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Data Capturing in Web Applications Using RPA UiPath

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ABSTRACT:

This project entitled as,"DATA CAPTURING IN WEB APPLICTIONS USING RPA UIPATH"There have been dramatic advances in the development of web-based data collection instruments. This paper outlines a systematic web-based approach to facilitate this process through locally developed code and to describe the results of using this process after two years of data collection. We provide a detailed example of a web-based method that we developed for a study in Starr County, Texas, assessing high school students' work and health status. This web-based application includes data instrument design, data entry and management, and data tables needed to store the results that attempt to maximize the advantages of this data collection method.The software also efficiently produces a coding manual, web-based statistical summary and crosstab reports, as well as input templates for use by statistical packages. Overall, web-based data entry using a dynamic approach proved to be a very efficient and effective data collection system. This data collection method expedited data processing and analysis and eliminated the need for cumbersome and expensive transfer and tracking of forms, data entry, and verification.

Key Terms: UiPath, RPA, Automation, Robotic process Automation

I. Introduction

In today's technologically advanced world, organizations rely on various systems and processes to streamline their operations. The purpose of this project is to automate the onboarding process for new employees in the Human Resources (HR) department using UiPath Studio. The onboarding process typically involves several manual tasks and paperwork, which can be time-consuming

and prone to errors. By implementing an automated solution, we aim to streamline the onboarding process, reduce manual effort, and improve efficiency. The automation will start by collecting employee information, such as name, address, contact details, job title, and department. This information can be obtained through a web form or by importing data from a spreadsheet. Based on the gathered employee information, the automation will generate various documents required for onboarding, such as offer letters, Welcome letter and other HR-related data extraction. Templates can be created in advance and populated with the employee-specific details.

II. Literature view

1. A State-of-the-Art Review" by Marlon Dumas et al. (2018):

This paper provides a comprehensive review of RPA technology, including its applications, benefits, and challenges. It explores the potential of RPA in automating data capturing processes, including web application interaction.

2. A Survey" by Mingyang Li et al. (2018):This survey paper focuses on various techniques and tools for web data extraction. It discusses methods for extracting data from web pages, including web application forms and tables, which can be relevant for data capturing in RPA projects.

3. A State-of-the-Art Literature Review" by Ali A. Razzaq et al. (2021):This literature review specifically explores the application of RPA in the finance domain. It discusses how RPA can be utilized for data capturing from web applications, such as extracting financial data from banking portals or transactional systems.

4. A Literature Review on Web Data Extraction and Integration" by Marta Sabou et al. (2019):This review focuses on web data extraction and integration techniques. It covers topics such as web scraping, web crawling, and data extraction from web forms, which are relevant to automating data capturing using web applications in RPA projects.

5. A Comprehensive Literature Review and Directions for Future Research" by Yashoda Bhagwat et al. (2021):This literature review provides an overview of RPA and its applications in different industries. It highlights the importance of data capturing and extraction in RPA projects, emphasizing the role of web automation for capturing data from web applications.

III. Proposed Methodology

Create a web application for data capturing using UiPath Studio. The application should include a user interface (UI) with fields for the data to be captured, such as text boxes, drop-down menus, and check boxes.Use UiPath's recording feature to capture the automation workflow required for data capturing. This workflow should be designed to extract data from the UI elements of the web application and save it to a database or file.Integrate the recorded automation workflow with the web application using UiPath's "Invoke Workflow" activity.

This activity allows the automation workflow to be called from within the web application.Add error handling and data validation to the web application to ensure that the data captured is accurate and complete.Deploy the web application and automation workflow to a production environment. This environment should include all necessary infrastructure components, such as web servers and database servers.Monitor the performance of the web application and automation workflow using UiPath's monitoring and analytics tools. Use this data to identify and resolve any performance issues.Regularly review the data captured by the system to ensure its accuracy and completeness. Make any necessary adjustments to the web application or automation workflow to improve data quality.Overall, this proposed system provides a robust and efficient method for capturing data using a web application and RPA technology. It leverages UiPath's features and tools to create a scalable and reliable solution that can be used in a wide range of data capturing applications.
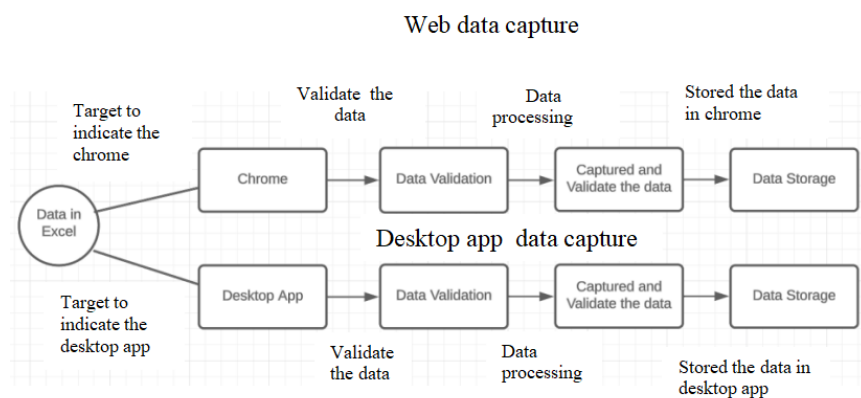
IV. Functions

