bots. It's as intuitive as hitting record, play, and stop buttons and using drag-and-drop to move files around at work. RPA bots can be scheduled, cloned, customized, and shared to execute business processes throughout the organization.

Why should I implement RPA?

Robotic Process Automation has a positive snowball effect on business operations and outcomes. RPA delivers measurable business benefits right out of the gate—think cost reduction, greater accuracy, delivery speed—then continues to add value as it picks up momentum and spreads across the organization. RPA improves business outcomes like customer satisfaction and enables competitive advantages by freeing humans to do what they do best—solving problems, improving processes, conducting analysis, and other value-added work—resulting in higher employee engagement and new revenue opportunities.



Literature Reviews/Comparative study

INTRODUCTION:-

- Communication is a mean for people to exchange messages. It has started since the beginning of human creation. Distant communication began as early as 1800 century with the introduction of television, telegraph and then telephony. Interestingly enough, telephone communication stands out as the fastest growing technology, from fixed line to mobile wireless, from voice call to data transfer. The emergence of computer network and telecommunication technologies bears the same objective that is to allow people to communicate. All this while, much efforts has been drawn towards consolidating the device into one and therefore indiscriminate the services.
- A Automatic Reply is a system that enables company to communicate in real time using simply accessible interfaces. It is a kind of online application distinguished by its simplicity and accessibility to company who want to maintain a good Relationship with client, and shortage of time.. It is a automatic generate and send Email applicaion which will automatically send Email, on basis of query provided.

When you enable workflow using software (or robots), it is called Robotic Process Automation. Robots represent a company that mimics human actions. Process refers to the sequence of steps that lead to productive work. Automation is when a robot finishes working without human intervention. When robots perform these types of repetitive, high-volume tasks, people are free to focus on the things they do best and enjoy more: innovation, collaboration, creativity, and customer communication. Businesses are also gaining momentum: high productivity, efficiency, and resilience. Among global managers, 63% say RPA is a major factor in digital transformation.

The research in literature has mentioned a few definitions of RPA. Robotic Process Automation bots have a set of digital skills similar to humans — and then others. Think of RPA bots as a Digital Workforce that can work with any system or application. For example, bots can copy-paste, rip web data, perform statistics, open and move files, analyze emails, login programs, connect to APIs, and extract random data. And because bots can adapt to any visual connection or workflow, there is no need to change business plans, applications, or existing processes to automate them.

RPA bots are easy to set up, use, and share. If you know how to record a video on your phone, you will be able to stop RPA bots. It makes sense like tapping records, playing, and pausing buttons and using drag and drop to move files to work. RPA bots can be customized, integrated, customized, and shared to run business processes across the organization.

UiPath is the leading Robotics process automation vendor as it provides a complete software platform to help companies or organization efficiently to automate any process. Data scraping allows you to extract the structured data from any browser or application and document it to a website, csv file or to a excel sheet.

Email automation is the most popular requirements for many companies across the globe. Using Ui path we can automate this process also.

What can RPA do? Example use cases and business processes

Explaining and evangelizing RPA outside of IT should be a bit easier than doing so for other topics that are harder to down for non-technical people, such as serverless or microservices. The definitions above speak to this. It can also be easier to show people outside of IT how RPA implementations could benefit them directly by reducing drudge work in their day-to-day jobs. (The same task might be more challenging when it comes to explaining to a field service technician how, say, containerization benefits them.)

“Businesses and organizations like RPA because it helps them improve productivity across a wide range of populations – users, customers, employees,

sales and marketing people, business people, accountants, legal and finance analysts, etc.,” says Muddu Sudhakar, CEO at [Aisera](#).

Still, the light bulbs usually turn on quicker with accessible examples of how technology can be used in the enterprise. So let’s return to data-intensive processes as a good starting point. Sudhakar reminds us of how many different actions can attend data: data receiving, data processing, data collection, data correction, data creation, and so forth.

Think about the repetitive processes in business functions such as finance, customer service, and HR.

Consider the amount of this kind of work in an area like finance: Receivables and payables alone have traditionally required tons of manual, repetitive effort by skilled workers. This is why you see lofty predictions about RPA in specific business functions: Gartner, for example, [has predicted](#) that 73 percent of corporate controllers will implement some form of RPA in their finance departments by 2020, up from 19 percent in 2018.

Other traditional business units, like customer service and HR, offer their own examples of data-intensive, rules-based, and repetitive processes. Specific industries such as insurance and financial services also fit the bill.

Edwards, the COO at Eggplant, offers this specific use case as an example: Returns processing. Think about the last time you returned a purchase you made online, and what that entails not only for you but also the company from which you purchased. Those “free” returns are really anything but.

“Traditionally, returns processing has been carried out manually and has been a costly endeavor. With RPA, companies can manage returns without adding to the cost or causing a delay,” Edwards says. “The RPA software can now handle the return, which includes a series of repetitive steps: sending a message confirming receipt of the return, updating the inventory system, making the payment adjustment to the customer, ensuring that the internal billing system is updated, and so on.”

The steps involved in returning a pair of shoes that didn’t quite fit, let’s say, map quite nicely to Landreman’s criteria above, for both customer and business. It’s a rule-based process that has a particular trigger and is repeatable; it has specific inputs (such as initiating the return and returning the product) and outputs (such as your refund); and for retail businesses, especially, there’s certainly significant volume.

It's a necessary process with plenty of "opportunities" for inefficiencies, errors, and other issues. And let's face it: It's boring. It's the kind of process that RPA exists to improve.

"The ability to automate [with RPA] allows workers to switch their focus to more thoughtful and meaningful work while also eliminating data-entry errors that can damage processing times, compliance, and the overall customer experience," Huff from Kofax says.

