VISVESVARAYA TECHNOLOGICAL UNIVERSITY

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A Project Report on

"TRASFORMING THE UNIVERSITY HR ONBOARDING PROCESS WITH RPA"

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

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in

COMPUTER SCIENCE AND ENGINEERING

by

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Department of Computer Science and Engineering

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2023-2024

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CERTIFICATE

This is to certify that the Project work entitled **"Transforming The University HR On Boarding Process With RPA"** is a bonafide work carried out by **ARAVIND G [1EP20CS012], DILIP J [1EP20CS026],** and **HIMABINDHU DL [1EP20CS032]**, in the partial fulfillment for the award of **Bachelor of Engineering** in **Computer Science and Engineering** of **Visvesvaraya Technological University**, **Belgavi**, during the year **2023-2024.** It is certified that corrections/suggestions indicated for Internal Assessment have been incorporated in the report deposited in the departmental library. The project report has been approved as it satisfies the academic requirements in respect of Project work prescribed for the said Degree.

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ABSTRACT

The HR Onboarding Assistant project employs Robotic Process Automation (RPA) to enhance the efficiency of onboarding in education institutions. This initiative utilizes a well-structured RPA system with bots, data integration, security measures, and user-friendly interfaces to automate tasks, reduce errors, and improve the onboarding experience. It also supports ongoing optimization and data-driven decision-making for colleges and universities. This initiative addresses these challenges by introducing a meticulously designed RPA architecture. The architecture encompasses a suite of RPA bots, an orchestration layer, and compliance measures. Each component collaborates to automate specific tasks, thereby reducing manual workload, eliminating human errors, and accelerating the onboarding timeline. The project offers a comprehensive solution that includes a user friendly interface for HR professionals, real-time notifications. Furthermore, the architecture accommodates ongoing optimization, and continuous monitoring. It is designed to foster a culture of data-driven decision - making, ensuring that the onboarding process evolves and adapts to the institution's needs.

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INTRODUCTION

1.1 Background

In the dynamic world of higher education, universities require a smooth onboarding process for new faculty and staff to function seamlessly. The HR onboarding process is crucial for welcoming new hires, ensuring compliance, and expediting their transition. This project tackles this challenge by developing an HR Onboarding Assistant Process with UiPath Studio, a leading RPA tool. The core focus is automating the generation of appointment letters, a traditionally time-consuming and error-prone task. By leveraging RPA, this project aims to significantly enhance the efficiency, accuracy, and overall effectiveness of the university's onboarding workflow. As technology continues to reshape educational landscapes, the role of RPA in HR processes becomes increasingly important. Utilizing UiPath Studio not only automates routine tasks but also empowers HR professionals to shift their focus towards more strategic and value-added activities. This project serves as a prime example of a strategic approach to modernizing HR operations in the academic sector, contributing to a more agile and responsive onboarding experience for both the institution and its new hires.

While automating appointment letter generation is a valuable first step, the potential of RPA in university onboarding extends far beyond this initial task. There's significant room for expanding the scope of automation. For instance, RPA can automate the collection of new hire data from application forms, pre-populating this data into appointment letters to minimize manual entry and errors. Benefits and payroll setup can also be streamlined, with RPA bots facilitating the selection and communication of benefits packages and ensuring new hires are set up accurately in payroll systems for timely payments. Assigning onboarding tasks and tracking their completion can also be automated, providing real-time visibility into the onboarding progress and enabling timely intervention if delays occur. Furthermore, RPA can automate tasks related to compliance management, ensuring adherence to university regulations and legal requirements by collecting and verifying necessary documents from new hires. Finally, automated welcome emails or messages can be scheduled and personalized for new faculty and staff, providing them with important information about orientation programs, department contacts, and other valuable resources.

Implementing RPA in the onboarding process offers universities several key benefits. Improved efficiency is a major advantage, as automation frees up HR personnel from repetitive tasks, allowing them to focus on more strategic initiatives like building relationships with new hires and providing targeted support. RPA also minimizes the risk of human error in data entry and document generation, leading to enhanced accuracy and a smoother onboarding experience. Reduced costs are another benefit, as automating manual processes lowers administrative overhead and associated expenses for the university. Faster onboarding times are also achieved with streamlined workflows, allowing new faculty and staff to become productive members of the university community sooner. Finally, a smoother and more efficient onboarding experience contributes to a more positive first impression for new hires, fostering higher employee satisfaction and retention.

In conclusion, incorporating RPA into university HR onboarding processes paves the way for a more efficient, accurate, and streamlined experience for both new hires and HR personnel. This project, focusing on automating appointment letter generation with UiPath Studio, serves as a springboard for further exploration of RPA's capabilities within the university's HR operations. By embracing automation, universities can empower their HR teams and cultivate a more welcoming and productive environment for new faculty and staff.

1.2 Problem Statement

Colleges and universities face the challenge of managing a complex and time-consuming employee onboarding process within their HR departments. This process involves numerous administrative tasks, which are prone to human errors and inefficiencies. The manual nature of these tasks is repetitive and often leads to delays, increased costs, and a suboptimal experience for new hires. When there are many newly hired employees, it takes a lot of time for HR to prepare and create appointment letters for each employee. We are automating this appointment letter generation to save time and provide new hires with a seamless onboarding process.

1.3 Existing system

In the existing system, colleges and universities rely on manual processes to manage the employee onboarding process within their HR departments. This involves performing numerous administrative tasks, such as preparing and creating appointment letters for each newly hired employee. These tasks are time-consuming, repetitive, and prone to human errors.

HR departments typically gather the necessary information for each new hire, such as their name, position, and start date. They then manually draft and format appointment letters based on this information. This manual process is not only labor-intensive but also increases the likelihood of errors and inconsistencies in the generated letters.

Due to the manual nature of the process, HR departments often face challenges when there are a large number of newly hired employees. It takes a significant amount of time and effort to individually prepare and create appointment letters for each employee, leading to delays and inefficiencies in the onboarding process.

Overall, the existing system relies heavily on manual intervention, which results in increased costs, delays, and a suboptimal experience for new hires. To address these challenges, there is a need for an automated solution that can streamline the appointment letter generation process and provide a more efficient onboarding experience.

Advantages of the existing system:

1. **Familiarity**: HR departments are already accustomed to the manual process of preparing and creating appointment letters, as it has been the traditional method for a long time.

2. **Flexibility**: The manual process allows HR personnel to customize appointment letters according to specific requirements or unique circumstances for each new hire.

3. **Human touch**: The manual process allows for a personal touch in the creation of appointment letters, which can help create a positive impression on new hires.

Disadvantages of the existing system:

1. **Time-consuming**: The manual process of preparing and creating appointment letters is labor-intensive and time-consuming, especially when there are many newly hired employees.

2. **Prone to errors**: Human errors are more likely to occur during the manual process, leading to inaccuracies in appointment letters and potential issues for new hires.

3. **Inefficiency**: The manual process is repetitive and can lead to inefficiencies, as HR personnel spend a significant amount of time on administrative tasks instead of focusing on more strategic responsibilities.

4. **Lack of scalability**: As the number of new hires increases, the manual process becomes increasingly challenging to manage, potentially causing delays and backlogs in generating appointment letters.

5. **Limited integration**: The existing system may not be easily integrated with other HR systems or technologies, leading to disjointed workflows and potential data inconsistencies.

1.4 Proposed system

1. **Data Integration**: The system integrates with HR databases or other relevant systems to retrieve employee information, such as personal details, job roles, and start dates.

2. **Offer Letter Generation**: Using RPA, the system automates the process of generating Offer letters. It extracts the necessary employee information from the integrated data sources and populates it into pre-defined appointment letter templates.

3. **Document Management**: The system manages the storage and retrieval of generated appointment letters. It may utilize document management systems or cloud storage solutions to securely store and organize the documents.

4. **Workflow Automation**: RPA bots can be programmed to follow predefined workflows for the onboarding process. This includes sending the appointment letters to the respective employees, tracking the progress of each onboarding task, and triggering subsequent actions or notifications.

5. **Integration with HR Systems**: The automated system can integrate with other HR systems, such as payroll or employee management systems, to ensure seamless data flow and synchronization.

Overall, the proposed architecture leverages RPA technology to streamline and automate the employee onboarding process, reducing manual effort, minimizing errors, and enhancing the overall efficiency of HR operations.

1.5 Aim of the project

Our main aim of the project is to create and develop a software bot that automates the generation of Offer letters, establishes communication between HR's and new hires, enhances and provides pivotal steps towards efficiency, accuracy, and a more seamless experience for new employees, and also modernizes HR operations and adapts to the evolving digital landscape.

1.6 Objectives of the Project

1. **Streamline the Onboarding process**: The primary objective is to simplify and streamline the employee Onboarding process within colleges and universities. By automating the generation of Offer letters, the objective is to reduce the complexity and time required for this task.

2. **Improve efficiency**: The objective is to enhance the efficiency of the Onboarding process by eliminating manual administrative tasks and reducing the potential for human errors. This will help HR departments save time and resources, allowing them to focus on more strategic initiatives.

3. **Real-Time Notifications**: To implement real-time notification services that keep HR staff and stakeholders informed at various stages of the Onboarding process.

4. **Enhance accuracy and reliability**: By automating the a Offer letter generation, the objective is to improve the accuracy and reliability of the process. This will minimize errors and ensure that new hires receive correct and consistent information.

5. **Enhance the new hire experience**: The objective is to provide new hires with a seamless and positive onboarding experience. By automating the process, new hires can receive their appointment letters promptly, leading to a smoother transition into their roles.

Overall, the objectives of this problem statement revolve around improving efficiency, accuracy, cost-effectiveness, and the overall experience of the employee onboarding process within colleges and universities.

1.7 Summary

The aim of the project is to automate and optimize the employee onboarding process within colleges and universities, with a specific focus on the generation of appointment letters. The current manual system poses challenges such as time-consuming administrative tasks, potential human errors, and inefficiencies. By implementing an automated system, the project aims to address these issues and achieve several objectives. Firstly, it aims to save time for HR departments by reducing the effort required to prepare and create appointment letters for newly hired employees. This automation will streamline the process, allowing HR personnel to allocate their time and resources more effectively. Secondly, the project aims to improve efficiency by eliminating human errors and inefficiencies associated with manual tasks. By automating the generation of appointment letters, the system will ensure accuracy and consistency, resulting in a more reliable onboarding process.

