ST JOSEPH ENGINEERING COLLEGE

MANGALURU, KARNATAKA – 575028

Emerging Technologies : A Primer

Report On
"Career Connect Automation Tool"

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

BACHELOR OF ENGINEERING

IN

COMPUTER SCIENCE AND ENGINEERING

(DATA SCIENCE)

Submitted by

Name	USN
Ayush Kottary	4SO22CD011
Joywin Neil Lasrado	4SO22CD024
Prerana DP	4SO22CD037
Sahana Rao	4SO22CD043
Shetty Aditya	4SO22CD048
Subhiksha Rai K	4SO22CD054

Under the guidance of

Dr.Binu K G

Assistant Professor

Department of Mechanical Engineering

SJEC,Mangaluru

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ST JOSEPH ENGINEERING COLLEGE

An Autonomous Institution

MANGALURU, KARNATAKA – 575028

DEPARTMENT OF INTELLIGENT COMPUTING & BUSINESS SYSTEMS

CERTIFICATE

Certified that the Mini Project Work entitled **"Career Connect Automation Tool"** carried out by

Ayush Kottary	4SO22DC011
Joywin Neil Lasrado	4SO22CD024
Prerana DP	4SO22CD037
Sahana Rao	4SO22CD043
Subhiksha Rai K	4SO22CD054
Shetty Aditya	$SO22CD048

bonafide students of V semester in partial fulfillment for the award of Bachelor of Engineering in Computer Science and Engineering (Data Science) of the Visvesvaraya Technological University, Belagavi during the year 2024-2025.

Dr.Binu K G

Assistant Professor

Department of Mechanical Engineering
SJEC,Mangaluru

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Career Connect Automation Tool

1. Introduction

The problem at hand is the manual and time-consuming process of tracking and sending job openings to candidates. Job listings are often spread across various websites, requiring significant effort to gather, organize, and communicate them to prospective candidates. This results in inefficiency, delayed responses, and missed opportunities.

The need to solve this problem arises from the growing volume of job openings across various online platforms, which makes it increasingly difficult and time-consuming to manually gather and send job listings to candidates. As companies post jobs on multiple websites, candidates often miss out on relevant opportunities due to delays or oversight. Automating this process not only ensures timely dissemination of job openings but also reduces human error, improves efficiency, and allows for consistent communication.

UiPath, the tool used in this project, is a powerful Robotic Process Automation (RPA) platform that can be employed to automate tasks such as web scraping, data extraction, and email communication. Using UiPath's user-friendly interface and pre-built automation components, we can design a workflow that extracts job information from web pages, structures it into an Excel sheet, and automatically emails it to the candidates. With its built-in capabilities like web scraping, data manipulation, and email integration, UiPath can help automate the entire workflow, making the process faster, more accurate, and less resource-intensive.

2. Objectives

- **Extract Job Openings:** Automatically scrape job openings from Naukri.com.
- **Data Structuring:** Organize the extracted job data (job title, description, company name, etc.) into a structured Excel sheet.
- **Email Automation:** Automatically send the compiled Excel sheet to candidates via email.
- **Efficiency Improvement:** Reduce the manual effort and time spent in collecting and distributing job opportunities.
- **Error Reduction:** Minimize human errors in the process of collecting, organizing, and sending job openings.
- **Timely Communication:** Ensure candidates receive up-to-date job openings in a timely and consistent manner.
- **Scalability:** Enable the automation process to scale easily for different job openings and a larger number of candidates.

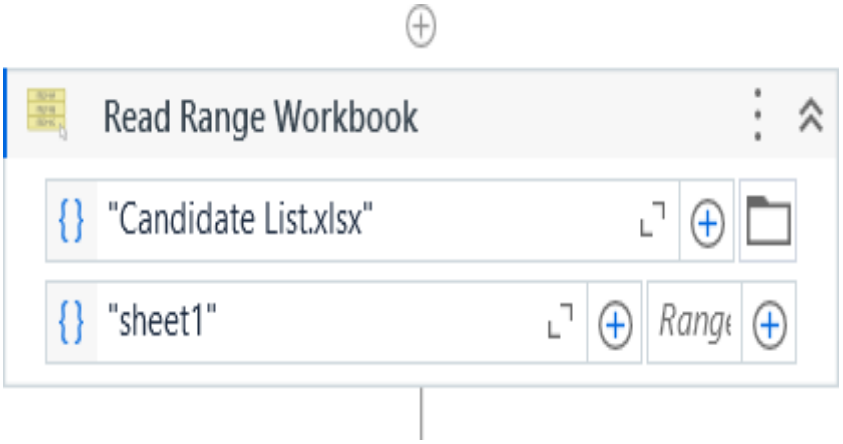
3. Methodology

The solution process for automating the extraction of job openings and emailing them to candidates can be broken down into several steps, each utilizing specific activities in UiPath.

