EXCEL-TO-CERTIFICATE AUTOMATION

A PROJECT REPORT

Submitted by

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BONAFIDE CERTIFICATE

Certified that this project report "**EXCEL-TO-CERTIFICATE AUTOMATION**" is the bonafide work of "**KAAVIYA G (220701114)**" who carried out the project work for the subject OAI1903-Introduction to Robotic Process Automation under my supervision.

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ABSTRACT

The "**Excel-to-Certificate Automation**" is an RPA-based automation project built in UiPath Studio to streamline the creation of personalized certificates. Designed to address the challenges of repetitive and manual certificate generation, this bot integrates seamlessly with an Excel sheet containing participant details and a pre-designed PowerPoint certificate template. The bot iterates through each row of the Excel sheet, dynamically replacing the placeholder text in the PowerPoint template with the participant's name. The updated certificates are then exported and saved in PDF format, ready for distribution. This solution demonstrates the application of Robotic Process Automation to reduce human error, save time, and increase efficiency in certificate creation for events, training programs, or corporate use. It is particularly suited for scenarios involving large-scale data processing, ensuring consistent output and scalability. The project also highlights UiPath Studio's capability to handle file manipulation, data integration, and automated workflows in a user-friendly environment.

ACKNOWLEDGEMENT

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CHAPTER 1

INTRODUCTION

1.1 GENERAL

In organizations, events, or educational institutions, generating personalized certificates for participants is a common yet time-consuming task, especially when dealing with large datasets. Manual creation of certificates not only consumes significant time and effort but also increases the likelihood of errors, such as incorrect names or inconsistent formatting.

The "Excel to Certificate Automation" is an innovative automation solution developed using UiPath Studio to address these challenges. By leveraging Robotic Process Automation (RPA), this bot automates the entire process of certificate generation, making it efficient, error-free, and scalable. The project utilizes an Excel sheet containing participant names and a pre-designed PowerPoint certificate template. The bot reads each name from the Excel sheet, dynamically replaces the placeholder text in the PowerPoint template, and generates certificates in PDF format for all participants. This automation not only eliminates the repetitive nature of the task but also ensures uniformity and accuracy in the output. The "**Excel to Certificate Automation**" exemplifies how RPA can be effectively utilized to streamline administrative workflows, save time, and enhance productivity in scenarios requiring mass personalization of documents.

1.2 EXISTING SYSTEM

The existing system for generating certificates is a manual and time-intensive process that involves several repetitive steps. First, participant data is collected and organized in an Excel sheet. Then, the certificate template, usually in PowerPoint or another design tool, is opened, and the placeholder text is replaced with each participant's name individually. Finally, each certificate is saved as a PDF for distribution. While this approach is straightforward for a small number of participants, it becomes inefficient and error-prone when dealing with large datasets. The manual process not only consumes significant time and effort but also increases the risk of mistakes such as incorrect names, formatting issues, or missing certificates. Moreover, it lacks scalability and requires substantial human resources, making it impractical for large-scale events or programs.

1.3 PROPOSED SYSTEM

The proposed system, "Excel to Certificate Automation" offers an automated solution to overcome the challenges of the existing manual process. Built using UiPath Studio, the bot streamlines the certificate creation workflow by automating each step. It reads participant details directly from an Excel sheet, iterates through each row, and dynamically replaces the placeholder text in a pre-designed PowerPoint certificate template with the corresponding participant's name. The bot then exports each personalized certificate as a PDF file, ready for distribution. This automation eliminates the need for manual intervention, significantly reducing time and effort while ensuring accuracy and consistency. The system is scalable and capable of handling large datasets, making it ideal for

organizations that require efficient and error-free generation of certificates for large events or training programs.

CHAPTER 2

LITERATURE REVIEW

2.1 GENERAL

Robotic Process Automation (RPA) has gained significant traction in recent years as a reliable technology for automating repetitive and time-consuming tasks. According to various studies, RPA enables organizations to achieve efficiency and reduce errors in processes that involve high volumes of data and manual intervention. The application of RPA in document automation, such as certificate generation, has been explored in multiple domains, including education, events management, and corporate training programs.

One study highlighted the effectiveness of automation in personalizing certificates for large-scale academic events, where templates and participant data are processed programmatically, significantly reducing manual workload. Tools like UiPath have been identified as user-friendly platforms that support the integration of data from multiple sources, such as Excel files and templates, into an automated workflow. The research emphasizes that automation not only ensures faster processing but also enhances the accuracy and consistency of outputs.

