AUTOMATED STUDENT COURSE REGISTRATION AND DOCUMENTATION BOT

A MINI-PROJECT REPORT

Submitted By

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BONAFIDE CERTIFICATE

Certified that this project report **"AUTOMATED STUDENT COURSE REGISTRATION AND DOCUMENTATION BOT "** is the Bonafide work of **"BHANU PRIYA S (2116220701040)"** who carried out the project work for the subject OAI1903-Introduction to Robotic Process Automation under my supervision.

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INTERNAL EXAMINER **EXTERNAL EXAMINER**

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ABSTRACT

"The Student Course Registration Automation Bot" is a user-friendly Robotic Process Automation (RPA) solution developed with UiPath to simplify and automate the student course registration process. The bot offers two input options: Manual Input, where students provide their personal details such as name, grade, course name etc.. by typing them directly into the system, and Excel Input, where users specify the location (file path) of an Excel file containing pre-existing student registration data. For the Excel option, the bot automatically reads the data from the specified file and fills it into a pre-designed Word document template. For manual input, the details entered by the student are formatted and added to the same Word template. Once the data is populated, the bot sends the completed Word document which is converted into a PDF via email to the designated recipient. This system speeds up the registration process, and ensures accuracy in handling student registration details. "The Student Course Registration Automation Bot" is a reliable and efficient solution that eliminates time-consuming manual work, making the registration process more streamlined for both students and administrators.

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LIST OF ABBREVATIONS:

Abbreviation	Full Form
RPA	**Robotic Process Automation**
PDF	**Portable Document Format**
SMTP	**Simple Mail Transfer Protocol**
UI	**User Interface**
HTTP	**HyperText Transfer Protocol**
XML	**eXtensible Markup Language**
RE Framework	**Robotic Enterprise Framework**

CHAPTER - 1
INTRODUCTION

The Student Course Registration process is crucial but often time-consuming. Traditionally, students manually submit their details, which are processed by administrative staff, leading to inefficiencies. Robotic Process Automation (RPA) can simplify this process by automating repetitive tasks, improving speed and accuracy. Students can either enter their details manually or provide an Excel sheet, which the bot processes and formats into a Word document. The bot then converts this document into a PDF and sends it via email to the relevant recipients, streamlining the process.

1.1 GENERAL

Manual course registration is inefficient, especially with large volumes of students. **RPA** can optimize the process by automating data entry, document generation, and email distribution, reducing errors and delays. This automated approach makes the system more scalable and efficient, allowing administrative staff to focus on higher-priority tasks.

1.2 OBJECTIVE

The objective of this project is to automate the **Student Course Registration process** using **Robotic Process Automation (RPA)**. The goal is to streamline data collection through **Manual** and **Excel Input** methods, reduce human errors, and increase efficiency by automatically generating and sending Word documents and PDFs via email. This automation ensures accuracy, enhances the user experience for both students and administrators, and allows administrative staff to focus on more critical tasks

1.3 EXISTING SYSTEM

In the current academic environment, the student course registration process is often handled manually, which can be time-consuming. Administrators typically rely on spreadsheets or paper-based systems to collect and process student details, which increases the risk of mistakes and delays. The process involves multiple steps, including data entry, validation, document creation, and communication, which can be

cumbersome, especially for large institutions. This manual approach places a significant burden on both students and staff. The need for an automated and efficient solution to simplify and speed up the registration process, while ensuring accuracy and reducing administrative workload, is clear.

1.4 PROPOSED SYSTEM

"The Student Course Registration Automation Bot" is designed to address the inefficiencies and challenges in the current student registration process. By utilizing UiPath's Robotic Process Automation (RPA) capabilities, the bot will automate the entire registration workflow, from data entry to document creation and emailing. The system will offer two input options: Manual Input, where students can directly enter their registration details, and Excel Input, where pre-existing student data from an Excel sheet will be processed. The bot will automatically populate a pre-designed Word document template with the student information, ensuring consistency. Once the document is generated, it will be automatically emailed to the relevant recipients. This proposed system aims to significantly reduce the manual effort involved in registration, providing educational institutions with a faster, more accurate, and efficient solution. By automating the registration process, the bot will improve administrative workflow

CHAPTER - 2

LITERATURE REVIEW

2.1 GENERAL

The increasing reliance on automation technologies has significantly impacted various sectors, including education and human resource management. Specifically, in the context of student documentation, the automation of repetitive tasks, such as generating personalized PDFs, is crucial for improving efficiency, reducing errors, and enabling administrative staff to focus on more strategic tasks. Manual processes for student document generation are often time-consuming and prone to human error. Research indicates that automation can reduce the time taken for such processes by up to 70%, significantly enhancing productivity and accuracy.

Automation tools like UiPath have emerged as powerful solutions for automating workflows and handling data efficiently. UiPath's Robotic Process Automation (RPA) platform is particularly effective for automating structured tasks such as the generation and distribution of student documents. By leveraging UiPath's RE Framework, which ensures scalability, modular development, and error handling, this project can automate the process of creating, converting, and sending personalized PDF documents to students.