Below are the steps involved:

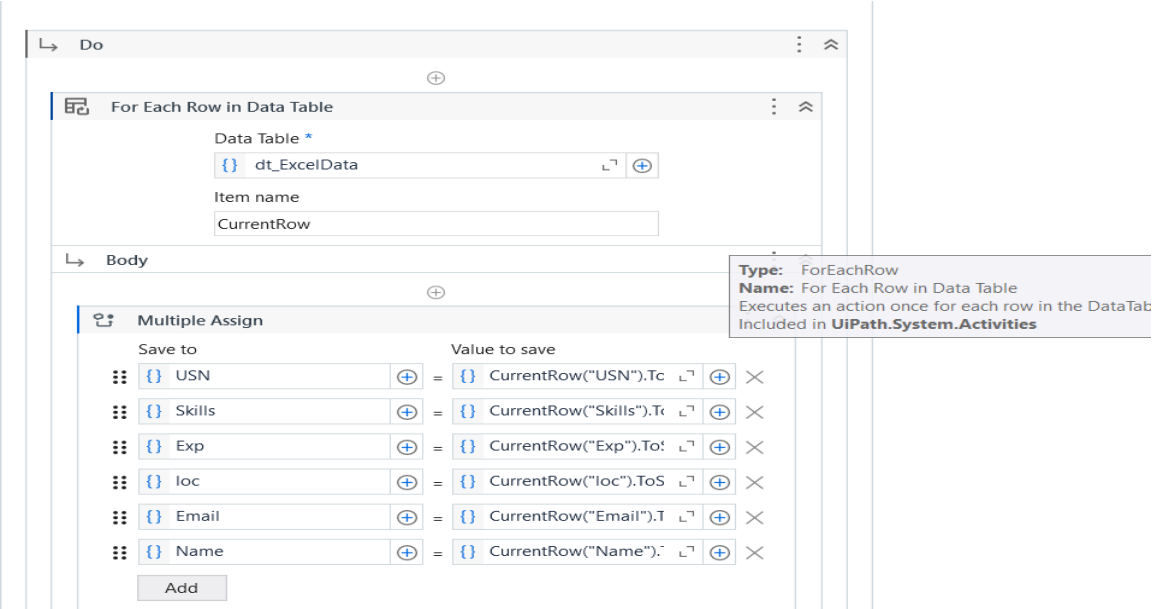
- **Open Browser (Use Application Browser):**
  - **Action**: Launch a web browser to navigate to the job listing website.
  - **Tools**: Use Application/Browser
  - **Justification**: This activity allows us to interact with a web page and perform actions like data extraction within the browser environment.
- **Extract Job Listings (Extract Data Table):**
  - **Action**: Scrape job listings (titles, descriptions, etc.) from the web page.
  - **Tools**: Extract Data Table
  - **Justification**: This activity is specifically designed to capture structured data from a webpage, ensuring accurate extraction of job openings into a table format.
- **Loop Through Data (For Each Row in Data Table):**
  - **Action**: Loop through each job listing (row in the data table) to process the details.
  - **Tools**: For Each Row in Data Table
  - **Justification**: This allows the automation to process each job listing individually for subsequent actions like filling out applications and emailing.
- **Apply for Job (Inside Do):**
  - **Action**: For each job, fill out application forms on the website.
  - **Tools**: Type Into, Click, Select Item
  - **Justification**: These activities simulate user actions to interact with web forms, type in information, select options from dropdowns, and click necessary buttons.
- **Multiple Assign Data to Variables (Assign Activity):**
  - **Action**: Use Assign to store values from each row in variables (e.g., job title, description, company name).
  - **Tools**: Assign
  - **Justification**: This step helps in storing extracted data in variables for easy manipulation and later use.
- **Compile Data into Excel (Write Range in Workbook):**
  - **Action**: Write the extracted job listing data into an Excel sheet.
  - **Tools**: Write Range Workbook
  - **Justification**: This activity efficiently writes structured data into an Excel sheet, organizing the job information for easy review and email distribution.
- **Send Email (Send Mail):**
  - **Action**: Automatically send the compiled Excel sheet to the candidate's email.
  - **Tools**: Send Mail
  - **Justification**: This activity automates the process of email distribution, ensuring that the candidate receives the job information in a timely manner.