Another study focused on the challenges of manual certificate generation, such as human errors in data entry, formatting inconsistencies, and delays due to resource constraints.

The study proposed RPA as a scalable solution, with bots capable of dynamically updating templates, handling large datasets, and generating documents in formats like PDF.

Additionally, existing literature also highlights the role of RPA in improving data-driven decision-making. For instance, automated workflows can generate insights about participant engagement by analyzing data related to certificate generation and distribution.

The implementation of the "**Excel to Certificate Automation**" aligns with these findings, leveraging RPA to automate the tedious and error-prone process of certificate creation. By integrating UiPath Studio with tools like Excel and PowerPoint, this project addresses the limitations of manual processes and contributes to the growing body of evidence supporting RPA's potential in document automation.

CHAPTER 3

SYSTEM DESIGN

3.1 SYSTEM FLOW DESIGN

A flowchart is a type of diagram that represents an algorithm, workflow or process. The flowchart shows the steps as boxes of various kinds, and their order by connecting the boxes with arrows. This diagrammatic representation illustrates a solution model to a given problem.
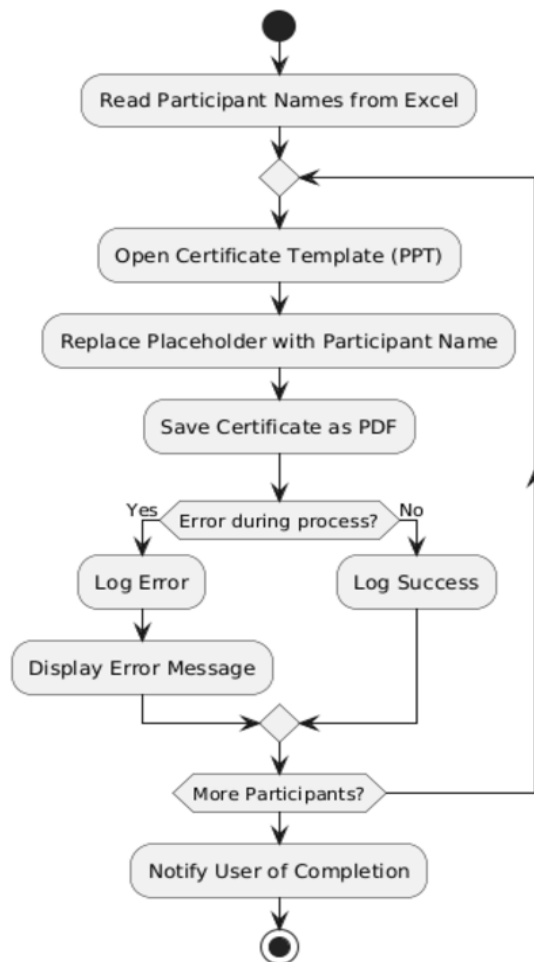

Fig 3.1 System Flow Design

3.2 ARCHITECTURE DIAGRAM

The Architecture Diagram for the Excel to Certificate Automation visually represents the system's components and their interactions. It highlights the input data layer, template processing layer, output generation layer, and notification layer, showcasing how participant names are processed, templates are updated, certificates are generated in PDF format, and success notifications are sent. This diagram provides a clear understanding of the overall system design and functionality, helping stakeholders see how each component contributes to automating certificate generation efficiently.
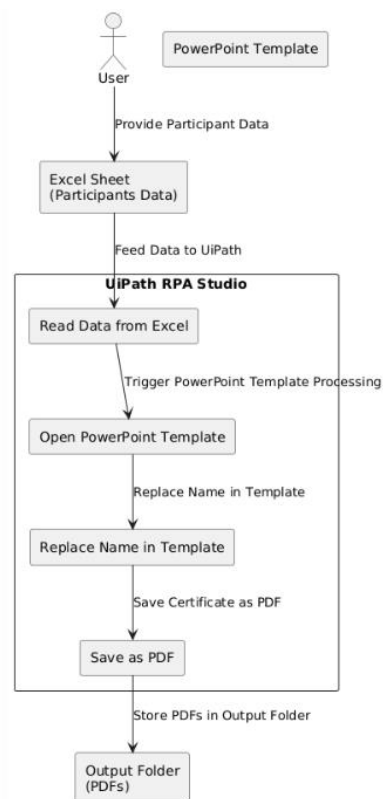
Fig 3.2 Architecture Diagram