By automating the process of generating student PDFs, the project addresses many of the inefficiencies associated with manual document management, ensuring faster and more accurate document processing.

The growing demand for faster and more efficient student document handling, especially in educational institutions with large student populations, makes manual document generation increasingly unsustainable. Automation provides a scalable solution by handling large volumes of data and automating multiple steps in the document creation process. Studies have also highlighted the positive impact automation has on user experience, as it speeds up communication and ensures the timely delivery of documents, which is crucial in a fast-paced academic environment. This project, therefore, integrates these advantages to offer a streamlined, error-free, and scalable solution to modern student document management challenges, thereby enhancing both efficiency and user satisfaction.

CHAPTER – 3

SYSTEM DESIGN

3.1.1 SYSTEM FLOW DIAGRAM

The System Flow Diagram outlines the overall flow of data and processes in the system. It demonstrates how user inputs, system processing, and outputs interact.

Description:

1. **Input**: The system starts by asking the user whether the input will be manual or from an Excel file.
2. **Process**:
   - If **Manual Input** is selected, the user provides student details which are used to fill in a pre-designed Word template.
   - If **Excel Input** is selected, the system reads the student data from the specified Excel file.
   - The system then processes the data by filling out the Word template, converting it into a PDF, and attaching the PDF file.
3. **Output**: The generated PDF is then automatically sent to the student's email.

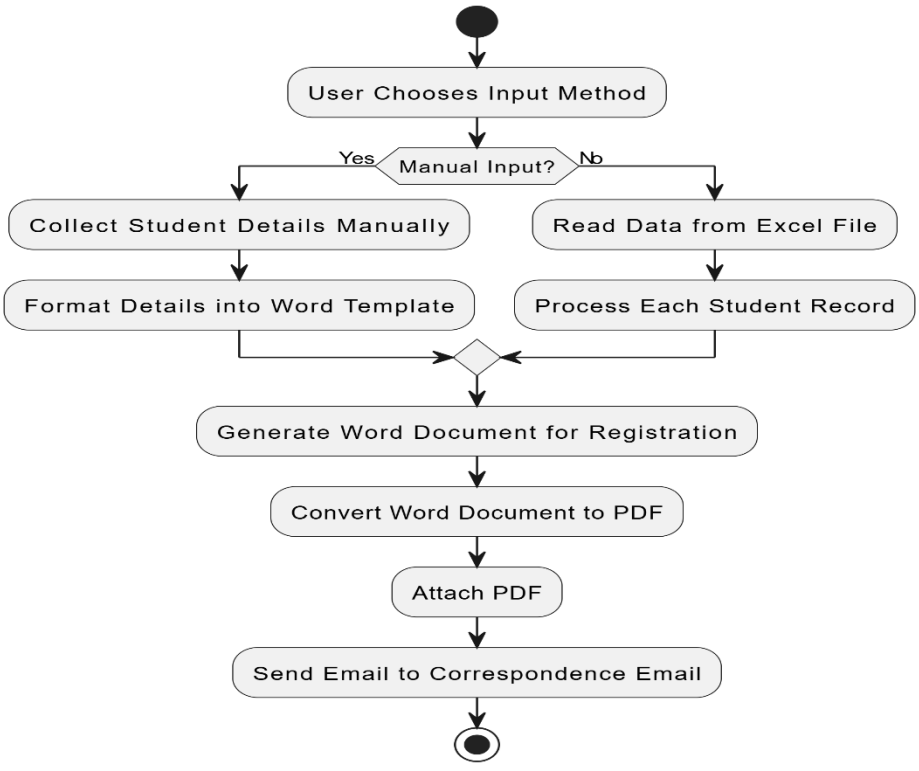


Figure 3.1.1 SYSTEM FLOW DIAGRAM

3.1.2 ARCHITECTURE DIAGRAM

The Architecture Diagram provides a high-level view of the system's structure and its components.

Components:

1. **Frontend**: Manual Input Form, Excel Input File.
2. **Backend**: Workflows for processing manual and Excel inputs, formatting with Word template, generating PDFs, and sending emails.
3. **External Resources**: Word Template, Excel File, File System (PDF storage), and Email Server.

