

INTELLIGENT AUTOMATION (UDS23503J)

Lab Manual

Lab 1: Introduction to RPA Tools

Aim:

To introduce students to the basic concepts of Robotic Process Automation (RPA) and different RPA tools.

Procedure:

[This lab would likely involve an overview of RPA, its benefits, and a comparison of different tools. It might include hands-on exploration of a trial version of an RPA tool.]

Source Code:

[Not applicable for a general introduction lab. If a specific tool is used, this could include screenshots of the tool's interface.]

Input: * N/A

Expected Output:

Students should gain an understanding of what RPA is and the capabilities of various RPA tools.

Lab 2: Installation of RPA Blue Prism

Aim:

To guide students through the installation process of the Blue Prism RPA software.

Procedure:

[Detailed steps on installing Blue Prism, including system requirements, downloading the software, and setting up the environment.]

Source Code:

[Not applicable, but could include screenshots of the installation process.]

Input:

[Specify any required software or system requirements.]

Expected Output:

Successful installation of Blue Prism on the student's machine.

Lab 3: Automation Implementation Strategies

Aim:

To teach different strategies for implementing RPA in an organization.

Procedure:

[This lab could involve discussions, case studies, or exercises on identifying processes suitable for automation, prioritizing automation projects, and designing an RPA implementation plan.]

Source Code: * N/A

Input: * N/A

Expected Output:

Students should be able to analyze business processes and determine the best approach for RPA implementation.

Lab 4: Building a Robotic Process Automation Workflow

Aim:

To provide hands-on experience in creating a simple RPA workflow using Blue Prism.

Procedure:

[Step-by-step instructions on using Blue Prism to automate a basic task, such as data entry or file manipulation.]

Source Code:

[Screenshots of the Blue Prism process diagram, showing the sequence of actions and logic.]

Input:

[Specify any input data files or applications required for the workflow.]

Expected Output:

A functional RPA workflow that automates the given task.

Lab 5: Data Cleansing and Preprocessing for Automation Lab

Aim:

To teach how to clean and preprocess data for RPA.

Procedure:

[Steps involved in cleaning data. Could involve Python.]

Source Code:

[Python code for data cleaning.]

Input:

[Sample dirty data.]

Expected Output:

[Cleaned data.]

Lab 6: Building a Predictive Model for Automation Tasks

Aim:

To guide students in developing a predictive model that can be used in conjunction with automation tasks.

Procedure:

[Steps involved in building a predictive model. This might involve using tools or libraries like Python's scikit-learn.]

Source Code:

[Python code for building and training the predictive model.]

Input:

[Dataset for training the predictive model.]

Expected Output:

A trained predictive model that can be used to forecast outcomes or make decisions within an automated process.

Lab 7: Exploring with Python Libraries

Aim:

To introduce students to Python libraries commonly used in automation, such as `os`, `shutil`, `datetime`, and `subprocess`.

Procedure:

[Exercises that involve using these libraries to perform tasks like file system operations, date/time manipulation, and running external programs.]

Source Code:

[Python code snippets demonstrating the use of each library.]

Input:

[Specify any files or directories needed for the Python scripts.]

Expected Output:

Students should be able to write Python scripts that automate basic system tasks.

Lab 8: Process Automation with Python Lab

Aim:

To demonstrate how Python can be used to automate business processes.

Procedure:

[This lab could involve automating a more complex task, such as generating reports, processing data from multiple sources, or interacting with APIs.]

Source Code:

[Python code that implements the automated business process.]

Input:

[Specify any input data files, APIs, or applications required for the automation.]

Expected Output:

A Python script that automates a specific business process.

Lab 9: Introduction to Web Scraping and Automation

Aim:

To introduce the concept of web scraping and its applications in automation.

Procedure:

[This lab might cover the basics of HTML, web scraping techniques, and tools/libraries used for web scraping (e.g., BeautifulSoup, Scrapy).]

Source Code:

[Examples of Python code for making HTTP requests and parsing HTML.]

Input: * [A sample website URL]

Expected Output:

Students should understand how to extract data from websites.

Lab 10: Web Scraping and Automation

Aim:

To provide hands-on experience in building a web scraping application for a specific automation task.

Procedure:

[Students will design and implement a web scraper to extract data from a website and use that data to automate a process.]

Source Code:

[Python code for the web scraping application.]

Input:

[The URL of the target website and any specific data extraction requirements.]

Expected Output:

A functional web scraping application that extracts the required data.

Lab 11: Exploring Cognitive Automation Lab

Aim:

To introduce the concepts of cognitive automation.

Procedure:

[Explore tools. Could involve IBM Watson]

Source Code:

[Code snippets]

Input:

[Sample data]

Expected Output:

[Understanding of cognitive automation]

Lab 12: Exploring AI Integration

Aim:

To explore how Artificial Intelligence (AI) can be integrated with RPA to enhance automation capabilities.

Procedure:

[This lab could involve using AI services (e.g., computer vision, natural language processing) in conjunction with an RPA tool or Python script.]

Source Code:

[Code snippets demonstrating the integration of AI services with RPA.]

Input:

[Sample data for the AI services (e.g., images, text).]

Expected Output:

Students should understand how AI can make automation more intelligent and adaptable.

Lab 13: Build an Industry-Specific Automation Solution-1

Lab 14: Build an Industry-Specific Automation Solution-2

Lab 15: Build an Industry-Specific Automation Solution-3

Aim:

To provide students with a practical, real-world experience in developing an automation solution for a specific industry.

Procedure:

[These labs will involve working on a larger project, where students will:

Identify a specific business problem in a chosen industry.

Design an automation solution using RPA, Python, and/or AI.

Implement and test the solution.

Document their work.]

Source Code:

[The complete source code for the automation solution, including RPA workflows, Python scripts, and any AI components.]

Input:

[Data and requirements specific to the chosen industry and business problem.]

Expected Output:

A functional, documented automation solution that addresses the identified business problem.