4. Development of the Solution

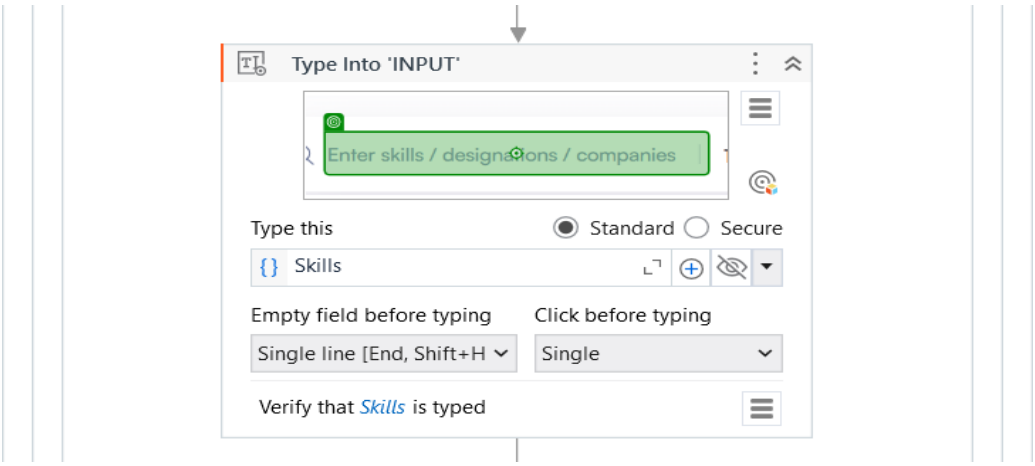


The process begins with the **Read Range Workbook** activity, which retrieves the candidate details from the specified Excel file. This activity serves as the starting point of the automation by extracting the necessary input data, such as candidate names, locations, job preferences, and experience levels, to drive the subsequent workflow steps.

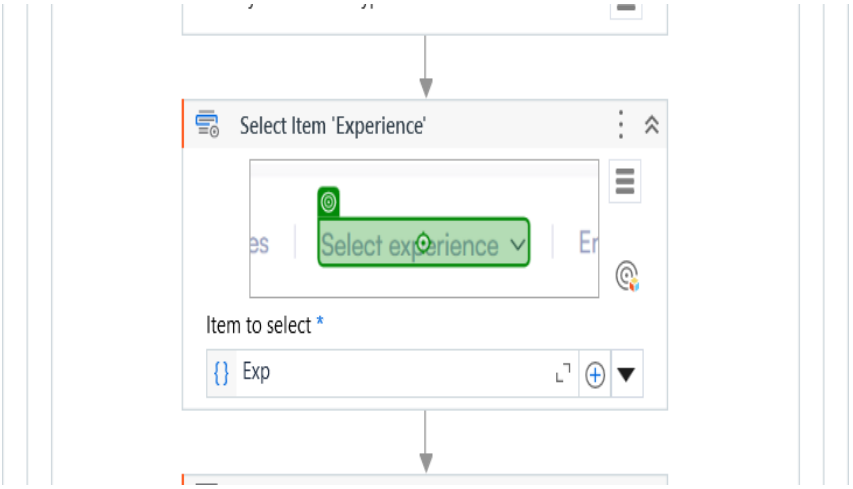
The next activity used is **'Use Application/Browser'**, which is employed to open and interact with the **naukri.com** website. This activity allows the automation to control the web browser, enabling actions such as navigating to the website, entering search criteria, and extracting relevant job information.



