BOOK PRICE COMPARISON BOT

A PROJECT REPORT

Submitted by

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in partial fulfillment for the course

OAI1903 - INTRODUCTION TO ROBOTIC PROCESS AUTOMATION

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in

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BONAFIDE CERTIFICATE

Certified that this project report **"BOOK PRICE COMPARISON BOT"** is the bonafide work of **"DHANASREE L P(220701061)"** who carried out the project work for the subject OAI1903 -Introduction to Robotic Process Automation under my supervision.

Submitted to Project and Viva Voce Examination for the subject OAI1903 - Introduction to Robotic Process Automation held on _____.

Internal Examiner **External Examiner**

ABSTRACT

The **Book Price Comparison Bot** is an innovative RPA (Robotic Process Automation) project aimed at simplifying the process of comparing book prices across various online platforms. In the digital shopping era, where countless e-commerce websites offer books at different prices, finding the best deal can be time-consuming and challenging. This bot automates the manual task of price comparison by leveraging web scraping and data extraction techniques to gather real-time pricing information from popular online bookstores. Users can provide specific book details such as title, author, or ISBN, and the bot navigates through multiple websites, retrieves relevant pricing data, and presents it in a consolidated, easy-to-read format. To enhance user experience, the bot includes features like filtering results based on price range, seller ratings, and delivery options, ensuring a personalized comparison experience. Built using tools like UiPath, it employs advanced techniques such as optical character recognition (OCR) for extracting dynamic content, guaranteeing accurate and up-to-date results. The output includes direct purchase links for convenience, empowering users to make informed purchasing decisions with minimal effort. Scalable and adaptable, the bot is designed to expand its reach to more platforms, offering a comprehensive and efficient solution for consumers. By automating this process, the bot saves time and effort while ensuring value for money, making it a valuable tool in today's e-commerce-driven world.

ACKNOWLEDGEMENT

Initially we thank the Almighty for being with us through every walk of our life and showering his blessings through the endeavour to put forth this report. Our sincere thanks to our Chairman **Mr. S. Meganathan, B.E, F.I.E.,** our Vice Chairman **Mr. Abhay Shankar Meganathan, B.E., M.S.,** and our respected Chairperson **Dr. (Mrs.) Thangam Meganathan, Ph.D.,** for providing us with the requisite infrastructure and sincere endeavouring in educating us in their premier institution.

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LIST OF ABBREVIATIONS

ABBREVIATION	ACCRONYM
RPA	Robotic Process Automation
AI	Artificial Intelligence
API	Application Programming Interface
CV	Computer Vision
OCR	Optical Character Recognition

CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

For consumers and book enthusiasts, this bot offers a transformative approach to online shopping. By automating the extraction of book prices from various online bookstores and presenting a consolidated comparison, the bot empowers users to make informed purchasing decisions. It not only expedites the traditionally manual task of price comparison but also ensures real-time accuracy and consistency, addressing the complexities of fluctuating e-commerce pricing and promotions.

The **Book Price Comparison Bot** leverages UiPath's Automation Platform, combining the Studio IDE for process creation with client-side Robots that execute these processes. This synergy enables the bot to navigate websites, extract relevant pricing information, and present users with a structured and user-friendly format for decision-making. By addressing the challenges of manual price comparison, this bot highlights the potential of RPA to transform everyday tasks into efficient, automated workflows, ultimately delivering enhanced value to consumers in the digital marketplace.

The **Book Price Comparison Bot** underscores the growing importance of RPA in automating repetitive yet essential tasks in everyday life. By blending the precision of automation with real-time data extraction, it not only saves time but also enhances the overall shopping experience for users. This project serves as a testament to the transformative potential of RPA tools like UiPath in creating efficient, scalable, and consumer-focused solutions that cater to the demands of a fast-paced digital world.

1.2 OBJECTIVE

The primary objective of the **Book Price Comparison Bot** is to develop an automated solution that simplifies and streamlines the process of comparing book prices across multiple online platforms. The bot aims to empower users by providing accurate, real-time pricing information from various e-commerce websites, enabling informed purchasing decisions while saving time and effort. By leveraging the capabilities of UiPath and advanced data extraction techniques, the bot seeks to enhance efficiency, reduce manual effort, and deliver a seamless user experience, ultimately transforming the way consumers approach online book shopping.

1.3 EXISTING SYSTEM

In the current e-commerce landscape, comparing book prices across multiple online platforms is a manual and tedious process. Consumers often need to visit various websites, search for the desired book, and manually compare prices, availability, and seller ratings. This approach is not only time-consuming but also prone to errors, as users might miss out on better deals due to fluctuating prices and limited visibility across platforms. Additionally, the lack of an integrated solution for price comparison adds to the complexity, making it challenging for users to make informed purchasing decisions efficiently.

1.4 PROPOSED SYSTEM

The **Book Price Comparison Bot** is envisioned as a transformative solution to address the inefficiencies of manual price comparison in the e-commerce sector. By leveraging UiPath's RPA capabilities, the bot automates the process of extracting and consolidating book prices from multiple online platforms in real time. It systematically navigates through websites, retrieves relevant pricing and availability details, and presents users with a comprehensive comparison. The proposed system significantly reduces the time and effort required for price comparison while ensuring accuracy and consistency. Additionally, the bot generates a detailed report, including platform-wise pricing, seller ratings, and direct purchase links for user convenience. Through this project, we aim to revolutionize the online book shopping experience, empowering consumers with a fast, reliable, and user-friendly tool for making informed purchasing decisions.

CHAPTER 2

LITERATURE REVIEW

2.1 Survey on Robotic Process Automation (RPA) in E-commerce:

Robotic Process Automation (RPA) is becoming an integral part of the e-commerce industry, revolutionizing the way repetitive and labor-intensive processes are handled. Research highlights the growing adoption of RPA for tasks such as inventory management, order processing, customer service, and price monitoring. These automated solutions provide significant benefits, including time savings, reduced human error, and improved operational efficiency. However, implementing RPA in e-commerce comes with challenges, such as handling the complexity of dynamic websites, managing integration with multiple data sources, and adapting to frequent updates on e-commerce platforms. Studies emphasize the importance of creating robust automation workflows that can handle these dynamic challenges while maintainingscalability.

[1] A study discusses how RPA automates inventory updates and streamlines order management processes, resulting in cost reduction and improved accuracy in fulfilling customer orders.

[2] Another research paper focuses on price monitoring through RPA, demonstrating its ability to extract real-time pricing data from competitor websites and automatically adjust prices to maintain competitiveness in the market.

2.2 Survey on Price Comparison Tools:

Price comparison tools are indispensable in the digital age, empowering consumers to make informed purchasing decisions by providing comparative data from multiple retailers. Traditional comparison websites rely on static data that may not reflect real-time changes, leading to potential inaccuracies. Recent advancements incorporate automation, web scraping, and AI to enhance the efficiency and reliability of price comparison tools. However, these advancements bring challenges, such as ensuring accurate data extraction from dynamic websites, bypassing CAPTCHA restrictions, and dealing with varying website structures. Researchers have explored how these tools can be improved to offer real-time, user-centric solutions.
[3] Research indicates that the effectiveness of traditional price comparison tools is limited by delayed data updates, whereas automated solutions leveraging web scraping and AI can offer real-time and precise price information.

[4] Another study explores the use of AI in enhancing price comparison tools, focusing on providing personalized user recommendations based on past purchasing behaviors and preferences, which improves the overall consumer experience.

2.3 Survey on Dynamic Data Extraction Techniques:

Dynamic data extraction is a critical component of automation systems, enabling the retrieval of real-time information from a variety of sources, such as websites, APIs, and documents. Techniques such as web scraping, API calls, and Optical Character Recognition (OCR) are widely used to extract structured and unstructured data. However, challenges persist, including overcoming CAPTCHA restrictions, handling data inconsistencies, and adapting to rapidly changing website layouts. Studies emphasize that hybrid approaches, combining multiple techniques, can address these challenges

effectively.

[5] A study on advanced web scraping techniques presents hybrid methods that integrate scraping with API interactions, ensuring greater accuracy and adaptability to changes in web environments.

[6] Another paper highlights the role of OCR in extracting data from unstructured formats like PDFs, scanned documents, and images, demonstrating how combining OCR with machine learning models improves data accuracy and usability in automation workflows.

2.4 Summary of the Intersection of RPA, Price Comparison, and Dynamic Data Extraction:

The **Book Price Comparison Bot** combines the power of Robotic Process Automation (RPA), price comparison tools, and advanced data extraction methods to address the challenges of tracking and comparing book prices across multiple e-commerce platforms. The bot leverages RPA for automating the process of collecting, analyzing, and reporting real-time book prices from dynamic websites. By incorporating sophisticated web scraping techniques and dynamic data extraction methods, it effectively overcomes obstacles like CAPTCHA challenges, website structure changes, and data inconsistencies.