Overall, the project's aim is to leverage automation technology to optimize the employee onboarding process, resulting in time and cost savings, improved efficiency, and an enhanced experience for both HR departments and new hires

LITERATURE SURVEY

Chapter 2

LITERATURE SURVEY

2.1 An Intelligent Agent to Automate HR Process

This study seeks to increase the effectiveness of human resource procedures with the automation of repetitive time consuming tasks. To assist HR workers and streamline contact with employees, a software robot that uses UiPath to automate HR duties has been created. The recruitment process, onboarding, and work distribution are just a few of the HR duties that the robot is intended to automate. To determine its impact, the robot is being hosted by a respected company. According to the study's findings, these jobs now take 80% less time and effort to do on average, and they also cost 60% less money.

Limitations:

1. Efficiency
2. Accuracy
3. Scalability

2.2 Automated Platform for Onboarding Employee

The turnover of a start-up or company depends highly on the employee satisfaction. Onboarding is a way to familiarize the employee with the work environment. The objective of this paper to find the critical tasks of the onboarding process and automate them to increase employee satisfaction and decrease the HR workload. We have provided a solution to a few challenges faced by the onboarding team. An easy way to verify the employee documents and make a background check, creating employee accounts and providing them with the credentials on the first day of joining, keeping a status check of their training and desktop allocation are some of the tasks that we have automated. A survey conducted states that 46% of employees agree that they don’t have the credentials of company channels, and 54% agree that their workstation was delayed. With the solutions provided in this paper, a better onboarding experience is delivered to the employees.

Limitations:

1. Consistency
2. Cost Saving
3. Data Analysis

2.3 Digital Transformation of Human Resource Processes in Small and Medium Sized Enterprises using Robotic Process Automation

The aim of this paper was to obtain data and information on the digital transformation of human resource (HR) processes in small- and medium-sized enterprises (SMEs)with the help of robotic process automation (RPA), in order to increase competitiveness in the digital age. Romanian businesses are attempting to close the gap with companies in developed countries by implementing projects that allow the adoption of emerging technologies in HR departments. This paper presents some of the preliminary findings, resulted from a collaboration between a university and an SME, for the efficient implementation of specific HR processes using RPA. The paper provides a brief introduction of the RPA concept as well as a list of HR processes that can be automated within enterprises, with the benefits brought to the enterprise and employees presented in both qualitative and quantitative terms for each HR process. In addition, a case study for the automatic collection of candidates documents and extraction of primary information about them was considered. Further on, the problems encountered during.

Limitation:

1. Efficiency
2. Accuracy
3. Cost Saving

2.4 Summary

Several studies explore automating HR processes to enhance efficiency and employee satisfaction. Robotic Process Automation (RPA) and software robots like UiPath can automate repetitive tasks in recruitment, onboarding, work distribution, and data analysis. These solutions offer significant benefits like increased accuracy, cost savings, and scalability. However, challenges include initial setup costs, privacy concerns, data security risks, and the need for customization. One study focused on improving onboarding experiences through automation, while another explored the use of RPA in small and medium-sized enterprises. Overall, these papers suggest that HR process automation holds promise for improved efficiency and effectiveness, but careful consideration of the challenges is crucial for successful implementation.

REQUIREMENT SPECIFICATION

Chapter 3

REQUIREMENT SPECIFICATION

Software requirement Specification is a fundamental document, which forms the foundation of the software development process. It not only lists the requirements of a system but also has a description of its major features.

3.1 Hardware Requirements

1 **PC/Laptop**: To install and run UiPath Studio which meets the following minimum Specifications:

- Processor: Multi-core processor (e.g., Intel i5 or better).
- RAM: 8 GB or more.
- Display resolution of 1920x1080 or Higher.
- Storage: SSD for faster performance.
- Operating System: Windows 7, 8, or 10 (64-bit).

2 **Input Devices**: Keyboard and mouse to interact with UiPath Studio.

3 **Server**: Orchestrator Server.

3.2 Software Requirements

1. UiPath Studio.
2. UiPath Orchestrator.
3. Email & Document management Systems.
4. Microsoft Office.

3.3 Development Environment

UiPath Studio

UiPath Studio is a powerful Integrated Development Environment (IDE) specifically designed for building and managing Robotic Process Automation (RPA) solutions. It offers a user-friendly interface and a variety of tools to streamline the development process for transforming the University HR onboarding process. Here's a breakdown of how UiPath Studio can be used in this development environment:

1. Designing Workflows:

- **Visual Designer:** UiPath Studio provides a drag-and-drop visual designer where you can build workflows by connecting various activities. These activities represent specific actions the bot will perform, like interacting with applications, manipulating data, or making decisions.
- **Recording and Editing:** You can record manual actions performed on the University's HR system or other applications involved in onboarding. UiPath Studio can then convert these recordings into editable workflows, allowing for fine-tuning and customization.

2. Data Management:

- **Variables:** UiPath Studio allows you to define variables to store and manipulate data used throughout the automation process. This includes information like new hire details, system credentials, and onboarding task statuses.
- **Data Manipulation Activities:** The platform provides various activities for data manipulation, such as extracting data from forms, formatting dates, and performing calculations. This ensures the RPA solution can handle different data formats and scenarios during Onboarding.

3. Integration Capabilities:

- **UiPath Orchestrator Integration:** UiPath Studio can integrate with UiPath Orchestrator, a central management platform for deploying and managing UiPath Robots. This allows for centralized control over the onboarding automation and facilitates task scheduling and monitoring.
- **API Activities:** UiPath Studio offers functionalities to interact with various university systems through APIs. This enables the RPA solution to seamlessly retrieve and update data within the HRIS, email system, and other relevant applications.
- **Screen Automation:** For legacy systems without APIs, UiPath Studio allows for screen scraping and UI automation. The bot can mimic human interaction by identifying elements on the screen and performing actions like clicking buttons and entering data.

4. Debugging and Testing:

- **Debugging Tools:** UiPath Studio provides debugging tools to troubleshoot any issues encountered during workflow development. You can step through the workflow execution, inspect variables, and identify errors in the automation logic.
- **Testing Features:** The platform offers functionalities for unit testing individual activities and integration testing the overall workflow with university systems. This ensures the RPA solution functions as intended and integrates seamlessly with existing processes.

5. Security Considerations:

- **Credential Management:** UiPath Studio allows for secure storage and management of sensitive credentials used by the bots to access university systems. This ensures adherence to data security best practices.
- **User Access Control:** Access to UiPath Studio and the developed workflows can be restricted to authorized HR personnel, maintaining control over the development and deployment of the RPA solution.

Additional Considerations:

- **UiPath Activities:** UiPath provides a rich library of pre-built activities encompassing various functionalities like web scraping, data manipulation, and email automation. These activities can be leveraged to streamline development and reduce coding requirements.
- **UiPath Extensions:** The UiPath Marketplace offers extensions developed by UiPath and third-party vendors. These extensions can provide additional functionalities specific to certain applications or tasks, potentially simplifying the development of automation for the University's onboarding process.

By leveraging the capabilities of UiPath Studio, the University can develop robust and secure RPA bots to automate repetitive tasks within the HR onboarding process. The visual interface, data management tools, and integration features make UiPath Studio a valuable asset for streamlining development and ensuring a smooth transition to an automated onboarding experience.

3.4 Functional Requirements

- **Data Extraction and Input**: Ability to extract candidate information from various sources (like emails, forms, documents) and input it into HR systems.
- **Workflow Automation**: Automate the workflow for onboarding processes, including task assignments, notification alerts, and status updates.
- **Document Management**: Automatically generate, send, and store onboarding documents such as contracts, policy documents, and welcome kits.
- **Compliance Checks**: Automated checks for compliance with legal and internal policy requirements (e.g., work permits, background checks).
- **User Interaction Capabilities**: Interface for HR staff to interact with the RPA system, provide inputs, or override automated decisions if necessary.

3.5 Non-functional Requirements

- **Reliability and Availability**: The system should be reliable and available during key HR operational hours.
- **Scalability:** The ability to handle increasing numbers of onboarding processes as the organization grows.
- **Performance**: The system should perform tasks within an acceptable time frame without delays.
- **Usability**: User-friendly interface for both HR staff and new hires.
- **Maintainability**: Ease of updating and maintaining the RPA bots and system, including handling changes in onboarding procedures or IT infrastructure.
- **Interoperability**: The ability to work seamlessly with various systems and software used in the organization.
- **Disaster Recovery and Backup**: Systems in place for data backup and recovery in case of system failure.

3.6 Summary

The RPA solution for automating the university HR onboarding process requires a documented specification outlining key elements. This includes the hardware and software needed to run the RPA tool, such as the RPA software itself and any interacting programs (HR system, email). Functional requirements define the specific tasks the RPA tool will automate, like data entry from new hire forms, sending welcome emails with login details, and IT account creation. Non-functional requirements address security (data encryption, access controls), performance (processing speed, handling multiple tasks), and reliability (minimal downtime). Lastly, the development environment details the tools and languages used to build and deploy the RPA solution, along with the testing environment to ensure proper functionality before implementation. Specifying these requirements creates a clear path for developing and implementing the RPA solution for a smooth and automated HR onboarding process.

SYSTEM DESIGN

Chapter 4

SYSTEM DESIGN

The system design for automating HR onboarding with RPA involves several steps. First, a thorough analysis of the existing process identifies all tasks, data exchanges, and decision points. Then, an RPA tool that integrates with your HR system, email, and other relevant software is chosen. Next, the RPA bot itself is developed to automate specific tasks like data entry, emails, and file management. The design should include exception handling for missing data or errors, potentially routing exceptions to HR personnel or incorporating retries. Security measures like data encryption, access controls, and audit logging are crucial. After development, the bot undergoes thorough testing in a dedicated environment before deployment to the production environment to automate the onboarding process. Finally, continuous monitoring and maintenance ensure the RPA bot's performance and address any errors or adapt to changes in the onboarding process or underlying systems.