RPA actual use:-

- Banking and finance process automation
- Mortgage and lending processes
- Customer care automation
- eCommerce merchandising operations
- Optical character recognition applications
- Data extraction process
- Fixed automation process

LITERATURE REVIEW:-

According to a study by “Social Economics: Validation and Production through Social Technology”, published by the McKinsey Global Institute, only 39% of employees' time is spent on certain tasks, 28 percent on reading and replying to emails, 19 percent. search and information collection and the remaining 14% is used for internal communication and collaboration. All of these activities, accounting for 61 percent of the total operating time, can be automated using Robotic Process Automation technology

RPA is one of the most advanced technologies and is used in many industries, such as telecommunications, banking (call center services: can assist employees with information obtained from all banking systems about customers, boarding, help desk, credit card. Applications), public administration (health care and education), sales (e-commerce, Procurement Management: review order status, product identification and removal), insurance (processing of applications, manual entry, registration of staff resources form (automatic search of candidates according to job requirements, automatic staff) .Benefits of tasks automation to reduce costs, low operating risk (data entry errors), internal process improvement and processing time, increase productivity and quality of data, reduce workload, fall In addition to staff satisfaction, RPA solutions can be used by non-IT professionals. Therefore, the benefits are undeniable and there are many tools n used to do any repetitive and tedious tasks like Blue Prism, UiPath, Automation Anywhere, GIANT, Work Fusion and more.

Literary reviews are important activities in scientific research, aimed at them to provide for the integration of available information and to support the research motive. The power of RPA technology to adopt, implement and deliver an RPA solution. RPA is one of the most advanced technologies and is used in particularly those task which include repetitive tasks such as insurance and in bank, finance, healthcare and in telecommunication. In addition using all the benefits provided by RPA technology complex applications can be made to integrate the web automatic scrubbing tools for built in the format required by user.

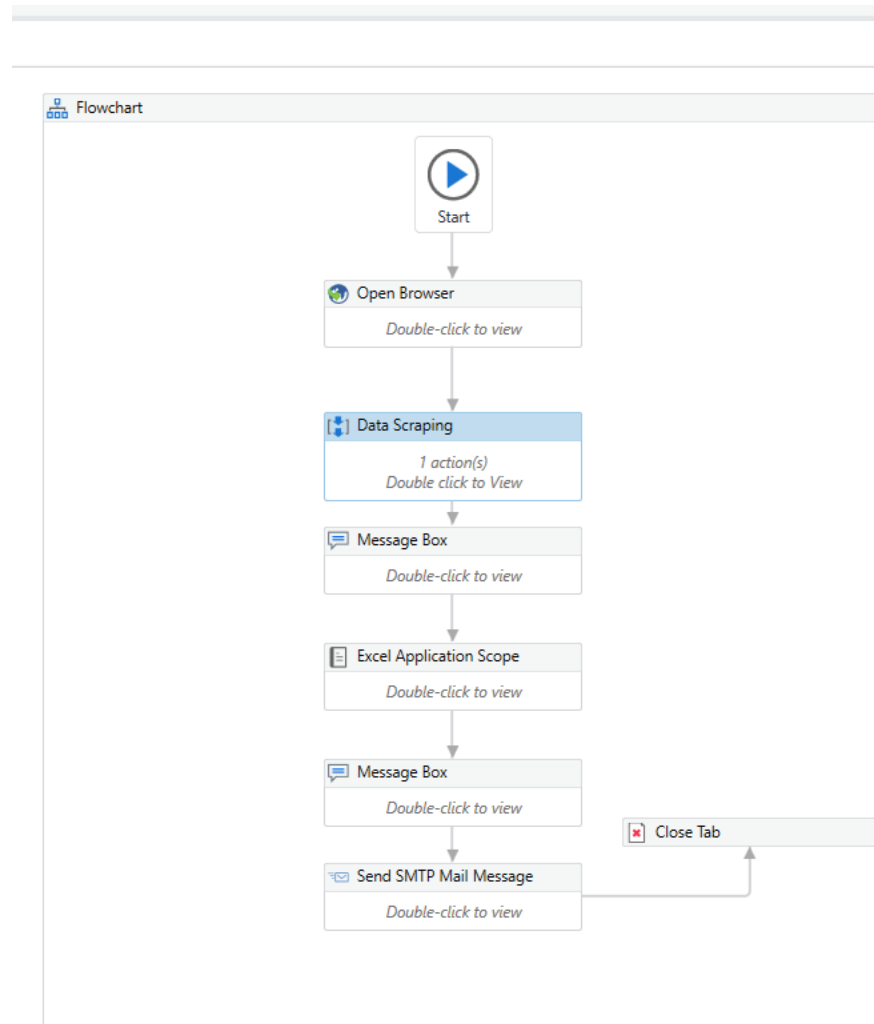
Anyway using RPA can be very beneficial as it have some following advantages:-

- 1. RPA is easy to learn and do not require any programming skills.**
2. RPA is based on existing system we need not to create , replace or develop expensive platforms.
3. RPA is very secure for the company as it is a robust platform which is designed to meet the requirements in terms of security, scalability, and change management.

The idea of the definition is that it is the workflow that can be automated using a software robot when the process is repetitive as well as it is executed by the rules made by humans. RPA in any company improves the productivity of business where performance is repetitive. The life cycle that is used to compare and categorize in the study is:-