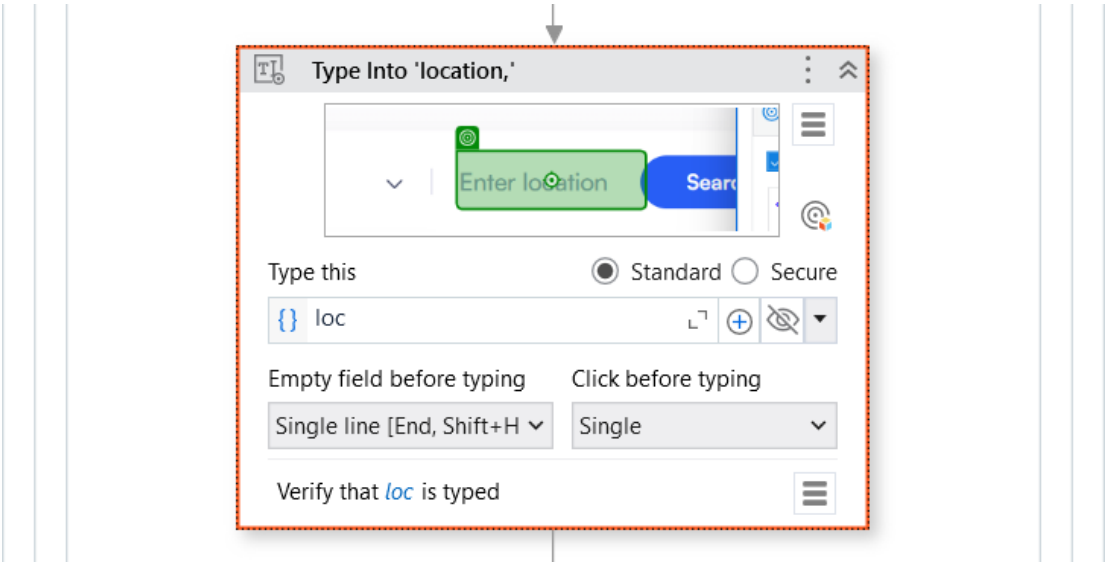
Next, inside the **Do** function, the **For Each** activity is applied. This activity iterates through each row of the **DataTable** variable, which is populated with the candidate list extracted from the Excel sheet. By specifying the **DataTable** as the input, the automation processes each candidate's details individually, allowing for personalized actions, such as searching for jobs based on the candidate's preferences.



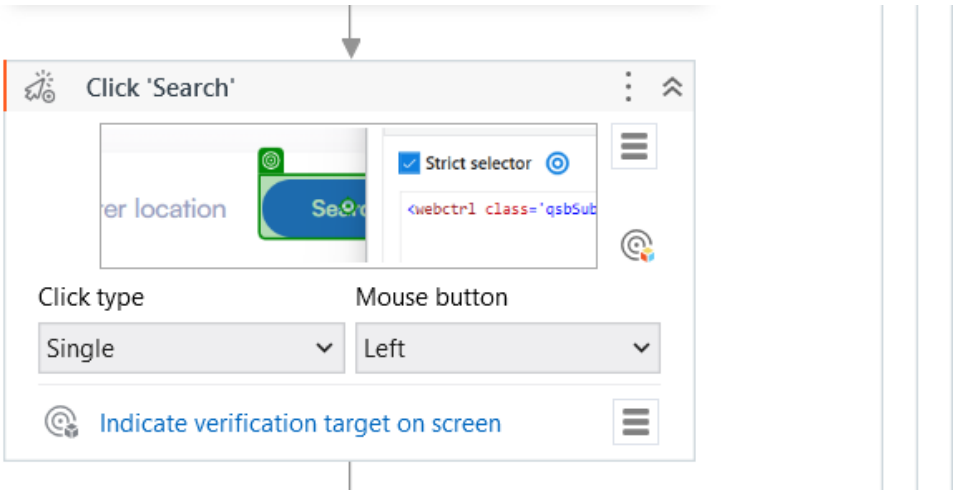
The **Type Into** activity is used to input the specific job title or role that the candidate is searching for into the designated field. This action ensures that the automation tailors the search to match the candidate's desired job profile, providing more relevant results.



