MALAD KANDIVALI EDUCATION SOCIETY'S
NAGINDAS KHANDWALA COLLEGE OF COMMERCE,
ARTS & MANAGEMENT STUDIES & SHANTABEN NAGINDAS
KHANDWALA COLLEGE OF SCIENCE
MALAD [W], MUMBAI – 64
(AUTONOMOUS)
(Reaccredited 'A' Grade by NAAC)
(AFFILIATED TO UNIVERSITY OF MUMBAI)
(ISO 9001:2015)

CERTIFICATE

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Roll No: 13 **Programme:** Robotic Process Automation **Semester:** VI

This is certified to be a bonafide record of practical works done by the above student in the college laboratory for the course Robotic Process Automation for the partial fulfilment of Semester VI of B.Sc. CS with specialization of Artificial Intelligence & Machine Learning during the academic year 2024-2025.

The journal work is the original study work that has been duly approved in the year 2024-2025 by the undersigned.

External Examiner **(Subject-In-Charge)**

Prof. Nirbhay Singh

Date of Examination **(College Stamp)**

SUBJECT: ROBOTIC PROCESS AUTOMATION

CLASS: BSc CS (hons) AIML

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5	20/01/25	Write a script to extract the information from Email and to analyse the same.	
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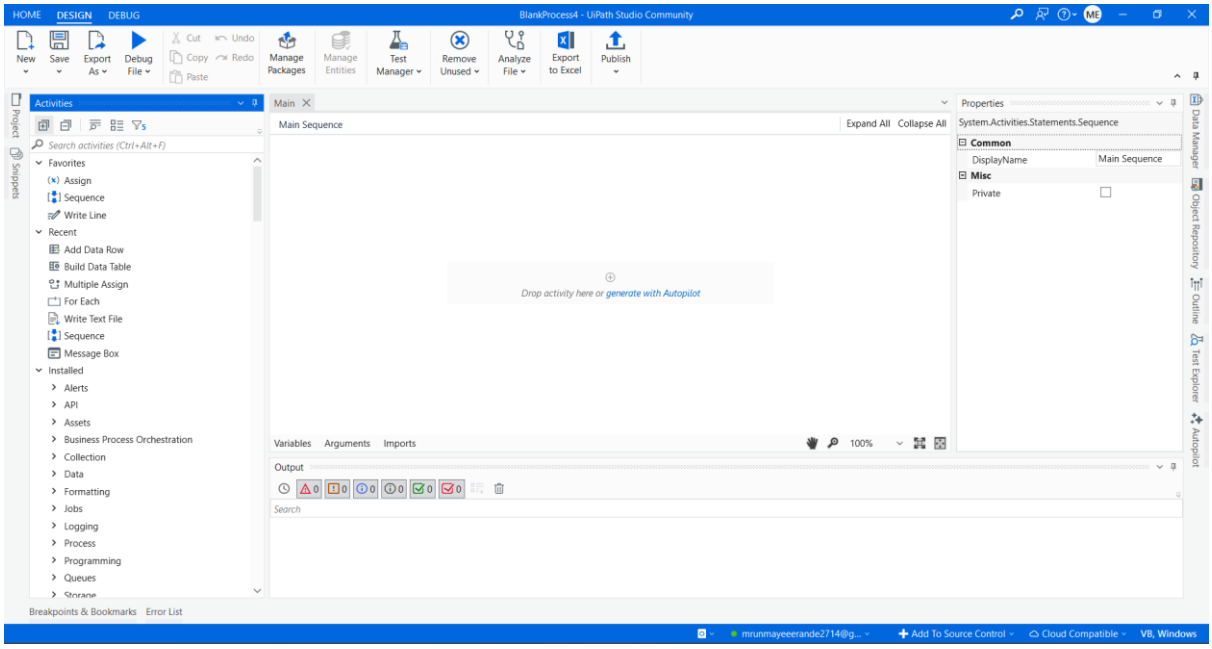
Practical no 1

Aim: Read and Write the Data and Append it to excel.

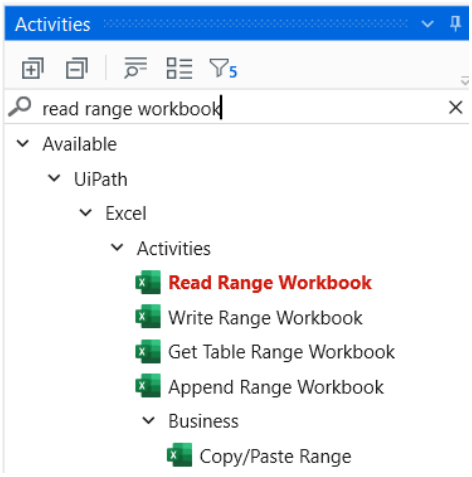
Practical implementation:

a) **Read and write the Data.**

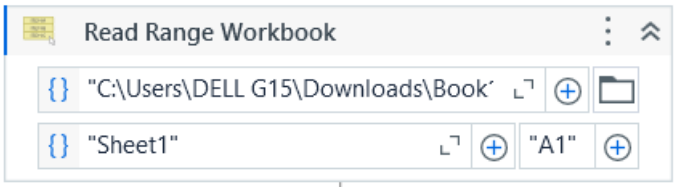
1. Open UiPath Studio and create a new project.



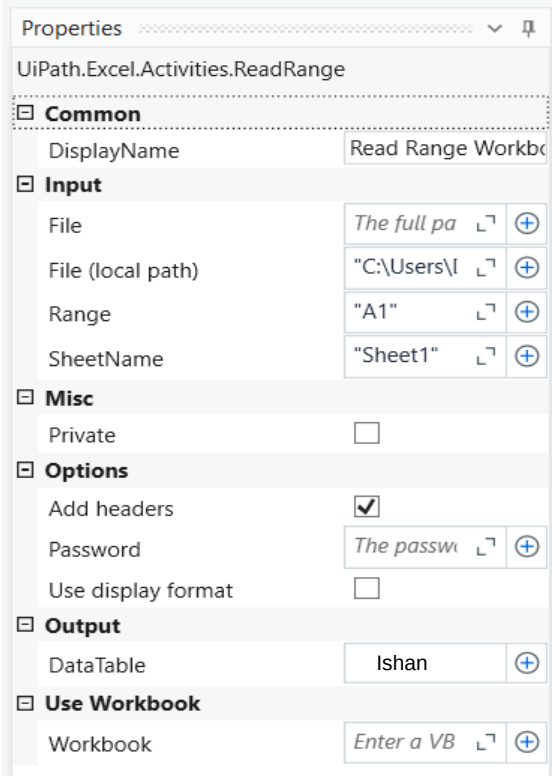
2. In the Activities panel search for 'Read Range Workbook' to read the excel.



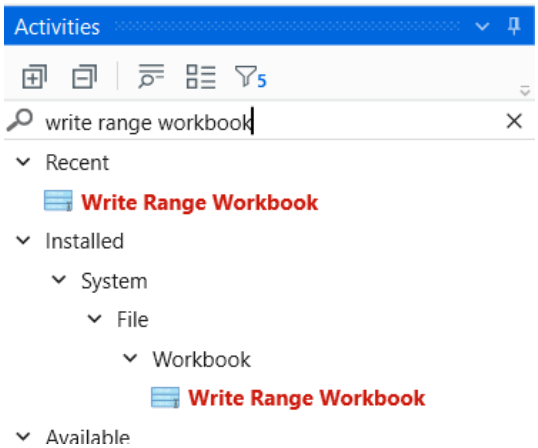
3. Assign the activity with the path of a workbook. Then mention the sheet and cell.



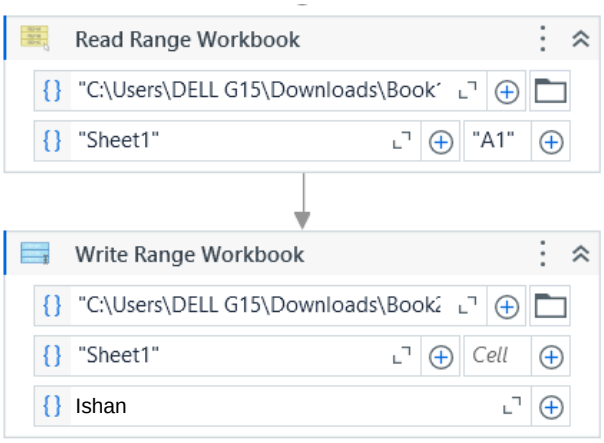
4. In Properties panel, create a variable to store the read value.



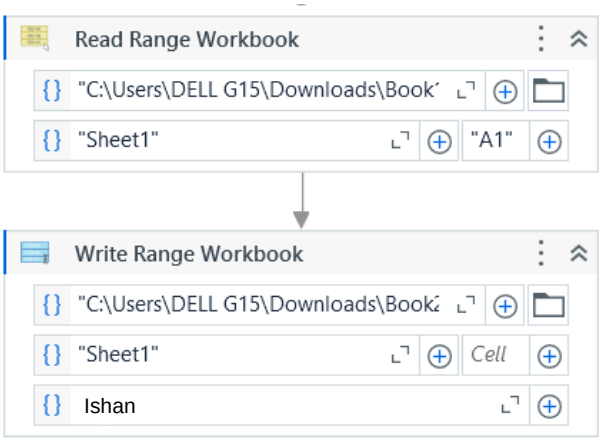
5. Now search 'Write Range Workbook' in the activities panel.



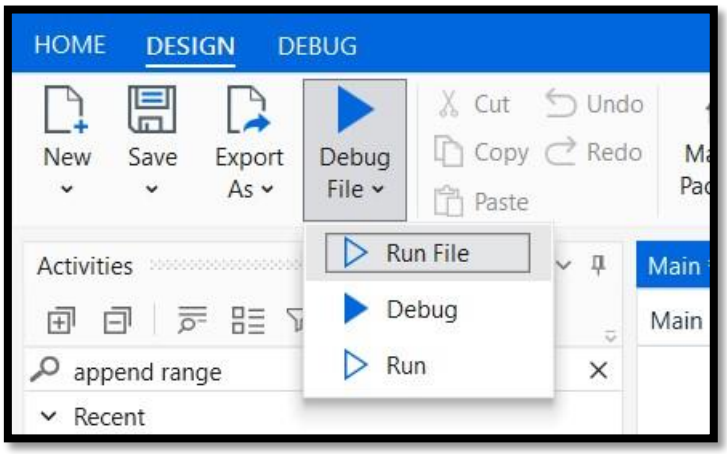
6. Drag and drop ‘Write Range Workbook’ in the Designer Panel below the Read Range Workbook.



7. Again, assign the path of the workbook and the sheet where the value should be written. Also declare the previously created variable in data table.



8. Run the automation workflow.

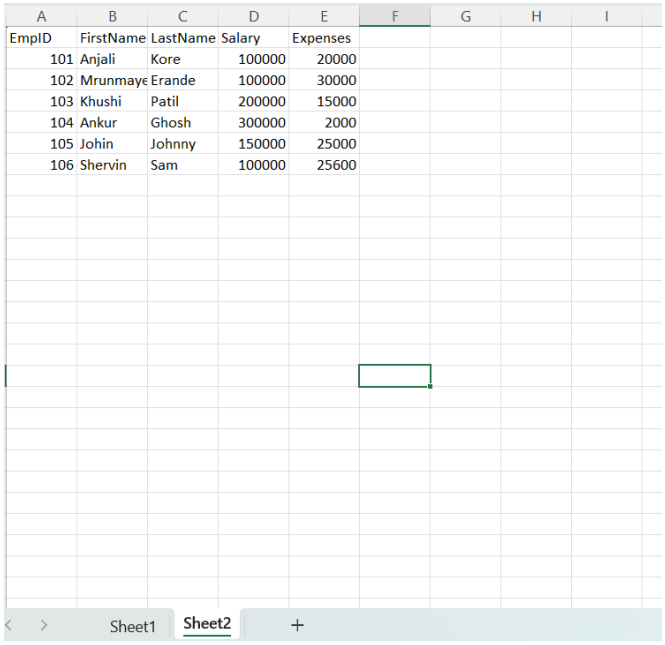


Output:

- Details mentioned in the workbook that is mentioned in the Read Range workbook.

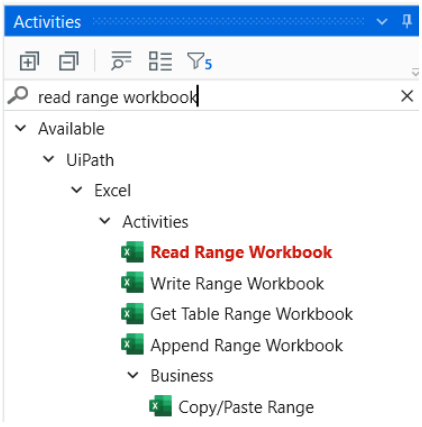
EmpID	FirstName	LastName	Salary	Expenses
101	Anjali	Kore	100000	20000
102	Mrunmaye	Erande	100000	30000
103	Khushi	Patil	200000	15000
104	Ankur	Ghosh	300000	2000
105	Johin	Johnny	150000	25000
106	Shervin	Sam	100000	25600

- Output of the activity in "Sheet 2"

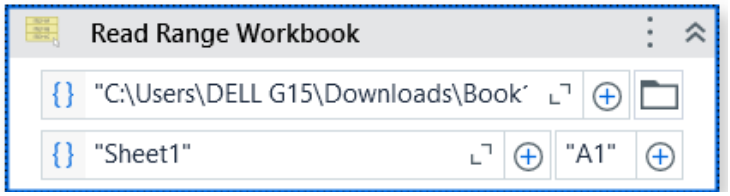


b) Read and Append the data in the excel.

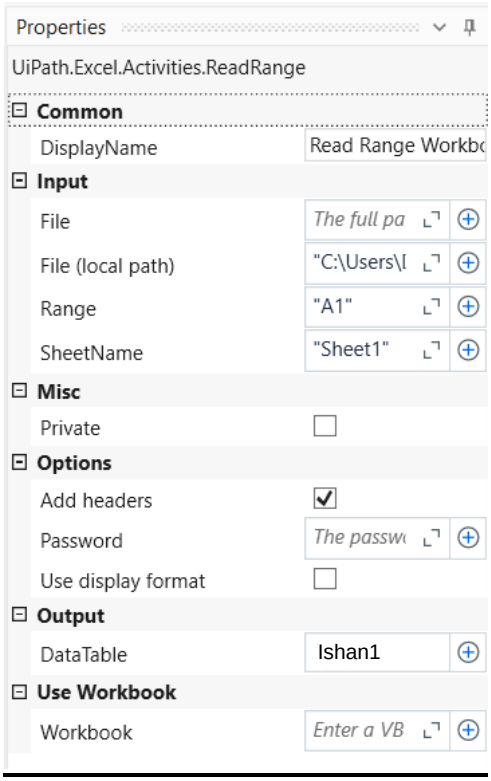
1. In the Activities panel search for 'Read Range Workbook' to read a value in excel.



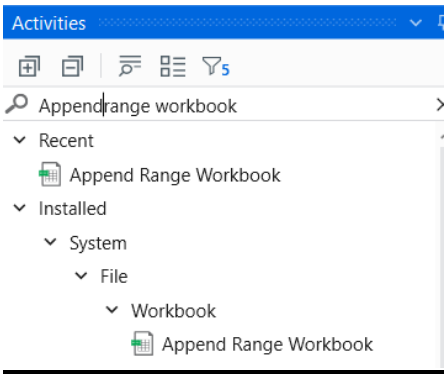
2. Assign the activity with the path of a workbook. Then mention the sheet and cell.



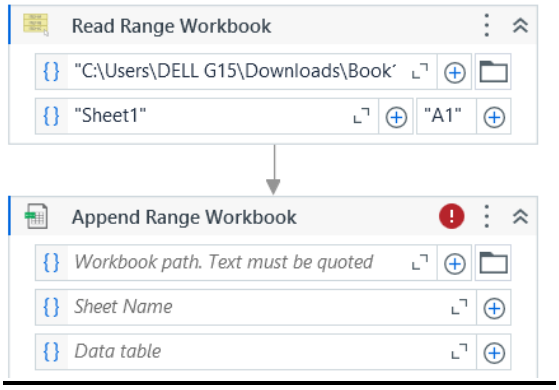
3. In Properties panel, create a variable to store the read value.