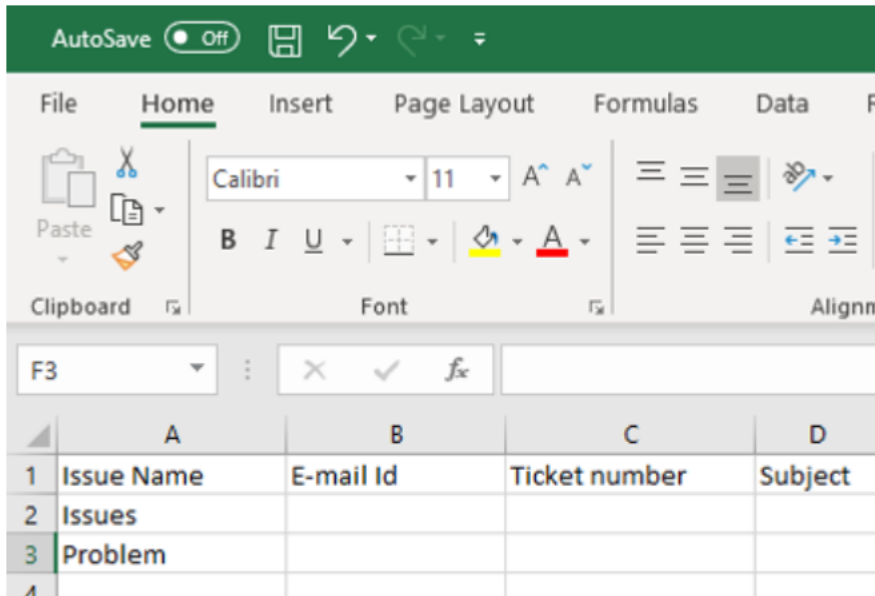
- 1. Analysis Phase**
- 2. Design Phase**
- 3. Construction Phase**
- 4. Deployment phase**
5. Monitoring and control Phase
- 6. Evaluation and performance Phase.**

PROJECT FLOW CHART:-

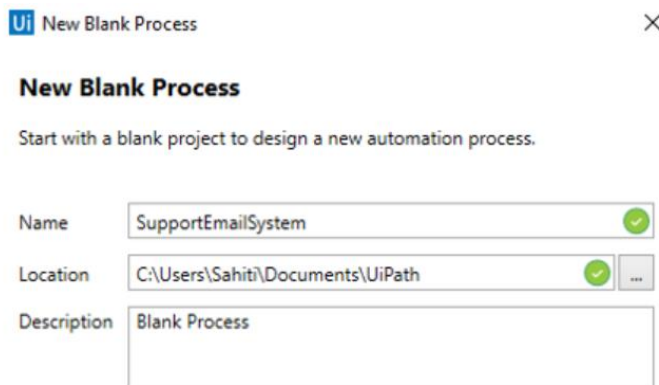


MAIL AUTOMATION USING UI PATH:-

Step 1: Store the issue name in a column in the excel sheet. Also mention the column names, email id, ticket number, subject as you can see below.



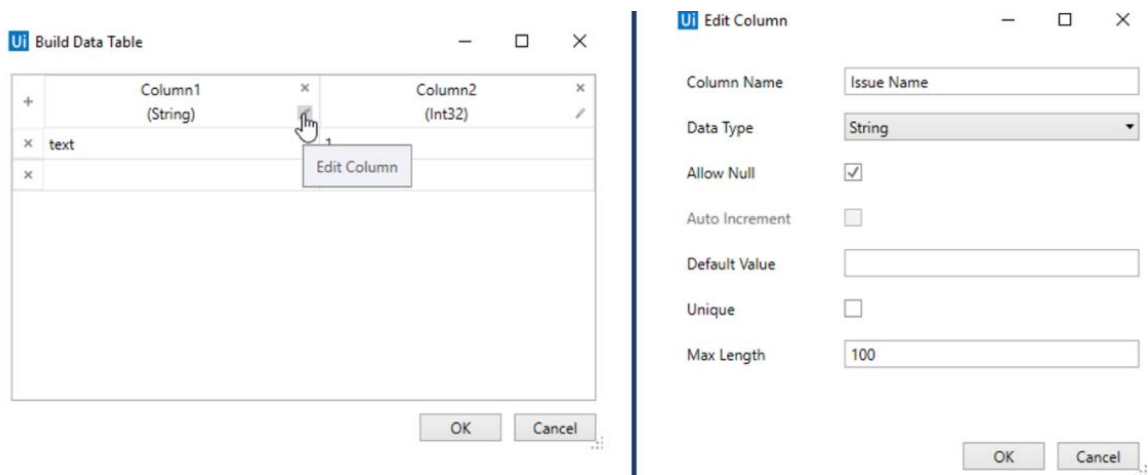
Step 2: Open **UiPath Studio** and create a **Blank Project**. Mention the Project Name, Location and Description. Then click on **Create**.



Step 3: Once your dashboard opens, search for the **Flowchart activity** in the **Activity Pane** and drag it to the work space. We are dragging the flowchart to ensure proper workflow of the complete automation.

Step 4: Now, drag a **Build Data Table** activity from the **Activity Pane**. Connect it with the start point of the flowchart.

Step 4.1: Double click on the activity and click on the **Data Table** option. Then you have to mention the column names. Since we had four columns in the excel sheet, we will mention the same column names in the Data Table. To do that click on the edit column option and mention the details. Refer below.



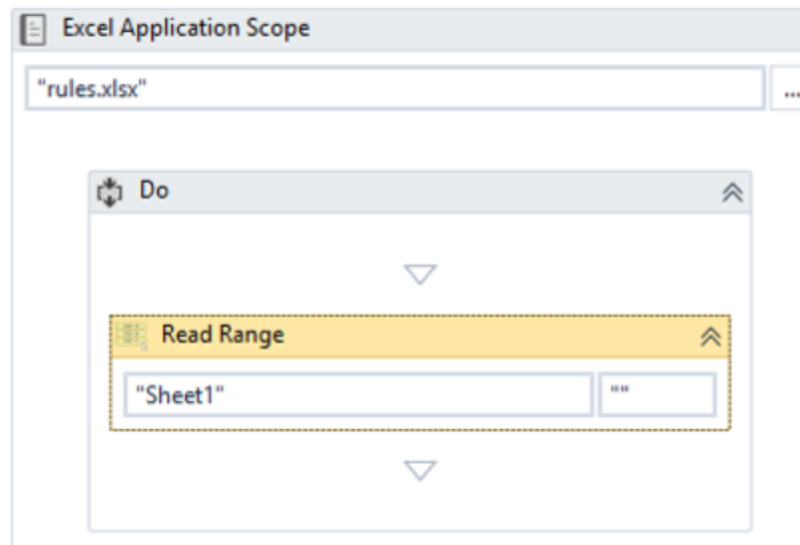
Step 4.2: After filling the details click on **OK**. This will create a Data Table. A Data Table is a table which will be used by UiPath to read the data present in the excel file and store the retrieved data in an excel file.