This integration of technologies ensures that the bot not only saves time and effort for users but also provides accurate and actionable insights into book pricing trends. The bot's ability to adapt to changes in website layouts and handle multiple data formats makes it a robust and versatile tool for e-commerce applications. Furthermore, by automating repetitive tasks, the bot allows users to focus on decision-making rather than manual data collection, making it a valuable resource for consumers seeking the best deals. This project underscores the potential of RPA and dynamic data extraction in transforming e-commerce solutions and highlights how innovative technologies can streamline decision-making processes while enhancing the

overall user experience. Through this literature review, the **Book Price Comparison Bot** is positioned as a cutting-edge solution, bridging the gaps in traditional price comparison tools and advancing the landscape of e-commerce automation.

CHAPTER 3

SYSTEM DESIGN

3.1 SYSTEM FLOW DIAGRAM

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. The system flow diagram for this project is in Fig. 3.1.

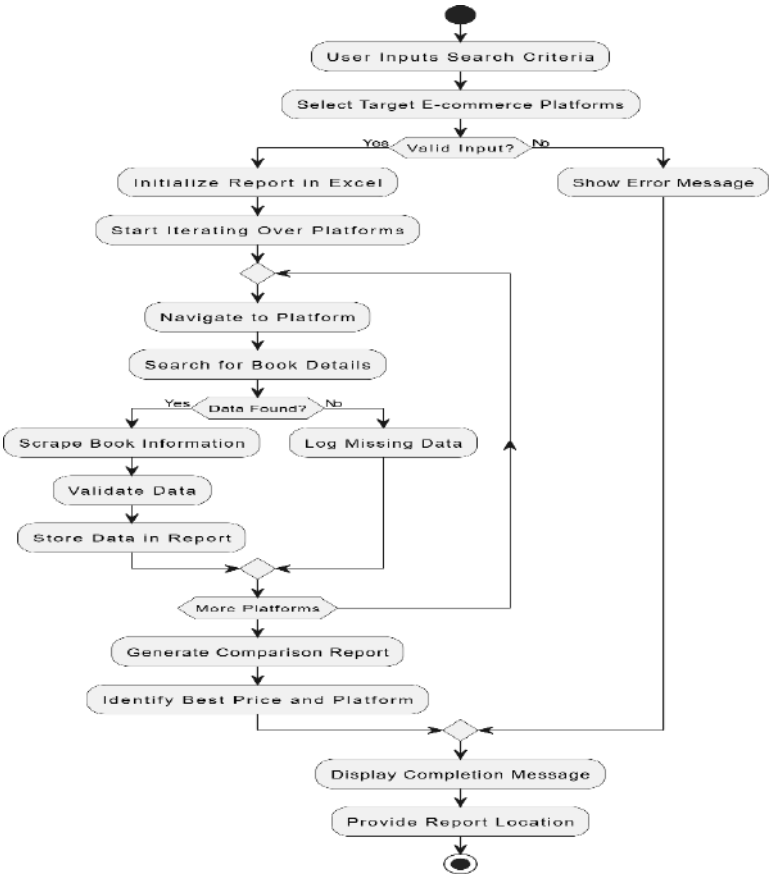


Fig 3.1 System Flow Diagram

3.2 ARCHITECTURE DIAGRAM

An architecture diagram is a graphical representation of a set of concepts, that are part of an architecture, including their principles, elements and components. The architecture diagram for this project is in Fig. 3.2.

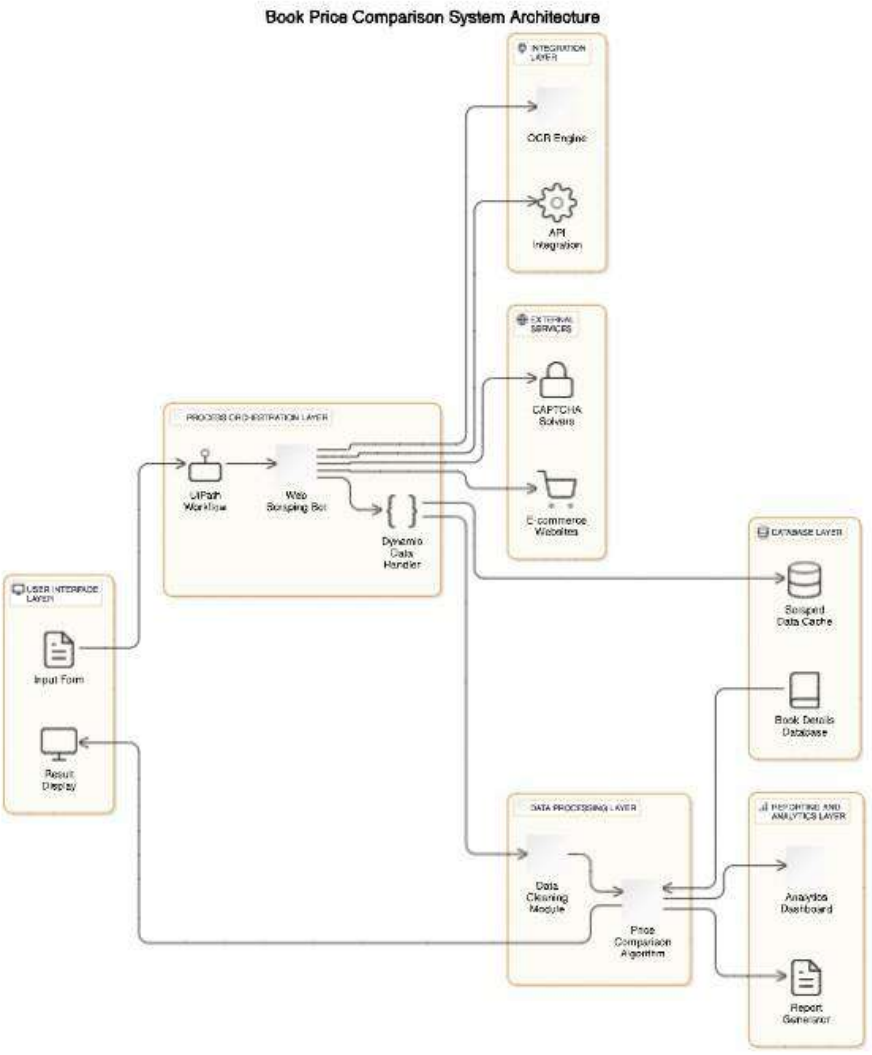


Fig 3.2 Architecture Diagram

3.3 SEQUENCE DIAGRAM

A sequence diagram is a type of interaction diagram because it describe and s how in what order a group of objects works together. The sequence diagram for this project is in Fig. 3.3.

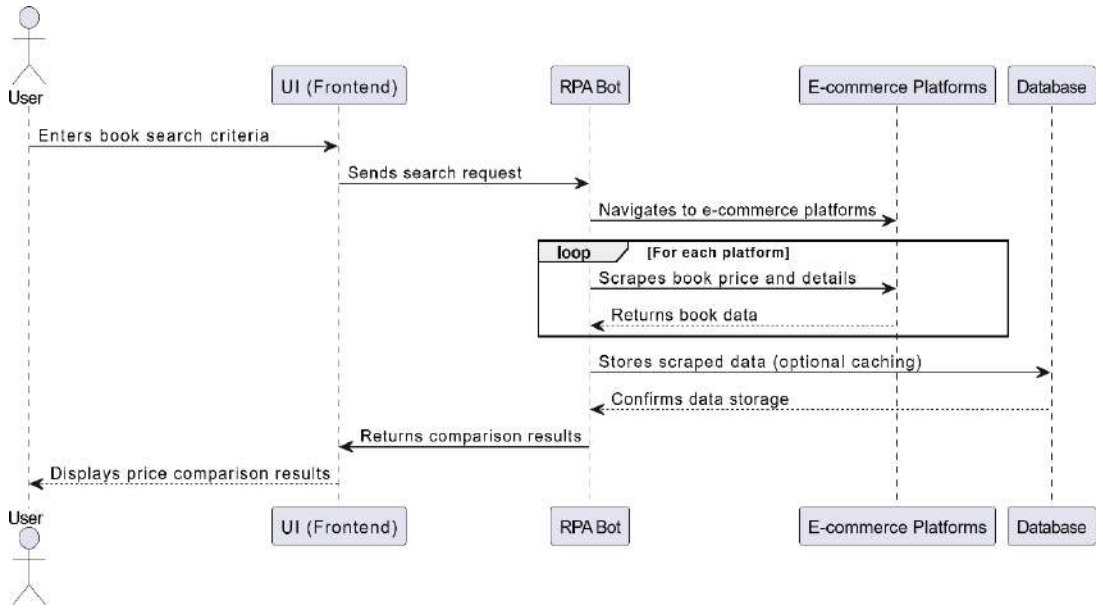


Fig 3.3 Sequence Diagram

CHAPTER 4

Project Description for "Book Price Comparison Bot

The "Book Price Comparison Bot" is an advanced Robotic Process Automation (RPA) project developed to simplify and enhance the process of comparing book prices across multiple e-commerce platforms. Utilizing the capabilities of UiPath, this bot automates the collection of pricing and availability data for a given book, ensuring users have access to the most accurate and up-to-date information. This project aims to reduce manual effort, improve efficiency, and provide users with a seamless experience for making informed purchase decisions.