4.1 System Architecture

This system architecture streamlines the later stages of the interview process by automating candidate evaluation and offer generation based on pre-defined criteria. Unlike a full robotic interview system, it assumes human interaction has already identified a pool of top candidates.

- **Candidate Data Integration:** The system retrieves information on shortlisted candidates, likely from an applicant tracking system or resume scanner source used during the interview process. This data could include interview scores, skills assessments, or recruiter ratings.
- **Offer Generation and Delivery:** For candidates who meet or exceed the criteria, the system generates personalized offer letters using pre-defined templates. These templates might include details like salary, benefits, and start date, potentially customized based on individual candidate information. Finally, the system integrates with the company's email system to deliver the offer letters to the shortlisted candidates.

This approach allows for faster offer generation and communication with top candidates, potentially improving their experience and reducing the risk of losing them to other

opportunities. However, it's important to consider that pre-defined criteria might not capture all aspects of a successful candidate, and human review of generated offers might be necessary before sending.

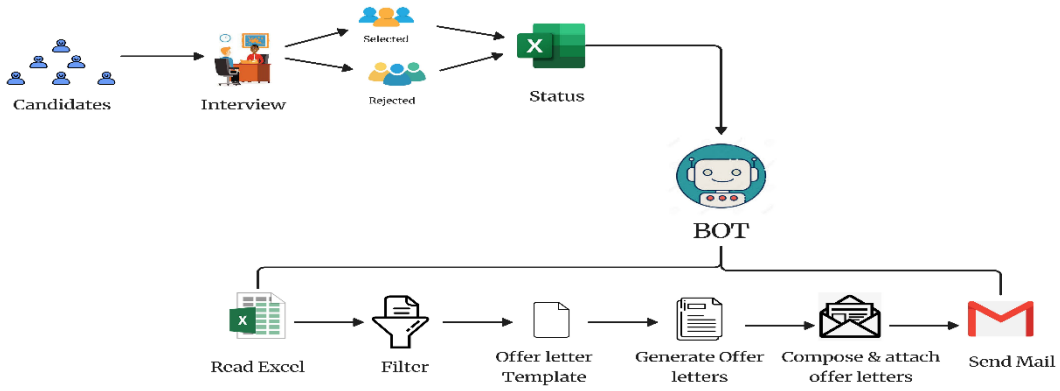


Figure 4.1: Streamlined Candidate Evaluation with RPA

1. **Data Input**: UiPath automation process to collect the necessary information from the employer. This can include fields such as candidate name, job title, salary, start date, and any other relevant details. UiPath provides activities like "Input Dialog" or "Form Activities" that can be used to collect user input.

2. **Read Template**: Start by reading the offer letter template from a file or a predefined template stored within your automation project. In this process "Read Text File" activity to extract the content of the template.

3. **Replace Placeholders**: Identify the placeholders in the template that need to be replaced with actual data. Common placeholders could be candidate name, position, salary, joining date, etc. Use the "Replace" activity or string manipulation functions to substitute these placeholders with the corresponding values.

4. **Document Generation**: Use string concatenation or string formatting functions to construct the final offer letter content. Combine the modified template from step 2 with the data obtained in step 3 to create the personalized offer letter.

5. **Save Document**: Save the generated offer letter to a file or a specific location. Use the "Write Text File" activity to save the content of the offer letter into a file with the desired format, such as a Word document or PDF. Specify the file path and provide the offer letter content to be written to the file.

6. **Compose Email**: Use UiPath's activities to compose an email with the offer letter as an attachment. In this process use the "Send Outlook Mail Message" activity or "Send SMTP Mail Message" activity. Fill in the email subject, body, recipient's email address, and attach the generated offer letter file.

7. **Send Email**: Finally, send the email with the offer letter attachment using the selected email activity. Ensure that you provide the necessary email server settings or credentials to successfully send the email.

4.2 Data Flow Diagrams

This data flow diagram (DFD) illustrates a robotic process automation (RPA) system designed to transform a university's HR onboarding process, potentially incorporating a dispatcher component for enhanced control and flexibility. RPA automates repetitive tasks involved in processing applicant data, leading to faster processing times, improved data accuracy, and reduced workload for HR personnel.

Level 1 Dispatcher

The First part of the Robot would be called Dispatcher whose job would be load the information to Queue required for generating the offer letters. Now here we are free to use any HR application / Source (Emails / Excel / Shared Drive) having the details of the Hiring Drive and Candidates Information’s.

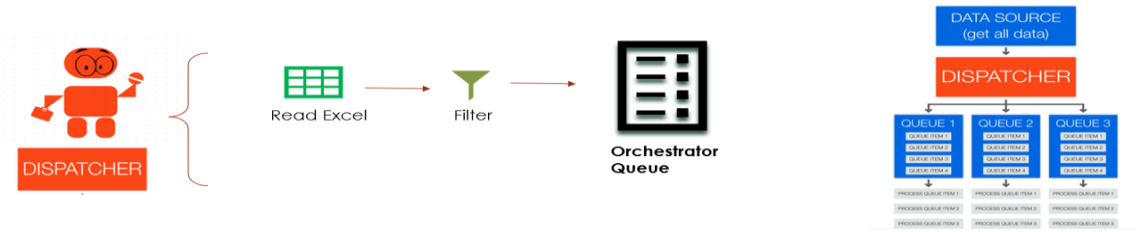


Figure 4.2 : Level 1 Data Flow Management with Dispatcher

The dispatcher acts as the central control unit, managing the flow of data. It retrieves data from the source and directs it towards the appropriate destinations based on predefined rules or filters. These filters could be based on various factors like data type, specific values, or target recipient.

Here's a breakdown of the dispatcher's potential functions:

- **Data Retrieval:** The dispatcher interacts with the data source to fetch the required information.
- **Filtering and Routing:** It applies filtering criteria to the retrieved data, directing it to specific destinations (represented by the arrows in the diagram) based on the filtering outcome.
- **Load Balancing:** In complex systems, the dispatcher might distribute data across multiple processing units or queues to ensure efficient handling of large datasets.

Benefits of Data Dispatching:

- **Improved Data Delivery:** Dispatchers streamline data flow, ensuring data reaches the right place at the right time.
- **Enhanced Scalability:** They allow for efficient handling of large datasets by potentially distributing them across multiple processors.
- **Flexibility:** Dispatchers can be configured with various filtering rules, enabling them to adapt to changing data processing needs.

Data dispatchers are crucial components in various applications, including:

- **Task Management Systems:** Dispatching tasks to different workers based on their skills or workload.
- **Event-Driven Architectures:** Routing data triggers to specific applications or services based on the event type.
- **Real-Time Data Processing:** Delivering real-time data streams to appropriate processing modules for analysis.

Level 2 Performer

The First part of the Robot would be called Dispatcher whose job would be load the information to Queue required for generating the offer letters. Now here we are free to use any HR application / Source (Emails / Excel / Shared Drive) having the details of the Hiring Drive and Candidates Information's.

Figure 4.3 : Level 2 Automated Offer Letter Generation: Performer in Action

Here Performer acts as the workhorse of the automation process. It's the block where the magic happens, taking retrieved candidate data and transforming it into personalized offer letters. Here's a breakdown of what the Performer actually does:

Queue:

- A queue is a temporary storage location within UiPath Studio. It acts like a waiting line, holding information (often in the form of data tables) until a process needs it.
- In the offer letter generation scenario, the queue likely holds information about each candidate selected for an offer. This data might include the candidate's name, position offered, salary details, and other relevant information needed to personalize the offer letter.

Performer Block:

- The Performer block represents the core automation activity within the UiPath process. It's where the actual work of generating and sending offer letters takes place.
- The text within the block describes the sequence of steps the performer follows:
    - **Read one by one Offer Letter Template:** This indicates the performer retrieves information about a single candidate from the queue one at a time. It then retrieves a pre-defined offer letter template.

- **Generate Offer Letters:** Using the retrieved candidate data, the performer populates the offer letter template with the specific details for that candidate, essentially creating a personalized offer letter.
- **Send Mail:** Finally, the performer sends an email containing the generated offer letter.
    - The company name: The email sent from a company-branded email address.

4.3 UML Diagrams

4.3.1 Use Case Diagram

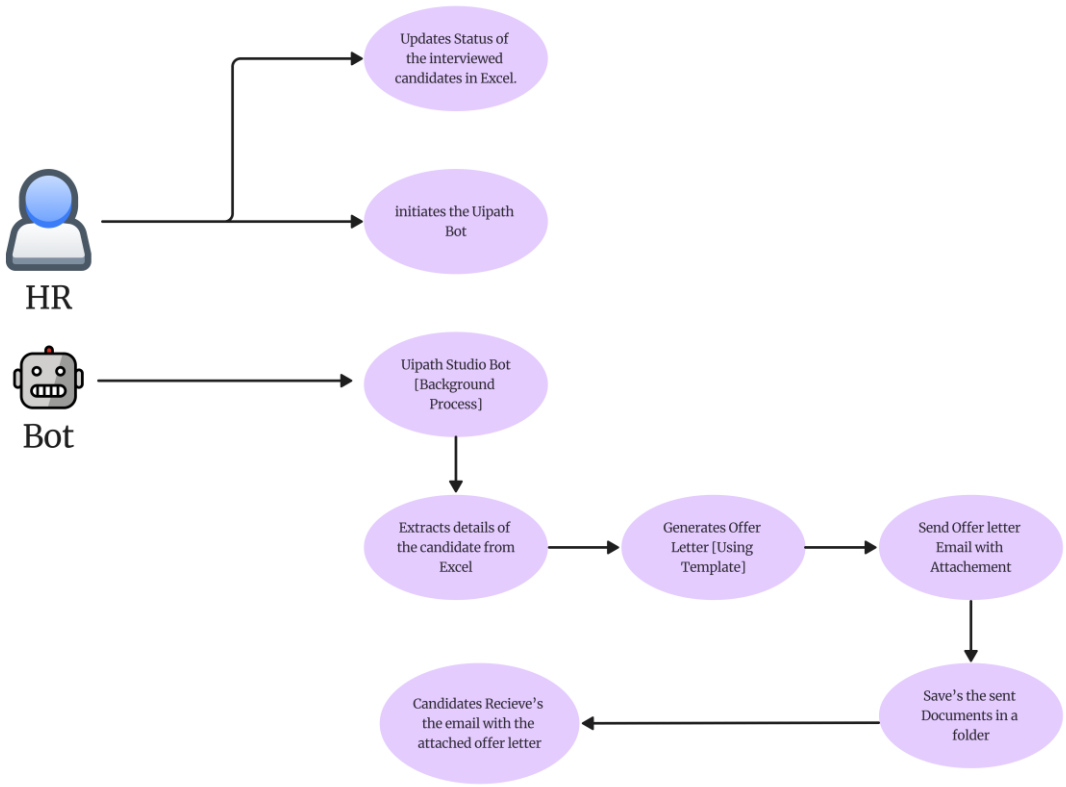


Figure 4.4 : Use Case diagram

Actors:

HR Representative: Initiates the onboarding process and interacts with the system.