+	Issue Name (String)	Email ID (String)	Ticket Number (String)	Email Subject (String)
x				

Step 4.3: Next, in the output section of the Data Table activity **mention a variable to store the output of the Data Table**. Here I have mentioned it as Support Table.

Step 5: Now go back to the **Flowchart** and add the **Excel Application Scope activity** from the **Activity Pane** to perform actions related to the Excel file. Then connect the Build Data Table activity to this activity in the flowchart.

Step 5.1: Double click the **Excel Application scope activity** and **mention the path of the excel sheet**. Then, in the **Do section** of this activity drag the **Read Range** activity from the Activity pane and mention the **Sheet name and the range**. Also, in the **output section** of the **Read Range activity** mention the **name of the Data Table variable** you created before i.e. SupportTable. Refer below.



Step 6: Now our next step is to automate the task of reading and sending emails. To do that, **go back to the flowchart** and drag a **Sequence** from the **Activity Pane**. Then, connect the **Excel Application Scope** activity to this Sequence in the flowchart and rename the sequence as **Read and Send Emails**.

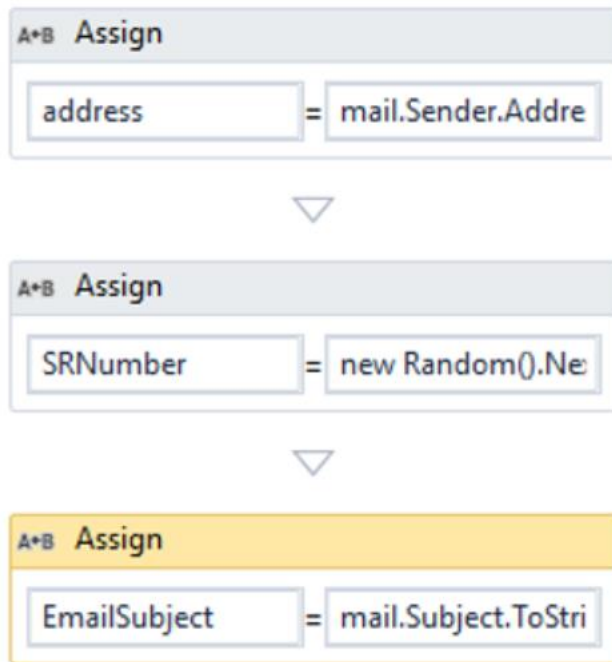
Step 6.1: Now, double click the sequence, and drag the **Get Outlook Mail Message** activity. Then go to the properties pane, and choose the top number of mails to be read. In the output section of this activity, mention the output variable which will store all the mails. So, the data type of this variable should be `List<Mail Message>`. Here that variable is `messages`.

Step 6.2: Now, for every mail in the mails you have to read, you have to iterate a few actions. To do that, drag the **For Each** activity and mention `mail` in the item section and `messages` in the value section. Also, in the Properties Pane, go to the **Type Argument**, and mention `System.Net.Mail.MailMessage`.

Step 6.3: In the Body section of this activity, drag the **assign** activity from the activity pane. Then you have to assign the sender address to a variable. To do that, mention the variable name to store the address (here it is `address`) and in the value section mention `mail.Sender.Address.ToLower`.

Step 6.4: Now, drag an **Assign** activity again and assign the Ticket number to a random value. To do that, mention, the variable name of the variable created to store the ticket number. Here it is `TicketNumber` of `Generic` type. Then, in the value section mention `New Random().Next(1,10000)` to generate a random number for every email.

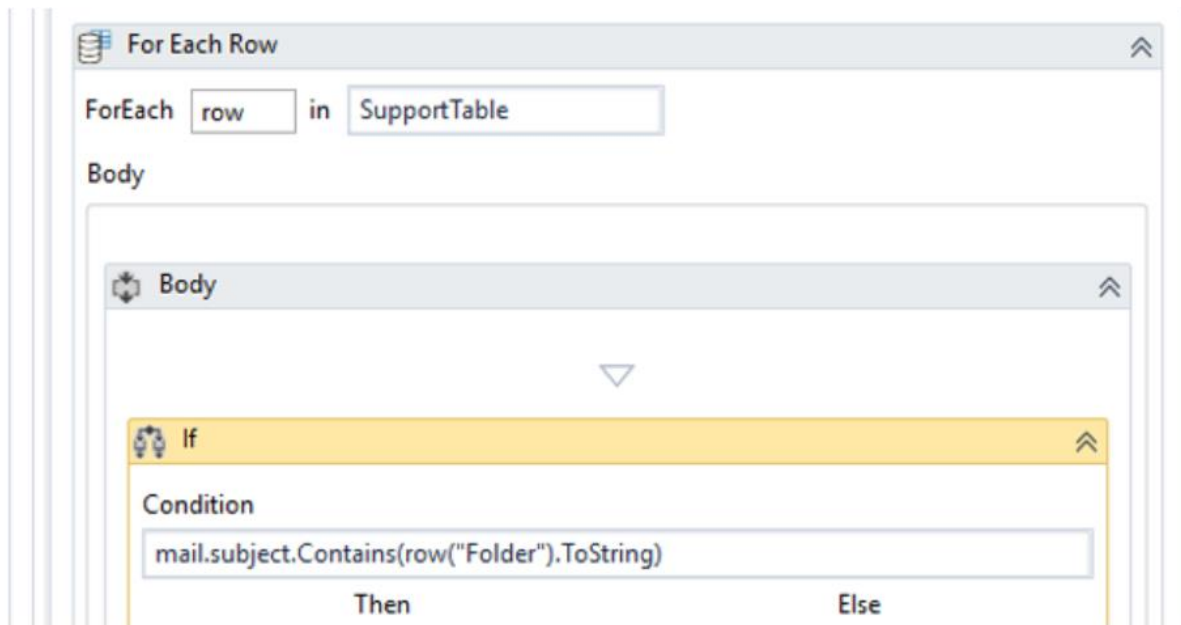
Step 6.5: Next, you have to again drag an **Assign** activity and assign the subject of every email to a variable. To do that, mention the **EmailSubject** variable name in the To section and **mail.Subject.ToString** in the value section.