4.1. **MODULES:**

4.1.1 INPUT HANDLING AND INITIALIZATION:

4.1.1.1 **User Input:**

- Allow the user to input search criteria such as the book title, author, or ISBN.

4.1.1.2 Target Platforms:

- Enable the user to select specific e-commerce platforms (e.g., Amazon, Flipkart, etc.) for price comparison.

4.1.1.3 Logging and Report Setup:

- Initialize a dynamic Excel report named "Price Comparison Report" to log the results.

4.1.2 PRICE COLLECTION:

4.1.2.1 Platform Navigation:

- Automate navigation to the selected e-commerce platforms using RPA.

4.1.2.2 Data Scraping:

- Use web scraping techniques to extract book details, including:
    - Price
    - Availability
    - Seller information
    - Delivery options

4.1.2.3 Data Validation:

- Validate the scraped data to ensure accuracy and consistency.

4.1.3 RESULT MANAGEMENT:

4.1.3.1 Data Storage:

- Store the collected data in the Excel report with well-organized fields such as:
    - Platform name
    - Book price

- Link to the product page

4.1.3.2 Real-Time Updates:

- Display real-time progress on the bot's activities, including the status of data collection for each platform.

4.1.4 COMPLETION AND REPORTING:

4.1.4.1 Report Generation:

- Generate a comprehensive Excel report summarizing the comparison results.

4.1.4.2 Summary Display:

- Provide a summary of the best price and platform at the end of the process.

4.1.4.3 Completion Notification:

- Display a message indicating successful completion of the price comparison task, including the location of the generated report.

CHAPTER 5

OUTPUT SCREENSHOTS

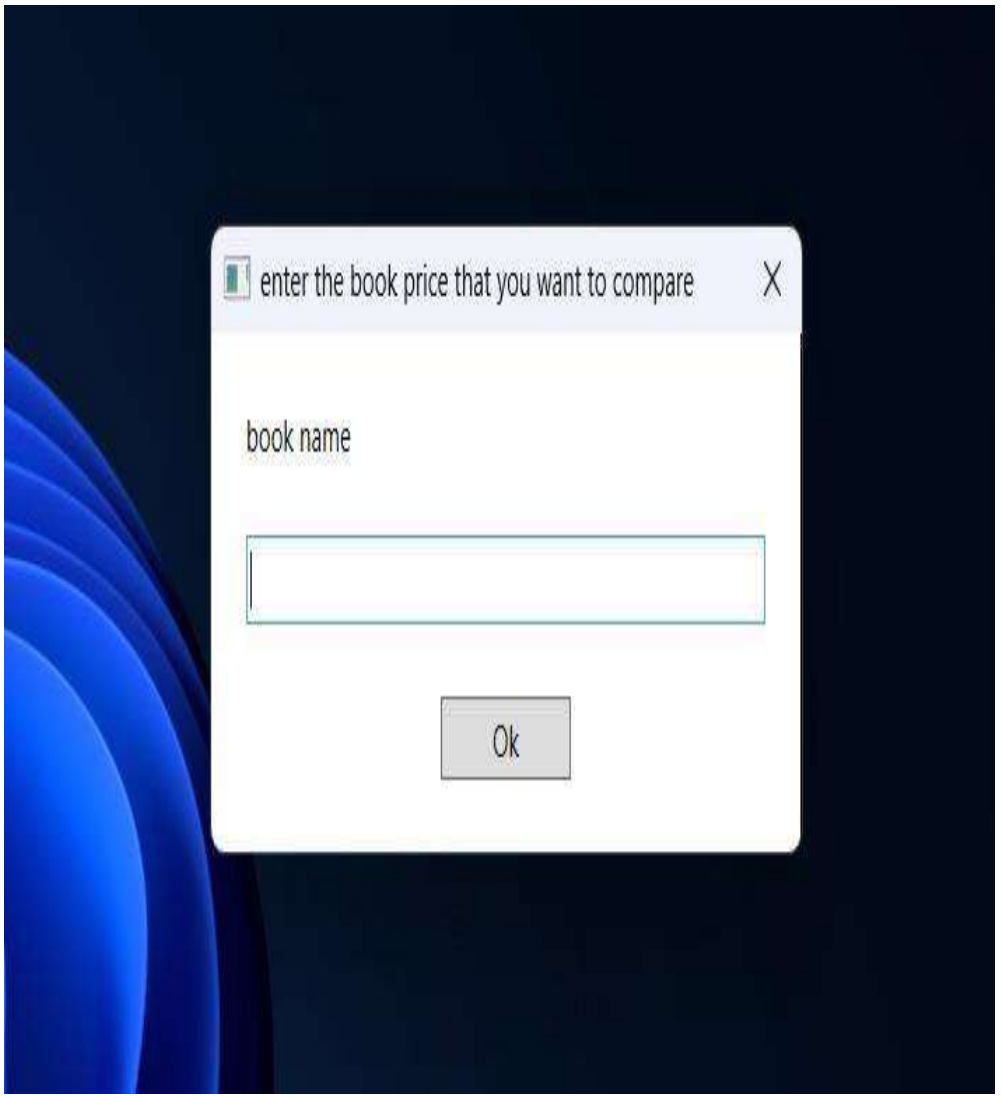


Fig 5.1 – Input Dialog

The input dialog in the Book Comparison Bot captures the user's book choice, retrieves prices from various sources, and performs a comparison to identify the best options. shown in Fig 5.1.