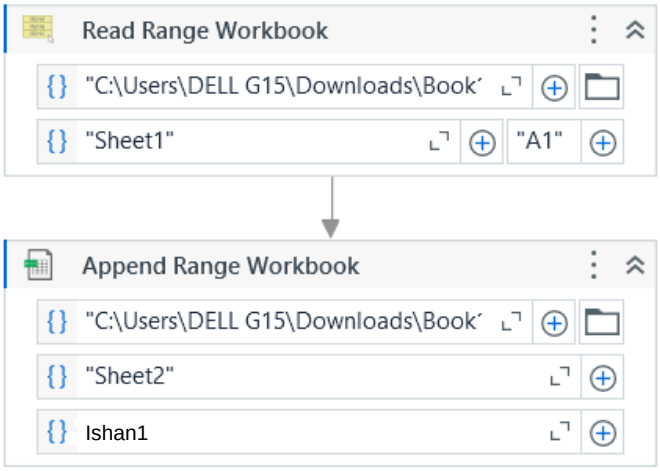
4. Find the 'Append Range Workbook' to append the data to another existing workbook.



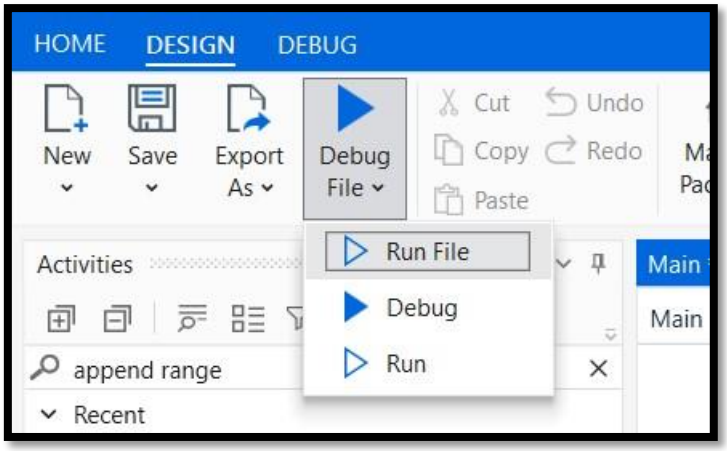
5. Drag and Drop the ‘Append Range Workbook’.



6. Now, assign the path of the workbook and the sheet name. Use the variable as the ‘mrunmayee1’ to append.



7. Run the automation workflow.



Output:

- Data that need to be appended in the workbook.

A	B	C	D	E
EmpID	FirstName	LastName	Salary	Expenses
107	Chinamyee	Erande	50000	15000

- Data appended in ‘Sheet2’ after reading from ‘Sheet1’.

A	B	C	D	E
EmpID	FirstName	LastName	Salary	Expenses
101	Anjali	Kore	100000	20000
102	Mrunmayee	Erande	100000	30000
103	Khushi	Patil	200000	15000
104	Ankur	Ghosh	300000	2000
105	Johin	Johnny	150000	25000
106	Shervin	Sam	100000	25600
107	Chinamyee	Erande	50000	15000

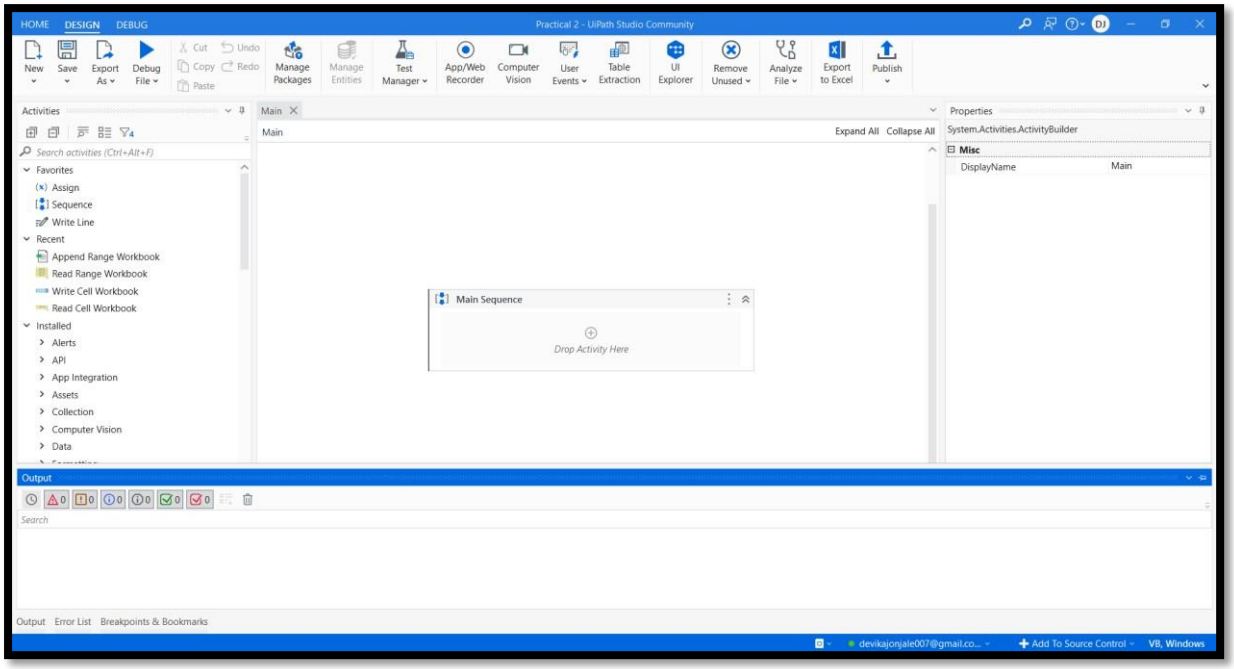
Practical 2

Aim: Prepare a process of sending and receiving mail with/without attachment.

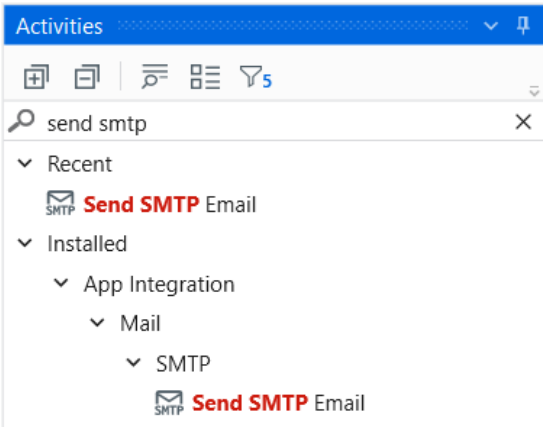
Practical implementation:

a. Sending mail without attachment.

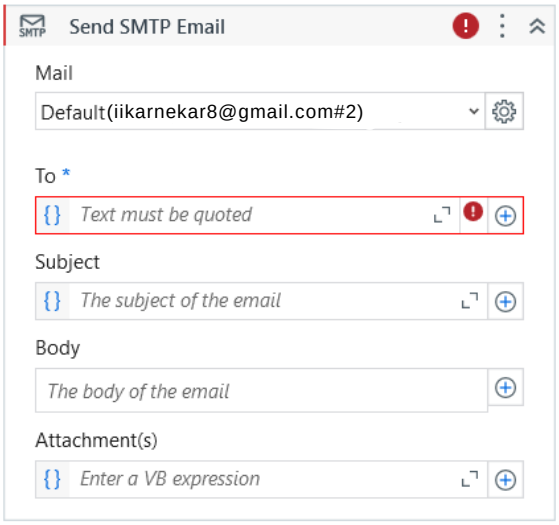
1. Open UiPath Studio and start a new project.



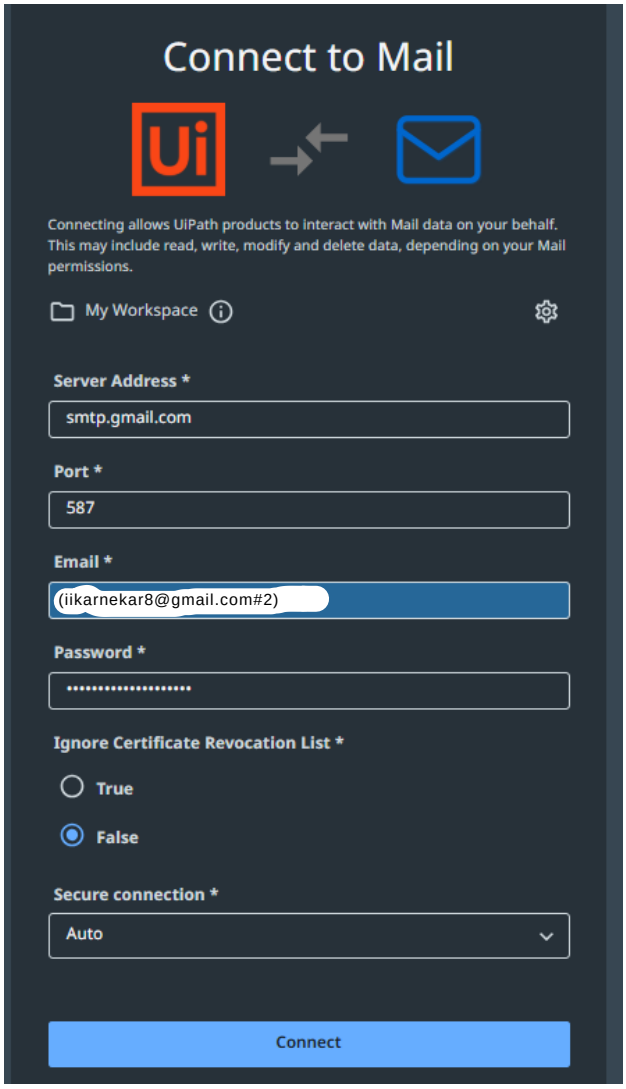
2. In the Activities panel, search for 'Send SMTP Email' activity to send an email.



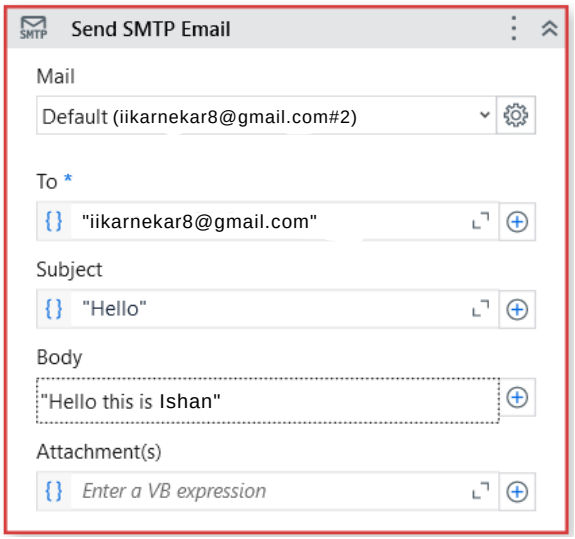
3. Drag and Drop the activity.



4. Add new connection in the Mail section.

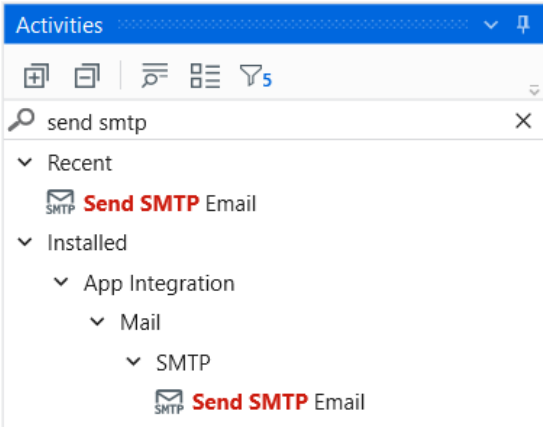


5. Mention the details in the respective sections.

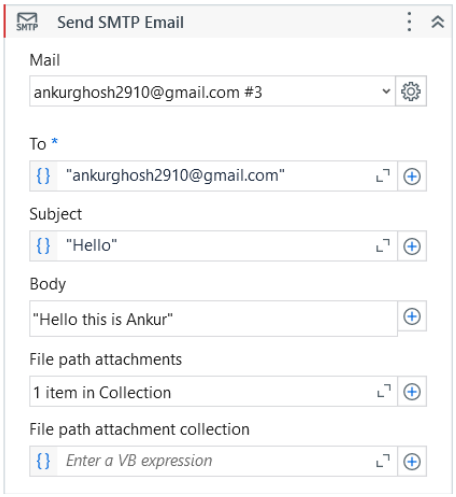


b. <u>Sending email with attachment.</u>

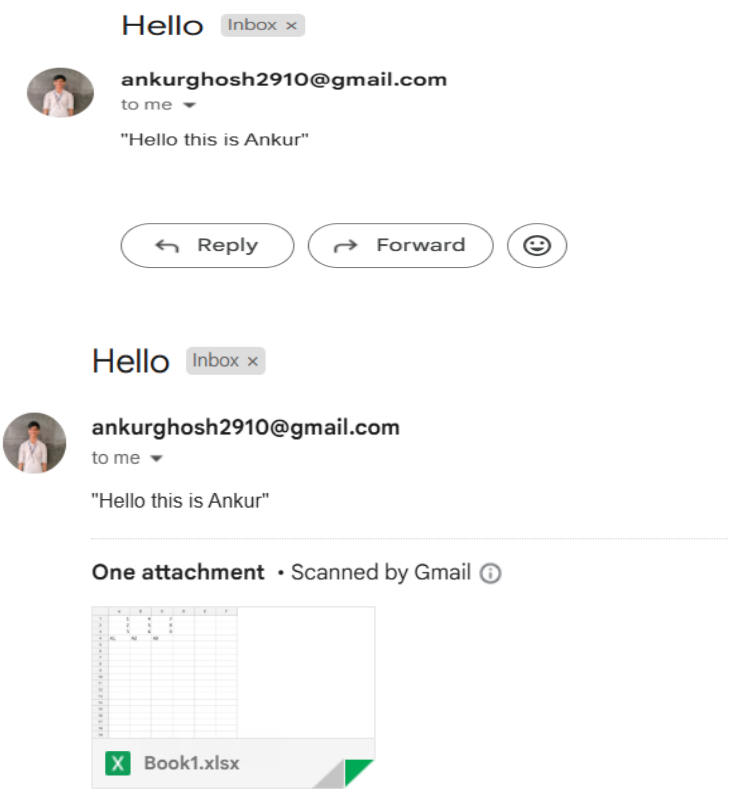
1. In the Activities panel, search for 'Send SMTP Email' activity to send an email with attachment.