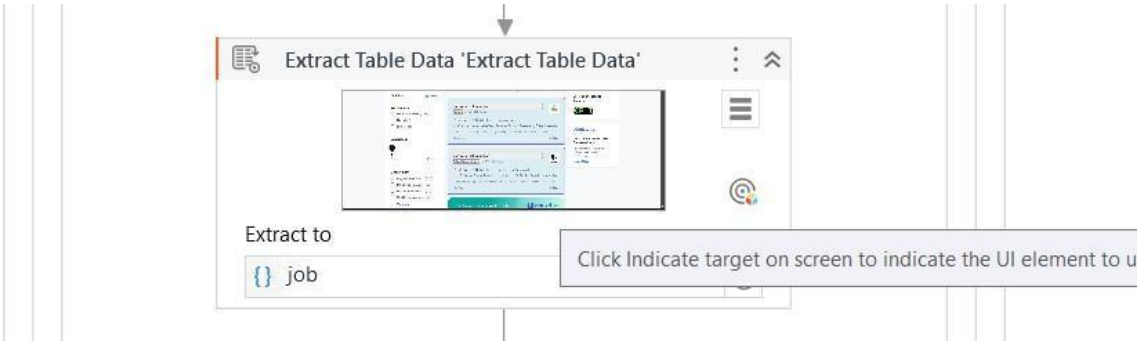
The **Select Item** activity is used to specify the candidate's experience level by selecting the appropriate option from a dropdown menu or list. This ensures that the automation accurately filters or categorizes the data based on the experience criteria provided.



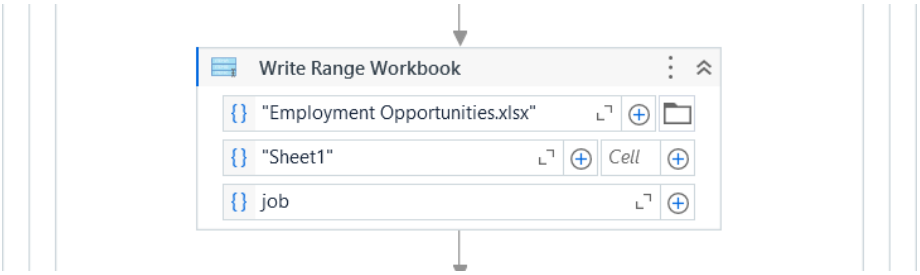
The **Type Into** Activity is used to input the desired location into the search panel. This action allows the automation to specify the geographic area for the job search, ensuring that the results are filtered according to the provided location criteria.



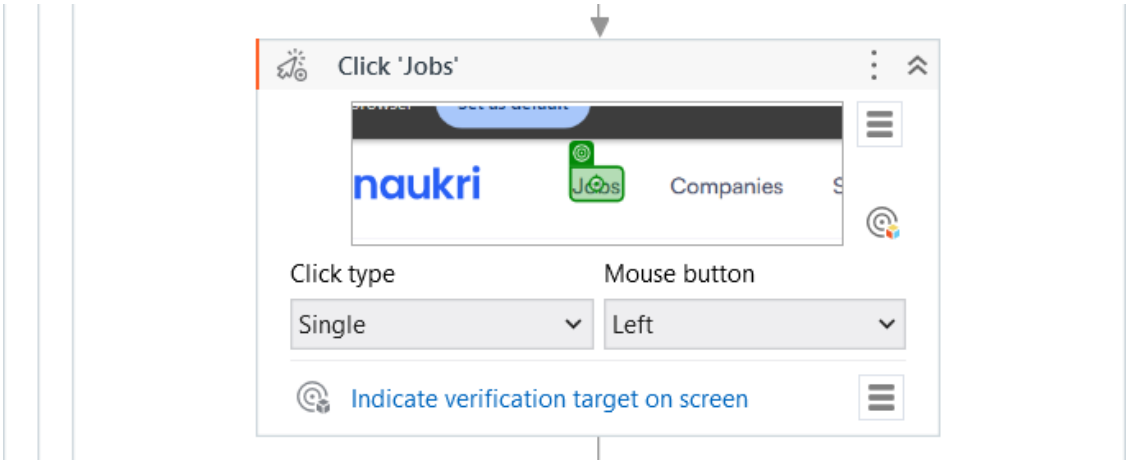
The **Click** activity is utilized to interact with the **Search** option on the interface, simulating a user action to initiate or refine the search process. This action enables the automation to proceed with locating relevant data or navigating to the desired section of the application