Step 7: After this, your next step is to compare the Subject line in the emails to the issue name column. If they match, only then a reply should be sent. To do that, you have to drag a **For Each Row** activity from the activity pane.

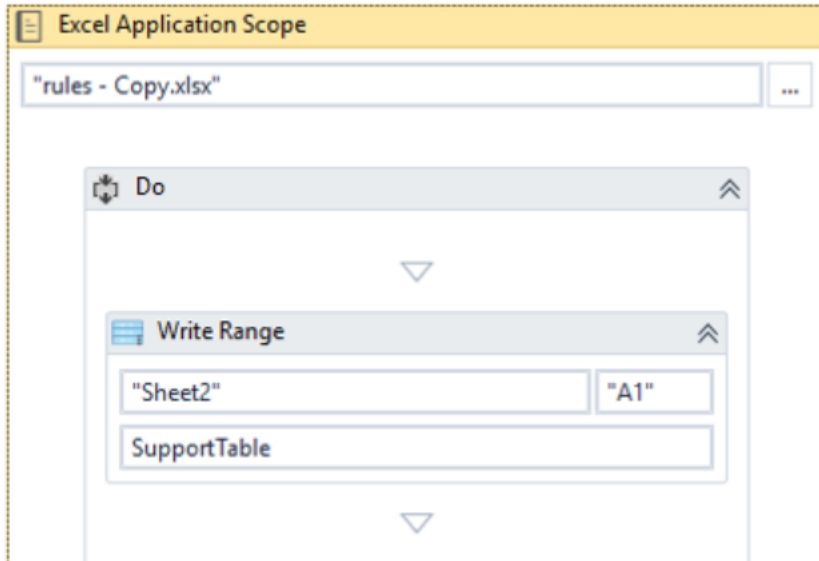
Step 7.1: Now, mention the name of the above-created data table name i.e. SupportTable.

Step 7.2: Next, in the Body section of this activity, you have to drag an If activity, and mention the condition: `mail.subject.Contains(row("IssueName").ToString)`



Step 8: Now, since we want to just store the email address, subject line, and the ticket number, we have to remove a column. To do that drag the **Remove Data Column** activity into the flowchart and connect the previously created sequence with it

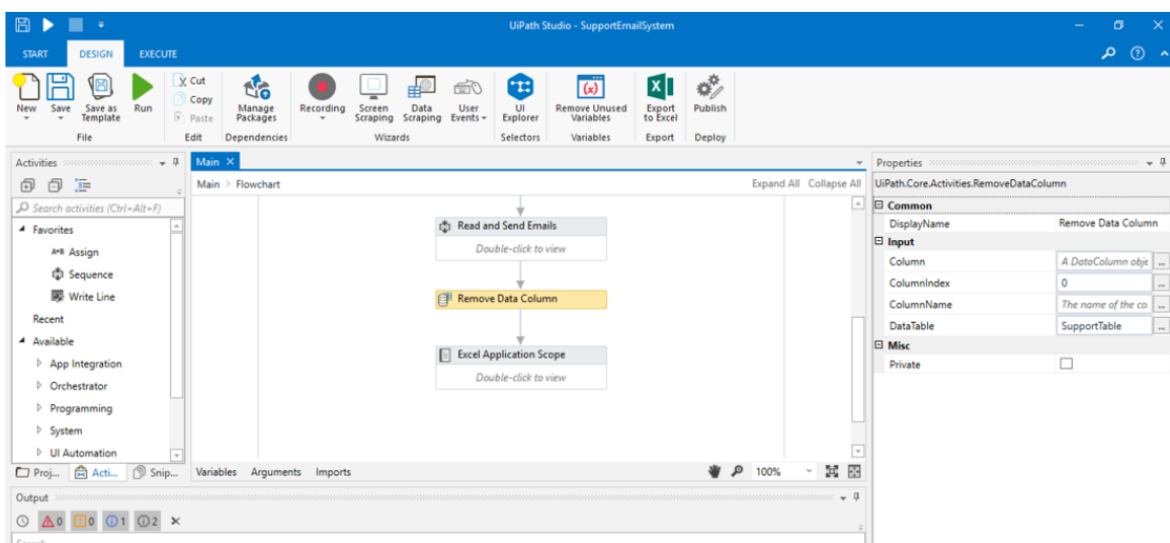
Step 8.1: In the **Properties Pane of this activity**, mention the **Column Index->0**, since we want the issues column to be deleted. Also mention the data table name, i.e. SupportTable here.



Execute the designed automation

Step 9: Drag the **Excel Application Scope** activity and connect the **Remove Data Column** flowchart to this activity.