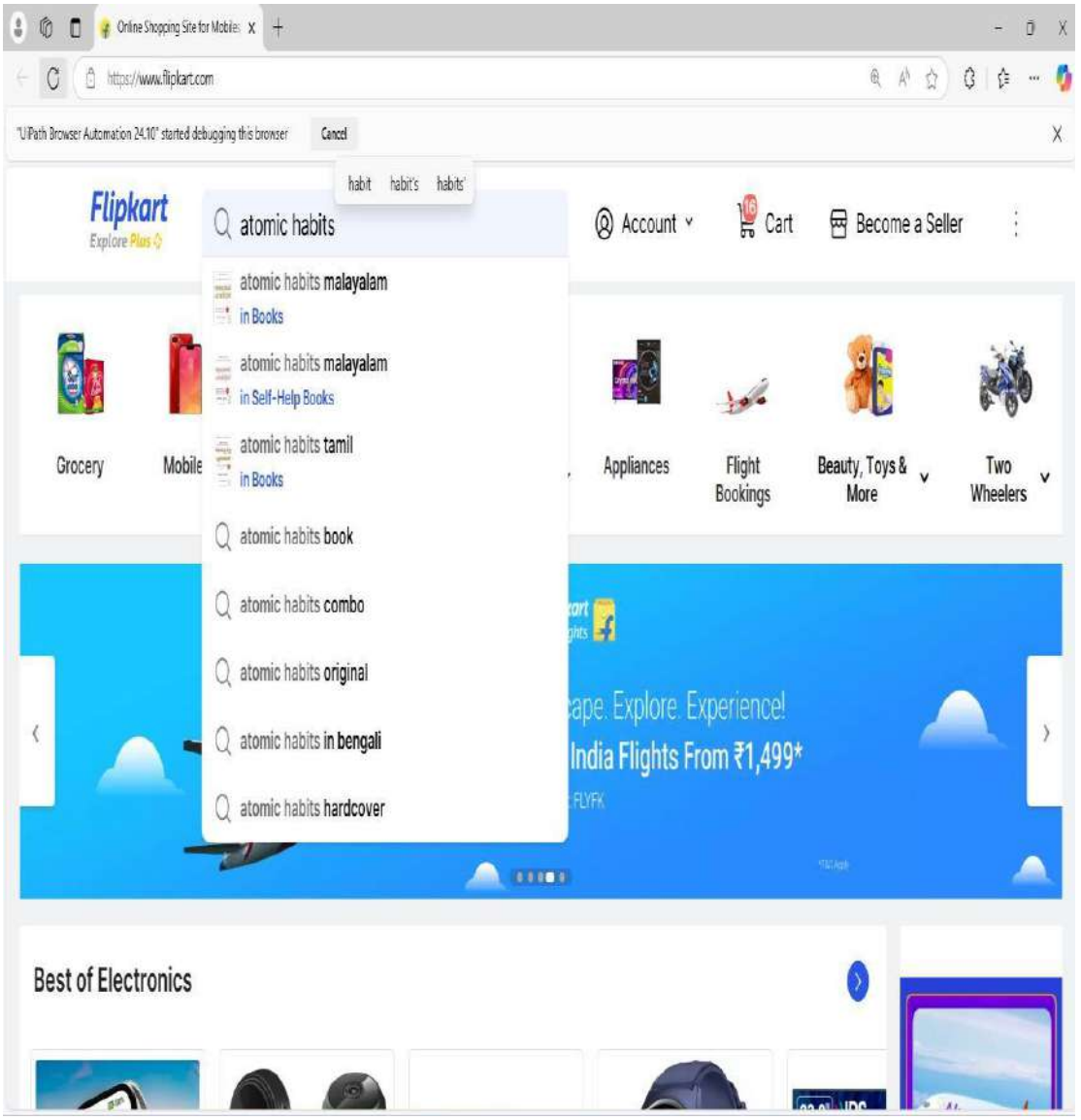


Fig 5.2 – web scraping

The bot searches for the selected book on Flipkart, retrieves the price details, and logs the data into an Excel sheet for easy comparison and reference. shown in Fig 5.2.

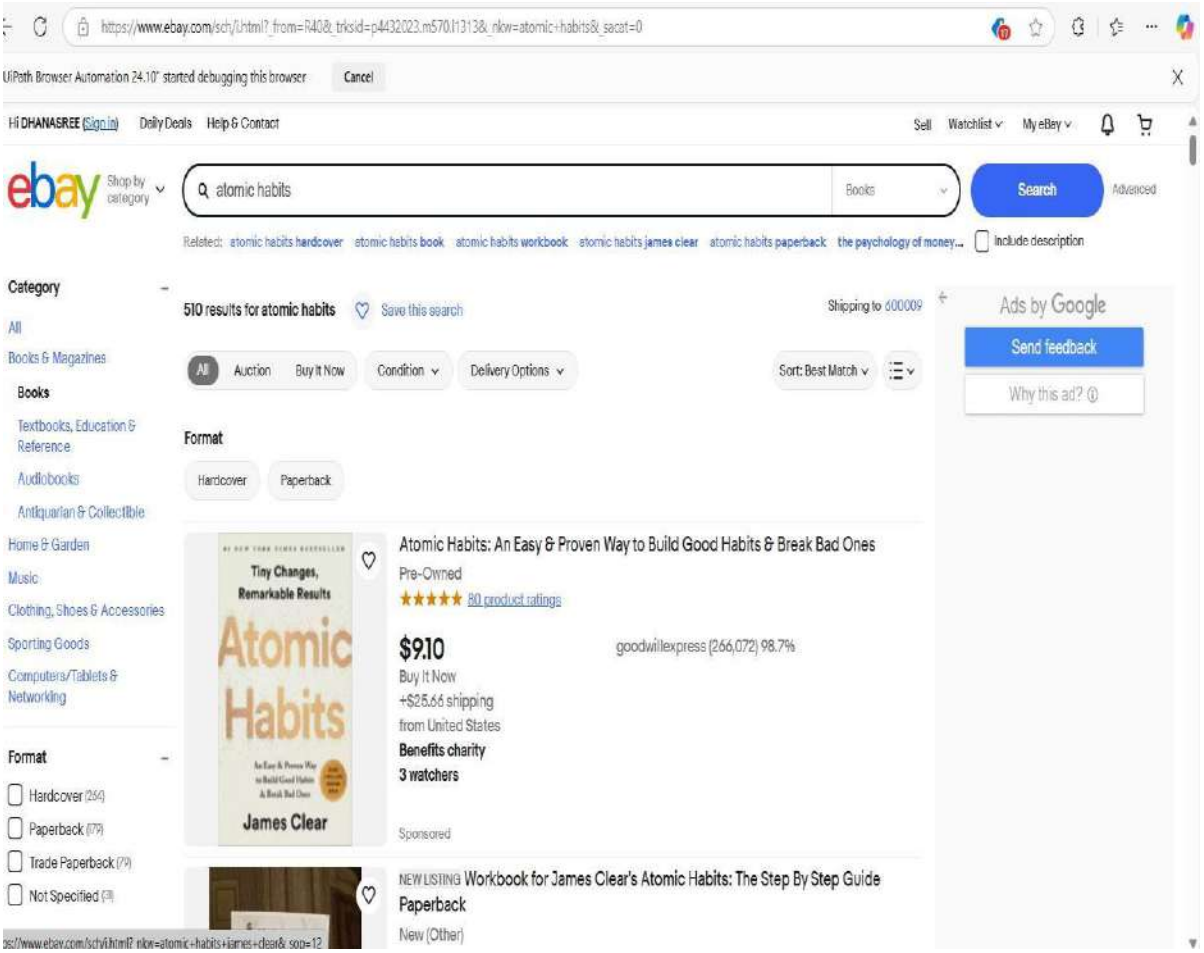


Fig 5.3 – Web Scraping Workflow: Extracting Book Prices from eBay

The bot searches for the selected book on eBay, retrieves the price details, and logs the data into an Excel sheet for seamless comparison and reference.

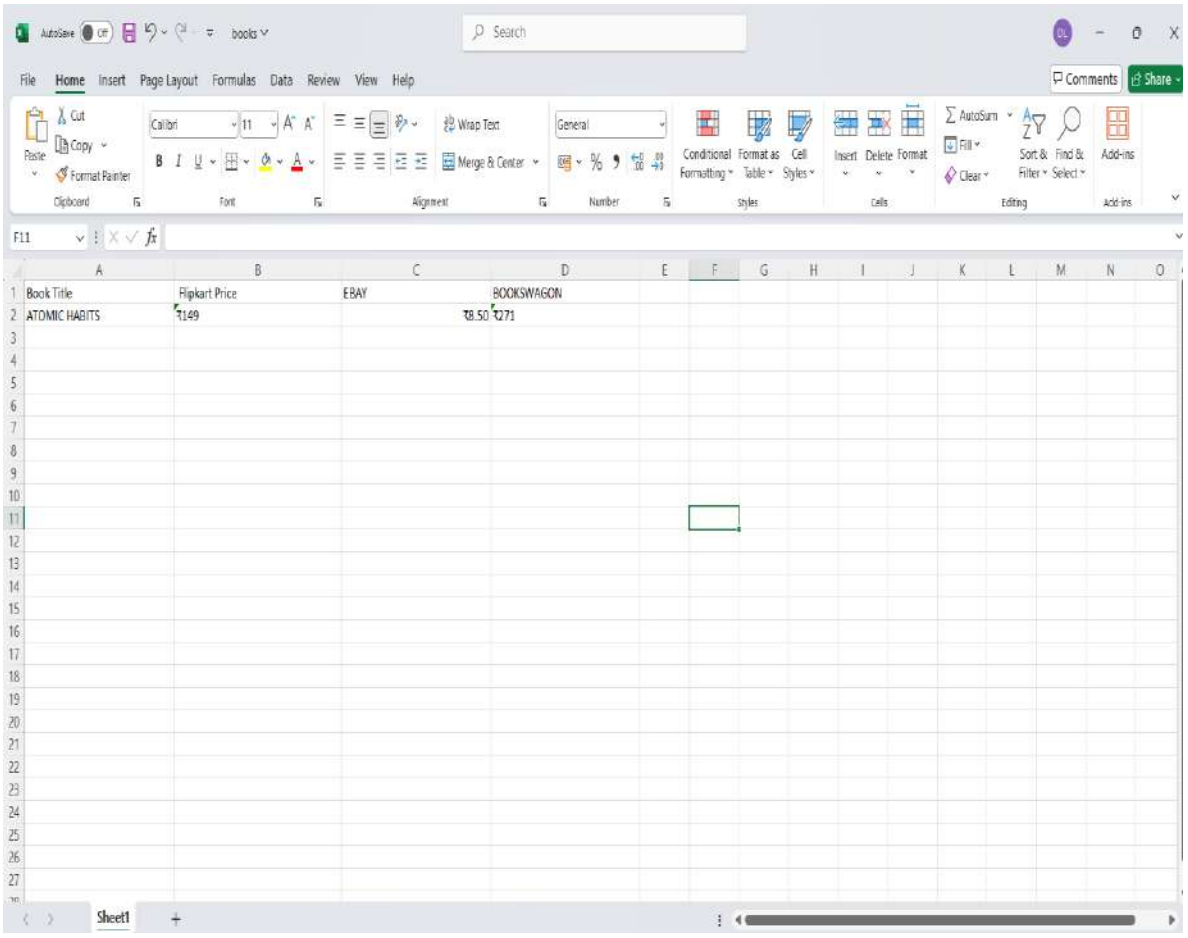


Fig 5.4 – Excel Report

The results are then updated to the excel file that was created at the early steps of execution and saved as it is shown in Fig 5.5.