2. Drag and Drop the activity.

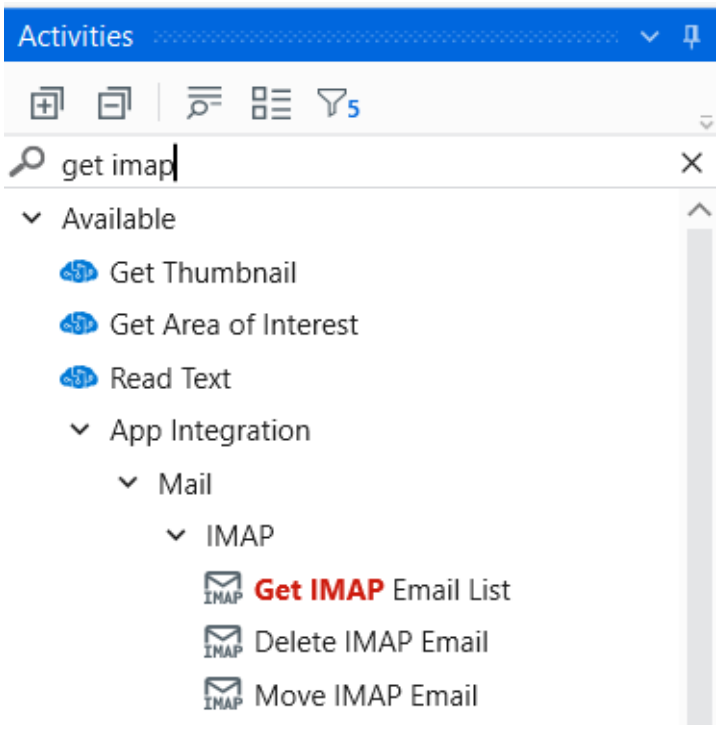


Output:

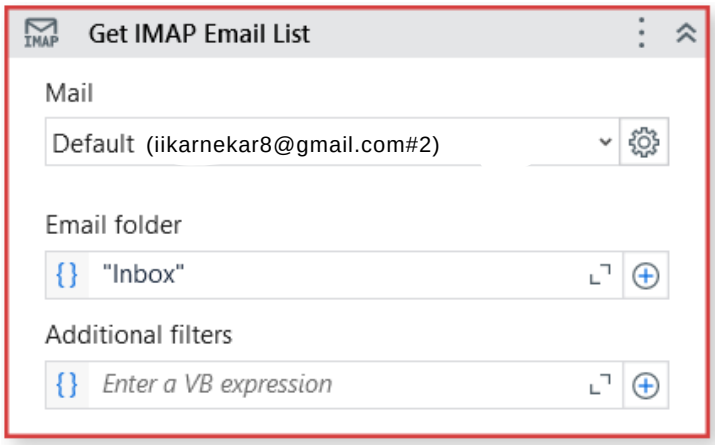


c. Receiving the email

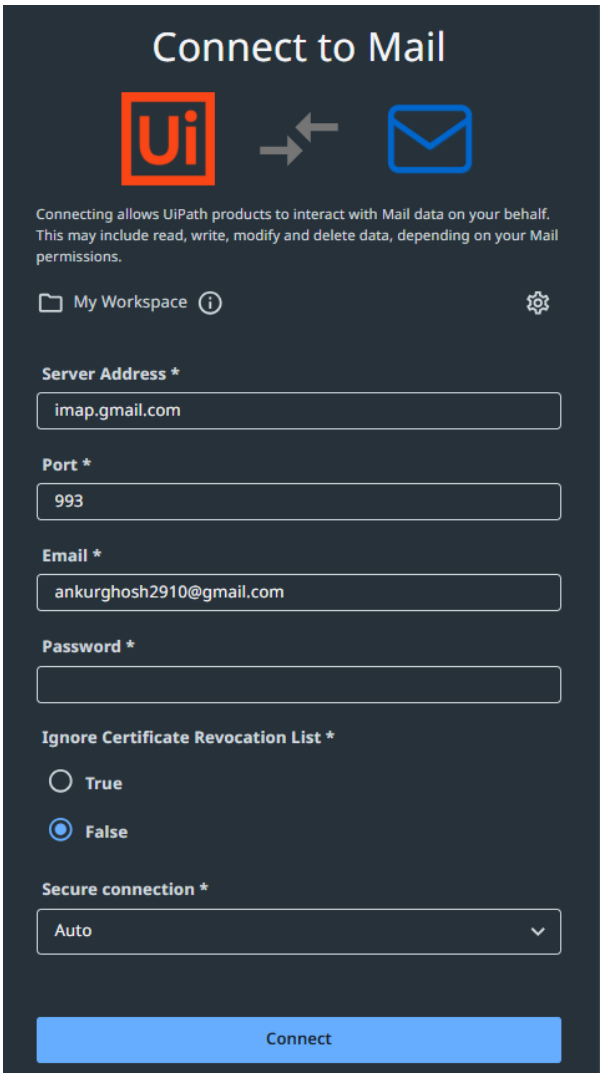
1. Search the 'Get IMAP Mail Message' activity.



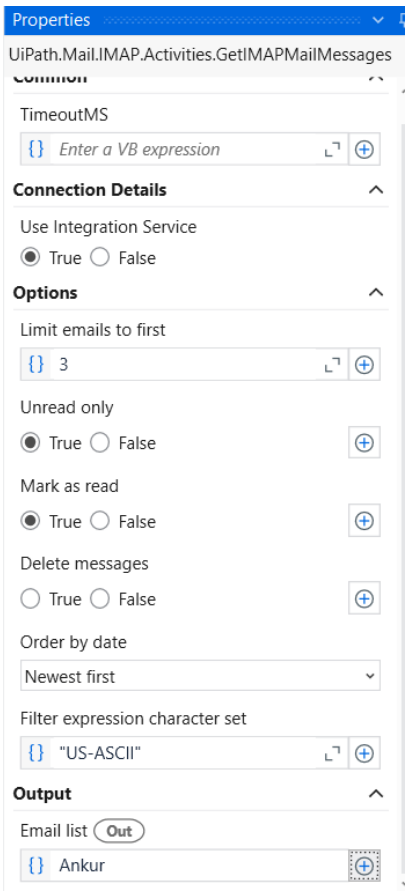
2. Drag and drop the activity to the main sequence.



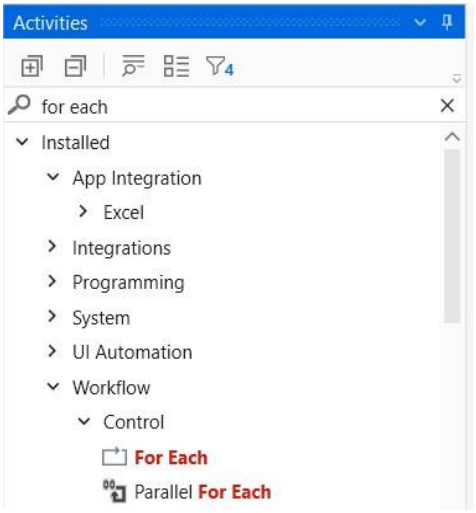
3. Add new connection in the mail section



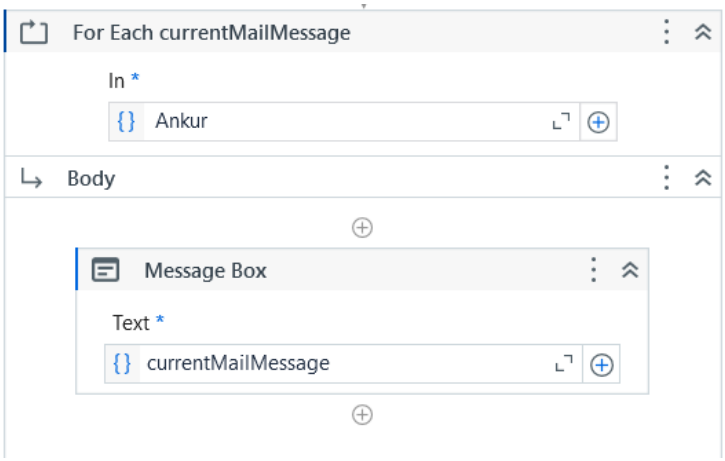
4. Create a variable to store the emails in it in the properties panel under output section.



5. Search 'For Each' activity under 'Workflow' in 'UiPath.System.Activities' section.

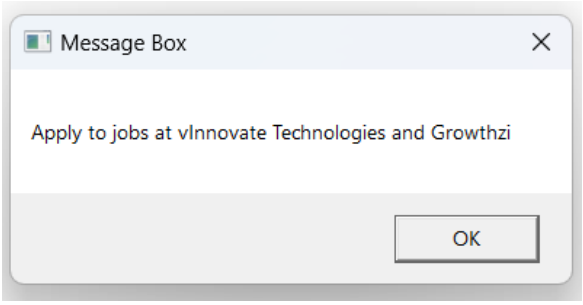


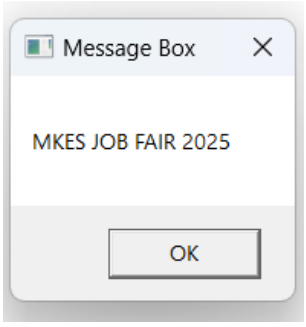
6. Assign the variable in this activity. Also, add a ‘Message Box’ activity in the ‘Body Section’ and fill the details in the text.

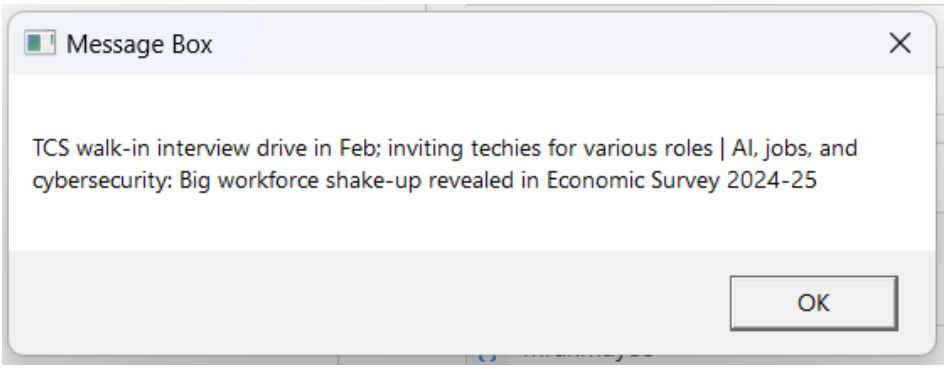


Output:

- Subject of the current 3 mail in the inbox.





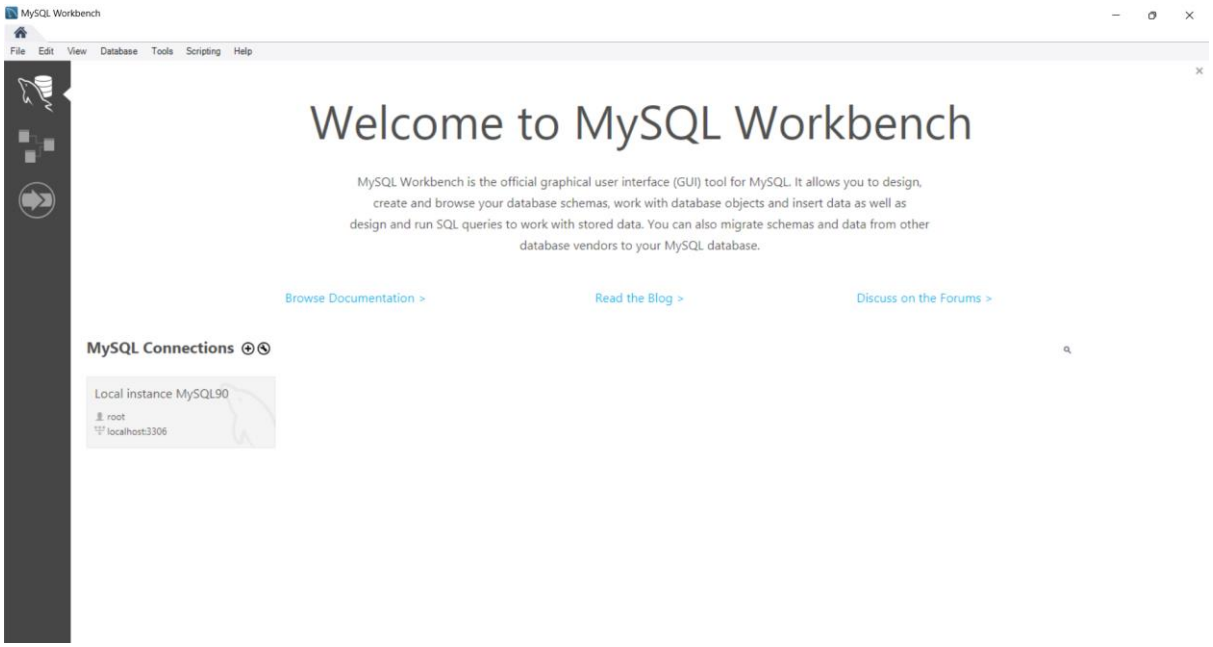


Practical 3

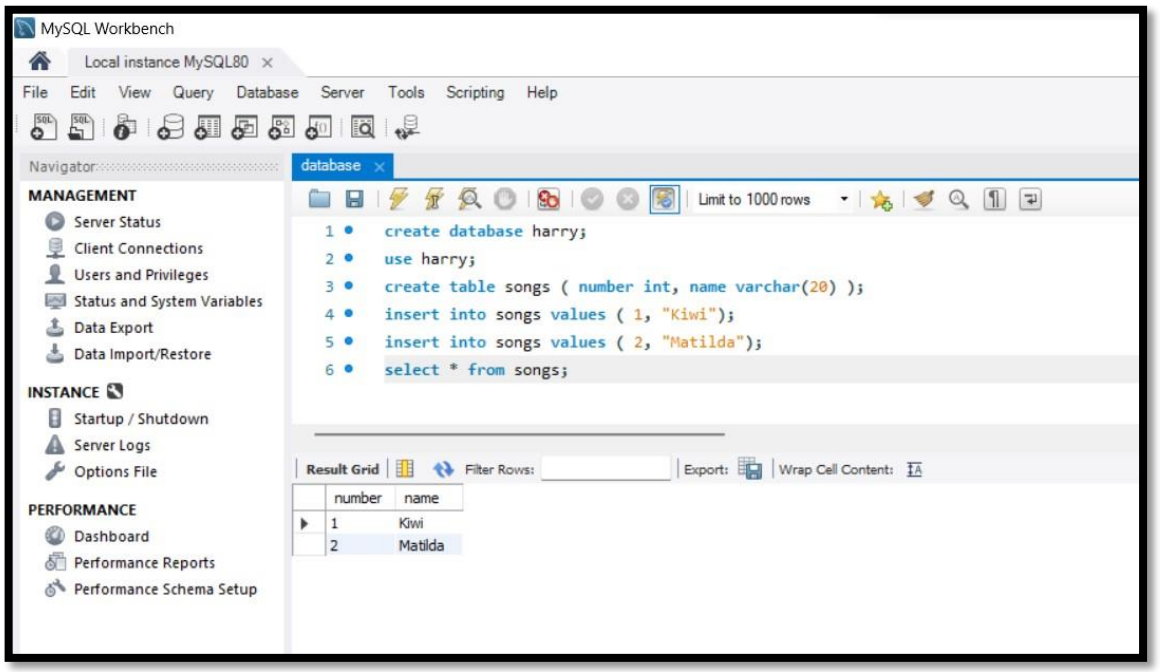
Aim: Fill the data to collection or to extract from SQL database.

Practical Implementation:

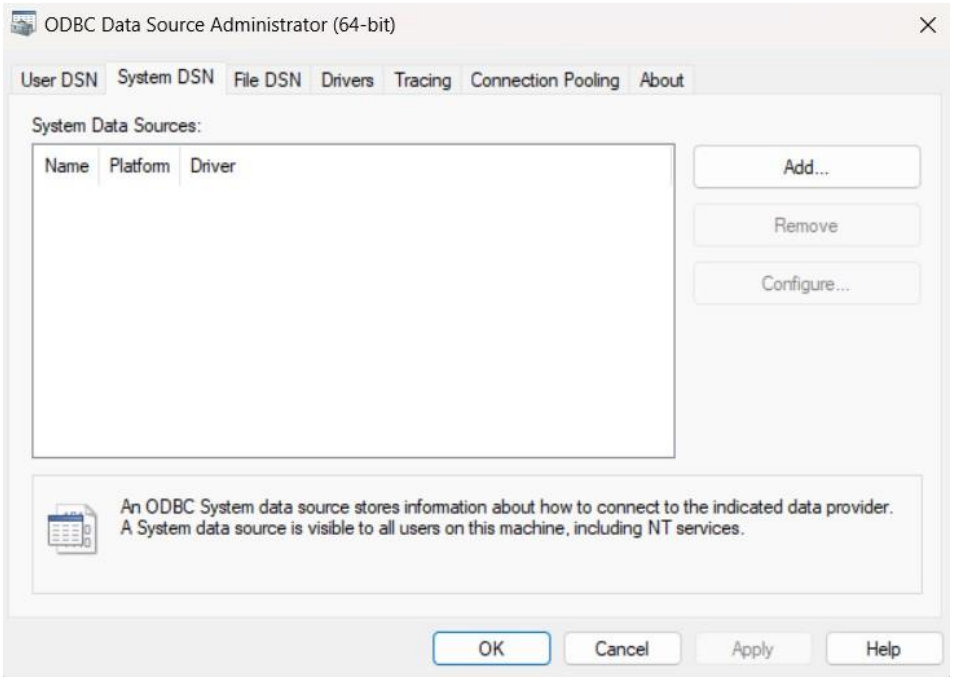
1. Run MySQL Installer to install MySQL Workbench and create a connection in MySQL Workbench.