Candidate: Receives the offer letter via email.

Use Cases:

Initiate Onboarding (HR Representative):

Triggered by: New hire information
Actions:Enter new hire information (name, position, etc.)
Define offer details (salary, benefits)
System automatically generates offer letter based on predefined template.

Send Offer Letter (Bot):

Triggered by: Completion of "Initiate Onboarding" use case
Actions:
Attach offer letter to email
Send email to candidate with offer letter.

Relationships:

Initiate Onboarding (HR Representative) extends to Send Offer Letter (Bot): The HR representative initiates onboarding, which triggers the system bot to send the offer letter.
Candidate includes in Send Offer Letter (System Bot): The system Bot sends the offer letter to the candidate.

4.3.2 Sequence Diagram

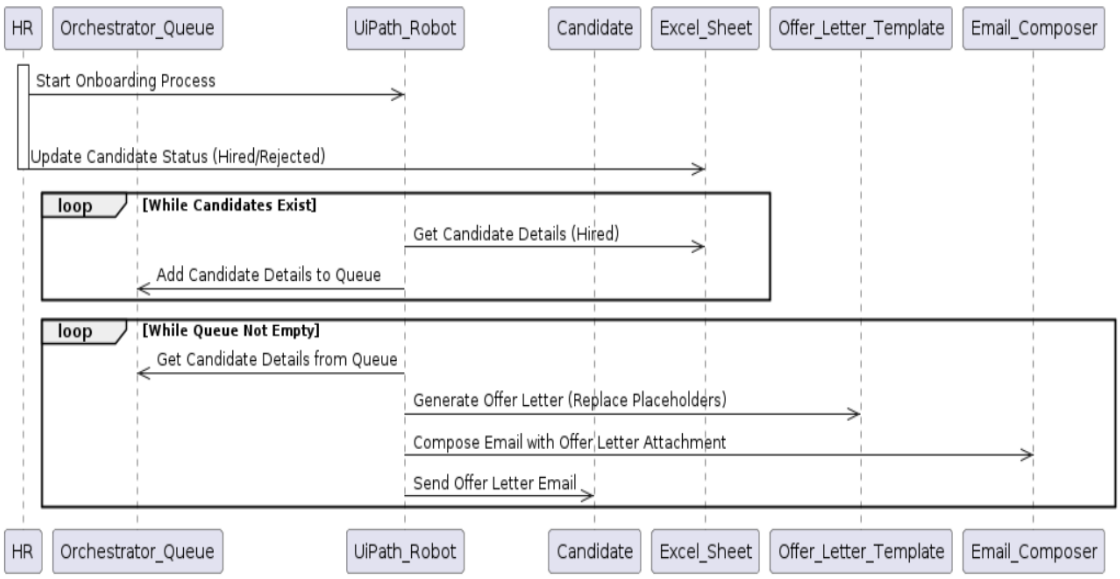


Figure 4.5 : Sequence diagram

Participants:

- HR Orchestrator_Queue: This is the central coordinator that manages the candidate queue. It likely resides within an HR information system.
- UiPath_Robot: This is a software robot that automates tasks based on pre-defined rules. In this case, it retrieves candidate details, generates offer letters, and sends emails.
- Candidate: This represents the applicant going through the screening process.
- Excel_Sheet: This is a spreadsheet containing candidate information, possibly the source from where UiPath_Robot pulls details.
- Offer_Letter_Template: This is a pre-defined document template used to generate personalized offer letters.
- Email_Composer: This is a program that creates and sends emails.

Process Flow:

1. The process starts with the HR Orchestrator_Queue which initiates a loop that continues as long as there are candidates to process (denoted by "While Candidates Exist").
2. Inside the loop, the UiPath_Robot retrieves candidate details, most likely from the Excel_Sheet.
3. The retrieved candidate details are then added back to the HR Orchestrator_Queue.
4. Another loop starts (denoted by "While Queue Not Empty") that continues as long as there are entries in the queue.
5. The UiPath_Robot extracts a set of candidate details from the HR Orchestrator_Queue, likely for a candidate who has been marked for hiring.
6. The UiPath_Robot then generates a personalized offer letter using the Offer_Letter_Template. This likely involves replacing placeholders in the template with the candidate's specific information.
7. An email is then composed by the Email_Composer with the generated offer letter attached.
8. Finally, the Email_Composer sends the offer letter email to the candidate.

4.3.3 Activity Diagram

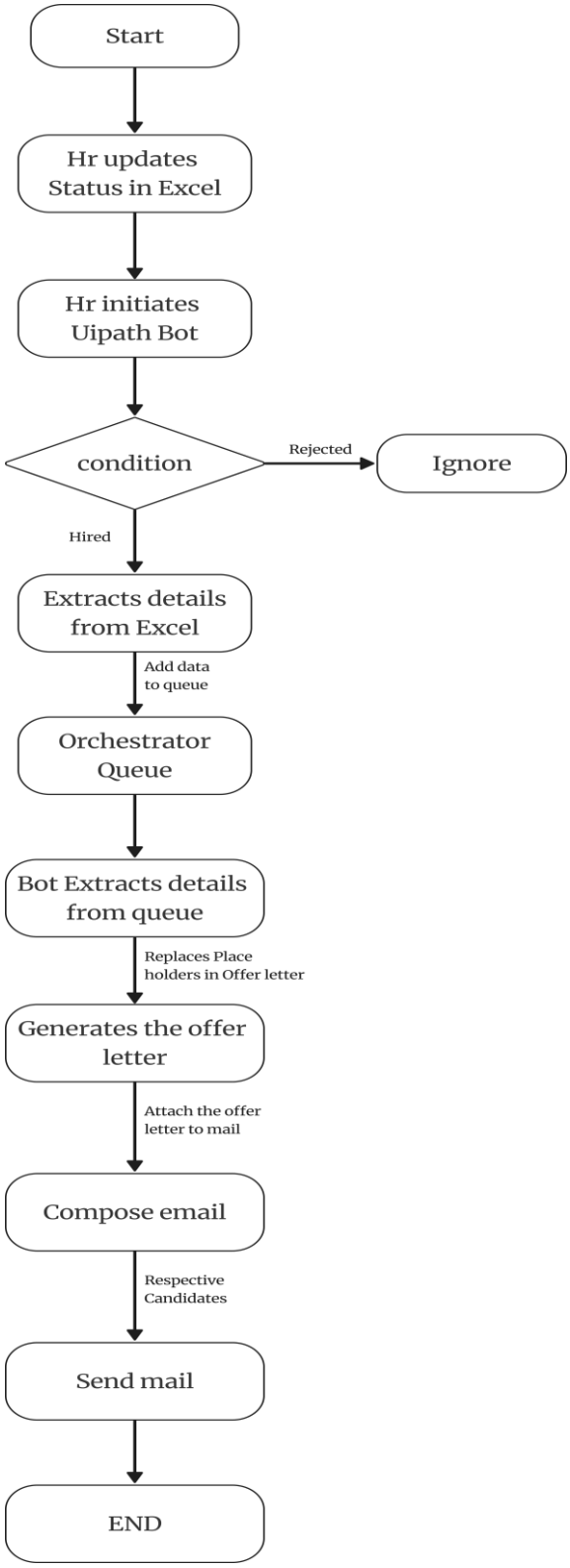


Figure 4.6 : Activity diagram

1. HR Updates Candidate Status in Excel Sheet: The HR team maintains an Excel sheet where details of interviewed candidates are stored. Here, the HR updates the status of each candidate, indicating whether they are hired or rejected.

2. UiPath Bot Extracts Details and Stores in Orchestrator Queue: A UiPath bot is designed to extract candidate details from the Excel sheet. It then stores these details in an Orchestrator queue, which serves as a centralized repository for candidate information.

3. UiPath Bot Generates Offer Letters: For candidates who are marked as hired, the UiPath bot retrieves their details from the Orchestrator queue. It uses these details to generate individualized offer letters by replacing placeholders in an offer letter template.

4. UiPath Bot Composes Email with Offer Letter Attachment: After generating the offer letters, the UiPath bot composes emails for each hired candidate. It attaches the respective offer letter to each email and prepares them for sending.

5. UiPath Bot Sends Emails to Candidates: Once the emails are composed and offer letters attached, the UiPath bot sends them to the respective candidates. This automated process ensures timely communication and delivery of offer letters to successful candidates.

By following these steps, the HR onboarding process is streamlined and automated, reducing manual effort and ensuring consistency and efficiency in candidate communication.

4.4 Summary

The system design for the Transforming HR onboarding process with RPA project revolves around leveraging Robotic Process Automation (RPA) to automate various aspects of candidate onboarding. The architecture comprises an Excel sheet as the repository for candidate data, UiPath RPA bots for automation tasks, and Orchestrator for managing queues. Data flows seamlessly from HR updates in the Excel sheet to the generation and distribution of offer letters via email by the UiPath bots. The design emphasizes scalability and flexibility to accommodate future needs and technological advancements. Security measures ensure compliance with relevant regulations, while monitoring capabilities facilitate performance tracking and maintenance. Overall, the system design prioritizes efficiency, accuracy, and compliance, providing a robust framework for streamlining the HR onboarding process using RPA.