3.3 SEQUENCE DIAGRAM

A sequence diagram is a type of interaction diagram that describes how—and in what order—a group of objects works together in the **Excel to Certificate Automation**. In this automation project, the User provides an Excel sheet with participant names. UiPath RPA reads the data from the Excel sheet, opens the PowerPoint Template, and replaces the placeholder with each participant's name. After updating the certificate, UiPath saves it as a PDF in the Output Folder. This process repeats for each participant. Once all certificates are generated and saved, UiPath notifies the User that the process is complete and the certificates are ready.
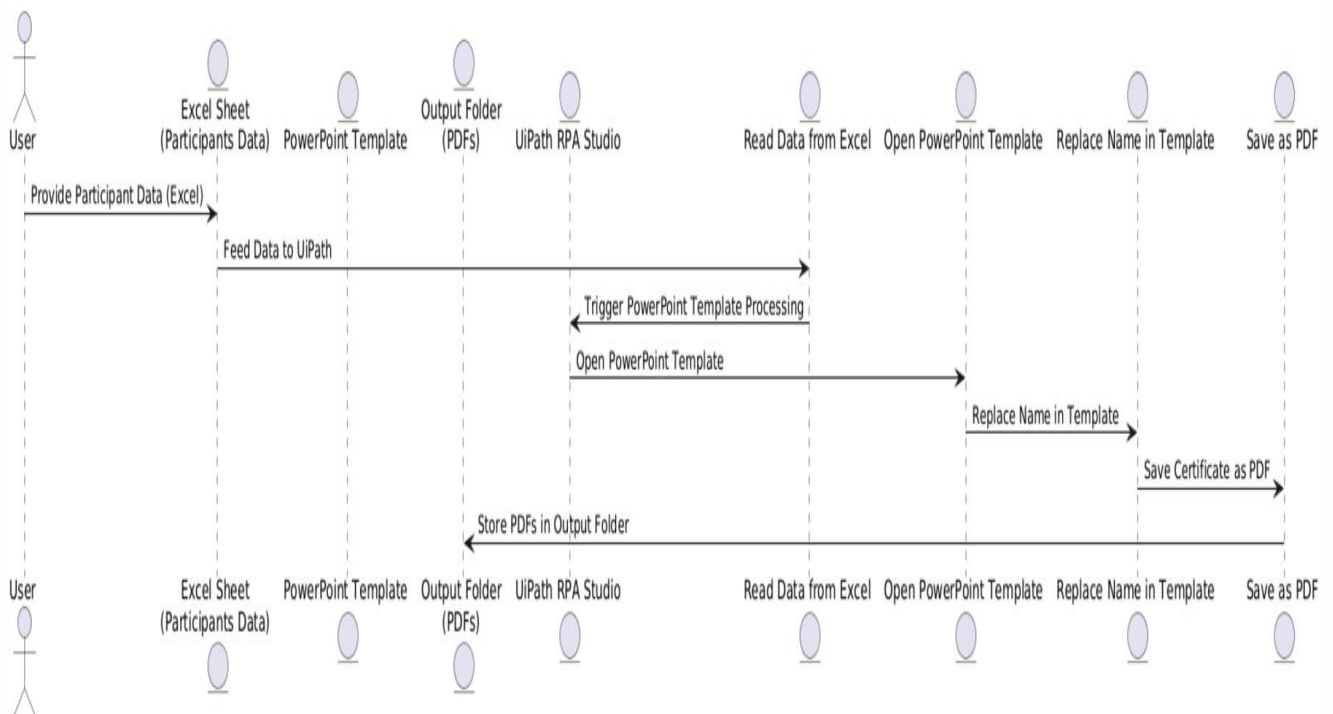

Fig 3.2 Sequence Diagram

CHAPTER 4

PROJECT DESRIPTION

4.1 CREATING PROJECT

This project automates the creation of personalized certificates using UiPath Studio. It begins by extracting participant names from an Excel sheet. Then, it opens a PowerPoint template, replaces a placeholder with the participant's name, and saves the modified template as a PDF. This process is repeated for each participant, resulting in a batch of personalized certificates. This automation improves efficiency, accuracy, and scalability, making it ideal for large-scale certificate generation.

4.2 PACKAGES REQUIRED

For the successful completion of the **Excel to Certificate Automation**, it is crucial to download the necessary packages to enable the required activities. The following packages should be installed:

- **UiPath.Excel.Activities**:

  To interact with Excel files (reading data from the Excel sheet containing participant names).

- **UiPath.Presentation.Activities**:

  To work with PowerPoint files (open the PowerPoint template and manipulate slides, such as replacing text).