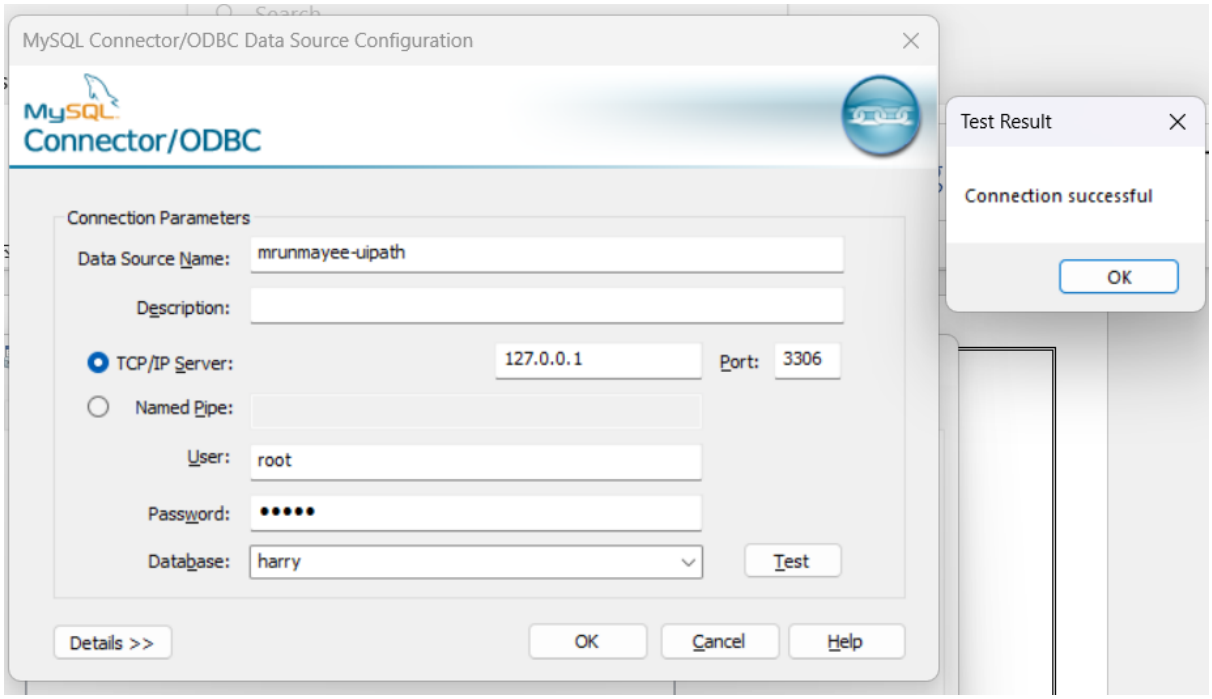
2. Create a new database in MySQL Workbench.



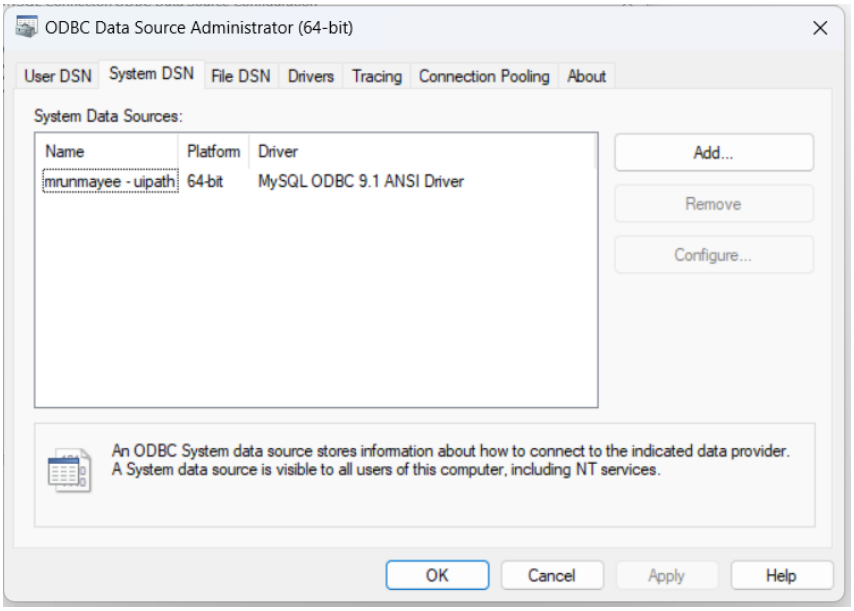
3. Install and open ODBC Data Sources (64 bit). Go to ‘System DSN’ and then, click on the ‘Add’ option.



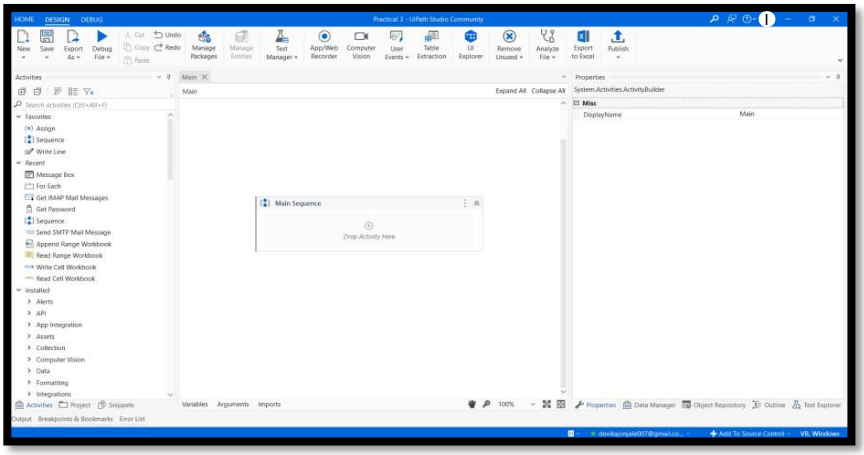
4. Here, fill the following details to create a connection with the above MySQL database.



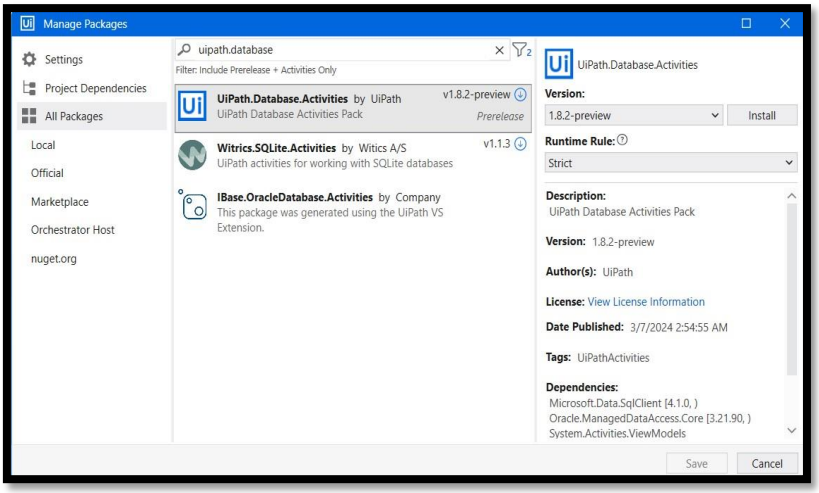
5. Check the connection on ODBC.



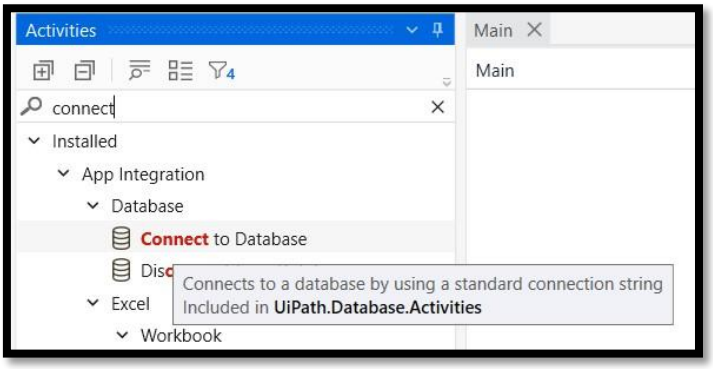
6. Now, open the UiPath Studio and create a new workflow.



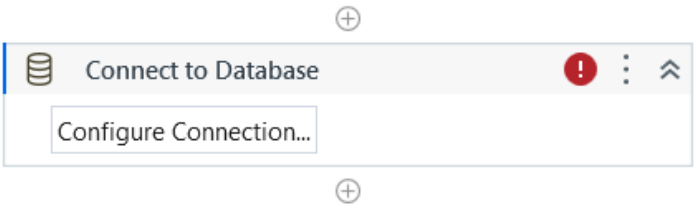
7. Click on 'Manage Packages' from the ribbon tab and install the 'UiPath.Database.Activites' dependency.



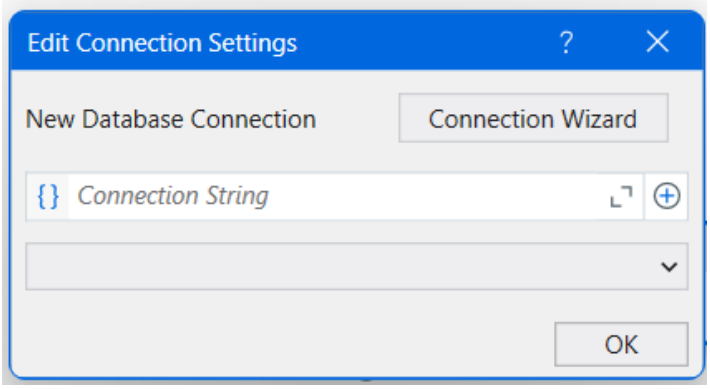
8. In the Activities Panel, find ‘Connect to Database’ activity. And so, drag and drop the activity into the Main Sequence.



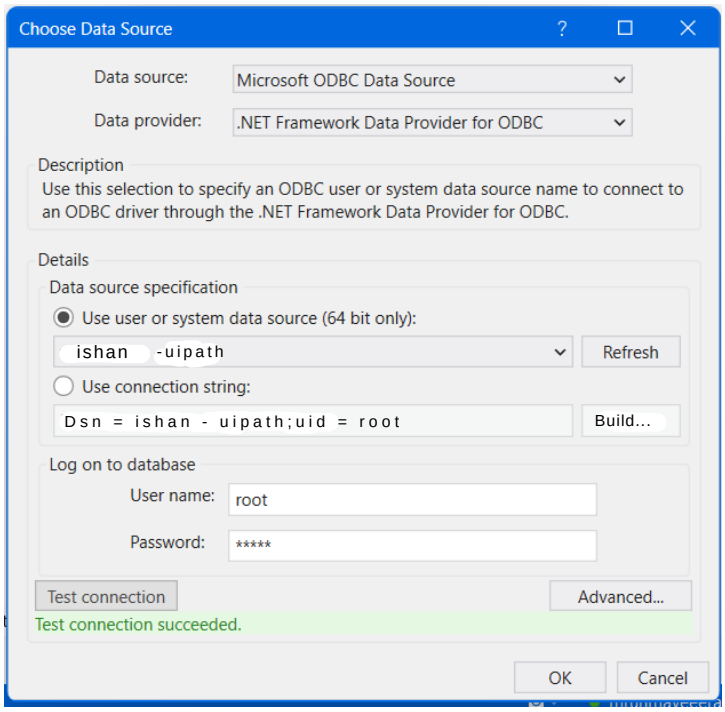
9. To setup the connection between the UiPath workflow and the MySQL database, click on ‘Configure Connection’.



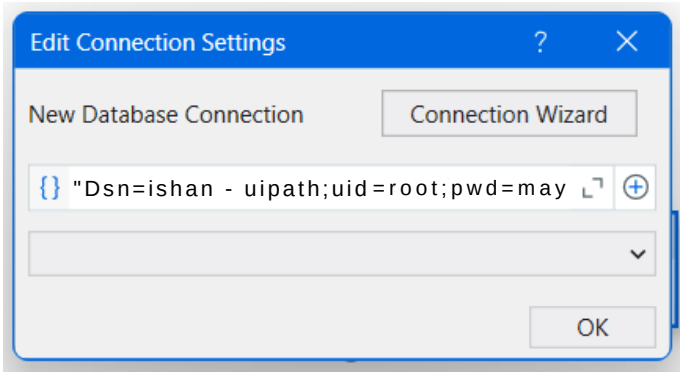
10. Next, click on ‘Connection Wizard’.



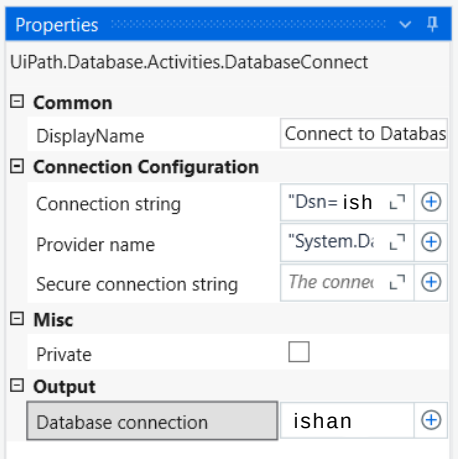
11. Fill the following details for the connection in the data source and test the connection.



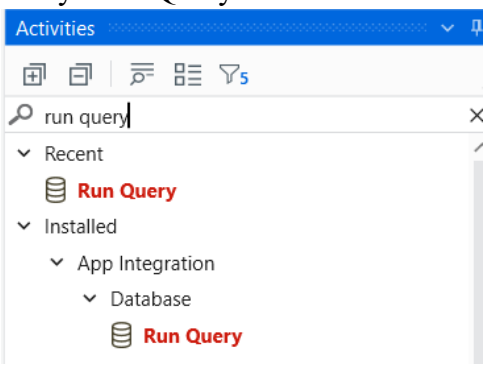
12. Thus, the connection settings should look like this.



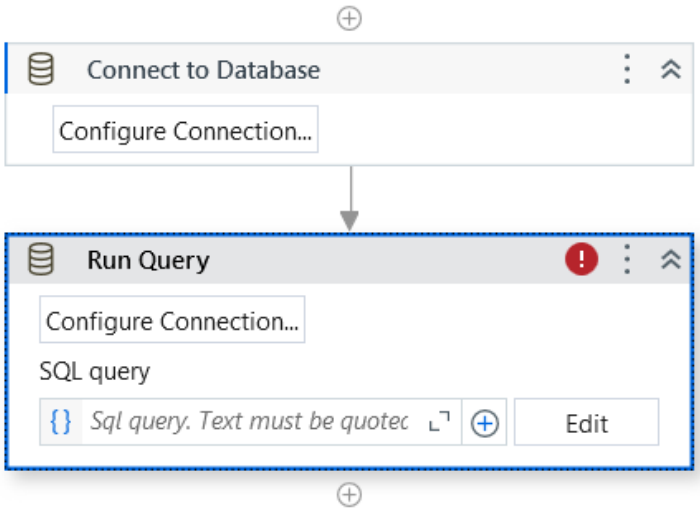
13. In the Properties of the activity, under 'Output', create a variable to store the information and carry it forward.



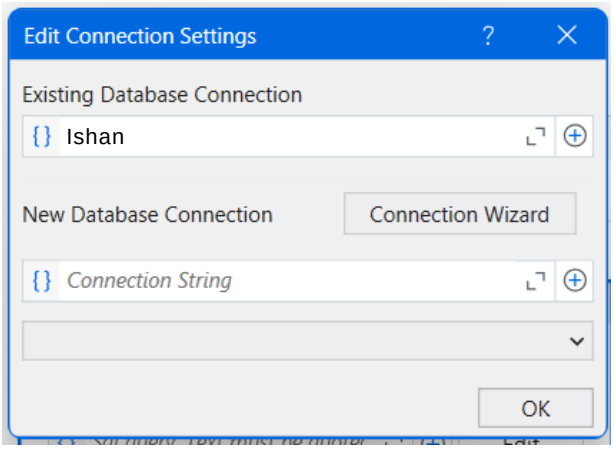
14. Next, find another activity ‘Run Query’ and add it to the Main Sequence.