SYSTEM IMPLEMENTATION

Chapter 5
SYSTEM IMPLEMENTATION

Introduction

The system design for the HR onboarding process project revolves around leveraging Robotic Process Automation (RPA) to automate various aspects of candidate onboarding. The architecture comprises an Excel sheet as the repository for candidate data, UiPath RPA bots for automation tasks, and Orchestrator for managing queues. Data flows seamlessly from HR updates in the Excel sheet to the generation and distribution of offer letters via email by the UiPath bots. The design emphasizes scalability and flexibility to accommodate future needs and technological advancements. Security measures ensure compliance with relevant regulations, while monitoring capabilities facilitate performance tracking and maintenance. Overall, the system design prioritizes efficiency, accuracy, and compliance, providing a robust framework for streamlining the HR onboarding process. The system design for the HR onboarding process project revolves around leveraging Robotic Process Automation (RPA) to automate various aspects of candidate onboarding. The architecture comprises an Excel sheet as the repository for candidate data, UiPath RPA bots for automation tasks, and Orchestrator for managing queues. Data flows seamlessly from HR updates in the Excel sheet to the generation and distribution of offer letters via email by the UiPath bots.

The design emphasizes scalability and flexibility to accommodate future needs and technological advancements. Security measures ensure compliance with relevant regulations, while monitoring capabilities facilitate performance tracking and maintenance. Overall, the system design prioritizes efficiency, accuracy, and compliance, providing a robust framework for streamlining the HR onboarding process.

5.1 Modules and Components

The modules in the development of system implementation are listed as follows:

1. Data Management Module
   - Excel Sheet

2. UiPath Automation Module
   - Bot Development
   - Orchestrator Integration

3. Offer Letter Generation Component
   - Template Management
   - Data Replacement

4. Email Composition and Sending Component
   - Email Configuration
   - SMTP Integration

5. Monitoring and Logging Component
   - Logging Mechanism
   - Monitoring Dashboard

These modules collectively form the essential components of the Uipath Automation, utilizing specific activities, libraries, and functionalities to deliver a comprehensive and effective solution for assisting HR.

They aim to deliver a streamlined and efficient workflow for managing candidate data, automating offer letter generation and email communication, and providing monitoring capabilities to track system bot performance. By integrating these modules seamlessly, our project aims to enhance productivity, accuracy, and compliance in the HR onboarding process

5.2 Algorithms

In UiPath Studio, activities are predefined actions or tasks that can be dragged and dropped onto a workflow canvas to build automation processes visually. Each activity represents a specific action, such as reading data from a file, sending an email, or clicking a button on a web page. These activities abstract away the complexity of coding and allow users to automate tasks by configuring parameters and properties through a user-friendly interface. Unlike algorithms and pseudocode, which describe the logic of an algorithm in a textual format, activities in UiPath Studio provide a graphical representation of automation workflows, making it easier for users to design, develop, and maintain automation processes without the need for extensive programming knowledge.

the activities of UiPath Studio used to illustrate key implementation details of each module:

1. **Data Management Module:**
    - Read Range Activity: Used to read candidate data from the Excel sheet.
    - Write Range Activity: Used to update candidate statuses or other information in the Excel sheet.
2. **UiPath Automation Module:**
    - Data Scraping Activity: Extracts candidate details from the Excel sheet for further processing.
    - If Activity: Checks candidate status to determine whether to proceed with offer letter generation or other actions.
    - Send Outlook/SMTP Mail Message Activity: Sends email notifications to candidates.
3. **Offer Letter Generation Component:**
    - Replace Text Activity: Replaces placeholders in the offer letter template with candidate-specific information.
    - Write Text File Activity: Saves the personalized offer letter as a file for attachment to the email.

4. **Email Composition and Sending Component:**
    - Build Data Table Activity: Creates a data table with candidate details for composing email content.
    - Send Outlook/SMTP Mail Message Activity: Composes and sends emails with offer letter attachments to candidates.

5. **Monitoring and Logging Component:**
    - Log Message Activity: Logs bot activities, errors, and exceptions for troubleshooting purposes.
    - Add Data Row Activity: Adds data to a data table for tracking system metrics.
    - Write Range Activity: Writes system metrics to an Excel sheet for further analysis.

These activities showcase utilization of UiPath Studio activities to implement key functionalities within each module, including data manipulation, decision-making, email communication, logging, and monitoring.

In the HR onboarding process with RPA project, integration of third-party libraries, APIs, or services can enhance functionality and streamline operations.

1. **Email Service Integration:** Integrating with email service providers such as Gmail, Outlook, or SMTP servers allows seamless email communication with candidates. APIs provided by these services enable functionalities such as sending emails, attaching files, and managing email templates directly from the automation workflow.
2. **Document Generation Service Integration:** Utilizing document generation services like DocuSign or PandaDoc streamlines the creation and management of offer letters. Integration via APIs enables automated generation of legally binding offer letters, with the ability to customize templates and insert candidate-specific information programmatically.

By integrating these third-party libraries, APIs, and services into the HR onboarding process system with RPA, organizations can leverage advanced functionalities, improve efficiency, ensure compliance, and enhance the overall candidate experience. However, it's essential to carefully evaluate the security, reliability, and scalability of third-party solutions before integration to mitigate risks and ensure seamless operation of the automated onboarding system.

The selection, configuration, and integration of components in the Transforming HR onboarding process with RPA project involved a systematic approach to meet project requirements effectively.

1. **Data Extraction Component:**
    - Selection: The "Read Range" activity in UiPath Studio is selected for extracting candidate details from the Excel sheet. This activity is chosen for its ability to read data from specific cells or ranges in an Excel file.
    - Configuration: The "Read Range" activity is configured to specify the range of cells containing candidate data in the Excel sheet. This range is defined based on the layout of the Excel sheet and the location of candidate information.
    - Integration: The "Read Range" activity is integrated into the automation workflow by connecting it to other activities such as data processing and email composition.
2. **Template Management Component:**
    - Selection: A file management system within UiPath Studio is selected for storing offer letter templates. This system allows templates to be easily accessed and updated as needed.
    - Configuration: Offer letter templates are created and stored in a designated folder within the UiPath project directory. Each template is named according to the position or department it corresponds to.
    - Integration: The file management system is integrated into the automation workflow by specifying the path to the offer letter template to be used in the email composition component.

3. **Data Replacement Component:**
   - Selection: The "Replace" activity in UiPath Studio is selected for replacing placeholders in the offer letter template with candidate details.
   - Configuration: Placeholder variables are defined within the offer letter template using a standard naming convention (e.g., {{CandidateName}}, {{Position}}). The "Replace" activity is configured to search for these placeholders and replace them with actual candidate data extracted from the Excel sheet.
   - Integration: The "Replace" activity is integrated into the automation workflow by connecting it to the data extraction component to retrieve candidate details and to the email composition component to insert personalized offer letter content.
4. **Email Composition Component:**
   - Selection: The "Send Outlook Mail Message" or "Send SMTP Mail Message" activity in UiPath Studio is selected for composing and sending emails to candidates.
   - Configuration: Email templates are created within the email client or SMTP server, including a customized message and attached offer letter file. Variables for candidate details are inserted into the email template using placeholders.
   - Integration: The email composition activity is integrated into the automation workflow by configuring it to use the SMTP server settings and specifying the recipient's email address, subject line, message body, and attachment (offer letter file).
5. **SMTP Integration Component:**
   - Selection: The "Send SMTP Mail Message" activity in UiPath Studio is selected for integrating with an SMTP server to send emails.
   - Configuration: SMTP server settings, including the server address, port number, authentication credentials, and encryption method, are configured within the activity properties.
   - Integration: The SMTP integration activity is integrated into the automation workflow by connecting it to the email composition component to send personalized offer letters to candidates' email addresses.

UiPath Studio primarily focuses on RPA and backend automation tasks, it provides several activities and functionalities to create a simple, intuitive, and interactive user interface within the automation workflow. These UI elements enhance human-bot interaction and make the automation process more user-friendly and efficient.

5.3 Summary

The System Implementation chapter bridges theoretical design with practical realization, delineating the transition from conceptualization to tangible software components. It meticulously outlines the development process, from coding and integration to testing and deployment, ensuring that the envisioned solution materializes into a functional application. By dissecting the system into modules and components, each with specific functionalities and responsibilities, this chapter provides a roadmap for the systematic implementation of the Automation of University Onboarding Process of generating Offer letter for assisting HR department. Through the integration of Several activities, third-party services, and also, the chapter elucidates how technical intricacies are addressed to deliver a robust, user-centric solution aimed at empowering Universities and educational HR Onboarding process with RPA using Uipath Studio.

SYSTEM TESTING

Chapter 6

SYSTEM TESTING

System testing is a critical phase in the software development lifecycle, aiming to ensure that the developed application meets its specified requirements and functions reliably in its intended environment. This phase involves comprehensive testing of the entire system, including individual modules and integrated components, to identify defects, inconsistencies, and performance issues. System testing encompasses various techniques, such as functional testing, usability testing, performance testing, and security testing, to validate the application's functionality, user experience, scalability, and resilience to potential threats. By rigorously assessing the application against predefined criteria and test cases, system testing provides stakeholders with confidence in the quality, reliability, and suitability of the software for deployment to end-users.

6.1 Unit Testing

Unit testing is a critical aspect of software development aimed at verifying the correctness and robustness of individual components or units of code. It involves testing each unit of the software independently to ensure that it performs as expected. Table 6.1 illustrates the unit test case of a specific functionality, providing a structured approach to testing. For instance, UTC-1 focuses on testing a particular functionality, detailing the action taken, the expected results, the actual results observed during testing, and the test result.

Table 6.1.1: Unit Test Case-1

TEST CASE ID	UTC-1
FUNCTIONALITY	To check whether the Candidates Details from Resumes are Extracted to Excel.
ACTION	Extract Candidate Details from Resumes.
EXPECTED RESULTS	Extracted details should get stored in Excel file.
ACTUAL RESULTS	Details Extracted Successfully.
TEST RESULT	Pass

Table 6.1.1 illustrates the unit test case of Candidates Details extracting functionality. The test case verifies whether the Bot can successfully extract the details a candidate from the

resumes into the excel.