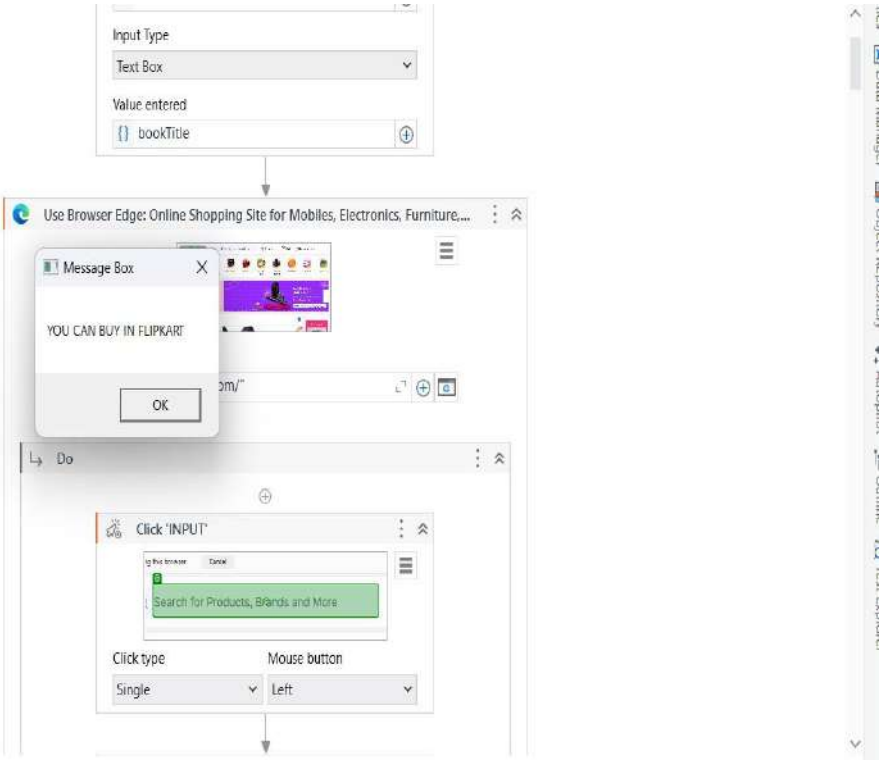


Fig 5.5 – Decision Display Workflow

The final step involves a message box that provides a clear recommendation on the best platform to purchase the book based on price comparisons.

CHAPTER 6

CONCLUSION

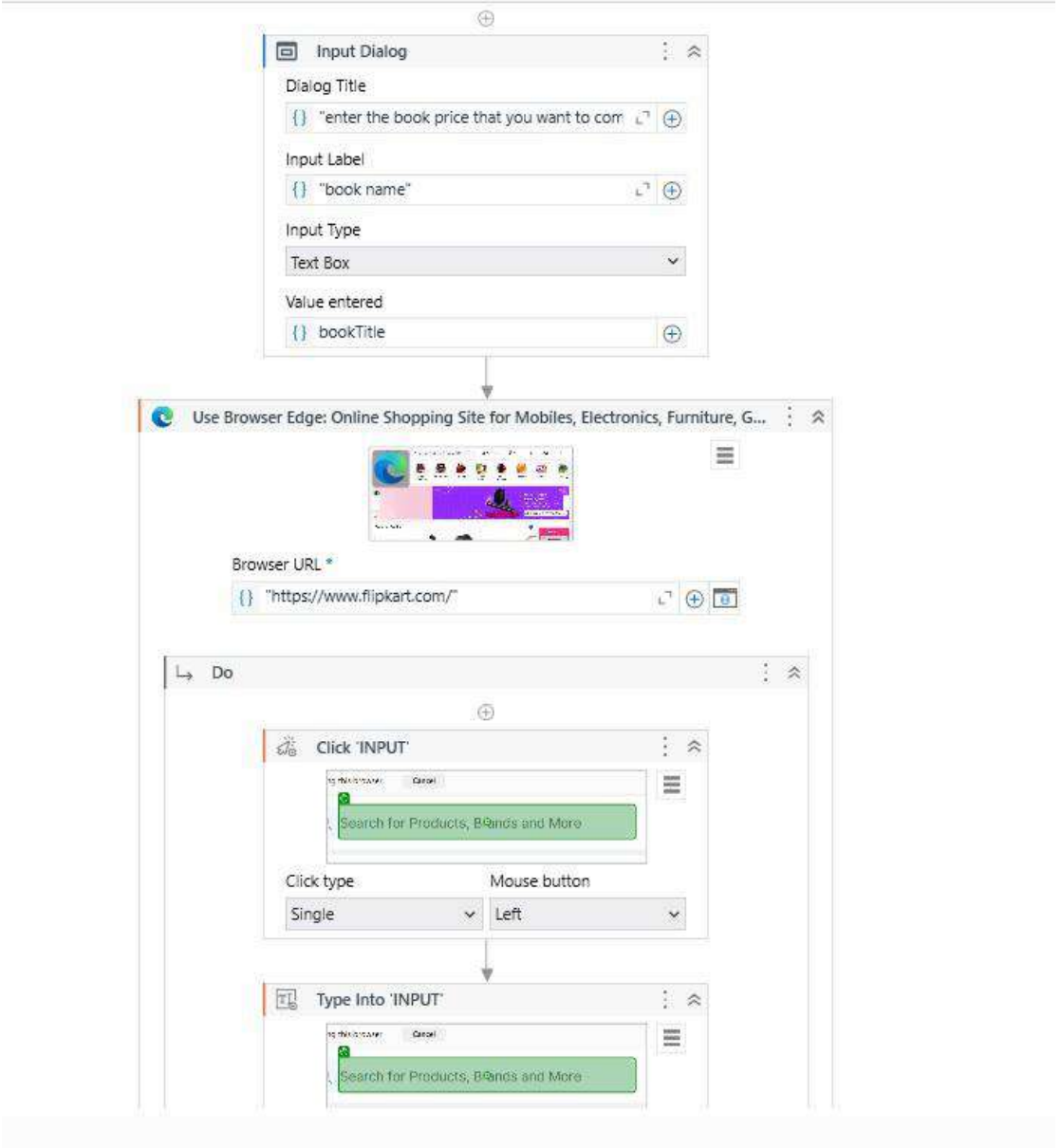
The Book Comparison Bot project successfully integrates Robotic Process Automation (RPA) and Artificial Intelligence (AI) to streamline and automate the process of comparing books based on their content. This bot provides a sophisticated solution for efficiently analyzing large volumes of text, comparing books for similarities, differences, and potential plagiarism. By leveraging advanced AI algorithms for content analysis, the bot can detect subtle textual patterns, ensuring that both human-written and AI-generated content are properly distinguished.