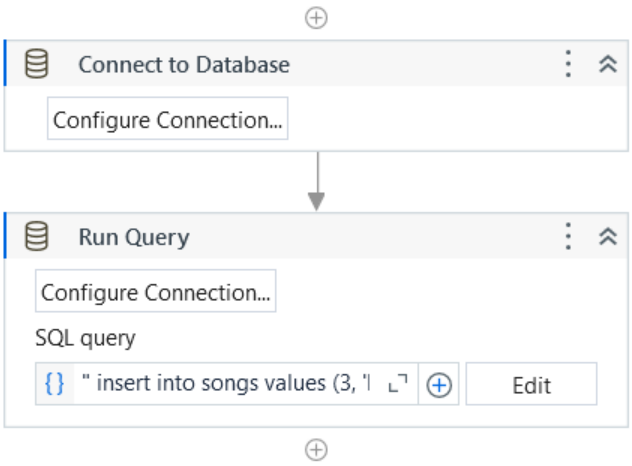
15. Click on ‘Configure Connection’ to connect the new activity to the previous one.



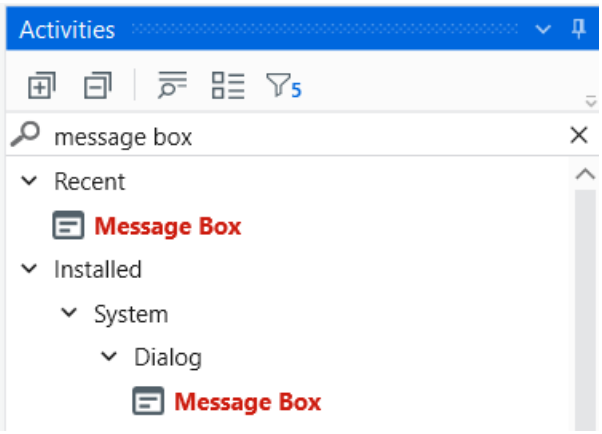
16. Here, use the previously made variable as the connection.



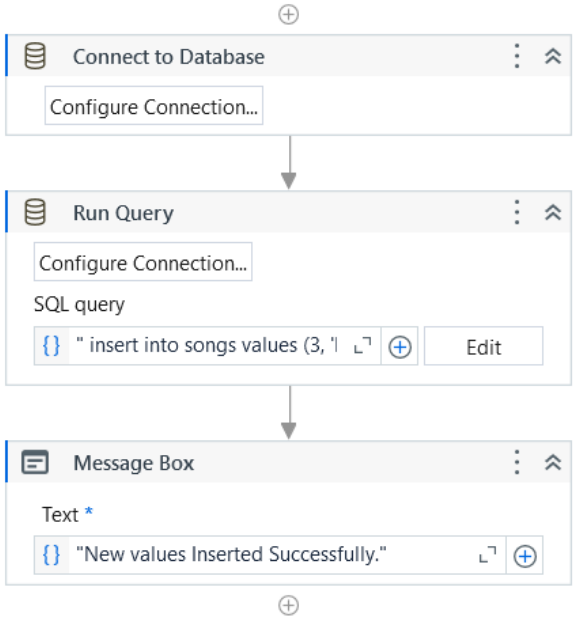
17. Fill the following information to send a query directly to the MySQL database to fill data into the table. **query:** " insert into songs values (3, 'Lights Up'); "



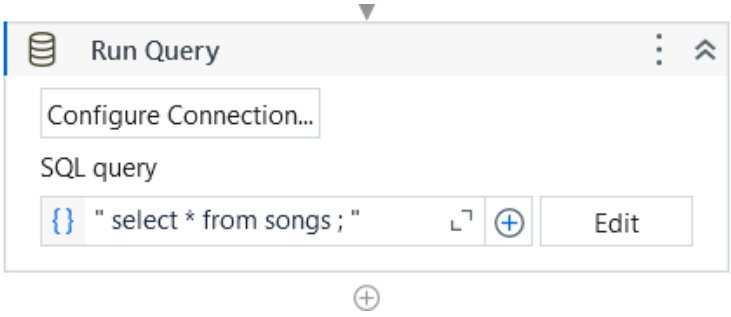
18. To display the result, use the ‘ Message Box’ activity.



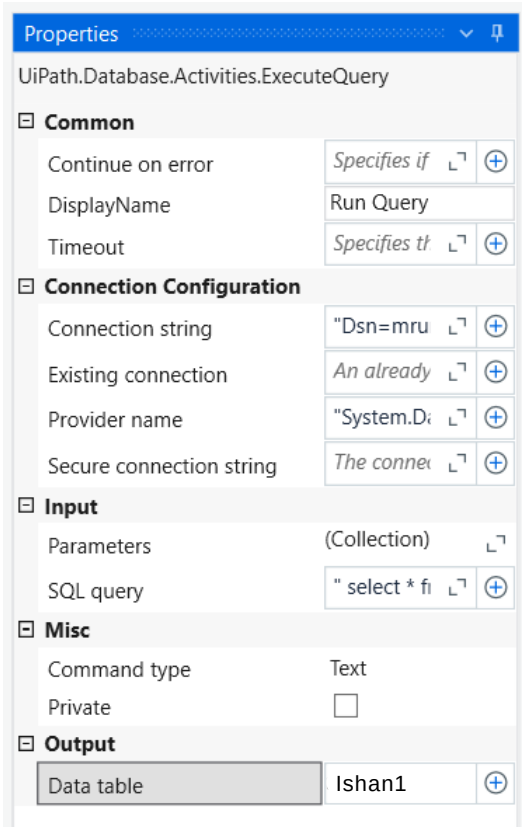
19. Use the following details for the message box activity.



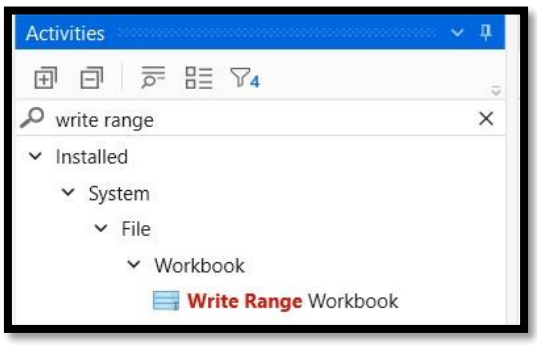
20. Again, use the ‘Run Query’ to send a query directly to the MySQL database to extract data from the table.



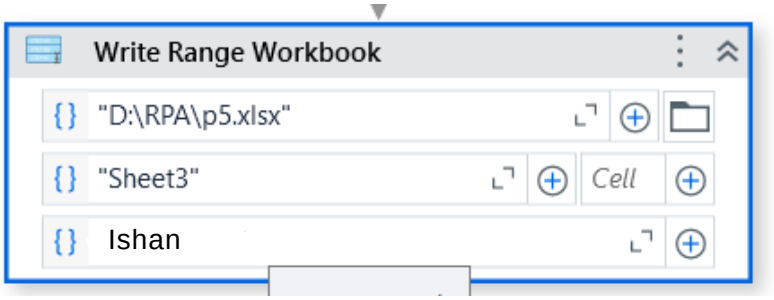
21. Create a new variable to store the extracted output in.



22. To store and view the extracted SQL table, use the ‘Write Range Workbook’ activity.

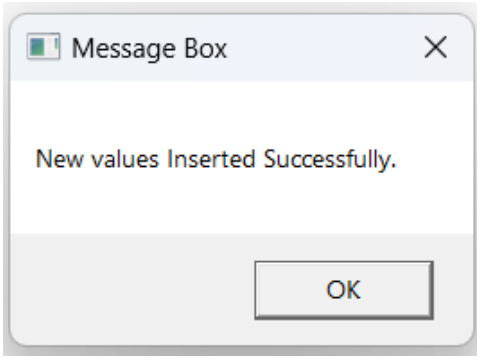


23. Next, create and save a new excel file in a folder. Then, add its path to the activity and other details as below. Also, attach the variable with the extract SQL data output.



Output:

- After inserting data into MySQL:



- After extracting data from MySQL:

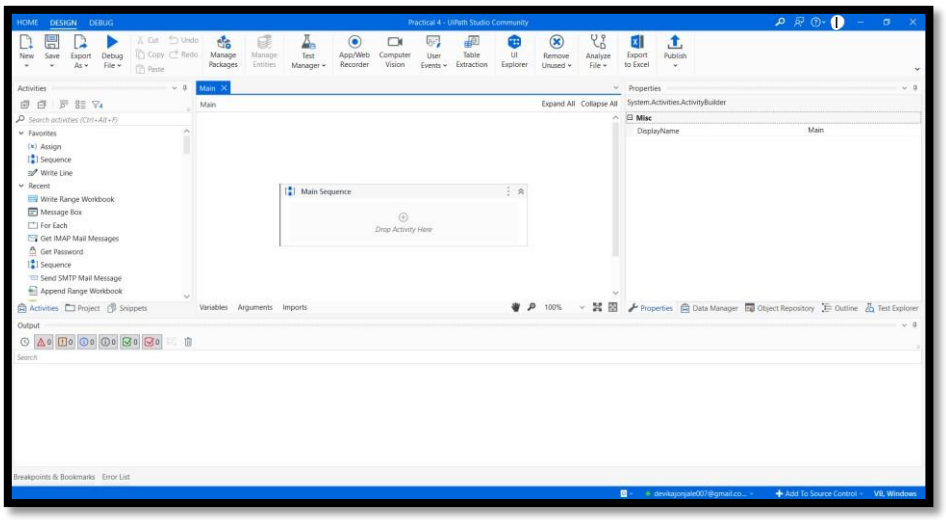
	A	B
1	1	Kiwi
2	2	Matilda
3	3	Lights Up

Practical 4

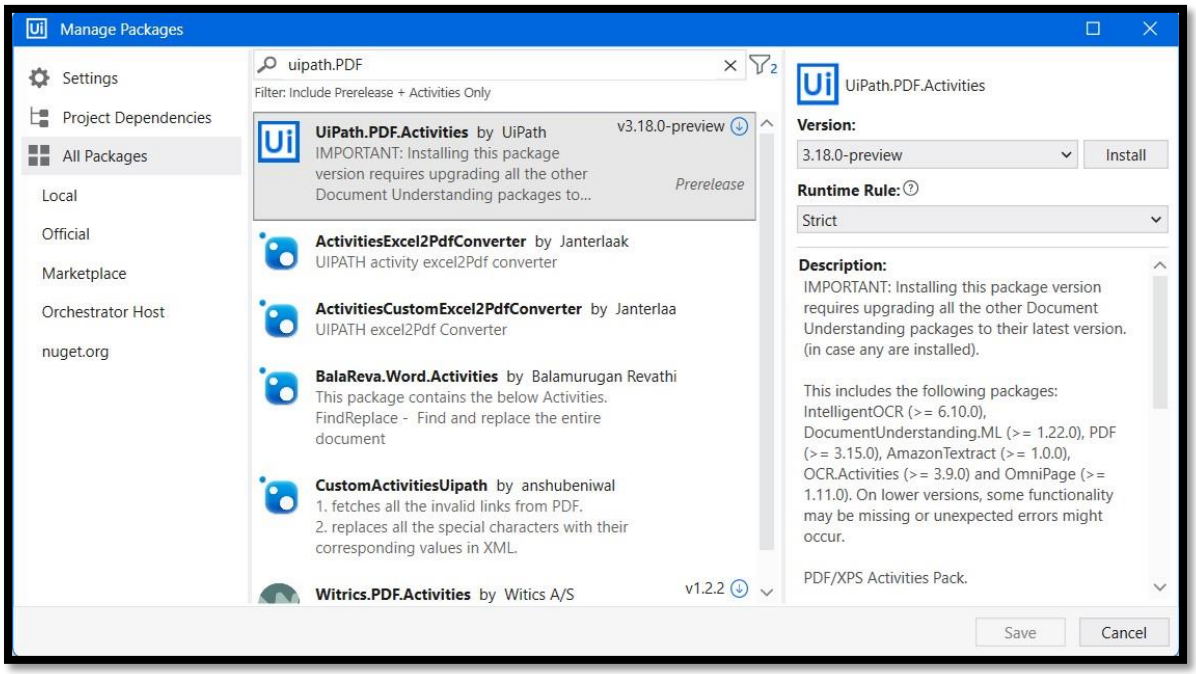
Aim: Data Scraping using Read Text from PDF and OCR.

Practical implementations:

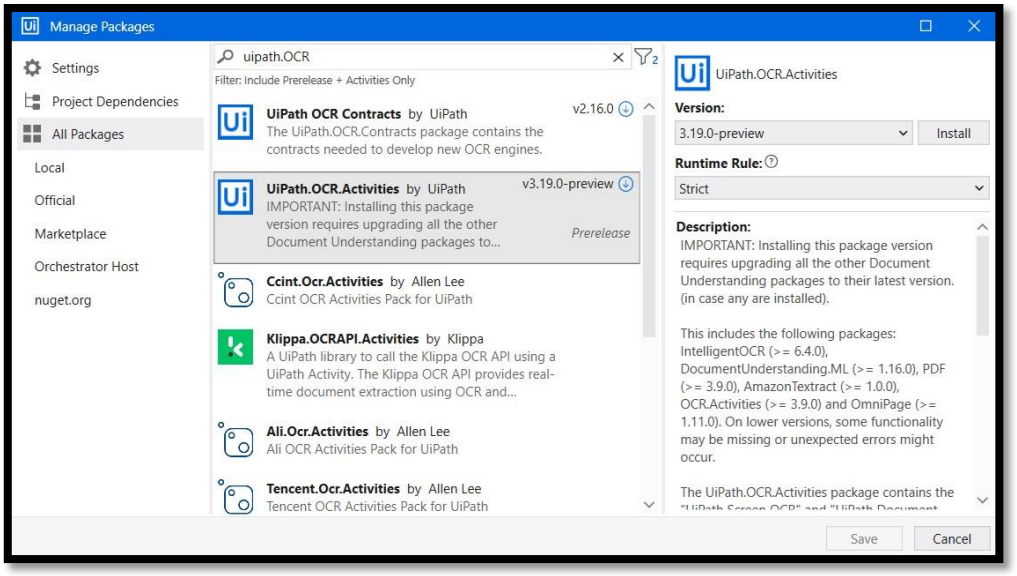
1. First, open UiPath Studio and create a new Project.



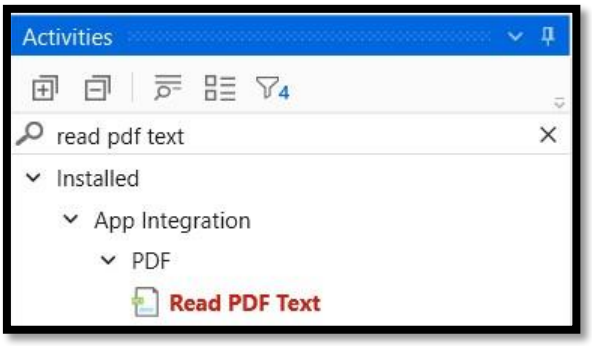
2. Click on 'Manage Packages' from the ribbon tab and install the 'UiPath.PDF.Activities' dependency.



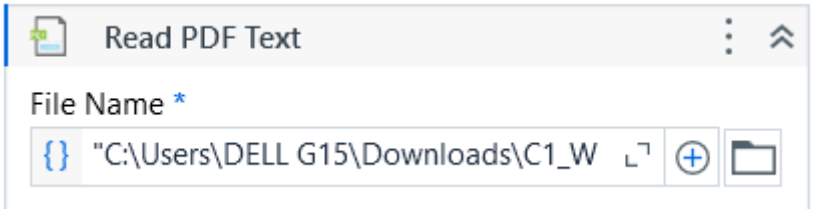
3. Also, install the ‘UiPath.OCR.Activties’ next.



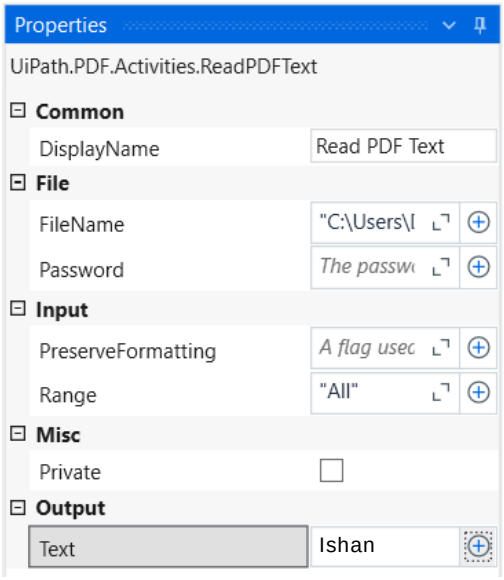
4. In the Activities panel, search for the ‘Read PDF Text’ activity to perform Data Scrapping on a PDF.