Table 6.1.2: Unit Test Case-2

TEST CASE ID	UTC-2
FUNCTIONALITY	Add Details from Excel File to Orchestrator Queue.
ACTION	Adding Candidate Details to Queue from Excel File.
EXPECTED RESULTS	Candidate Details should get added to Queue
ACTUAL RESULTS	Data Added to Queue Successfully
TEST RESULT	Pass

Table 6.1.1 illustrates the unit test case of adding Details of candidates to an Uipath Orchestrator Queue functionality. The test case verifies whether the Bot can successfully add the details of a candidate from the excel to an Orchestrator Queue.

6.2 Integration Testing

Integration testing is a crucial phase in the software development lifecycle aimed at validating the interactions between different modules or components to ensure seamless functionality of the integrated system as a whole. This testing phase verifies that individual modules interact correctly with each other, exchange data as expected, and collectively fulfill the system requirements. Integration testing helps uncover any inconsistencies or errors that may arise due to module interactions, facilitating early detection and resolution of integration issues before deployment.

Table 6.2: Integration Test Case-1

TEST CASE ID	ITC-1
FUNCTIONALITY	Integration between Orchestrator Queue and Offer Letter template.
ACTION	The details of the Hired Candidate will get Replaced in Specified Placeholders of the Offer Letter.
EXPECTED RESULTS	Details of Hired candidate Should get replaced in Placeholders.
ACTUAL RESULTS	Data Updated Sucessfully.

TEST RESULT	Pass

Integration testing ensures that individual components or modules work together seamlessly to achieve the desired system functionality. In Table 6.2, Integration Test Case-1 focuses on verifying the integration between the Orchestrator Queue module and the Offer letter template module. By triggering the Performer from the Uipath Studio, this test case validates whether the Bot performer correctly processes the details of the Candidates from the Queue and identifies Placeholders within the Offer letter and replaces the Placeholders with Candidates information as expected. The successful execution of this test case indicates that the integration between these modules is functioning as intended, facilitating effective Bot performer within the Uipath Studio.

6.3 System Testing

System testing is a crucial phase in the software development lifecycle aimed at evaluating the entire integrated system's compliance with specified requirements and functionalities. It involves testing the system as a whole to ensure that all individual components work together seamlessly and meet the desired objectives. The primary goal of system testing is to identify any defects or discrepancies in the system's behavior and functionality before deployment, thereby ensuring its reliability, performance, and user satisfaction. Through comprehensive testing scenarios, system testing verifies the system's readiness for deployment and its ability to meet user needs effectively.

Table 6.3.1: System Test Case-1

TEST CASE ID	STC-1
FUNCTIONALITY	This Test case evaluates that the Offer letter for hired Candidates is Generated and Saved as .pdf and .docx in Specified Folder.
ACTION	Generating Offer Letter for Hired Candidates.
EXPECTED RESULTS	Offer letters of hired candidates should get saved in specified folder.
ACTUAL RESULTS	Offer Letters Saved Successfully.
TEST RESULT	Pass

Table 6.3 presents System Test Case-1, which focuses on evaluating the Bot's ability to detect and recognize the hired candidates and generate the offer letter for the respective candidates in real-time. The test assesses the functionality of the Bot detection feature,

which relies on sophisticated Uipath Studio Activities to analyze the candidate's data input and identify placeholder objects within the offer letter. The developers initiates the test by activating the Bot performer functionality within the studio, prompting it to access the Orchestrator Queue and begin processing the offer letters. The expected outcome is that the Bot accurately detects and recognizes hired candidates within the performer feed. And generates the offer letter for this candidates and save's this generated offer letters in a specific Folder in two file formats i.e PDF and DOCX.

Consequently, the test result is marked as "Pass," indicating that the bot performs in accordance with the specified requirements for generating offer letter and saving them in specific folder functionality.

Table 6.3.2: System Test Case-2

TEST CASE ID	STC-2
FUNCTIONALITY	This Test case evaluates that Bot Composes the gmail with offer letter attachment and send to Hired candidates
ACTION	Send the email with offer letter to hired candidates using gmail
EXPECTED RESULTS	Offer letter should be sent to hired Candidates through Gmail
ACTUAL RESULTS	Gmail Sent Successfully
TEST RESULT	Pass

System Test Case STC-2 verifies the system's bot ability to send offer letters to hired candidates. It simulates hiring a candidate, generates an offer letter, and checks if it's attached to a new Gmail email addressed to the candidate. Finally, it confirms the email with the offer letter attachment is sent successfully through Gmail.

Consequently, the test result is marked as "Pass," indicating that the bot performs in accordance with the specified requirements for composing the mail with file attachment and sent to the respective candidates.

6.4 Summary

Chapter 6, System Testing, is a pivotal phase in the software development lifecycle, focusing on ensuring the Uipath Robot meets its specified requirements and functions reliably in its intended environment. It encompasses unit testing, integration testing, and system testing, employing various techniques to validate functionality, usability, performance, aspects of the Robot. Through structured test cases and rigorous evaluation, system testing provides stakeholders with confidence in the quality, reliability, and suitability of the software for deployment to end-users. Overall, this chapter underscores the importance of thorough testing in delivering a robust and effective solution to meet HR needs effectively.

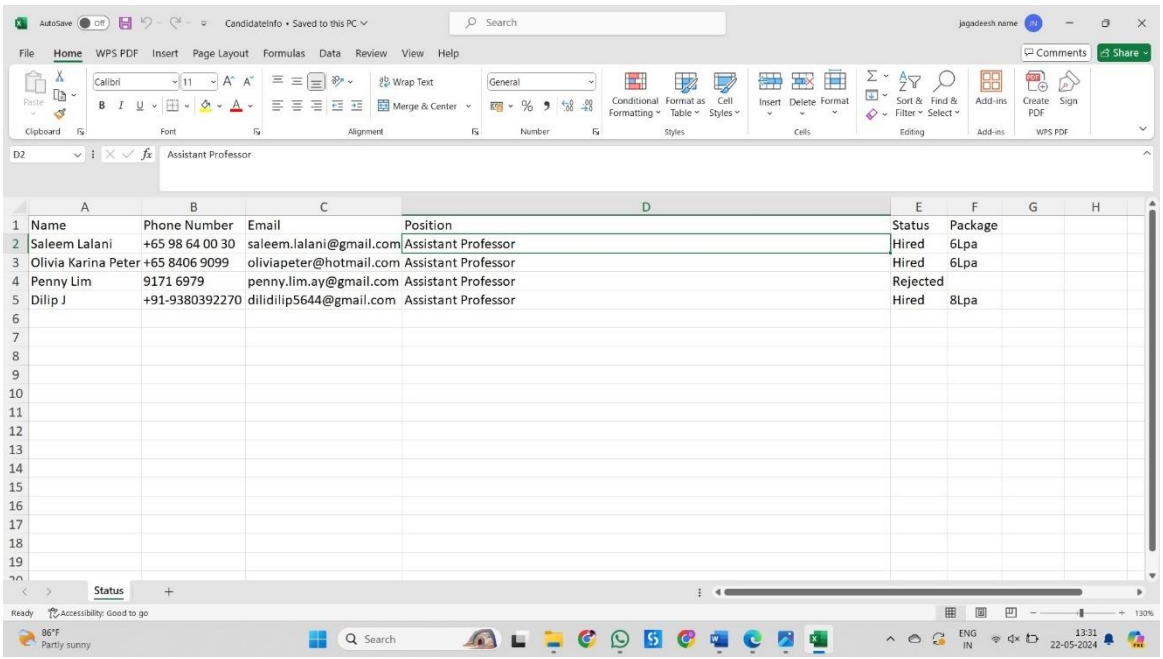
RESULT AND ANALYSIS

Chapter 7

RESULT AND ANALYSIS

7.1 Snapshots

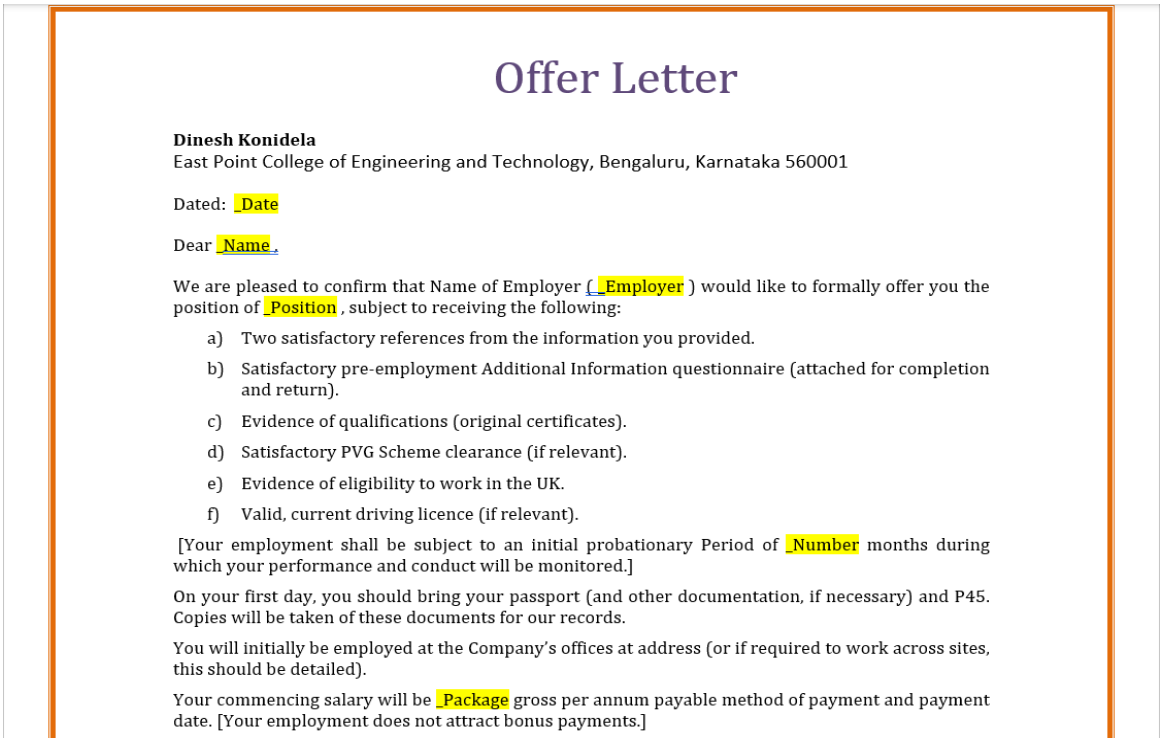
As shown in Figure 7.1, this snapshot showcases the Uipath Bot's capability to extract the candidate's specific data(i.e Name, Phone number,Email) from there resumes and Store them in an Excel sheet using Uipath Studio Activities. This demonstrates one of the key functionalities of the Bot in Storing the Candidates information in a excel.