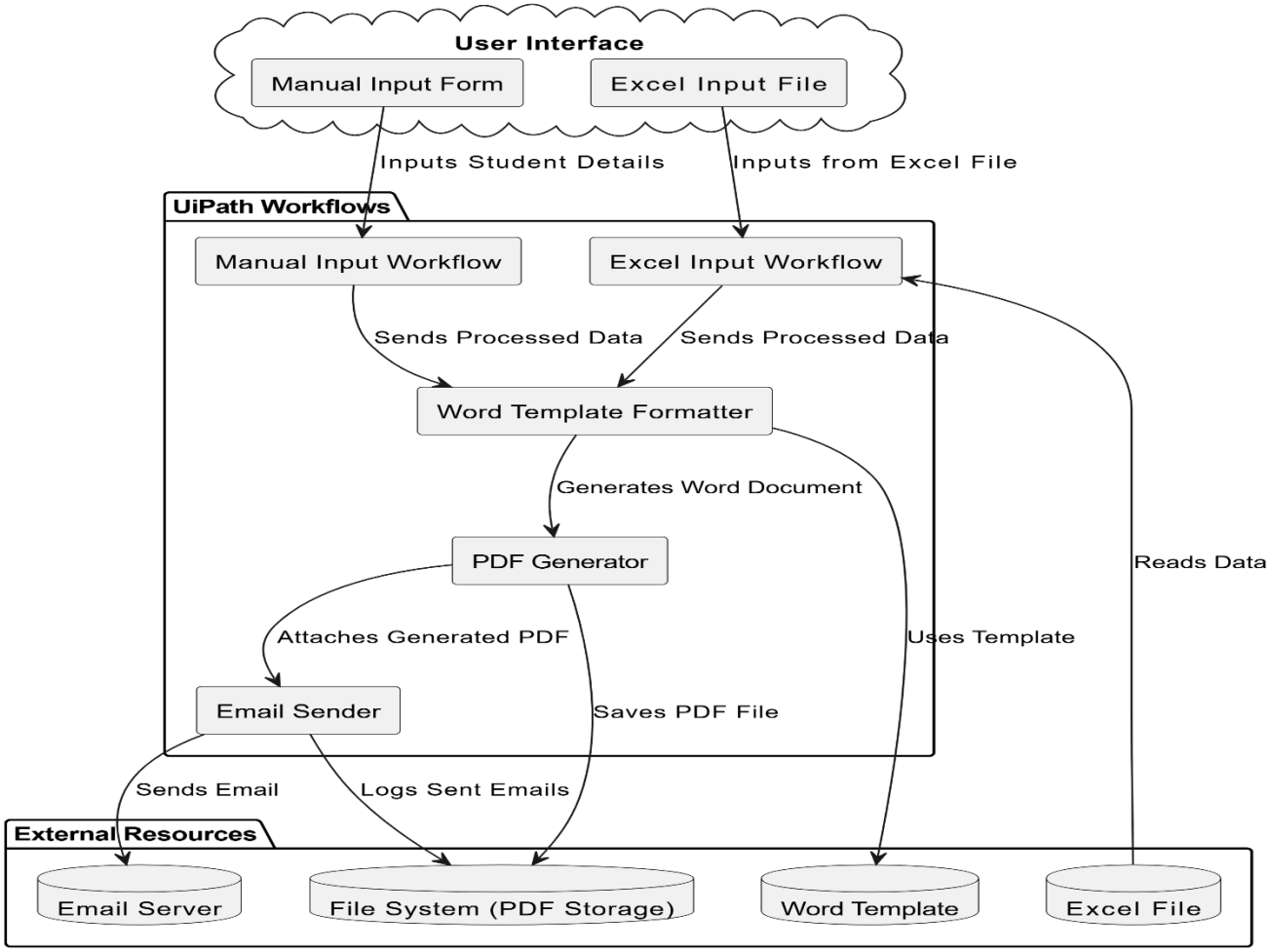


Figure 3.1.2 ARCHITECTURE DIAGRAM

3.1.3 SEQUENCE DIAGRAM

The Sequence Diagram shows the interaction between actors (HR personnel) and the system components in a sequential manner.

Steps :

1. **User selects input method** (Manual/Excel).
2. **Bot processes the data** (from manual input or Excel).
3. **Retrieve Word template** and **generate Word document**.
4. **Convert Word document to PDF**.
5. **Save PDF** to the file system.
6. **Send PDF via email** to the student.