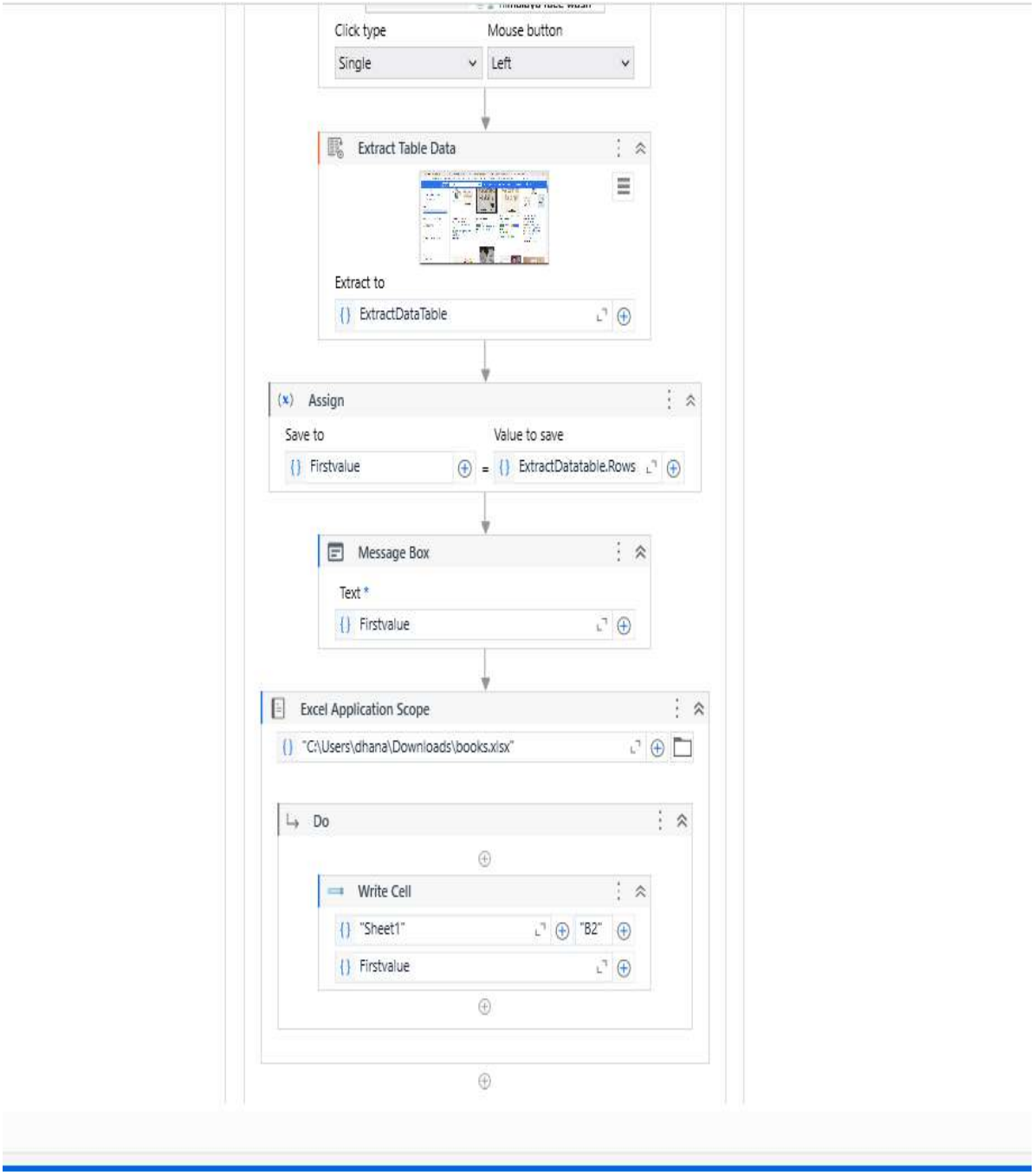
Additionally, the project demonstrates the utility of automation in the context of content comparison, significantly reducing the time and effort required by human reviewers. The integration with plagiarism detection services further enhances the reliability and accuracy of the comparison process, ensuring that the final output meets high academic and ethical standards.

Overall, the Book Comparison Bot contributes to improving the efficiency of content evaluation in academic and literary domains, offering a scalable solution that can be expanded to other types of document analysis. As the demand for AI-driven tools continues to rise, this project showcases the potential of automation in transforming traditional content assessment practices, providing educators, publishers, and content creators with an advanced tool for maintaining integrity and quality in their work.