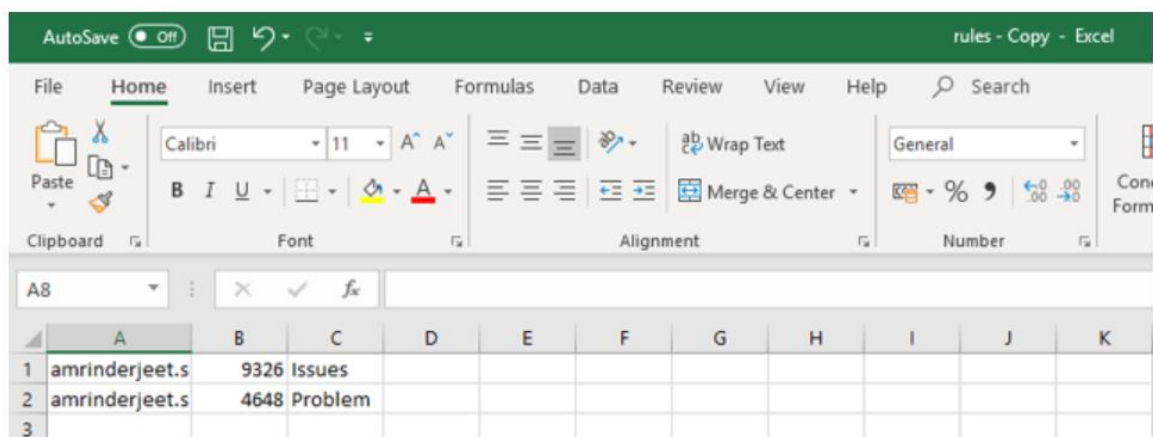
Step 9.1: Now, double click the **Excel Application Scope** activity and mention the path of the workbook where you wish to store the data.



Step 9.2: In the **Do** section of the activity, drag the **Write Range** activity and mention the **Sheet** name, **range** and the **Data Table** name.

Step 10: Save and Execute the designed automation.

Once, you execute the automation, you will observe that automated replies are sent to all those emails which have words matching the words we have in the sheet. Also, a new sheet will be created, which will store the details such as EmailID, Ticket Number and Subject



Problem Formulation

Define and implement a **"Task is to send an automated reply to the emails which have specific text mentioned in the subject line.."**

How will you automate this task?

RPA have become a popular way to support a forum for n-way discussion among a set of people with query in a common topic. This applications range from simple, text-based ones to entire virtual worlds with exotic graphics. In this project you are required to implement a simple **an automated reply to the emails which have specific text mentioned in the subject line**

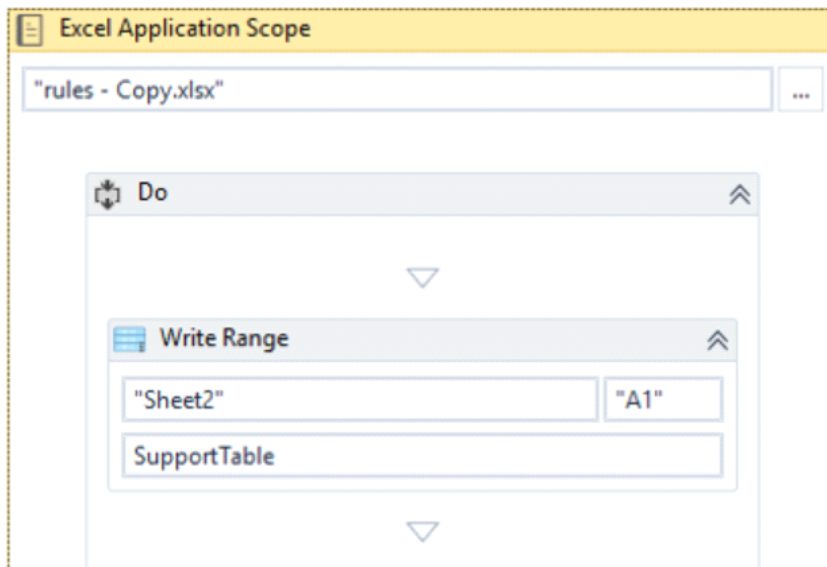
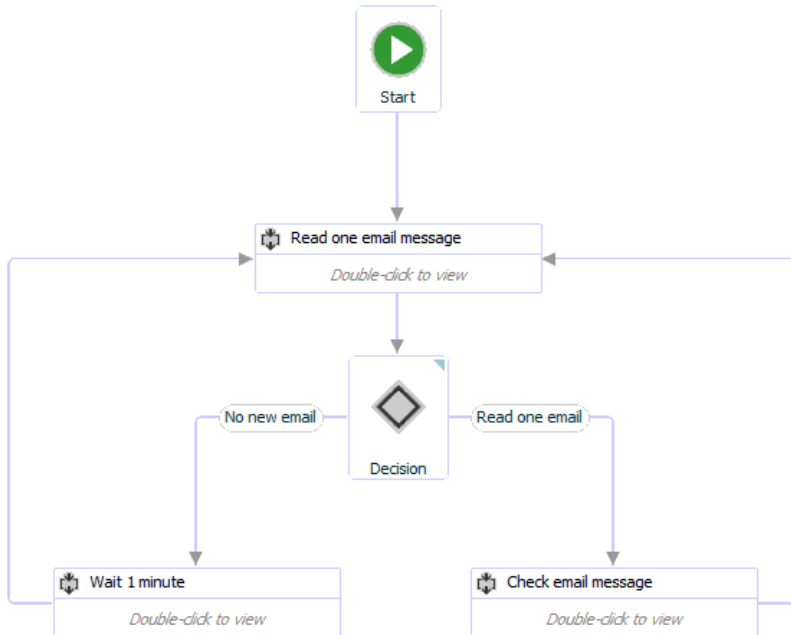
Required tools

- Excel Sheet
- Ui Path Studio
- E-mail API.

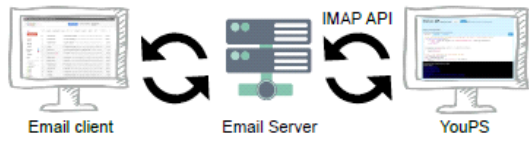
MERITS OF PROPOSED SYSTEM

- 1: Reduce expenses
- 2: Increase Scale
- 3: Improve customer service and loyalty
- 4: Discover customer pain points.
- 5: Faster problem resolution.
- 6: Customer convenience
- 7: Competitive advantages.
- 8: Expand market reach.
- 9: Proactive outreach
- 10: Reports and analytics