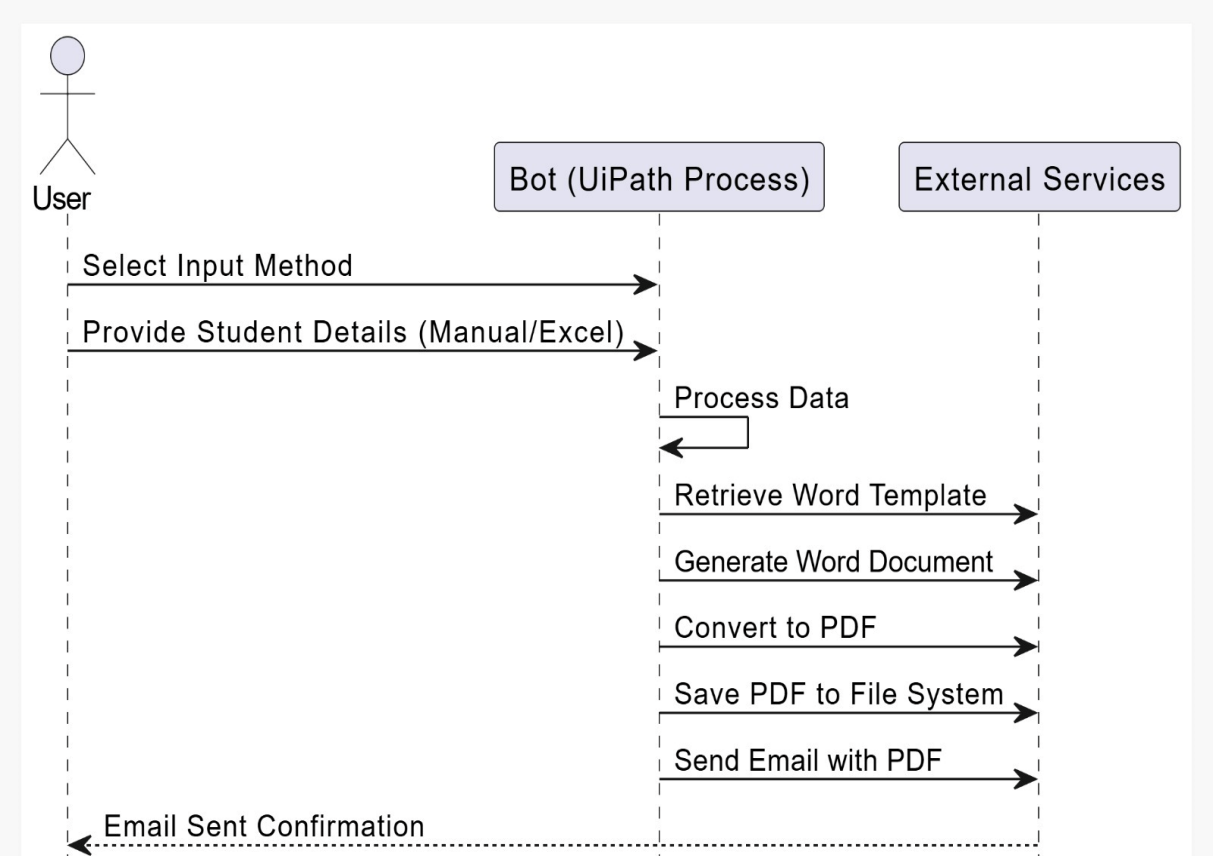


Figure 3.1.3 SEQUENCE DIAGRAM

CHAPTER – 4

PROJECT DESCRIPTION

The "Student Automation PDF Generator" is a Robotic Process Automation (RPA) system developed using UiPath, designed to automate the process of creating personalized student PDFs and sending them via email. The system allows users to input student details either manually or through an Excel file. The bot processes this data, fills it into a pre-designed Word template, and generates a PDF document. The generated PDFs are then automatically sent to the intended recipients via email, reducing manual errors and enhancing administrative efficiency.

4.1 METHODOLOGIES

The **"Student Automation PDF Generator"** project follows a simple and effective approach to automation using UiPath's Robotic Process Automation (RPA) platform. The system is designed to automate the generation and sending of student documents in PDF format, using either manual input or Excel file data. The approach is flexible and scalable, allowing for easy handling of different student details.

The key steps in the methodology are:

1. **Requirement Gathering**: First, we identified what was needed for the project, such as details to be collected from users, the data format, and how the PDF should be generated and sent via email.
2. **System Design**: After understanding the requirements, the system was planned out. This included designing the workflow of the entire process, from input collection to PDF generation and email sending.
3. **Implementation**: We built the system using UiPath, focusing on key tasks like reading data, filling out Word templates, generating PDFs, and sending them via email. The RE Framework was used to handle errors and ensure smooth execution.
4. **Testing & Deployment**: After building the system, we tested it to make sure it worked as expected. Once confirmed, it was deployed for real use.

4.1.1 MODULES:

1. **Manual Input Handling Module**: This module allows users to enter student details manually, which are then used to generate a personalized PDF document.
2. **Excel Data Extraction Module**: This module extracts student details from an Excel file provided by the user and uses that data to create a PDF.
3. **Template Processing and PDF Generation Module**: This module takes the data (either manual or from Excel) and fills in a pre-designed Word template. The filled template is then converted into a PDF document.
4. **Email Distribution Module**: Once the PDF is generated, this module automatically sends it to the correct recipient via email.
5. **Logging and Monitoring Module**: This module tracks the progress of the entire process, logs actions, and checks for any errors that might occur.
6. **Error Handling and Exception Management Module**: This module ensures that any issues that arise during the process (such as a missing field or email failure) are logged and handled, allowing the process to continue smoothly.
7. **User Interface Module**: This module provides a simple interface for users to upload the Excel file or manually enter student details, trigger the process, and view updates.