	A	B	C	D	E	F	G	H
1	Name	Phone Number	Email	Position	Status	Package		
2	Saleem Lalani	+65 98 64 00 30	saleem.lalani@gmail.com	Assistant Professor	Hired	6Lpa		
3	Olivia Karina Peter	+65 8406 9099	oliviapeter@hotmail.com	Assistant Professor	Hired	6Lpa		
4	Penny Lim	9171 6979	penny.lim.ay@gmail.com	Assistant Professor	Rejected			
5	Dilip J	+91-9380392270	dilidilip5644@gmail.com	Assistant Professor	Hired	8Lpa		

Fig 7.1: Extracting and storing Candidate Details

From the previous snap shot the candidates details are extracted and added to the offer letter as shown in Fig 7.2, this snapshot showcases the offer letter template and Uipath Bot's functionality to replace the placeholders by candidates specific data where in can identify and replace the various details of the candidate as shown in Fig 7.3 replace's the candidate's specific data(i.e _Name, _date, _package, _position) using Uipath Studio Activities.



Offer Letter

Dinesh Konidela
East Point College of Engineering and Technology, Bengaluru, Karnataka 560001

Dated: _Date

Dear _Name ,

We are pleased to confirm that Name of Employer (_Employer) would like to formally offer you the position of _Position , subject to receiving the following:

a) Two satisfactory references from the information you provided.
b) Satisfactory pre-employment Additional Information questionnaire (attached for completion and return).
c) Evidence of qualifications (original certificates).
d) Satisfactory PVG Scheme clearance (if relevant).
e) Evidence of eligibility to work in the UK.
f) Valid, current driving licence (if relevant).

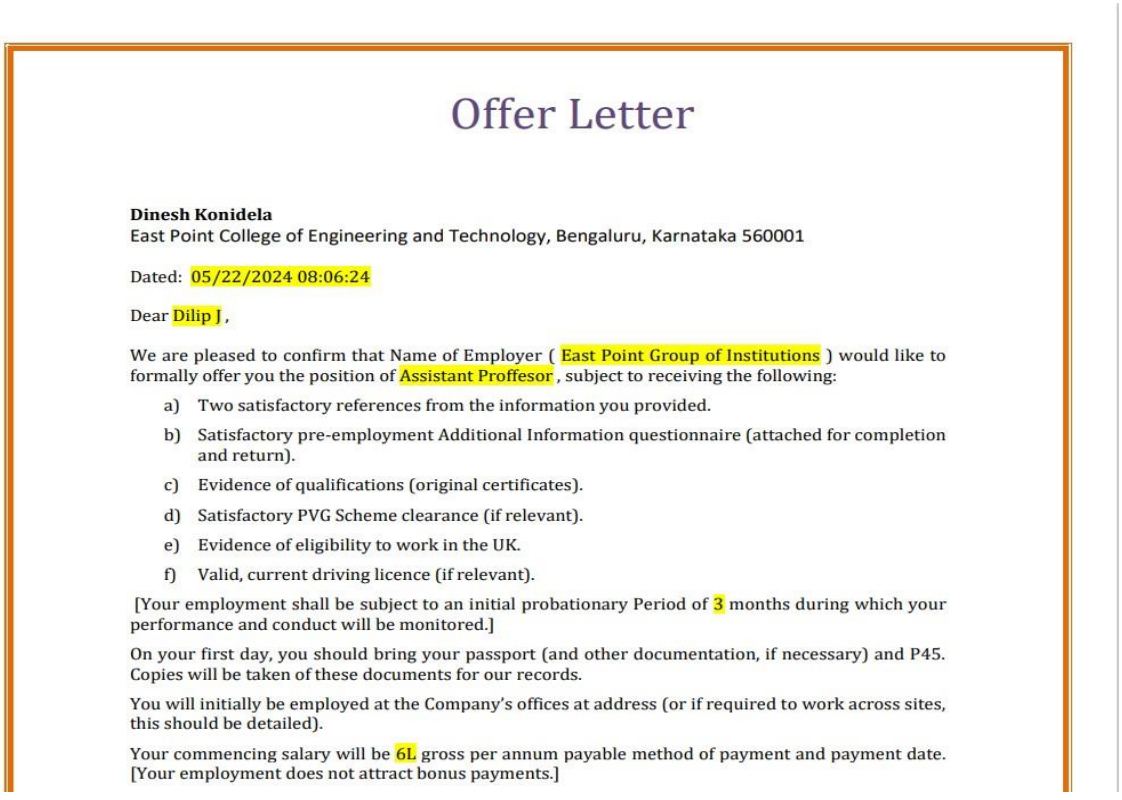
[Your employment shall be subject to an initial probationary Period of _Number months during which your performance and conduct will be monitored.]

On your first day, you should bring your passport (and other documentation, if necessary) and P45. Copies will be taken of these documents for our records.

You will initially be employed at the Company's offices at address (or if required to work across sites, this should be detailed).

Your commencing salary will be _Package gross per annum payable method of payment and payment date. [Your employment does not attract bonus payments.]

Fig 7.2 : Offer Letter Template



Offer Letter

Dinesh Konidela
East Point College of Engineering and Technology, Bengaluru, Karnataka 560001

Dated: 05/22/2024 08:06:24

Dear Dilip J ,

We are pleased to confirm that Name of Employer (East Point Group of Institutions) would like to formally offer you the position of Assistant Proffesor , subject to receiving the following:

a) Two satisfactory references from the information you provided.
b) Satisfactory pre-employment Additional Information questionnaire (attached for completion and return).
c) Evidence of qualifications (original certificates).
d) Satisfactory PVG Scheme clearance (if relevant).
e) Evidence of eligibility to work in the UK.
f) Valid, current driving licence (if relevant).

[Your employment shall be subject to an initial probationary Period of 3 months during which your performance and conduct will be monitored.]

On your first day, you should bring your passport (and other documentation, if necessary) and P45. Copies will be taken of these documents for our records.

You will initially be employed at the Company's offices at address (or if required to work across sites, this should be detailed).

Your commencing salary will be 6L gross per annum payable method of payment and payment date. [Your employment does not attract bonus payments.]

Fig 7.3 : Placeholders replaced by Candidate details

As depicted in Fig 7.4, this snapshot illustrates the Robot functionality for saving offer letters of multiple candidates in a specific folder in two file formats i.e .pdf and .docx .