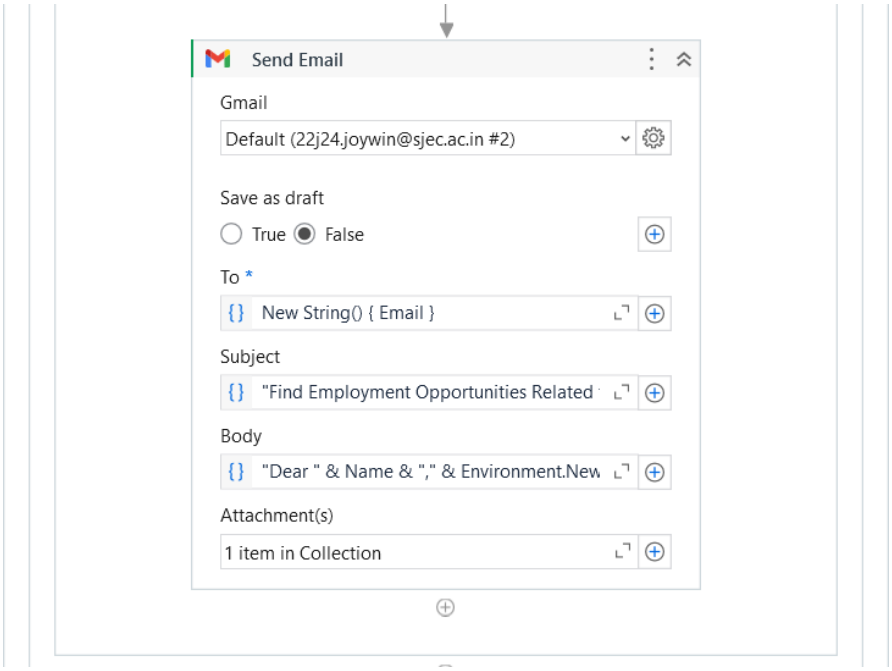
The **Extract Table Data** activity is utilized to retrieve job openings from the webpage in a structured tabular format. This function efficiently captures the relevant data, such as job titles, descriptions, locations, and other details, and prepares it for further processing or storage in the AutomationWorkflow



The extracted job openings are saved into the file named **"Employment Opportunities.xlsx"** using the **Write Range Workbook** activity. This ensures that the retrieved job data is systematically stored in a structured Excel format, allowing for easy access, analysis, and further processing as required.

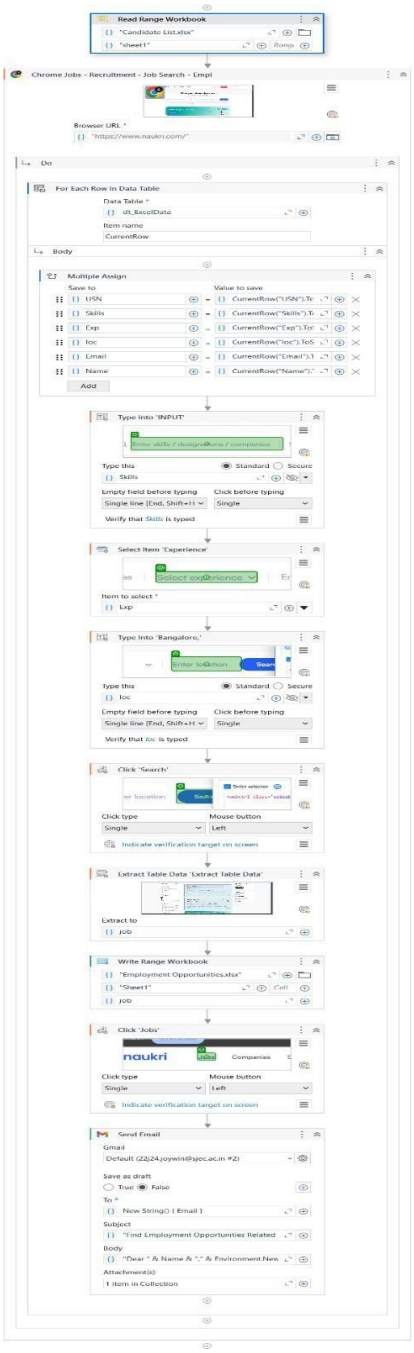


The **Click** activity is employed to interact with the **Jobs** option, simulating a user action to navigate back to the **Search** section of the Job Openings. This function ensures seamless movement within the application, allowing the automation to proceed with retrieving or interacting with job-related data efficiently.



The **Send Email** activity is utilized to compose and dispatch emails to the appropriate candidates, ensuring that each recipient receives personalized or relevant communication as part of the automation workflow. This activity streamlines the process of delivering emails by integrating seamlessly with configured email servers or accounts.

Complete Workflow :-



5. Testing

- **Job Aggregator for Recruitment Agencies:**
  - **Use Case**: A recruitment agency manages multiple clients and needs to stay up-to-date with job openings from various company websites. The solution can scrape job listings from these websites, compile the details in an Excel sheet, and send the list to potential candidates who match the job criteria.
  - **Benefit**: Saves time for recruitment agents, ensuring job seekers receive timely job opportunities without manual effort.