CHAPTER – 5

OUTPUT SCREENSHOTS

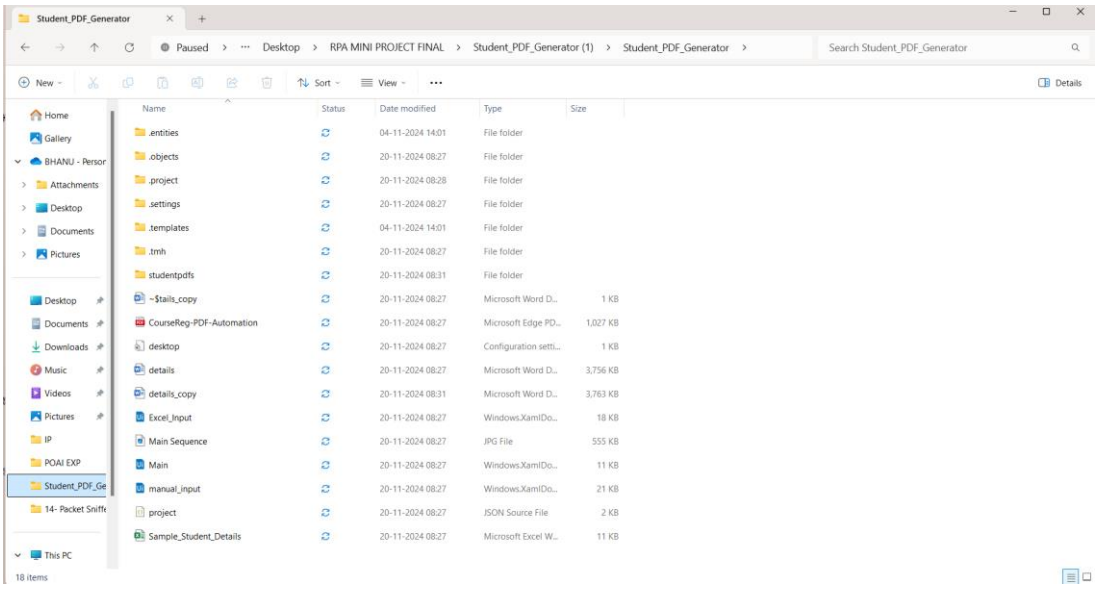


Figure 5.1 SELECTED FOLDER CONTAINING INPUT FILES

The selected folder contains all the required input files, as shown in **Fig. 5.1**.

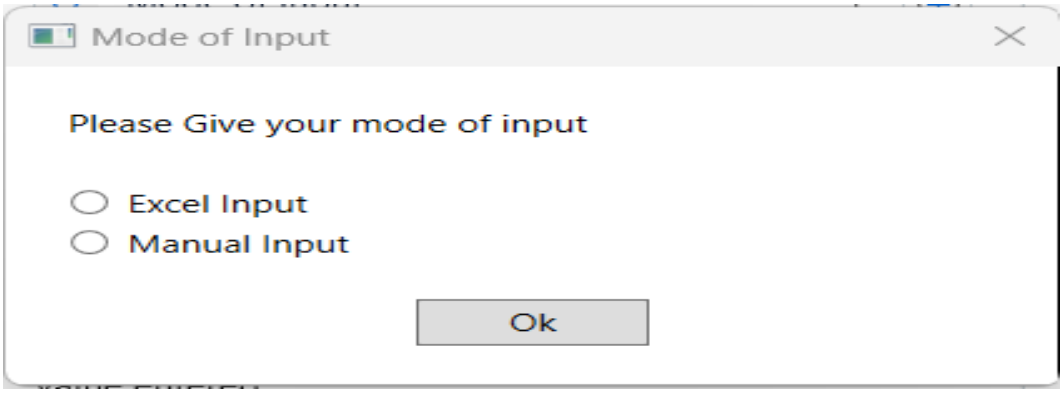


Figure 5.2 INPUT MODE SELECTION INTERFACE

This interface allows the user to choose the input mode, either Manual Input or Excel Input as shown in **Fig. 5.2.**