APPENDIX

PROCESS WORKFLOW

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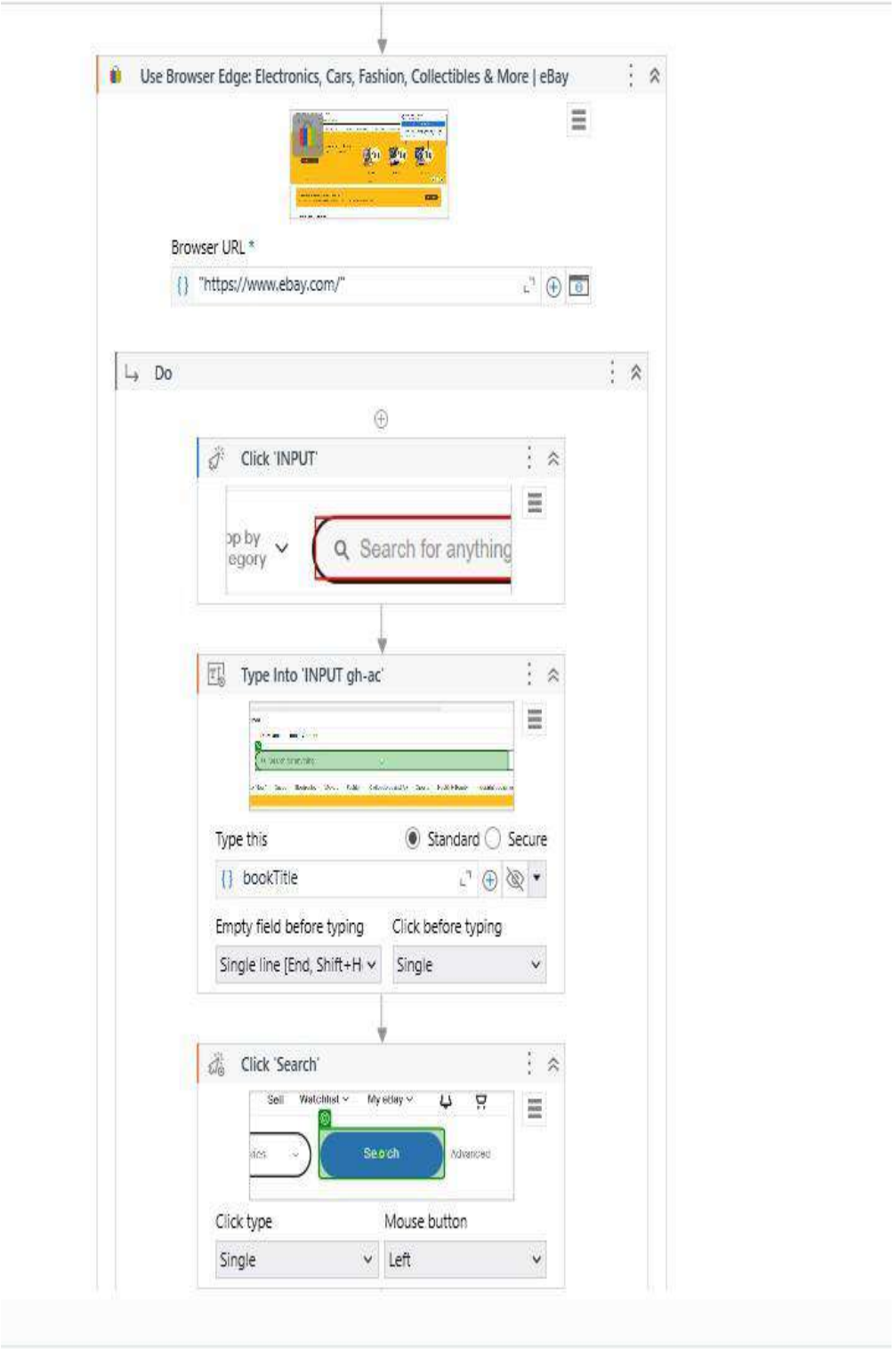
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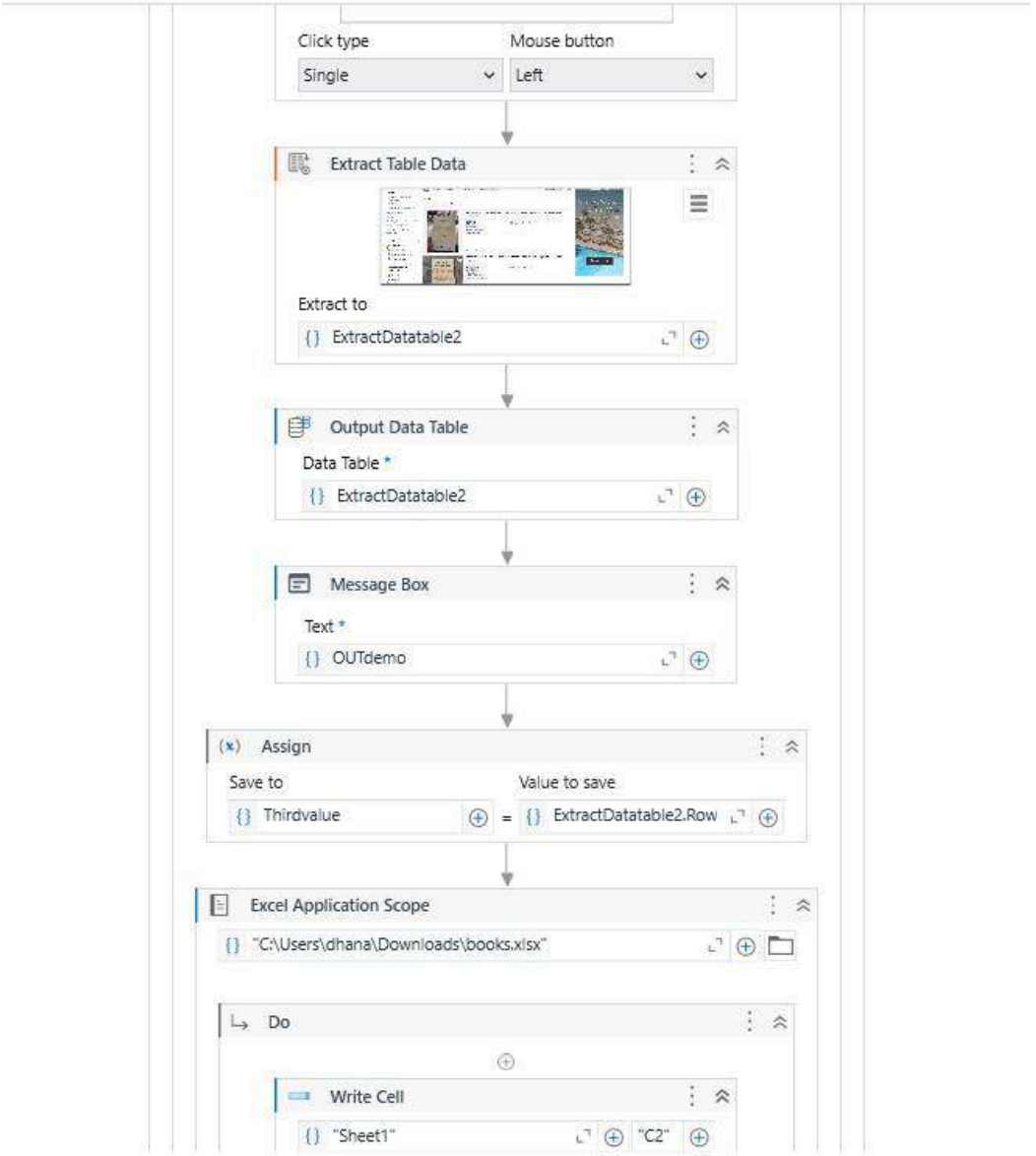
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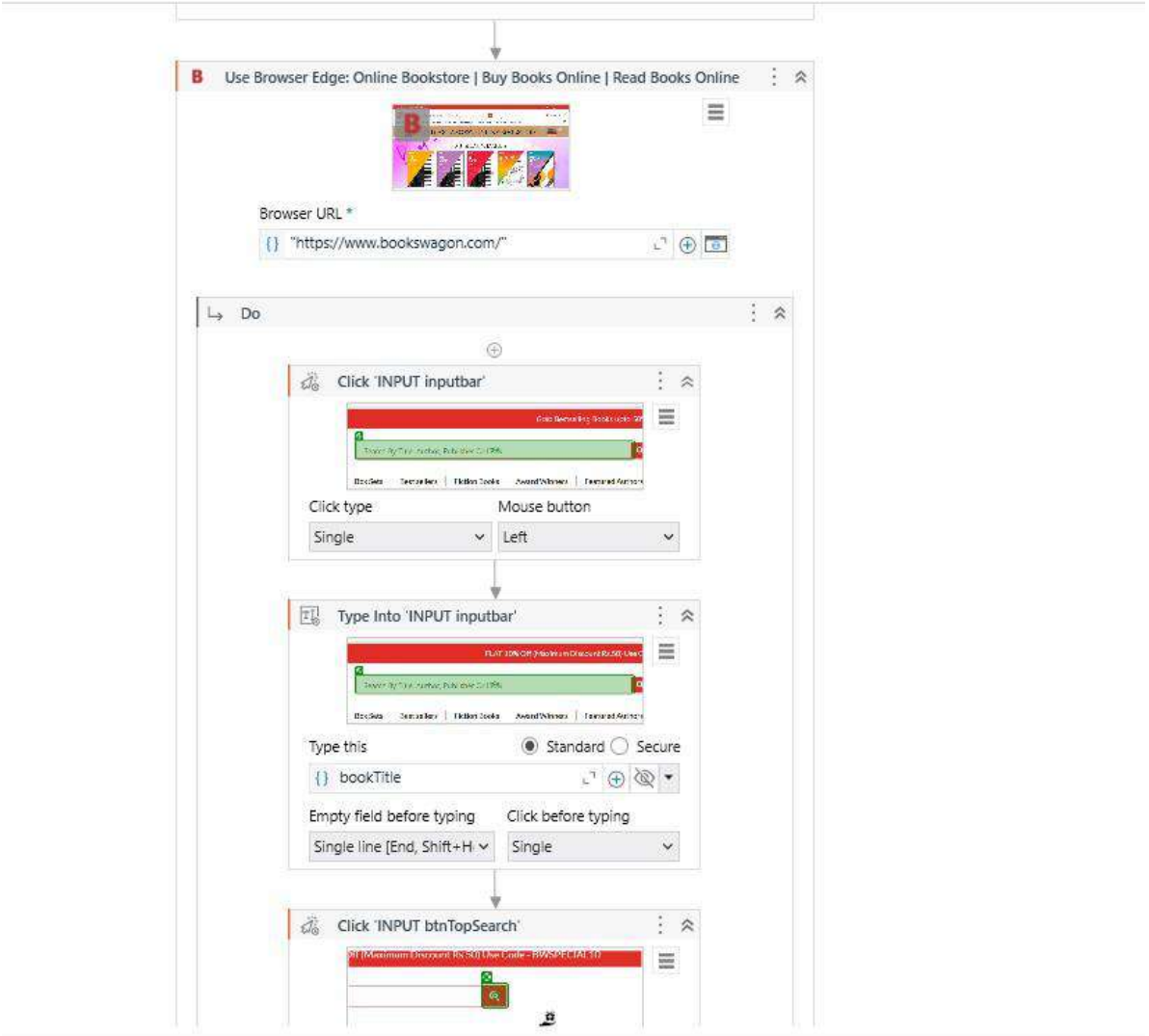
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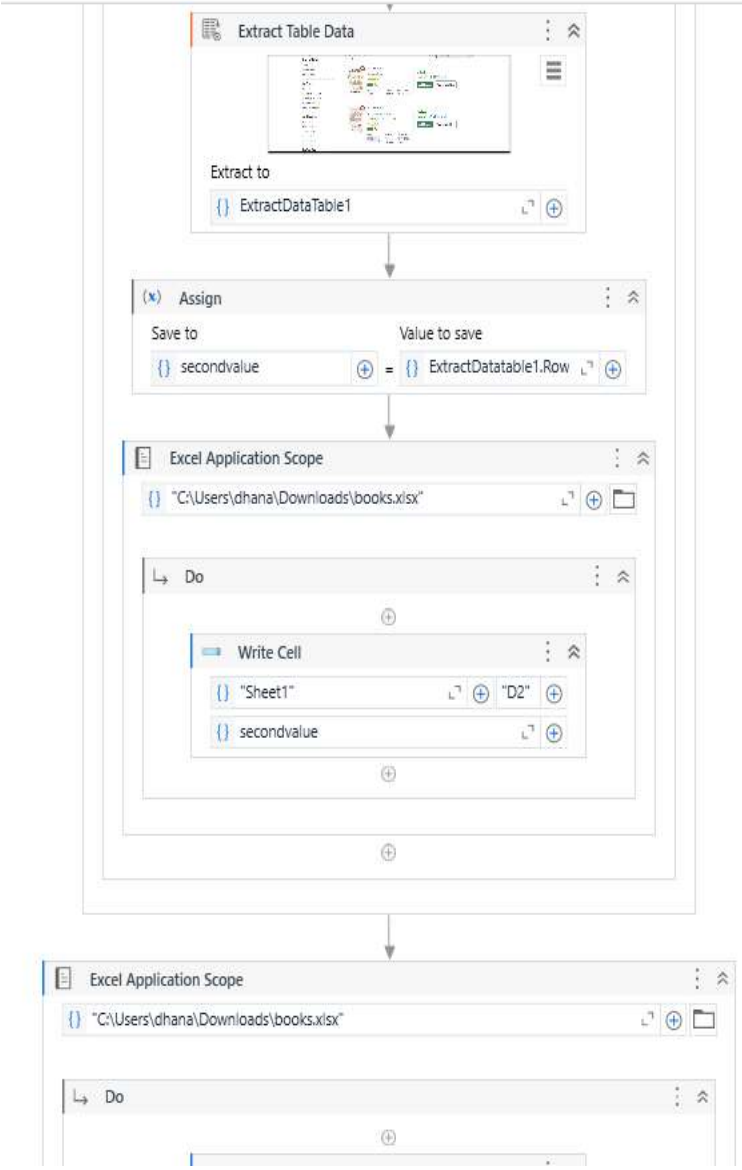