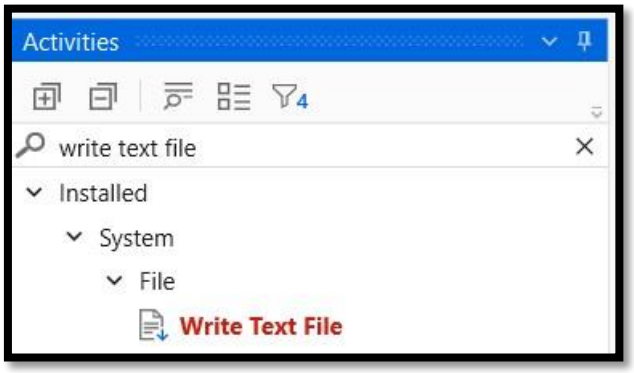
5. Drag and drop it and attach the path of the PDF to read.



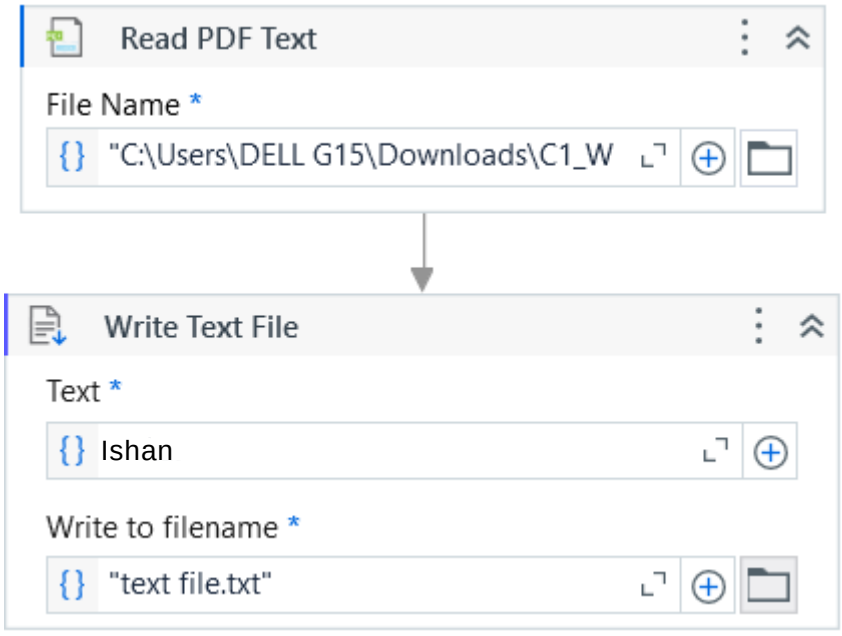
6. In the Properties panel of the activity, create a variable to store the output.



7. Next, find the 'Write Text File' activity to store and display the scrapped data in a text file.



8. Drag and drop the activity and fill the activity by assigning the path of the text file.



Output:

- The pdf assigned in the activity.

Running Head: DEVELOPMENT OF AI ALGORITHM FOR THE ANALYSIS OF BPA

UNIVERSITY OF CENTRAL OKLAHOMA

Edmond, Oklahoma

Jackson College of Graduate Studies

Development of an Artificial Intelligence Method for the Analysis of Bloodstain Patterns

A THESIS

SUBMITTED TO

Dr. James Creecy

Mr. Craig Gravel

Dr. Jicheng Fu

In partial fulfilment of the requirements

For the degree of

MASTER OF SCIENCE IN FORENSIC SCIENCE

By

Niketha Ravivarma

Edmond, Oklahoma

2021

Development of an Artificial Intelligence Method for the Analysis of Bloodstain Patterns

By: Niketha Ravivarma

University of Central Oklahoma

May 2021

Jackson College of Graduate Studies at the University of Central Oklahoma

A THESIS APPROVED FOR

THE W. ROGER WEBB FORENSIC SCIENCE INSTITUTE

By

James Creecy, Ph.D., Committee Chairperson

By

Jicheng Fu, Ph.D., Committee member

By

Craig Gravel, M.S., Committee member

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Thank you,

My father, for being my teacher, my guardian angel, for your unconditional love, faith, and support

My mother, for being my dear friend, my inspiration, my teacher, my love and for her guidance

My husband, for being my constant support, my accomplishments, and his unconditional love

My teachers for good Guidance, faith, inspiration, and support

My dear lord for this beautiful Life.

In India, there is a saying "Matha, Pitha, Guru, Deivam" (meaning Mother, Father, Teacher, and

THESIS ABSTRACT

NAME: Niketha Ravivarma

TITLE OF THESIS: Development of an Artificial Intelligence Method for the Analysis of Bloodstain Patterns

THESIS ADVISOR: Dr. James Creecy

ABSTRACT: Bloodstain Pattern Analysis (BPA) is a forensic discipline that plays a crucial role in reconstructing the events at a crime scene (Acampora, 2014). The shape, size, distribution, and location of bloodstains can help infer the potential murder weapon, the origin of the attack, and if the body has been moved or relocated from the original crime scene. Commonly, errors in identifying blood spatter evidence arise when the crime scene has large amounts of bloodstains which can yield less information during analysis. This study aims to utilize artificial intelligence (A.I.) algorithms to assist the analyst in the analysis of bloodstain patterns. To date, BPA relies on a manual analysis process; therefore, it is imperative to have forensic analysts who can accurately produce reliable results (Hoefz, 2009). However, human error is unavoidable, and analyst error can result in inaccurate conclusions that can jeopardize casework. The President's Council of Advisors on Science and Technology (PCAST) report on *Forensic Science in Criminal Courts: Ensuring Scientific Validity of Feature-Comparison Methods* brought to light the shortcomings of many forensic disciplines, including BPA. To improve the field of BPA, automated and computer-assisted methods of analysis are needed. In this study, we used A.I. to estimate the angle of impact from simulated crime scene samples. Our A.I.-assisted approach was determined to be accurate

- Result after 'Read PDF Text' Activity.

```
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2
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First and foremost, I would like to thank the Forensic Science Institute Director, Dr. Dwight
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his constant faith and support for me. I want to express my gratitude to Mr. Craig Gravel and Dr.
Jicheng Fu, my research supervisors, for their patient guidance, encouragement, useful critiques
```
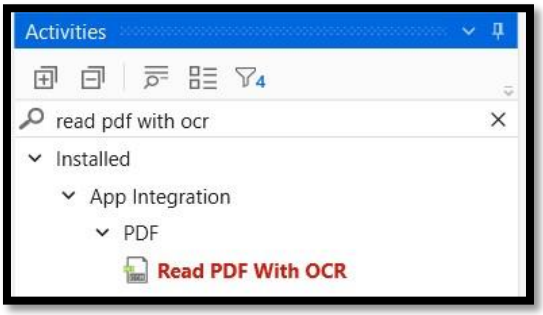
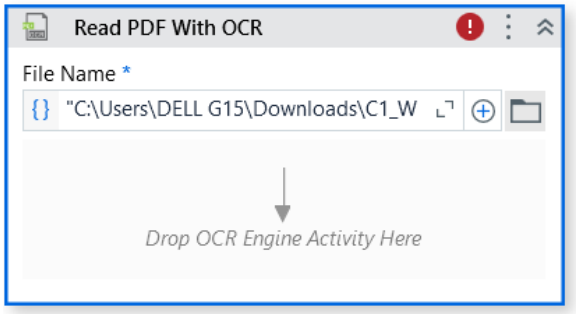

b) Data Scrapping using ocr

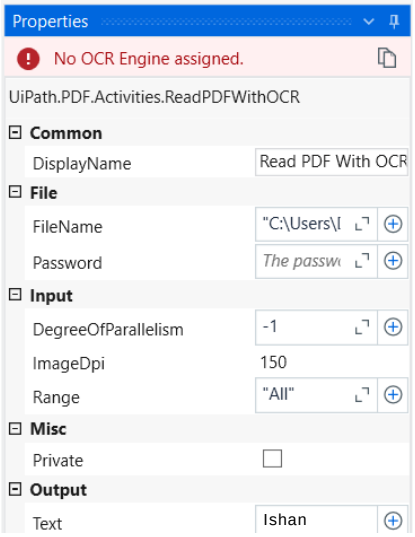
1. Search the ‘Read PDF with OCR’ activity.



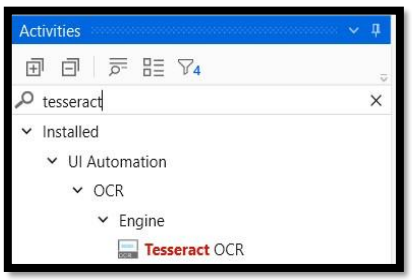
2. Drag and drop it and assign the address of the PDF file to read.



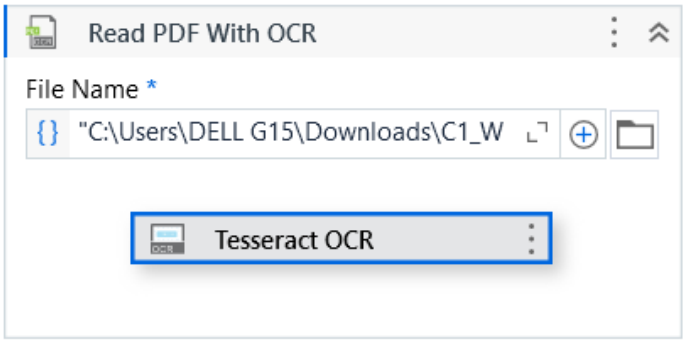
3. Create a variable in the Properties to store the output.



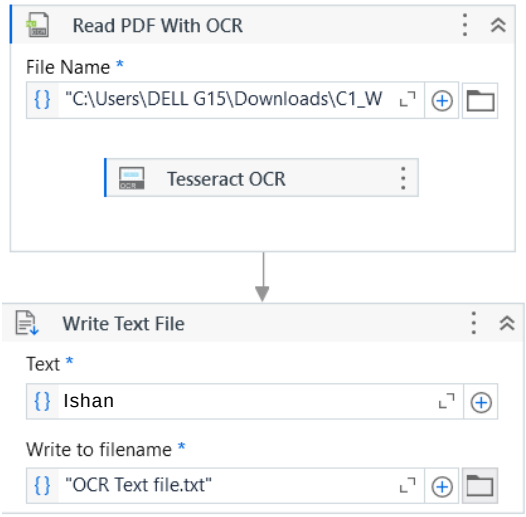
4. Next, find ‘Tesseract OCR’ activity.



5. Add it to the ‘Read PDF with OCR’ activity, in the ‘Drop OCR Activity’ section.



6. Now, once again add the ‘Write Text File’ to the sequence and fill the activity by assigning the path of a new text file.



Output:

- Result after ‘ Read PDF with OCR’ Activity:

```
C ight Noti
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educational purposes as long as you cite Deeplearning.Al as the source of the slides.
For the rest of the details of the license, see https://creativecommons.org/licenses/by-sa/2.0/legalcodeRules
(Expressed in Code)
calcPE(stock){ /
— price = readPrice();
earnings = readEarnings();
Data return (price/earnings);
} EN
Answers
(Returned From Code)
depleamingalSN if (ball.collide(brick)){
Rd ~. removeBrick();
¥ \, ball.dx=-1%*(ball.dx);
“i ball.dy=-1%*(ball.dy);
“ }
| |Rules
oo = Tradbidenal ) Answers |
_Data ~ J >_Rulles )
Traditional ARSIvErs
1 J >
Answers \
Machine
j E>
De® | —Activity Recognition
if(speed<4){
status=WALKING;
}Activity Recognition
i
if(speed<4){ if(speed<4){
status=WALKING; status=WALKING;
} } else {
```
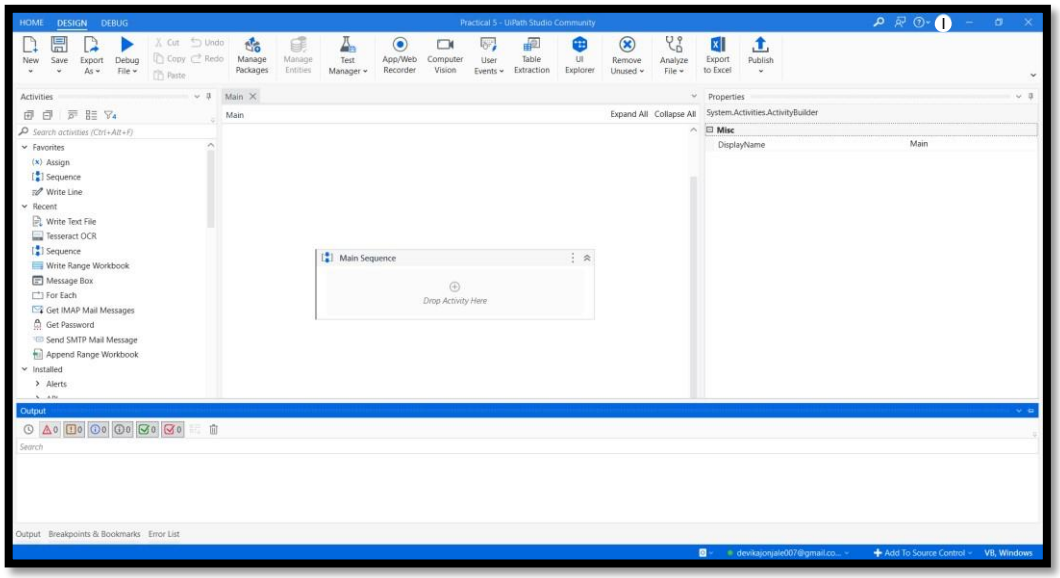

Practical 5

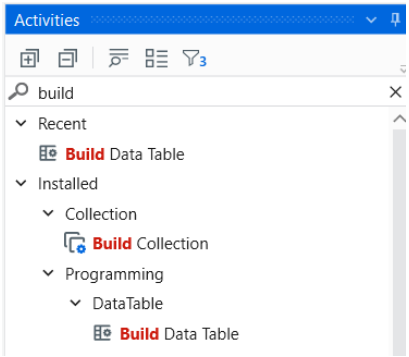
Aim: Write a script to extract the information from email and to analyse the same.

Practical implementations:

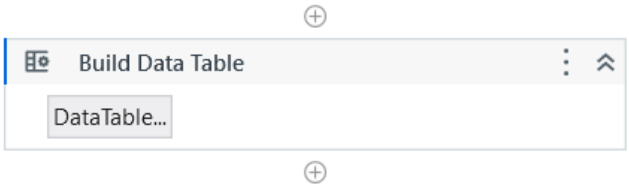
1. Open UiPath Studio and start a new Project.



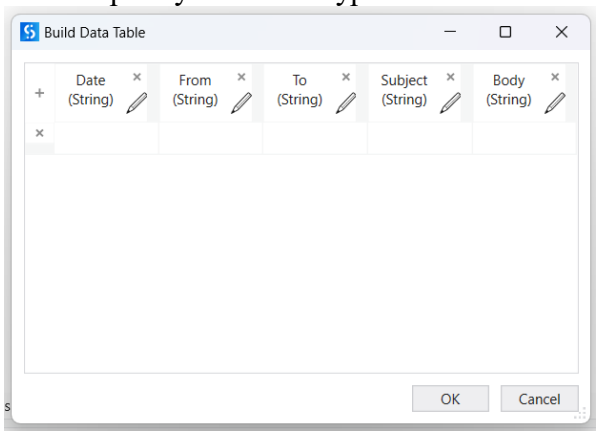
2. In the Activities panel, search for 'Build Data Table' activity to store data from an Email in a structured format.



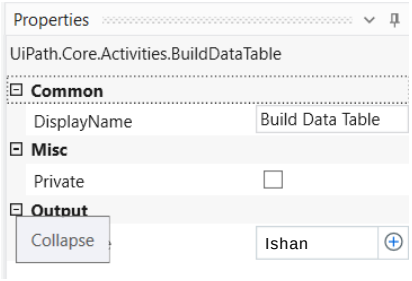
3. Drag and drop it into the Main Sequence. Then, click on 'DataTable' to create one.