- **UiPath.PDF.Activities**:

  To save the generated certificates as PDF files after editing the PowerPoint template.

- **UiPath.System.Activities**:

  Contains basic activities required for workflow creation, such as file operations, loops, and conditional logic.

4.3 PROJECT WORKFLOW

Now, as we know the objective of the project it is time to create the workflow that actually makes up the project. The workflow for this project is simple.

4.3.1 ACTIVITES USED

To create the project the following activities are required:

1. Excel Activities:

•   Excel Application Scope: Opens the Excel file containing the participant names.
•   Read Range: Reads the data from the Excel sheet (containing participant names) into a DataTable.
•   For Each Row: Loops through each row in the DataTable to process participant names.

2. PowerPoint Activities:

•   PowerPoint Application Scope: Opens the PowerPoint template file.
•   Get Slides: Retrieves slides from the PowerPoint template.
•   Replace Text: Replaces the placeholder text in the PowerPoint slide with the participant's name (using the data from the Excel sheet).
•   Save Presentation As: Saves the updated PowerPoint slide as a PDF.

3. PDF Activities:

•   Save As PDF: Converts the modified PowerPoint presentation into a PDF and saves it in the specified output folder.

4.3.2. EXPLAINING SEQUENCE

Here's the sequence of the **Excel to Certificate Automation** project, detailing each step in the workflow from start to finish:

1. Start the Workflow:

The process begins when the User triggers the workflow in UiPath Studio.

2.Open Excel File:

Excel Application Scope: This activity is used to open the Excel Sheet containing the list of participants' names. The Excel file is passed as an input to this activity, enabling the workflow to read the data.

3. Read Data from Excel:

Read Range: This activity reads all the participant data (i.e., names) from the Excel sheet and stores it in a DataTable. Typically, the first column of the Excel sheet contains the participant names, which will be processed individually.

4. Iterate Through Each Participant:

For Each Row: This activity loops through each row in the DataTable to get the participant's name. During each iteration, the name of the participant is extracted from the current row.

5. Open PowerPoint Template:

PowerPoint Application Scope: This activity opens the PowerPoint Template which contains the design/layout for the certificate. This template is used to create a new certificate for each participant.

6. Replace Participant's Name in Template:

Replace Text: For each participant, the placeholder in the PowerPoint slide (e.g., "Name") is replaced with the participant's name extracted from the Excel file. This ensures that each certificate has the correct name.

7. Save the Updated Certificate as PDF:

Save Presentation As: After the participant's name is replaced in the template, the PowerPoint is saved as a PDF. The PDF is saved in a designated Output Folder, with a unique name (e.g., the participant's name or ID) to avoid overwriting files.

8. Repeat for All Participants:

The workflow loops through each row in the Excel sheet, performing steps 5 to 7 for every participant listed in the sheet. This ensures that a certificate is generated for each participant.