Architecture Diagram



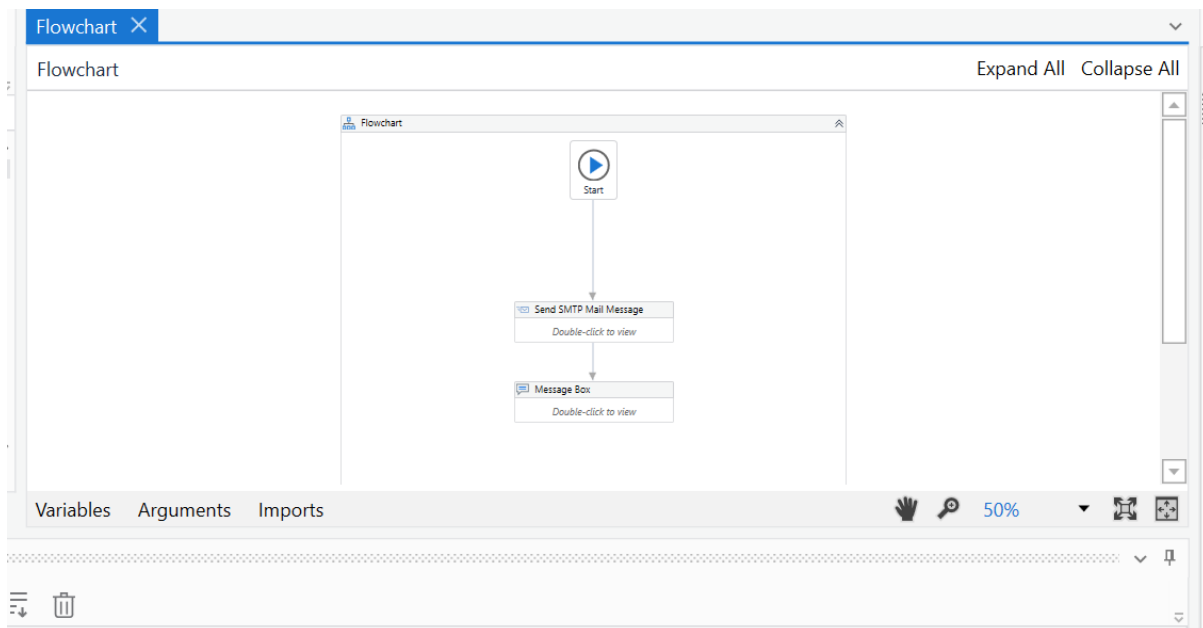
Description of project modules:



Organisation modules:

Here company has to list down all queries regarding their project in issues box of Excel sheet. They have to pen down all possibilities of error that can occur, in their company, which will help company to manage good relationship with their Customers.

The image shows two screenshots of a software interface. The left screenshot is titled 'Build Data Table' and displays a table with two columns: 'Column1 (String)' and 'Column2 (Int32)'. A mouse cursor is hovering over the 'Column2' header, and a context menu is visible with the option 'Edit Column'. The right screenshot is titled 'Edit Column' and shows the configuration options for the selected column. The 'Column Name' is 'Issue Name', the 'Data Type' is 'String', 'Allow Null' is checked, 'Auto Increment' is unchecked, 'Default Value' is empty, 'Unique' is unchecked, and 'Max Length' is '100'. Both screenshots have 'OK' and 'Cancel' buttons at the bottom.



Ui New Blank Process



New Blank Process

Start with a blank project to design a new automation process.

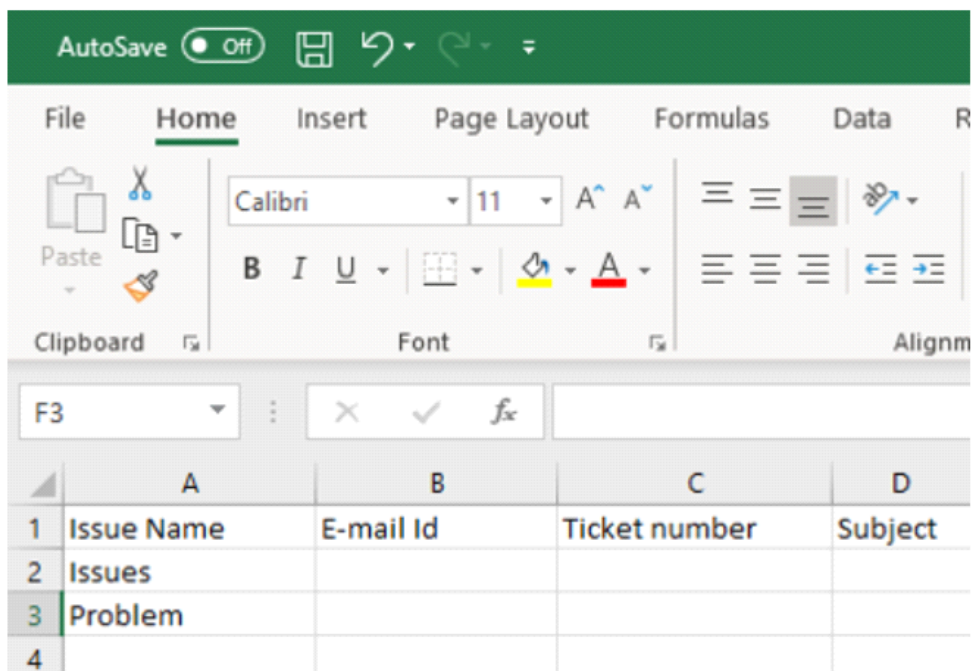
Name	<input type="text" value="SupportEmailSystem"/>	
Location	<input type="text" value="C:\Users\Sahiti\Documents\UiPath"/>	
Description	<input type="text" value="Blank Process"/>	

Create

User Module:

Here clients have to register their problem and mail to company, according to their needs and problems, which they are facing.

User will have setting options for changing font and color. User can enter a message and use the send button to send a message which is displayed under the upper window.