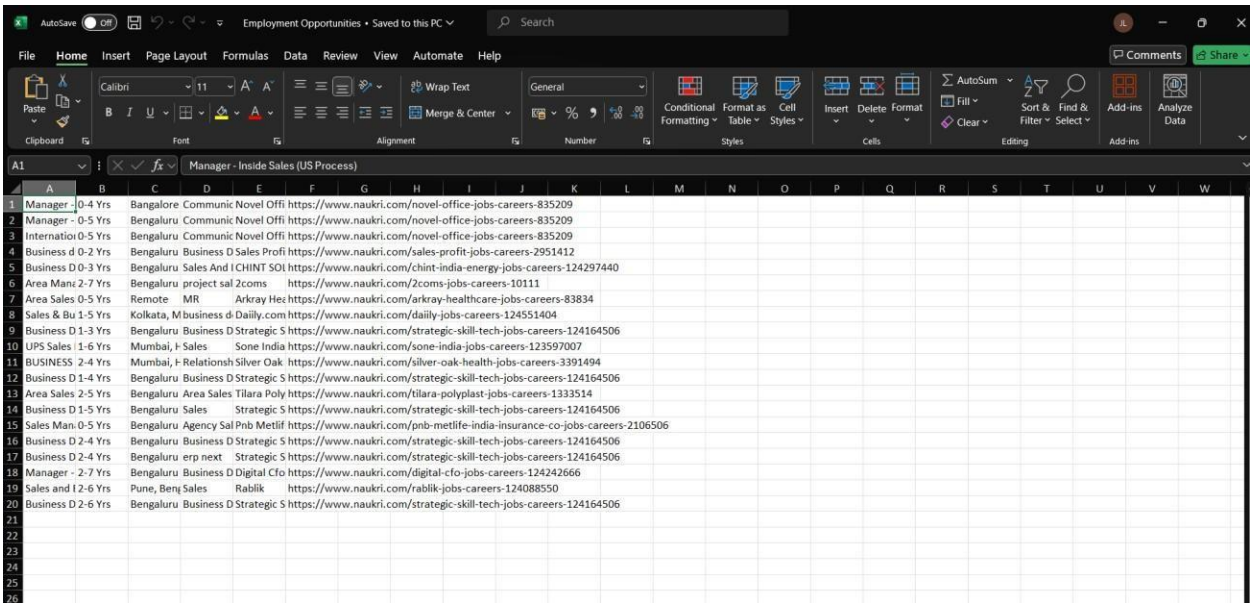
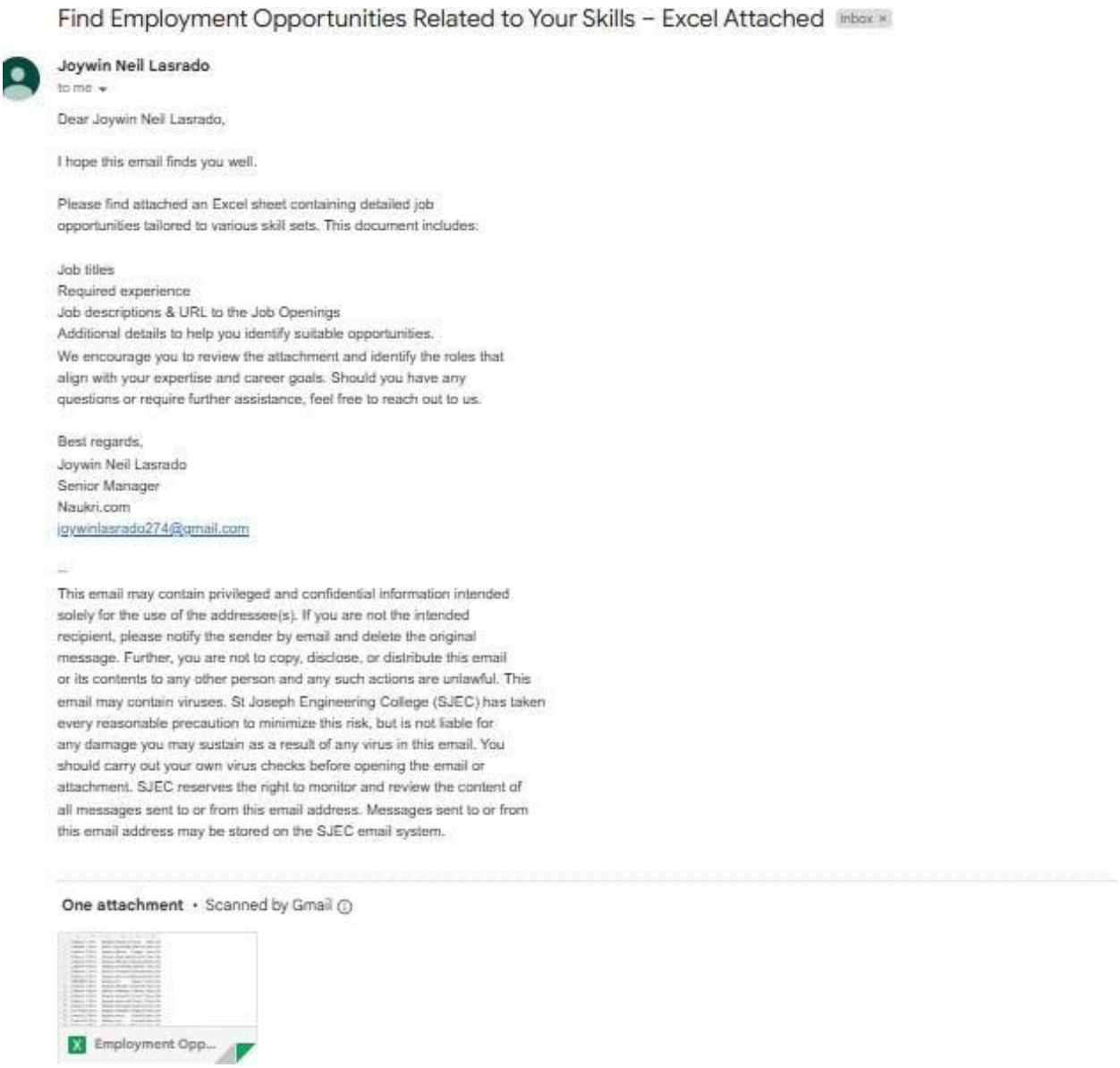