CHAPTER 5

OUTPUT SCREENSHOTS
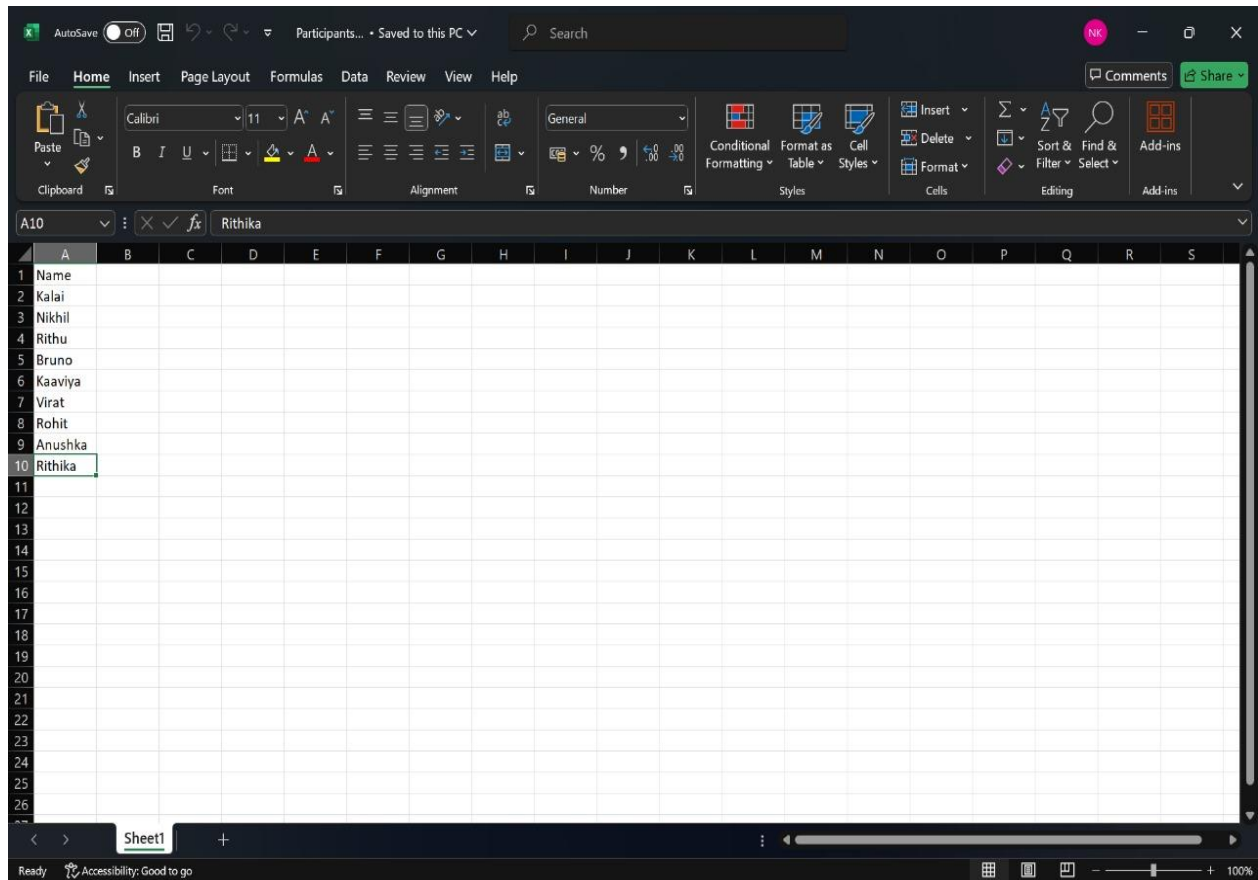
Fig 5.1 Participants Excel sheet (Input)