UIPath Studio - SupportEmailSystem

START DESIGN EXECUTE

New Save Save as Template Run Cut Copy Paste Manage Packages Recording Screen Scraping Data Scraping User Events UI Explorer Remove Unused Variables Export to Excel Publish

File Edit Dependencies Wizards Selectors Variables Export Deploy

Activities Main X Main > Flowchart Expand All Collapse All

Search activities (Ctrl+Alt+F)

- Favorites
 - Assign
 - Sequence
 - Write Line
- Recent
- Available
 - App Integration
 - Orchestrator
 - Programming
 - System
 - UI Automation

Flowchart:

```
graph TD; A[Read and Send Emails  
Double-click to view] --> B[Remove Data Column]; B --> C[Excel Application Scope  
Double-click to view];
```

Properties: UIPath.Core.Activities.RemoveDataColumn

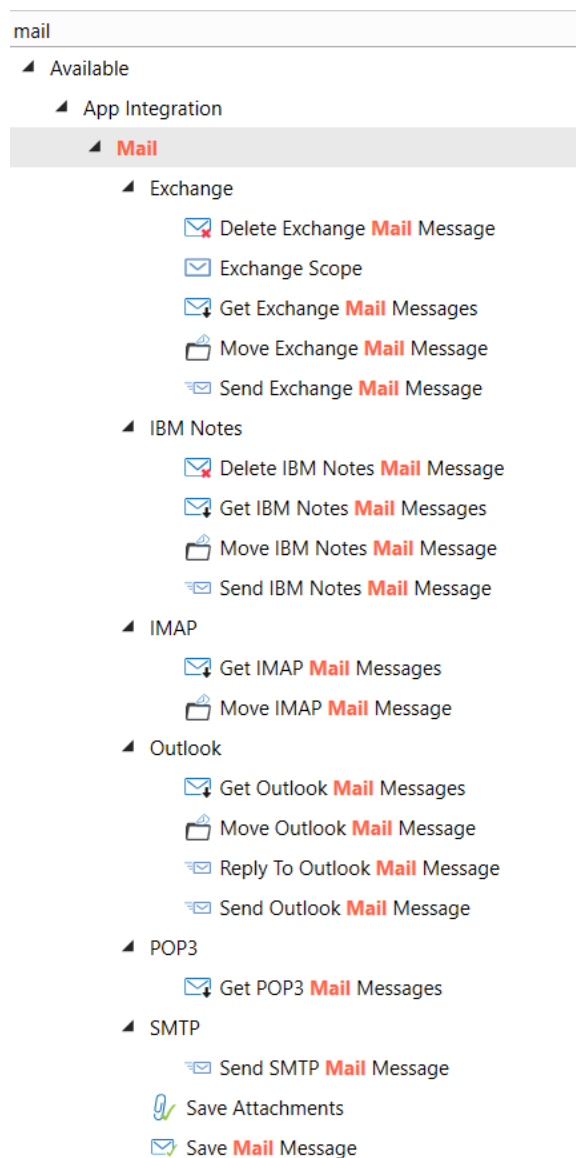
- Common
 - DisplayName: Remove Data Column
- Input
 - Column: A DataColumn obje
 - ColumnIndex: 0
 - ColumnName: The name of the co
 - DataTable: SupportTable
- Misc
 - Private:

Output

Search

Email Automation :-

Among numerous activities that UiPath can automate, Email automation is one of the most popular requirements for many employees and organizations across the globe. Using Uipath we can automate sending emails as well as receiving them. In this tutorial, we will explain all the activities and packages that UiPath offers for Email automation.



Simply searching for mail in the Activities Panel gives out all the required activities and opportunities that UiPath provides.

✦ SMTP – It is short for Simple Mail Transfer Protocol and is a basic protocol that only allows sending messages

✦ POP3 – It stands for Post Office Protocol and is an older version of a protocol for reading messages. Although this protocol is almost obsolete, most mail servers supports it.

✦ IMAP - Internet Message Access Protocol only helps to receive messages and also provides additional features such as “Read” and “Move” emails between folders.

✦ Exchange - This is a Microsoft Enterprise email solution which is integrated within UiPath flawlessly and allows the user to perform multiple actions such as Send, Delete, Move, and Get Email messages.

✦ Outlook – This activity uses the API of the desktop application and hence does not require to set up users, servers, or other advanced details. This activity integrates Outlook API such that UiPath can use the already logged-in Outlook account.

✦ IBM Notes – This uses the IBM notes desktop API to interact with the application and perform send, receive, move, and reading activities. Similar to Outlook, this does not require the user to set up servers, users, and works with the logged-in account.

✦ Save Mail Message – Saves Emails on local disk

✦ Save Attachments – Downloads attachments and saves them to local disk

Send SMTP Mail Message

UiPath.Mail.SMTP.Activities.SendMail

Sends an email message by using the SMTP protocol.

Logon

- **Email** - The email account used to send the message.
- **Password** - The password of the email account used to send the message.
- **Secure Password** - The password of the email account used, as a secure string.

Host

- **Server** - The email server host that is to be used.
- **Port** - The port that the email message is to be sent through.

Sender

- **Name** - The display name of the sender.
- **From** - The email address of the sender.

Options

- **IsBodyHtml** - Specifies whether the body of the message is written in HTML format.
- **ReplyTo** - The email address to be used when replying.
- **Secure Connection** - Specifies the SSL and/or TLS encryption to be used for the connection.

Receiver

- **To** - The main recipients of the email message.
- **Cc** - The secondary recipients of the email message.
- **Bcc** - The hidden recipients of the email message.

Email

- **Subject** - The subject of the email message.
- **Body** - The body of the email message.

Send SMTP Mail Message

To

Subject

Body

[Attach Files](#)

CONCLUSION:-

The main objective of the project is to develop a Mail Automation. I had taken a wide range of literature review in order to achieve all the tasks, where I came to know about some of the products that are existing in the market. I made a detailed research in that path to cover the loop holes that existing systems are facing and to eradicate them in our application.

References :

<https://www.uipath.com/rpa/robotic-process-automation>

<https://chercher.tech/uipath/email-automation-rpa-uipath>

<https://www.uipath.com/rpa/robotic-process-automation>