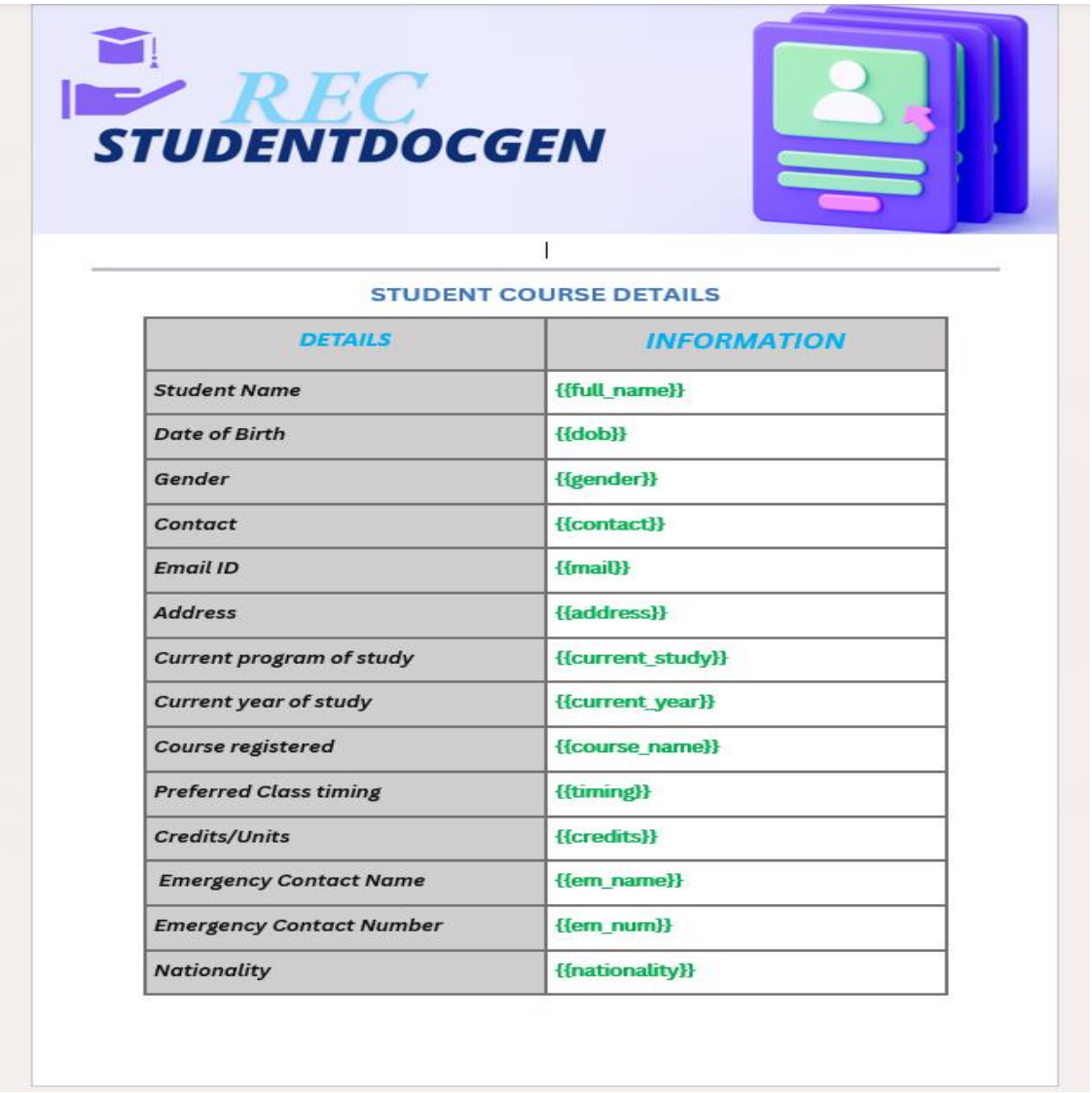


Figure 5.3 CUSTOMIZED WORD TEMPLATE

This template is used to format student details into a structured document for generating PDFs as shown in **Fig. 5.3.**