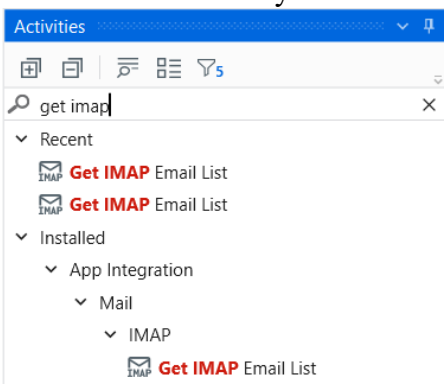
4. Here, add columns and specify their data type.



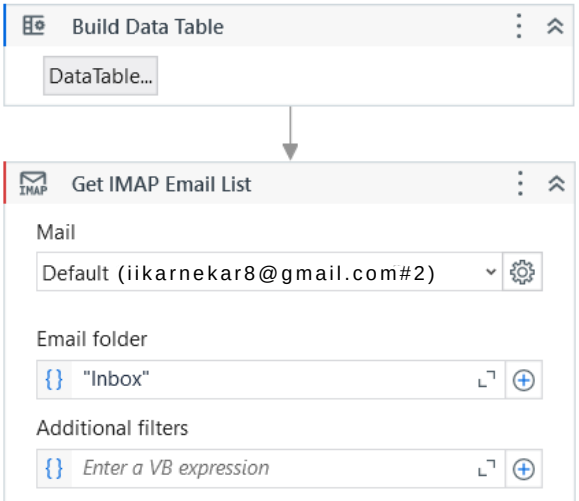
5. Now, in the Properties panel of the Data Table, create a variable to store it in.



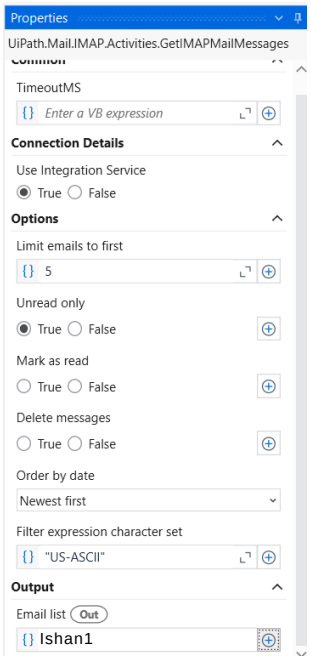
6. Next, search the 'Get IMAP Mail List' activity and add it to the Main Sequence.



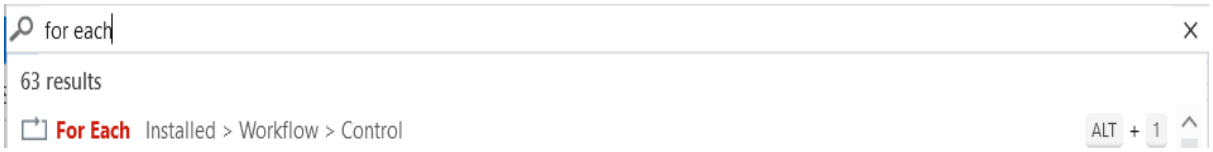
7. Establish your connection with IMAP & your email folder as "Inbox."



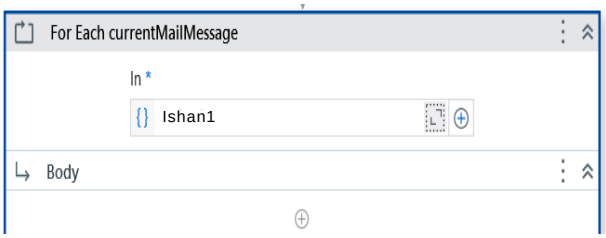
8. Create a new variable in properties panel of “Get IMAP Email List.”



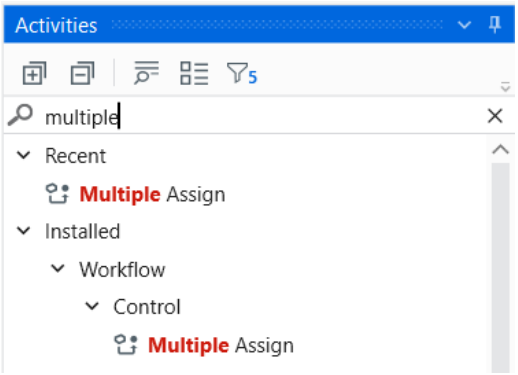
9. Find the ‘For Each’ activity under ‘Workflow’ in ‘UiPath.System.Activities’ section.



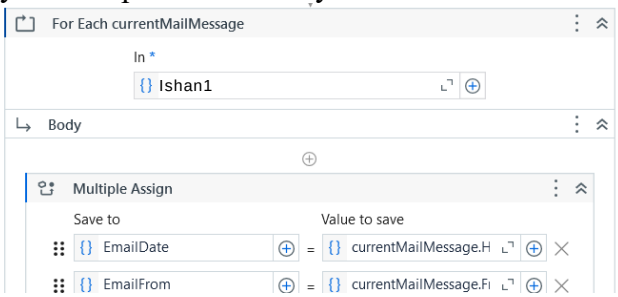
10. Drag and drop the activity to the Main Sequence. Do the following and assign the variable in this activity used in IMAP.



11. Next, find the ‘Multiple Assign’ activity.



12. Drag the activity and drop it in the ‘Body’ section of the ‘For Each’ activity.



13. In Multiple Assign, create variables in the ‘Save to’ part and assign their function in ‘Value to save’ part, such as below.

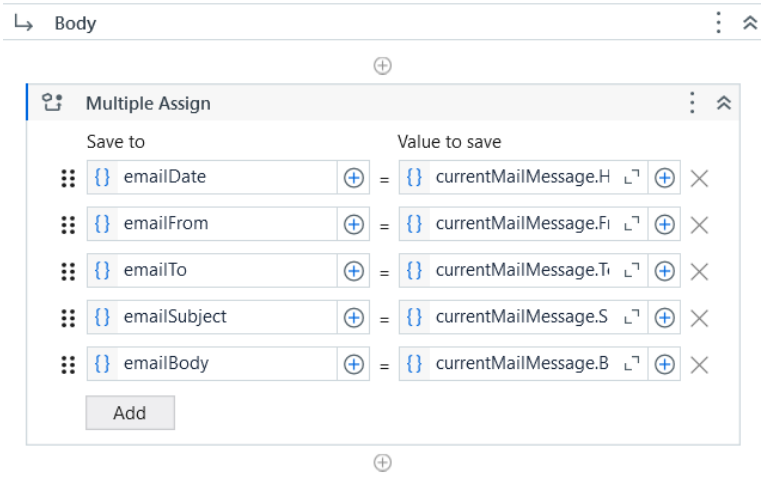
emailDate = currentMailMessage.Headers("Date")

emailFrom = currentMailMessage.From.AsText()

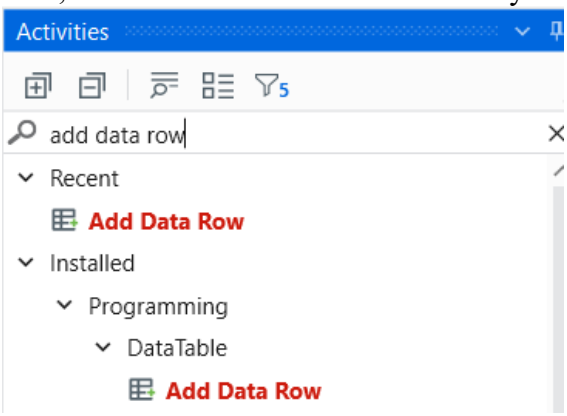
emailTo = currentMailMessage.To.AsText()

emailSubject = currentMailMessage.Subject.AsText()

emailBody = currentMailMessage.Body.AsText()

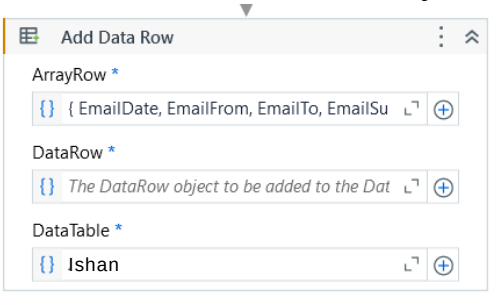


14. In the Activities panel, search for ‘Add Data Row’ activity.

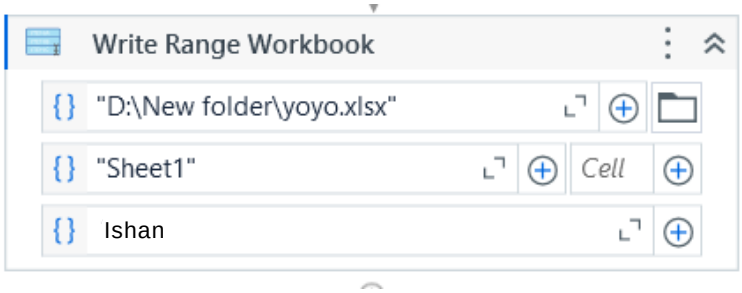


15. Fill the activity like this, by mentioning the variables with the Email data and Data Table.

{ EmailDate , EmailFrom, EmailTo, EmailSubject, EmailBody }



16. Further, find the 'Write Range Workbook' activity and add it after the entire 'For Each' activity.



Output:

- Latest 1 Unread Emails in Inbox:

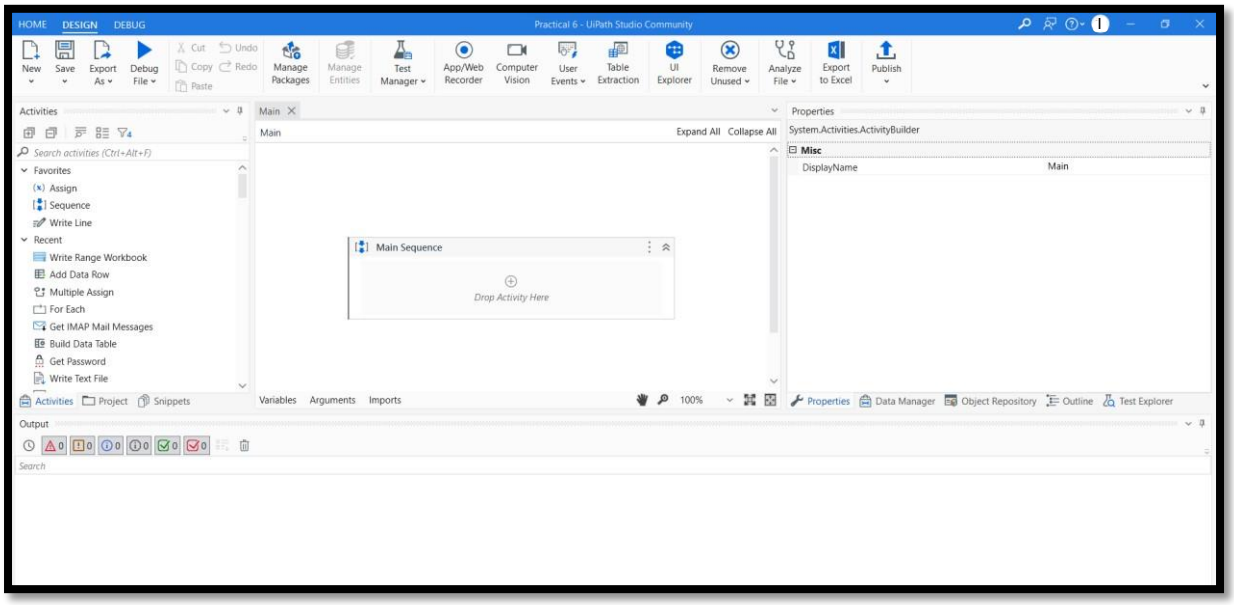
A	B	C	D	E	F
Date	From	to	Subject	Body	
				[Image: Google] App password created to sign in to your account iikarnekar8@gmail.com If you didn't generate this password for new, someone else might be using	

Practical 6

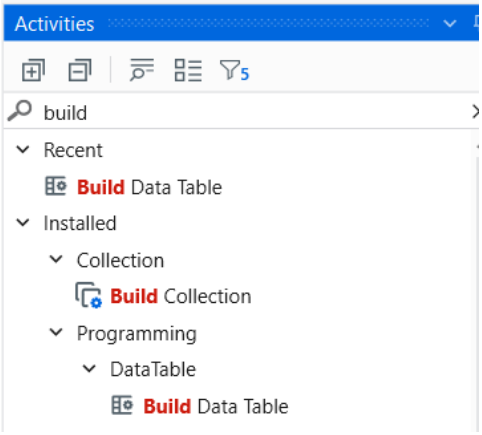
Aim: Write a script to extract weather forecast data of Mumbai through web scraping and export it to excel file.

Practical implementation:

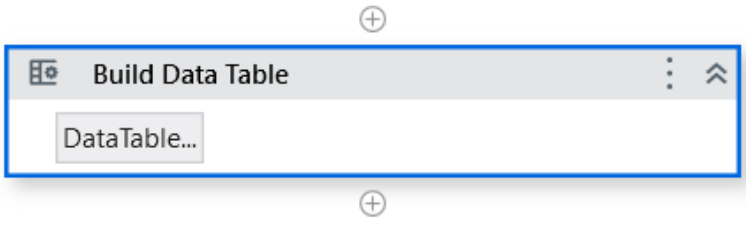
1. Open UiPath Studio and start a new Project.



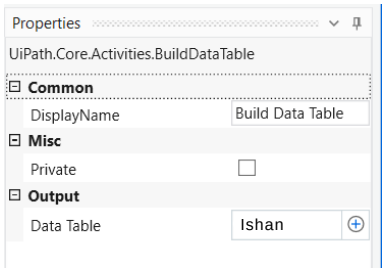
2. In the Activities panel, search for 'Build Data Table' activity to store output data.



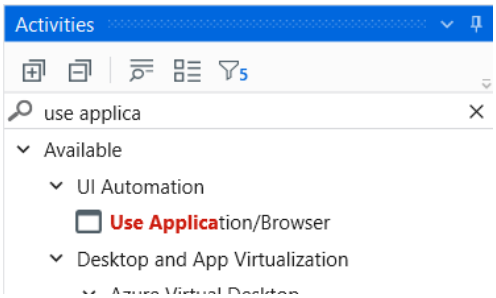
3. Next, create a Data Table with columns as seen below.



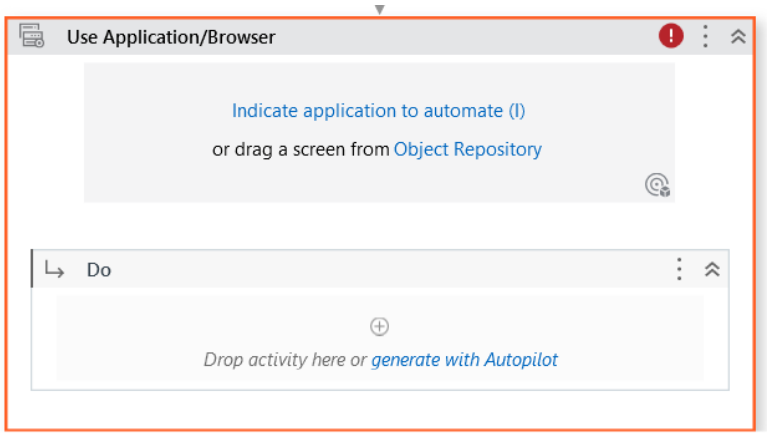
4. In Properties, create a variable to store this data.



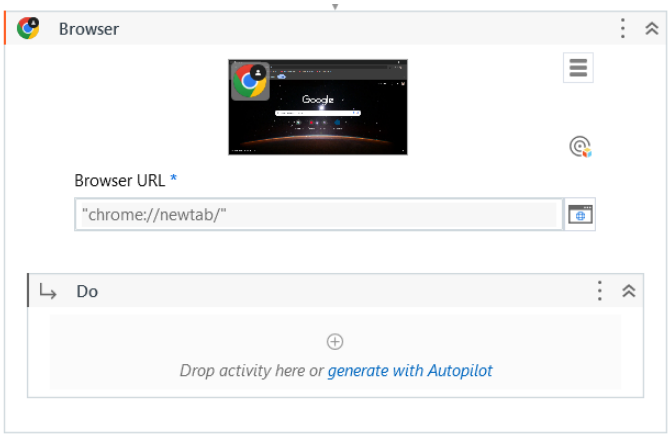
5. In Activities, find the 'Use Application/Browser' activity.