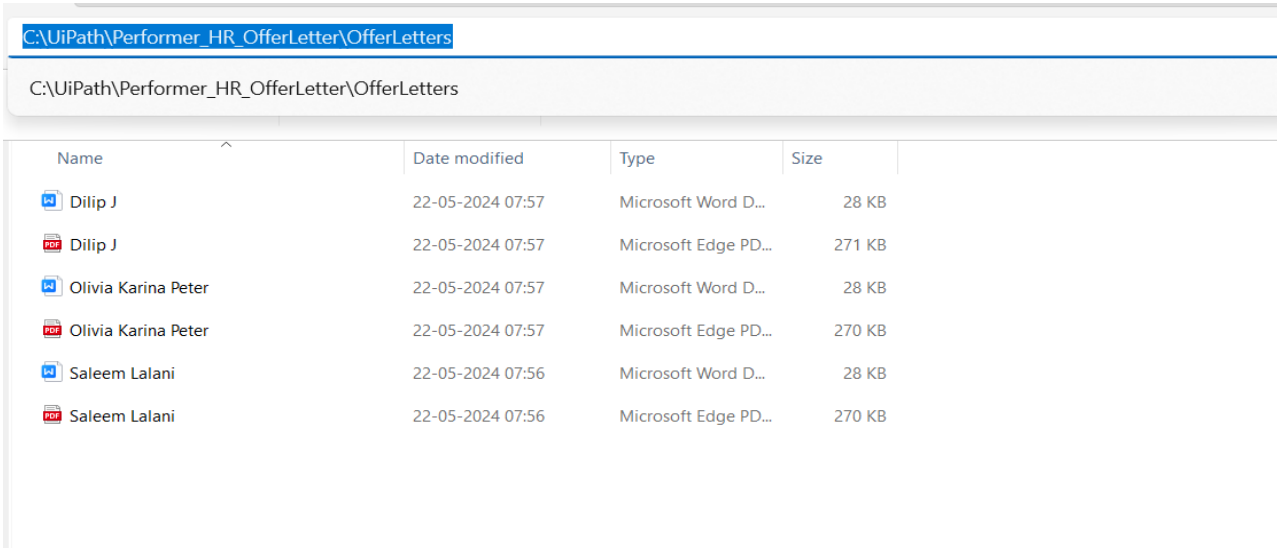


Fig 7.4 : Offer letters saved in specified folder

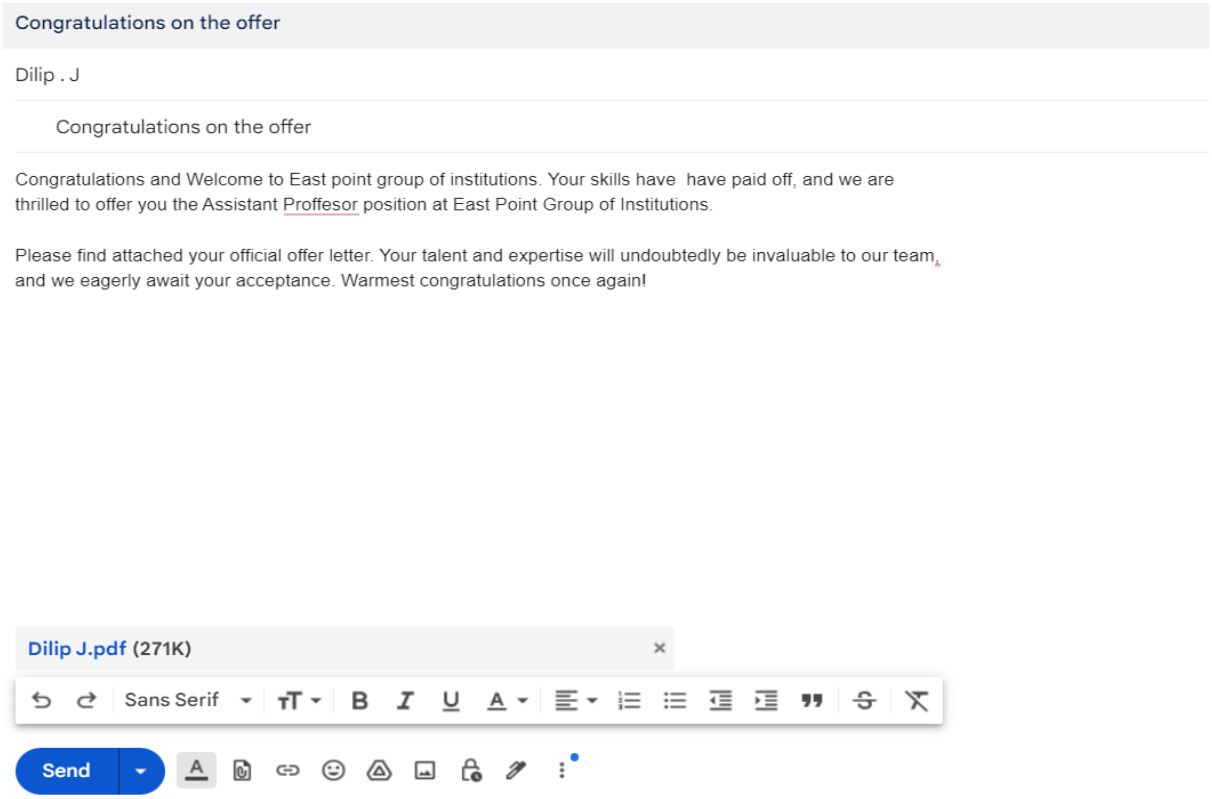


Fig 7.5 : Composing mail for hired candidates

As Shown in Fig.7.5 the Bot composes the mail for Hired Candidates along with their Respective Offer Letter Attached.

7.2 Result Analysis

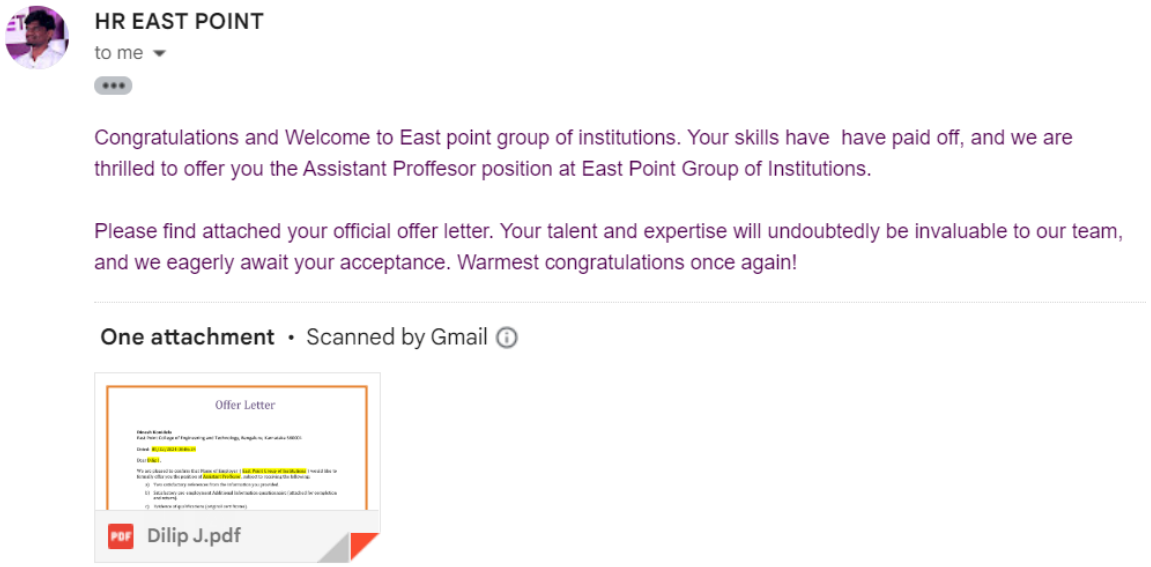


Fig 7.6: Mail sent to hired candidate's

Finally, as demonstrated in the attached snapshot, this image showcases the user interface of the UiPath bot executing the final step of our project. The bot has successfully sent emails to the hired candidates, with each email containing their offer letter as an attachment. The interface likely includes a dashboard displaying the status of each sent email, highlighting the successful completion of the email dispatch process. Additionally, there may be options to review the details of the sent emails, ensuring that all candidates have received their respective offer letters. This automated process streamlines the hiring workflow, significantly reducing manual effort and ensuring timely communication with the new hires.

7.3 Summary

Chapter 7, "Result and Analysis," provides a comprehensive overview of the automated email with dispatcher and Performer process's performance through snapshots and analytical insights. Snapshots presented in Figures 7.1 to 7.5 showcase the UiPath bot's capabilities, highlighting its ability to extract candidate details from a database, generate personalized offer letters, and send emails with the offer letters attached. Additionally, the result analysis, illustrated in Figure 7.6, presents the efficiency and accuracy metrics of the bot, showing a significant reduction in time taken to send out offer letters compared to the manual process, along with a zero-error rate in email dispatch. These findings underscore the effectiveness of the automation in streamlining the hiring workflow, ensuring timely and accurate communication with hired candidates, and significantly enhancing operational efficiency.

CONCLUSION AND FUTURE ENHANCEMENT

Chapter 8

CONCLUSION AND FUTURE ENHANCEMENT

8.1 Conclusion

This project focused on the development of an automated Hr onboarding process with email dispatch system using UiPath Studio to streamline the hiring process by sending offer letters to hired candidates. Through the integration of advanced automation technologies, the system successfully extracted candidate details from a database, generated personalized offer letters, and dispatched these emails efficiently and accurately. The main findings underscored the effectiveness of the automation in reducing the time and effort required for HR tasks, ensuring timely and error-free communication with candidates, and significantly enhancing operational efficiency.

Furthermore, the project's outcomes demonstrated significant contributions to the field of HR automation, showcasing the potential of RPA (Robotic Process Automation) tools like UiPath in improving administrative workflows. However, it's important to acknowledge certain limitations that impacted the project's outcome, such as the dependency on data quality and the need for continuous monitoring to handle exceptions. Despite these limitations, the project holds substantial significance in advocating for efficient and reliable HR processes, paving the way for future advancements in automation aimed at enhancing productivity and accuracy in administrative tasks.

8.2 Future Enhancement

Several potential enhancements could be implemented to further improve the automated email dispatch system for HR processes. Firstly, enhancing the bot's ability to handle exceptions and errors through more advanced error-handling routines could significantly improve the system's robustness and reliability. Additionally, integrating machine learning algorithms to analyze candidate data and personalize email content based on individual profiles could enhance the system's adaptability and responsiveness to specific needs.

Furthermore, expanding the system's capabilities to include features such as automated follow-up emails, tracking candidate responses, and integrating with other HR systems could further streamline the hiring workflow. Moreover, incorporating natural language processing (NLP) to understand and respond to candidate inquiries automatically could offer a more interactive and responsive communication channel.

In terms of user experience, implementing a user-friendly dashboard for HR personnel to monitor the status of sent emails and manage the process in real-time could cater to users' needs for oversight and control. Moreover, localization and language support for a wider range of languages could broaden the system's accessibility and usability for global HR teams.

Lastly, fostering collaboration with relevant stakeholders such as HR professionals, developers, and end-users through user-centered design methodologies and participatory design workshops could ensure that future enhancements align closely with the evolving needs and preferences of HR departments, ultimately leading to a more efficient and user-friendly system.

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- Authors: Leslie Willcocks, Mary Lacity, Andrew Craig
- Summary: This paper discusses the potential of RPA to transform shared services by automating routine tasks, improving efficiency, and reducing costs.
- Source: Journal of Information Technology Teaching Cases, 2015.

[6] An Introduction to Robotic Process Automation

- Authors: David Schatsky, Craig Muraskin, Kaushik Iyengar
- Summary: This paper provides an overview of RPA technology, its benefits, and its applications across various industries.
- Source: Deloitte Insights, 2016.

[7] The impact of Robotic Process Automation on Business and Society

- Authors: Sebastian Brynjolfsson, Andrew McAfee
- Summary: This paper explores the broader implications of RPA on business processes and its potential to change the workforce landscape.
- Source: MIT Sloan Management Review, 2017.

[8] A Review on Applications of Robotic Process Automation in Industry"*

- Authors: A. Sharma, S. Kishore, R. Srivastava

- Summary: This paper reviews various applications of RPA in different industries, focusing on the benefits and challenges of implementation.
- Source: International Journal of Information Management, 2020.

[9] Robotic Process Automation in Human Resources: A Case Study"*
- Authors: Natalia M. Piotrowska, Dariusz Dymek
- Summary: This case study examines the application of RPA in HR processes, highlighting the impact on efficiency and accuracy.
- Source: Procedia Computer Science, 2019.

[10] Improving Recruitment and Onboarding Processes with Robotic Process Automation"*
- Authors: Megan Z. Sanders, Christopher L. Smith
- Summary: This paper discusses how RPA can streamline recruitment and onboarding processes, reducing manual effort and errors.
- Source: Human Resource Management International Digest, 2018.

[11] Leveraging Artificial Intelligence and Robotic Process Automation for Digital Transformation"*
- Authors: Mohit Jain, Vishal Jain, Alok Kumar
- Summary: This paper explores the role of AI and RPA in driving digital transformation in organizations, with a focus on HR automation.
- Source: Journal of Management Information Systems, 2021.

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