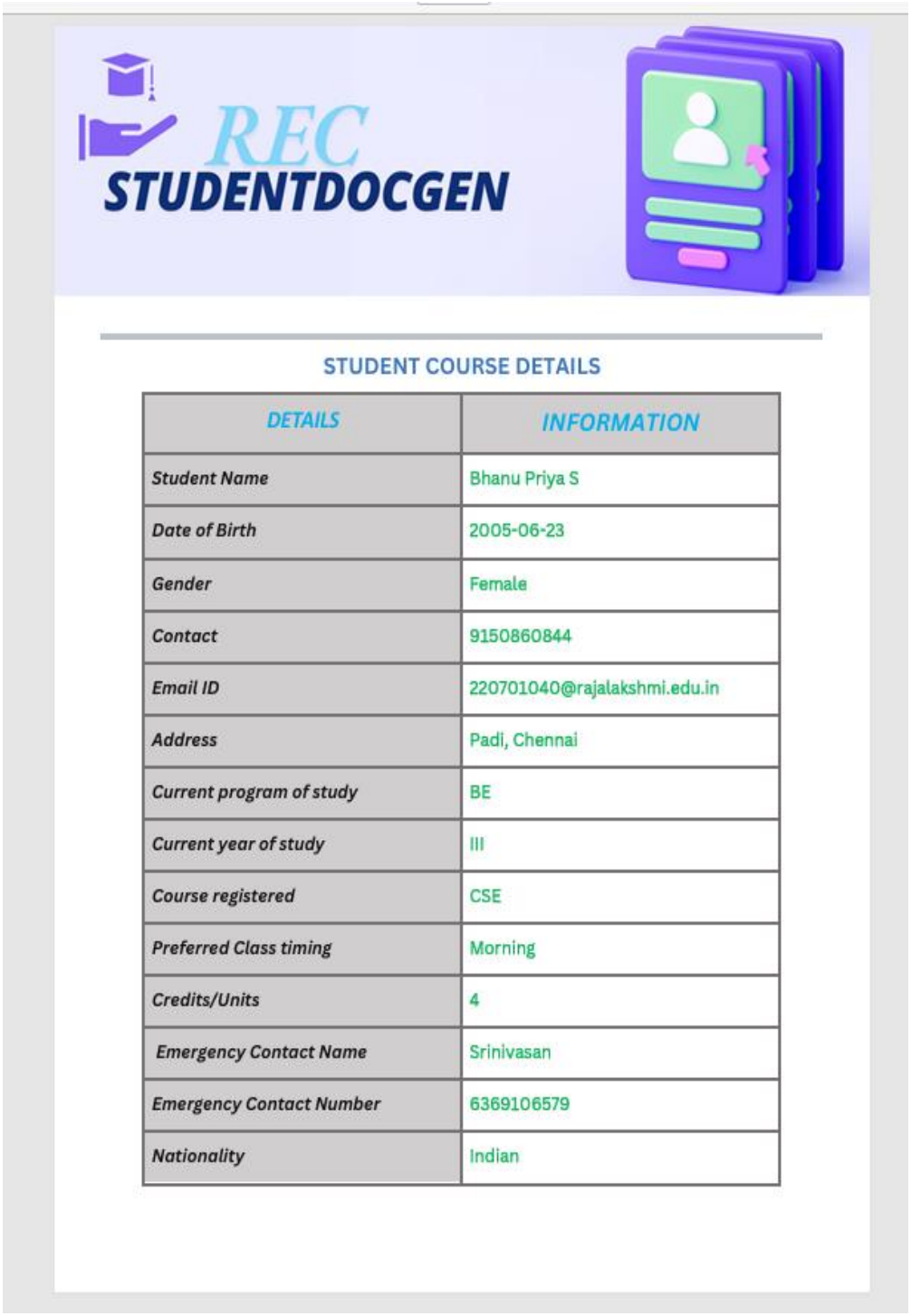
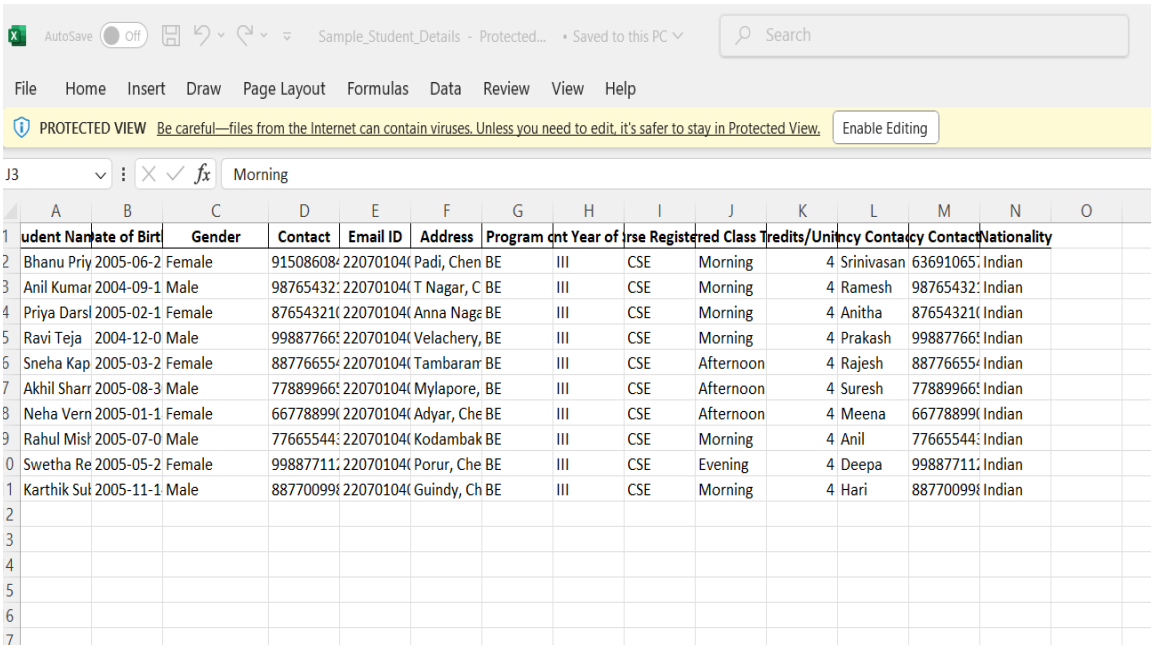


Figure 5.4 DETAILS FILLED IN THE TEMPLATE

The Word template populated with student details, ready for conversion into a PDF document as shown in **Fig. 5.4.**



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
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2	Bhanu Priy	2005-06-2	Female	91508608	220701040	Padi, Chen	BE	III	CSE	Morning	4	Srinivasan	636910657	Indian	
3	Anil Kumar	2004-09-1	Male	98765432	220701040	T Nagar, C	BE	III	CSE	Morning	4	Ramesh	98765432	Indian	
4	Priya Dars	2005-02-1	Female	87654321	220701040	Anna Naga	BE	III	CSE	Morning	4	Anitha	87654321	Indian	
5	Ravi Teja	2004-12-0	Male	99887765	220701040	Velachery,	BE	III	CSE	Morning	4	Prakash	99887765	Indian	
6	Sneha Kap	2005-03-2	Female	88776655	220701040	Tambaram	BE	III	CSE	Afternoon	4	Rajesh	88776655	Indian	
7	Akhil Sharr	2005-08-3	Male	77889965	220701040	Mylapore,	BE	III	CSE	Afternoon	4	Suresh	77889965	Indian	
8	Neha Vern	2005-01-1	Female	66778899	220701040	Adyar, Che	BE	III	CSE	Afternoon	4	Meena	66778899	Indian	
9	Rahul Mish	2005-07-0	Male	77665544	220701040	Kodambak	BE	III	CSE	Morning	4	Anil	77665544	Indian	
10	Swetha Re	2005-05-2	Female	99887711	220701040	Porur, Che	BE	III	CSE	Evening	4	Deepa	99887711	Indian	
11	Karthik Sul	2005-11-1	Male	88770099	220701040	Guindy, Ch	BE	III	CSE	Morning	4	Hari	88770099	Indian	
12															
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Figure 5.5 EXCEL SHEET CONTAINING INPUT DETAILS