Fig 5.2 Certificate.ppt

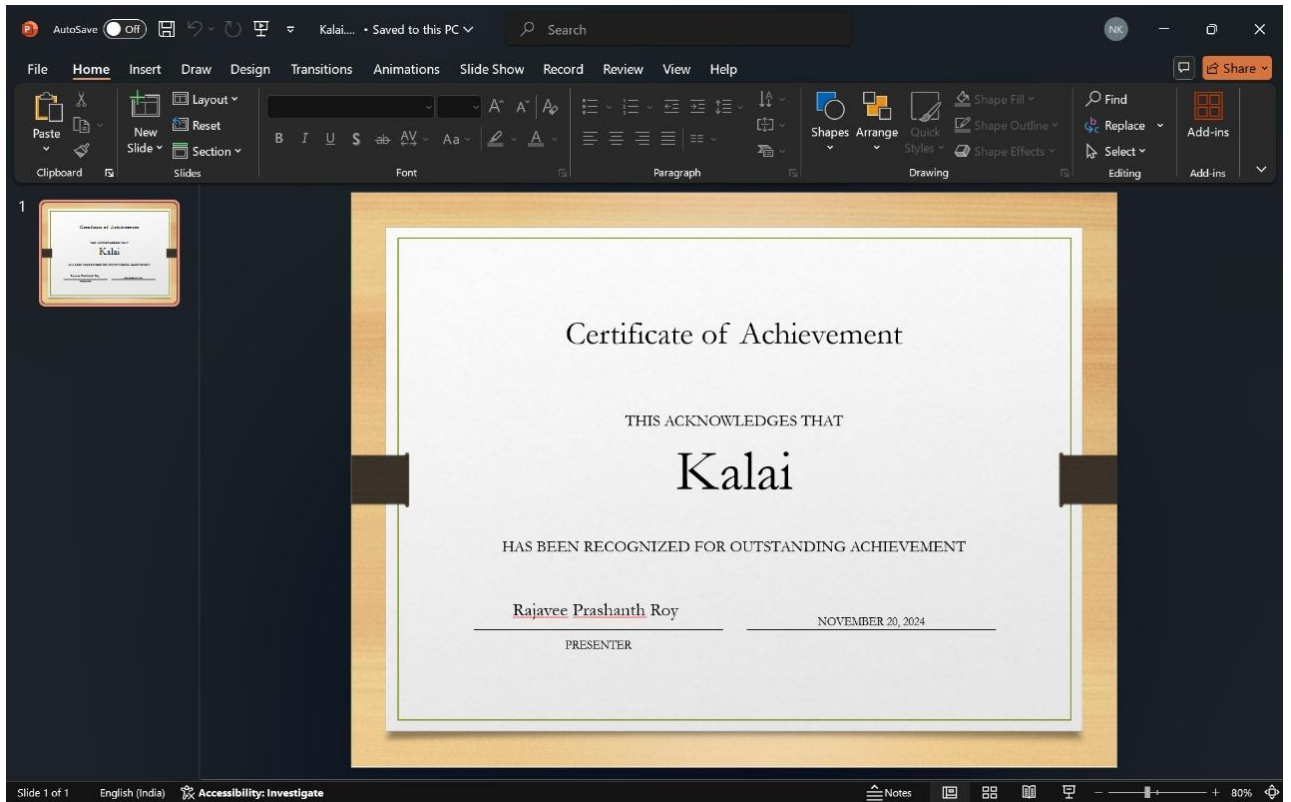Fig 5.3 Before Debugging

Fig 5.4 After Debugging

Fig 5.5 Certificate being generated successfully

CHAPTER 6

CONCLUSION

The **Excel-to-Certificate Automation** project using UiPath Studio effectively automates the entire certificate creation process, from reading participant data to generating personalized PDFs. By utilizing Excel for storing participant names and PowerPoint as the certificate template, this solution significantly reduces manual effort, ensuring both consistency and accuracy.

The workflow begins by reading the participant details from the Excel sheet, which is then used to update the PowerPoint template. UiPath's automation capabilities allow for seamless replacement of placeholder names in the PowerPoint slides, followed by saving the newly updated certificates as PDFs. This process is repeated for every participant, creating individual certificates automatically. The PDFs are stored in an Output Folder, ensuring easy access and organization.

Furthermore, the automation can be extended to include additional features like emailing certificates directly to participants or generating detailed logs for monitoring progress. The entire system is scalable, allowing it to handle a large number of participants without compromising on performance or accuracy.

In conclusion, this UiPath-powered solution enhances productivity by eliminating manual certificate creation tasks, ensuring accurate results, and significantly reducing the time required to generate certificates for large groups. Whether for academic events, workshops, or any situation requiring bulk certificate distribution, this automation provides a robust, efficient, and scalable solution.
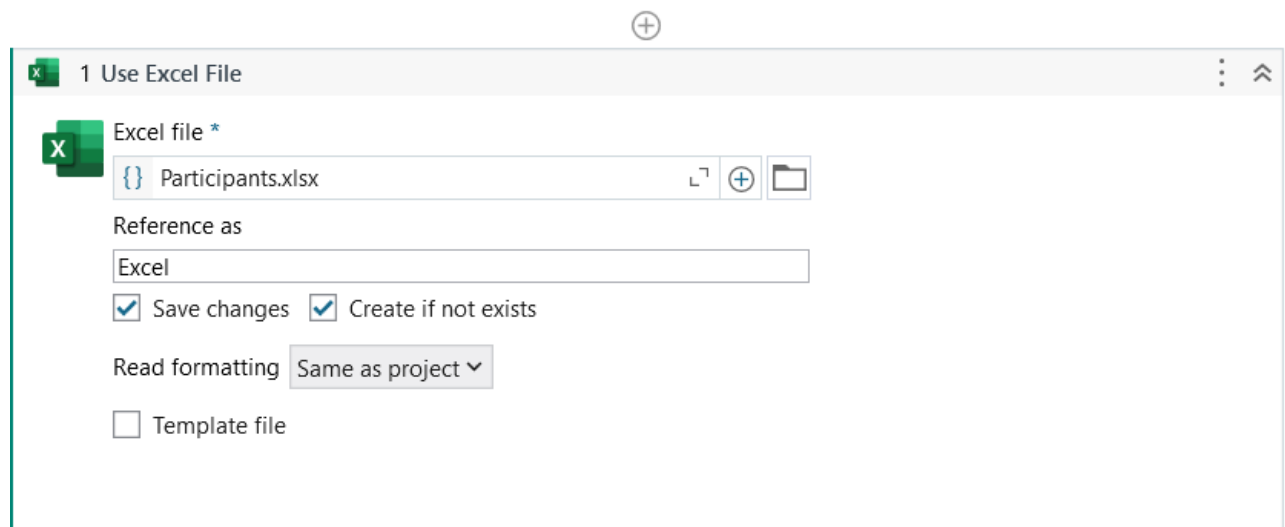
APPENDIX