1. Web Automation Module

This module focuses on interacting with the web application's user interface. It includes activities such as launching the web browser, navigating to specific web pages, interacting with input fields (textboxes, dropdowns, checkboxes), clicking buttons, handling pop-ups or alerts, waiting for page loads, and capturing screenshots if required.

2. Data Extraction Module

This module is responsible for extracting data from the web application. It may involve techniques like screen scraping, which involves extracting data by identifying specific elements on the web page, or using APIs provided by the web application for data retrieval. The module handles data extraction for various fields, such as text, numbers, dates, or even images, depending on the requirements.

3. Data Validation and Transformation module

Once the data is extracted, this module performs validation checks to ensure the accuracy and completeness of the captured data. It may involve checking data formats, applying business rules, removing duplicates, and handling any required data transformations, such as formatting dates or numbers

4.Error Handling Module

This module focuses on detecting and handling errors that may occur during the data capturing process. It includes mechanisms to handle exceptions, timeouts, and unexpected behavior in the web application. Proper error handling ensures the system gracefully handles errors and continues the data capturing process without disruption.

5. Data Storage Module

This module handles the storage of captured data. It determines where and how the data will be stored. It may involve writing the data to a database, saving it to a file (such as CSV or Excel), or integrating with other systems or APIs to transfer the data.

6. Reporting Module

This module provides capabilities to generate reports based on the captured data. It may include generating summary reports, statistical analysis, or visualizations to present the captured data in a meaningful way. The reporting module can help stakeholders gain insights from the captured data and make informed decisions.

V. Conclusion

In conclusion, Data capturing using a web application in an RPA project offers significant advantages in terms of efficiency, accuracy, scalability, and integration. By automating the process of extracting data from web applications, organizations can streamline operations, improve data quality, and enhance decision-making capabilities. With the use of RPA tools, data capturing becomes more reliable, consistent, and less prone to human errors.

Benefits

- ➢ Increased efficiency and productivity through automation.
- ➢ Improved accuracy and reduced errors in data capture.
- ➢ Scalability to handle large volumes of data.
- ➢ Seamless integration with other systems and processes.
- ➢ Cost savings through reduced manual effort and improved resource allocation.
- ➢ Enhanced data quality and consistency.
- ➢ Compliance with regulations and standards.
- ➢ Real-time data availability for timely decision-making.
- ➢ Focus on value-added activities for employees.
- ➢ Adaptability to changing business needs.

VI. Future work

As a future scope,Improved technology for extracting data from images andunstructured sources.Bots understanding and processing natural language input in web forms.

Bots extracting data from complex visual elements like graphs and charts. Bots using pre-trained ML models for data extraction and validation. Bots capturing data from web applications instantly.

VII. References

- Several books cover RPA concepts, implementation, and best practices. Look for books that discuss web automation and data capturing using RPA tools like UiPath. Some recommended titles include "Robotic Process Automation: A Primer" by Rajeev Kaula and "Mastering UiPath" by Alok Mani Tripathi.

- Lacity, M., & Willcocks, L. (2016b). A new approach to automating services. MIT Sloan ManagementReview, Fall.

- Robotic process automation. Business & Information Systems Engineering, 60(4), 269–272.

- https://doi.org/10.1007/s12599-018-0542-4. Van der Aalst, (2018).Automation with RPA (Robotic Process Automation) International Journal of Computer Sciences and

- Engineering Available online at: www.ijcseonline.org[15] P. Hofmann, C. Samp, and N. Urbach, "Robotic process automation," Electronic Markets, vol. 30, pp. 99–106, 2020.

- S. Aguirre and A. Rodriguez,"automation of a business process using robotic process automation (rpa): acase study," in Applied Computer Sciences in Engineering. Cham: Springer International Publishing,2017, Pp. 65–71.