Figure containing Th excel Sheet containing all Job Openings from Naukri.com

- **Job Notification Service for Job Seekers:**
  - **Use Case**: A job seeker registers for a job notification service. The system extracts relevant job openings from various job portals based on the seeker's preferences (e.g., location, industry, salary) and emails the updated list to the candidate.
  - **Benefit**: Provides candidates with up-to-date job information, enhancing their chances of finding a job quickly.



Find Employment Opportunities Related to Your Skills – Excel Attached Inbox ×

Joywin Neil Lasrado
to me

Dear Joywin Neil Lasrado,

I hope this email finds you well.

Please find attached an Excel sheet containing detailed job opportunities tailored to various skill sets. This document includes:

Job titles
Required experience
Job descriptions & URL to the Job Openings
Additional details to help you identify suitable opportunities.
We encourage you to review the attachment and identify the roles that align with your expertise and career goals. Should you have any questions or require further assistance, feel free to reach out to us.

Best regards,
Joywin Neil Lasrado
Senior Manager
Naukri.com
joywinlasrado274@gmail.com

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One attachment • Scanned by Gmail ⓘ

Employment Opp...

Figure contains the email sent to the Job Seekers

6. Conclusion

- The Career Connect Automation Tool automates manual gathering and dispersal of job openings, reducing the time spent on repetitive tasks like web scraping, data structuring, and emailing. This enhances efficiency, minimizes human errors, and ensures timely delivery of relevant job opportunities to candidates.

- The tool saves time and resources, enhances candidate experience by providing personalized and up-to-date information, and improves communication consistency throughout the recruitment process.

- It is scalable to meet growing recruitment demands and adaptable to future advancements such as AI-driven job matching and analytics.

- The tool streamlines workflows, enabling organizations to focus on strategic tasks and improving candidate satisfaction through efficient processes. Automation of time-consuming tasks allows recruiters to engage in more strategic activities.

- It serves as a benchmark for innovation by transforming traditional workflows, demonstrating how automation can deliver value to both organizations and job seekers.

- Key features include automating job scraping, data organization, and email communication, ensuring regular and timely communication with candidates, and laying the foundation for future enhancements in recruitment automation.