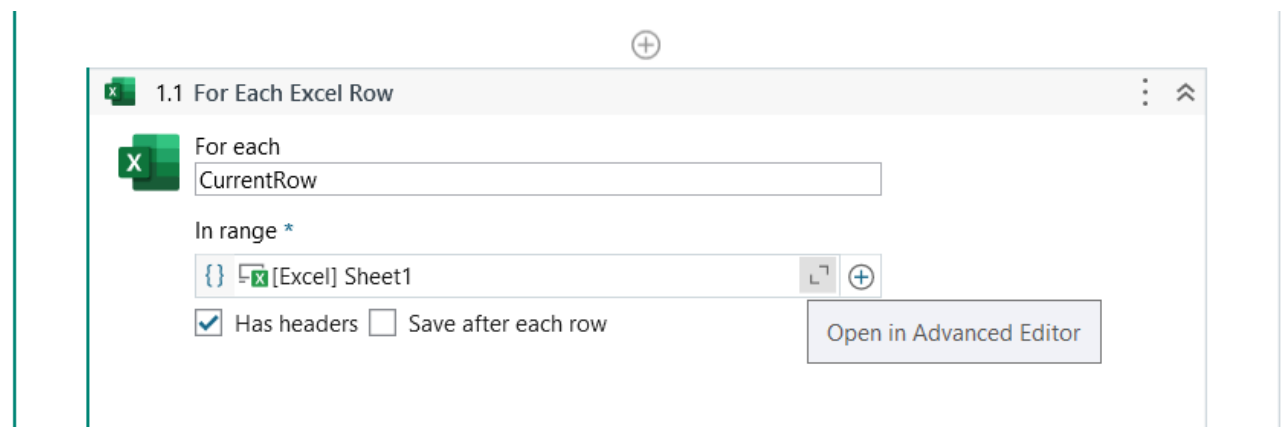# SAMPLE PROCESS

Fig 6.1 Use Excel File Activity

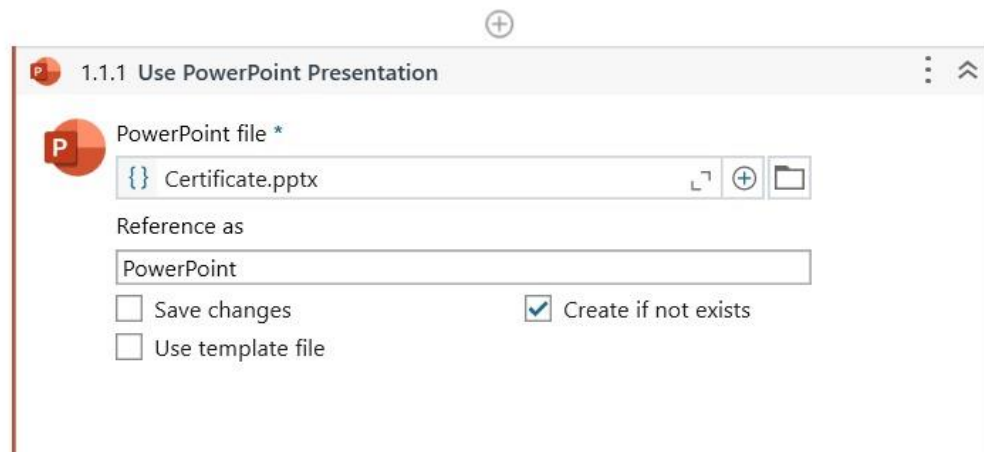Fig 6.2 For Each Excel Row Activity

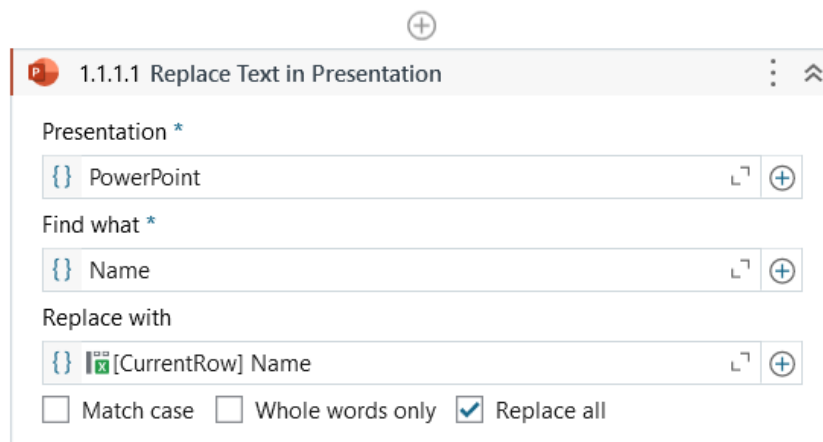Fig 6.3 Use PowerPoint Presentation

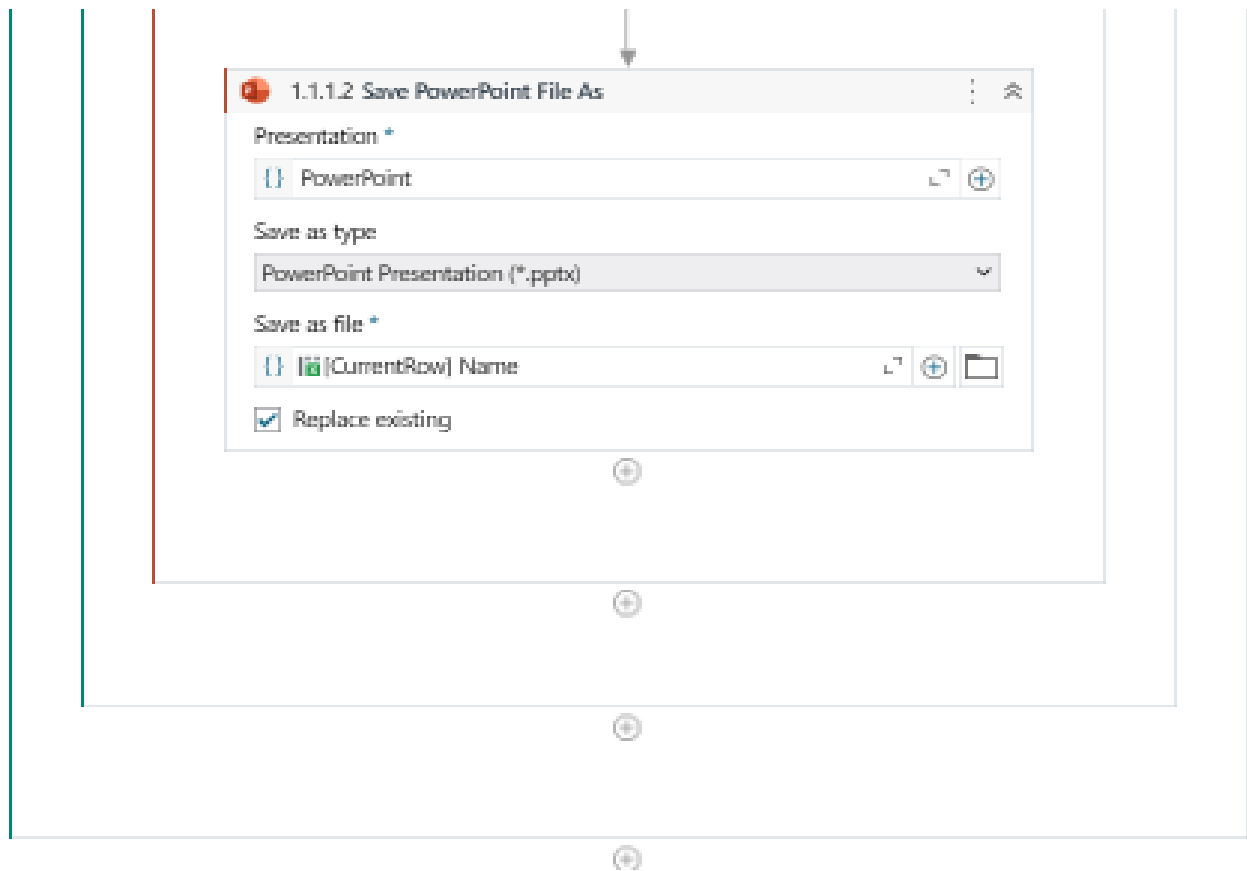Fig 6.4 Replace Text in Presentation Activity

Fig 6.5 Save Powerpoint File As Activity

REFERENCES

1. UiPath Forum: The UiPath Forum community where users share their experiences and solutions. https://forum.uipath.com/

2. UiPath Documentation: The official documentation of UiPath features and functionalities https://docs.uipath.com/