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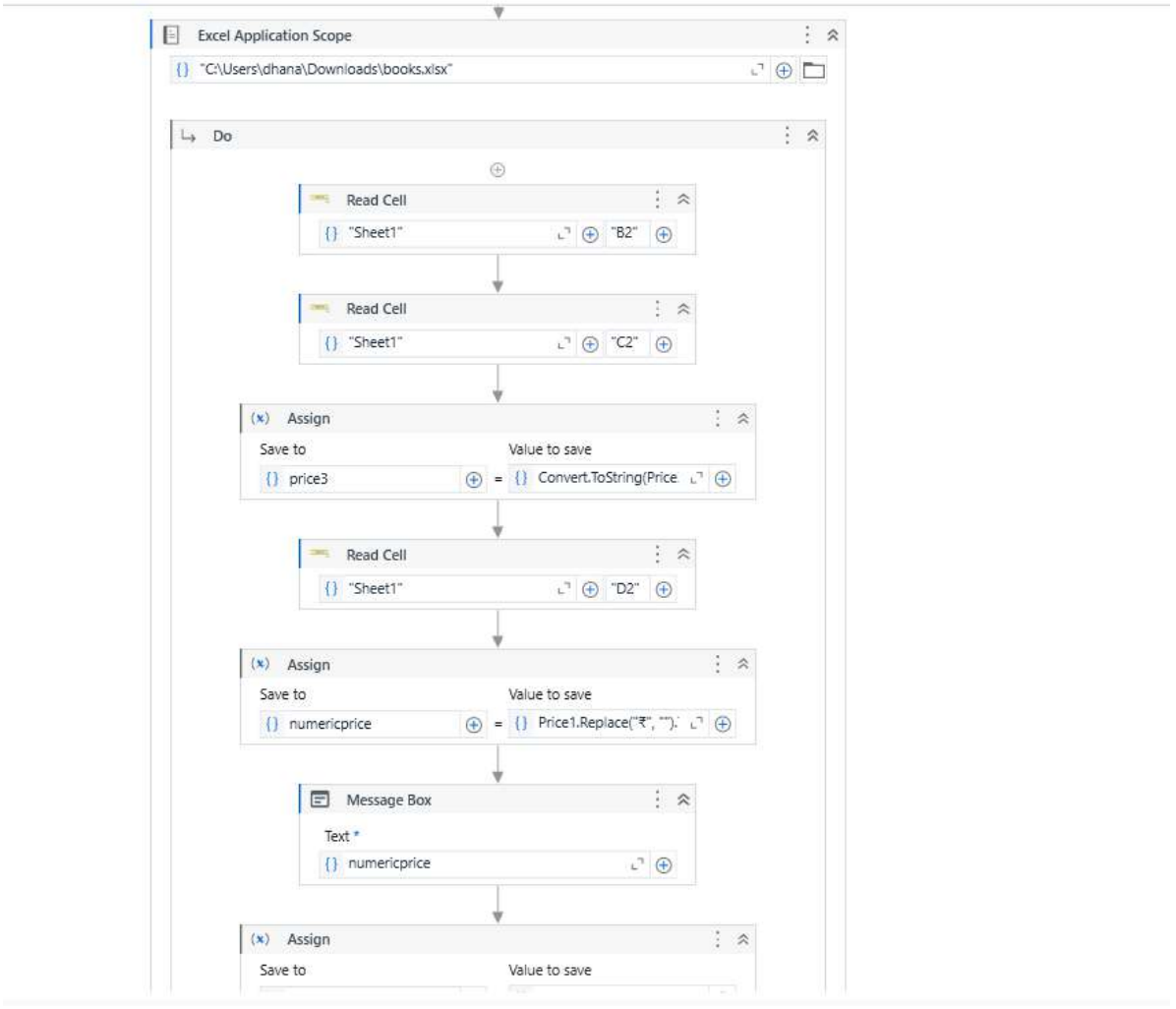
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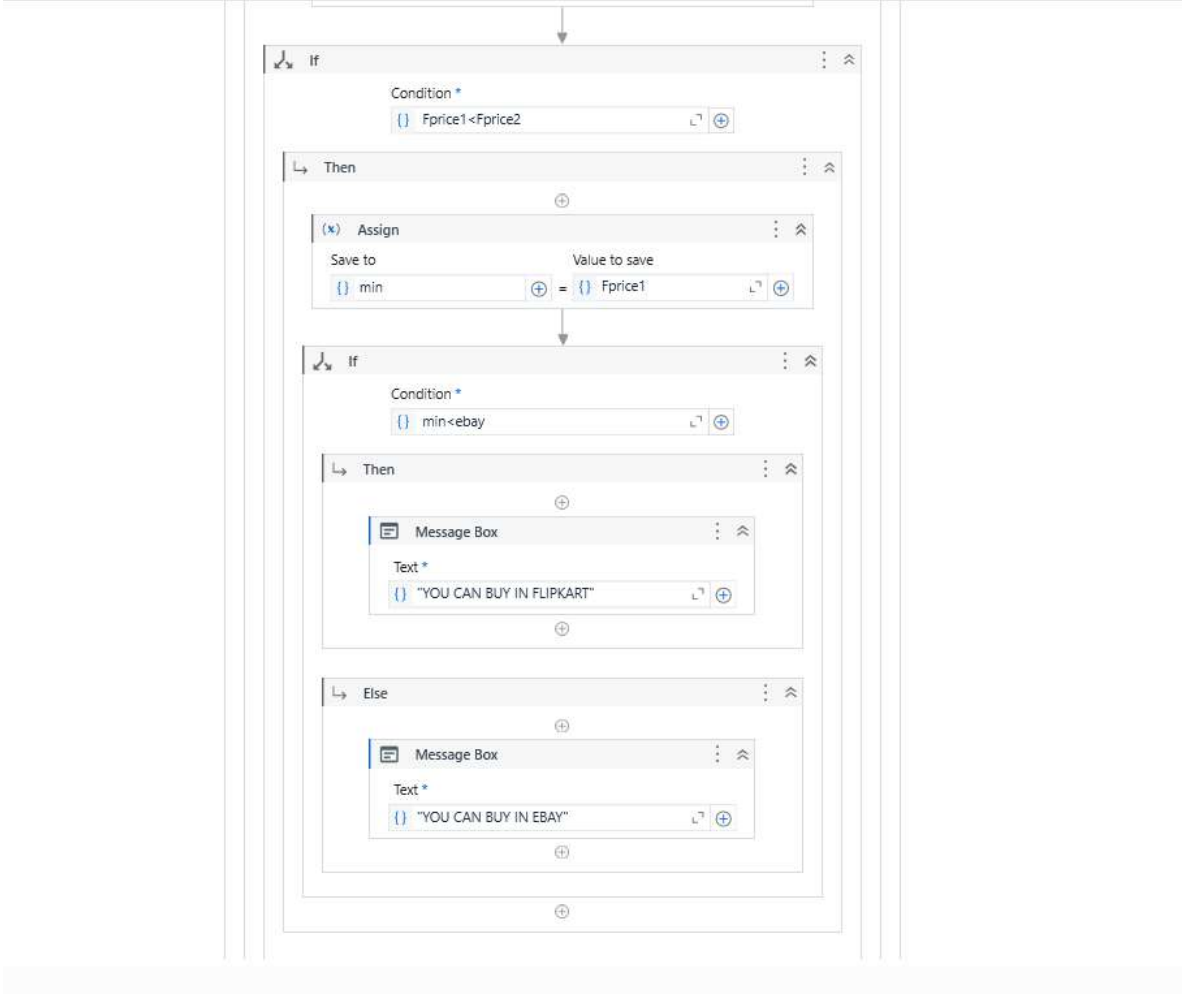
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"YOU CAN BUY IN FLIPKART"
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Message Box
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"YOU CAN BUY IN EBAY"

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