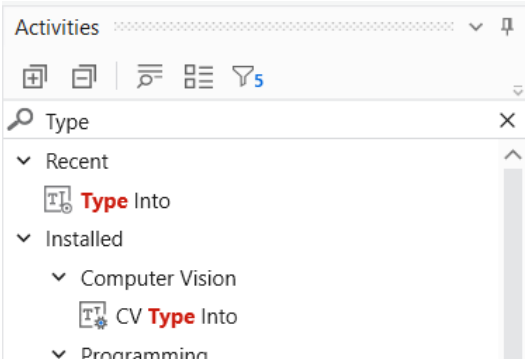
6. Add it to the activity.



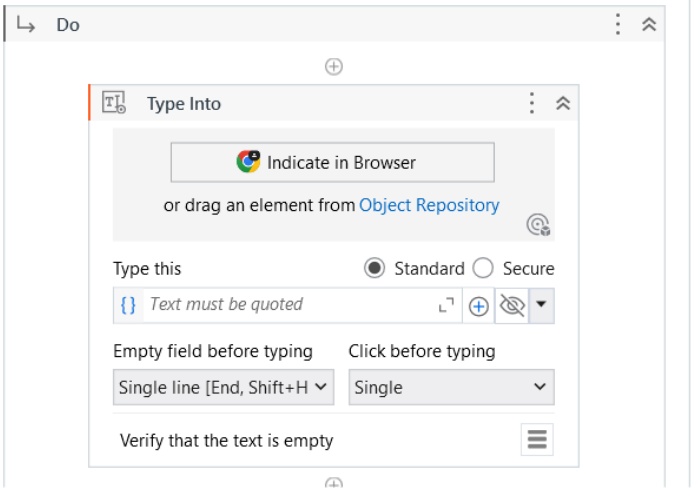
7. Here, indicate to UiPath what action to take. So, keep a Google Chrome window open. Then, click on 'Indicate Application to Automate' option in the activity and when the screen shows highlights on different applications, click on the running Google Chrome browser.



8. Next, in the Activities panel, search for the ‘Type Into’ activity under ‘UiPath.UIAutomation.Activites’.

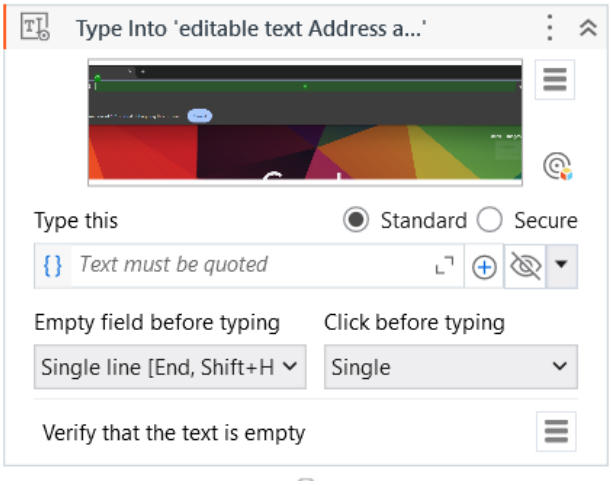


9. Then, drag and drop it in the ‘Do’ section of the ‘Use Application/Browser’ activity.



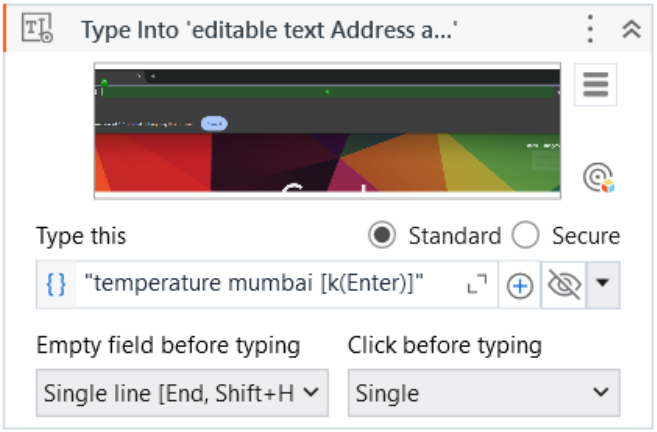
10. Keep a Google Chrome browser open. Then, click on ‘Indicate in Chrome: New Tab’ in this activity. This will open the Chrome Window and highlight the possible actions. So, click on the search bar and then, click on the search icon.

    Lastly, click on ‘confirm’ in the open UiPath dialogue box.

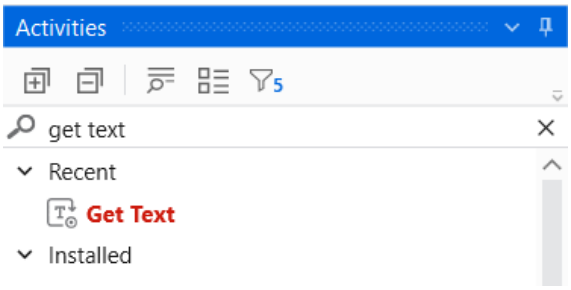


11. Further, fill the activity with the following information.

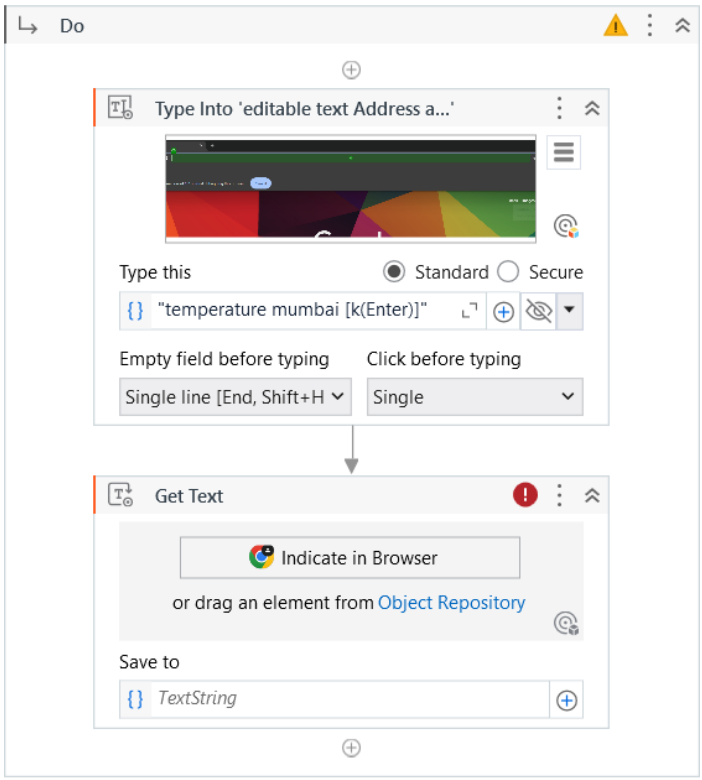
"temperature mumbai [k(enter)] "



12. Next, in the Activities panel, search for the 'Get Text' activity under 'UiPath.UIAutomation.Activites'.

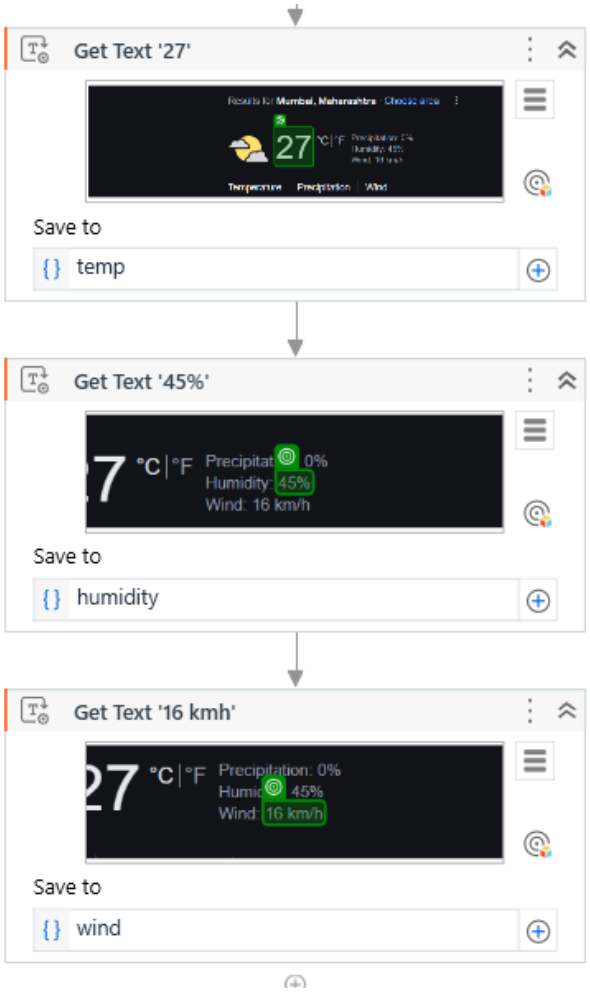


13. Again, drag and drop it in the 'Do' section of the 'Use Application/Browser' activity, after the 'Type Into' activity.

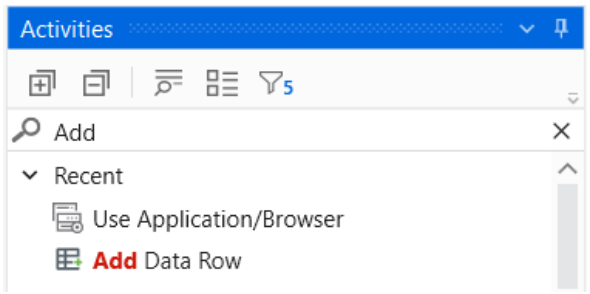


14. Open Google Browser and search ‘temperature mumbai’. Keep this browser open and then go to the project. Click on ‘Indicate in Chrome’ in ‘Get Text’ activity. Then, as the tool highlights all elements on the open Google Chrome tab, click on the one showing the temperature and confirm it. Similarly do the same process for humidity and wind.

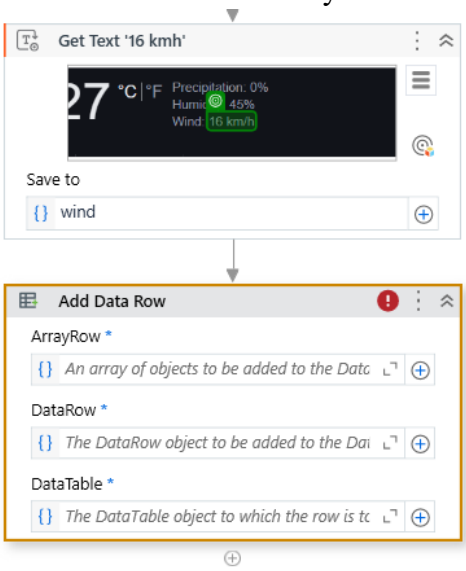
15. Create 3 different ‘Get Text’ Activity each of temperature, humidity and wind and respectively assign the variable to store the data.



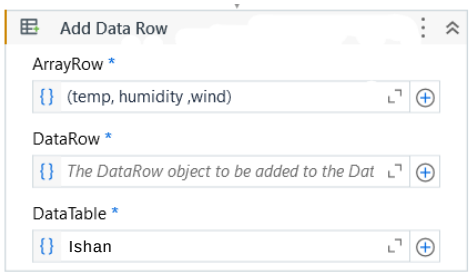
16. In the Activities panel, search for ‘Add Data Row’ activity.



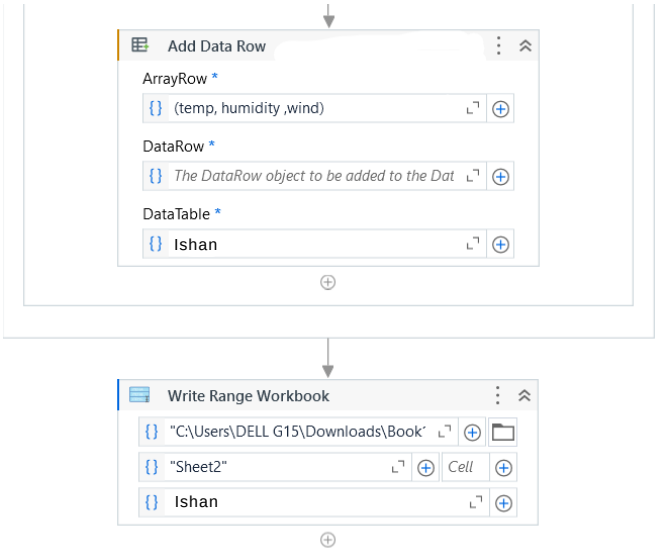
17. Add this activity after the last ‘Get Text’ activity.



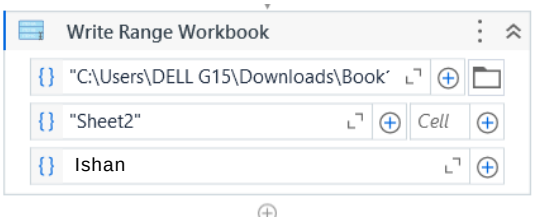
18. Then, fill the activity like this by assigning the variables.



19. Further, find the ‘Write Range Workbook’ activity and add it after the entire ‘Use Application/Browser’ activity.

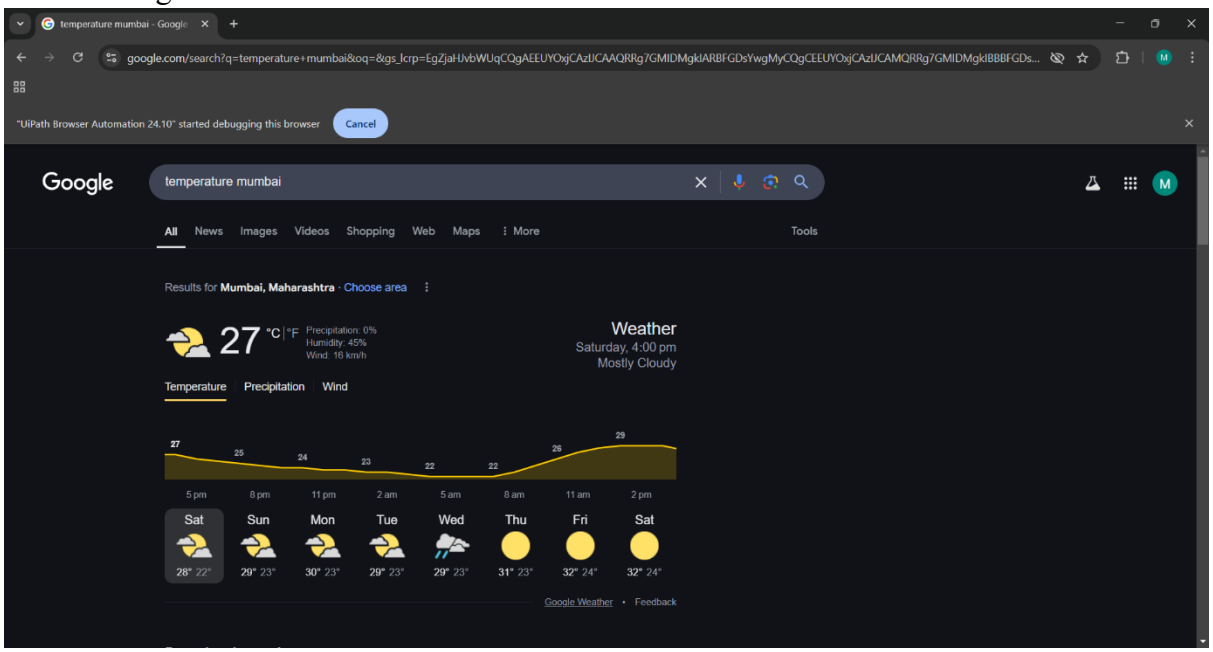


20. Assign the path of an existing Excel file and also, add the variable with the Data Table created.



Output:

- Google Chrome tab with current Weather Data:



- Extracted Data in Excel using Web Scrapping tool:

	A	B	C	D
1	Temp	Humidity	Wind	
2	28	42%	16 km/h	
3				