This Excel sheet contains the input details for the students, which are used by the bot for processing and generating PDFs as shown in **Fig.5.5.**

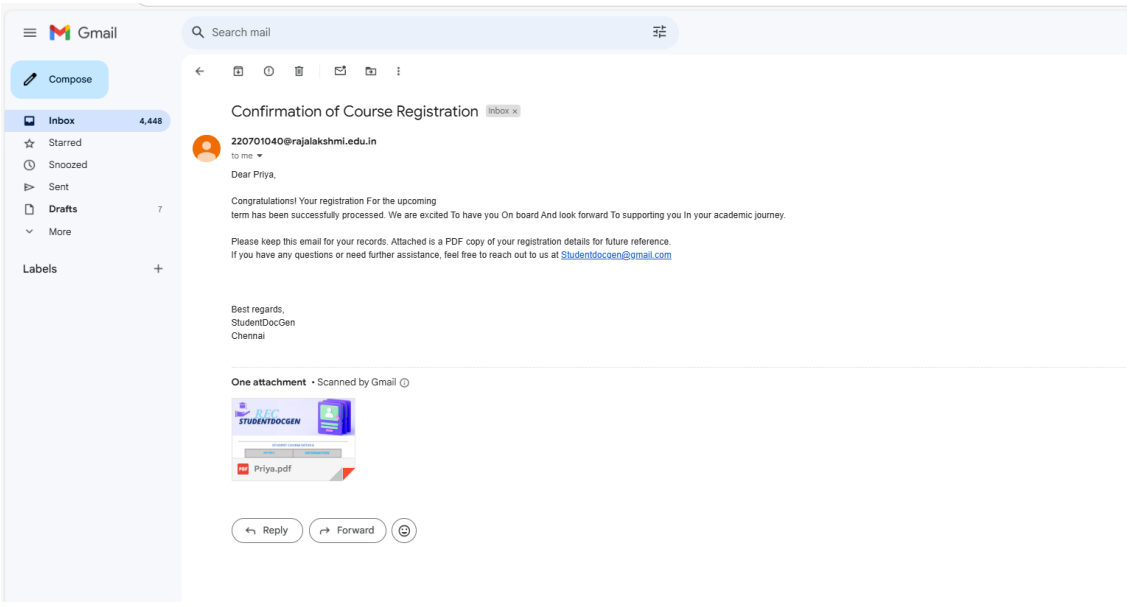

Figure 5.6 PDF sent via Gmail

This screenshot shows the Gmail interface displaying the email sent to the recipient with the generated PDF attached.

CHAPTER – 6

CONCLUSIONS

6.1 GENERAL

The "Automated Student Course registration and Documentation Bo" simplifies the process of creating and sending personalized student documents by automating the generation of PDF reports. Utilizing UiPath's Robotic Process Automation (RPA), the system efficiently processes student details from manual input or Excel files, fills pre-designed Word templates, converts them into PDFs, and sends them via email. This solution significantly reduces the time and effort involved in document generation while ensuring that all details are accurate and consistent.

By automating these repetitive tasks, the project enhances operational efficiency and ensures that students receive their documents in a timely manner. The system's ability to handle both small and large datasets, coupled with the seamless automation of document creation and distribution, makes it a valuable tool for educational institutions. It streamlines administrative workflows, allowing staff to focus on more critical tasks, thus improving overall productivity.

Although the system provides an efficient solution for document generation, it could face challenges in adapting to rapidly changing formats or unforeseen input types. Continuous updates and improvements to the template design and email automation processes will be essential to ensure its long-term effectiveness. Despite this, the project represents a significant step toward improving administrative operations, reducing human error, and supporting educational institutions in managing student records efficiently. The successful implementation of this automation showcases the potential of RPA in transforming traditional workflows and demonstrates the value of innovation in educational technology.

APPENDICES

Appendix 1: Key Code Snippets

This appendix provides code snippets for essential functionalities, including:

1. Reading student details from an Excel file.
2. Populating the Word document template with student data.
3. Sending course registration documents via email.

Appendix 2: Process Overview

This appendix includes a process overview diagram generated by UiPath, illustrating:

1. The workflow for manual input and Excel input.
2. The dynamic insertion of student details into pre-designed templates.
3. Automation of PDF generation and email dispatch.

Appendix 3: Testing Logs

This appendix contains records of the testing process, detailing:

1. Test Case IDs: Unique identifiers for test scenarios.
2. Test Steps: Description of steps performed during the testing.
3. Expected vs. Actual Results: A comparison of predicted outcomes and observed results.
4. Notes: Identified issues, troubleshooting steps, and resolutions.

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