



**Introduction to
Robotic Process Automation**

Review-wise: An AI Powered Review Sentiment Analyzer

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Abstract

- ❑ **"Review-wise: An AI-Powered Review Sentiment Analyzer"** is an RPA solution developed using **UiPath Studio** and **AI Center**.
- ❑ It automates the *Extraction*, *Processing*, and *Analysis* of product reviews from
- ❑ E-commerce platforms like Amazon, Flipkart, etc.

KEY FUNCTIONALITIES:

- Sentiment analysis of reviews using pre-trained ML models in UiPath AI Center.
- Weighted Sentiment Score (WSS) and Recommendation Score (RS) calculation.
- Automated recommendations based on review sentiment.
- ❑ Outputs include categorized product recommendations and detailed reports stored in Excel for efficient storage and visualization.
- ❑ This project demonstrates UiPath's capabilities to enhance customer experience and decision-making.

Need for the Proposed System

- ❑ Increasing reliance on E-commerce platforms requires Efficient tools to Analyze large volumes of customer reviews.
- ❑ Manual review analysis is time-consuming, prone to errors, and inconsistent in sentiment evaluation.
- ❑ Businesses and consumers need Automated solutions to derive actionable insights from customer feedback.
- ❑ A sentiment analysis system powered by RPA ensures Accurate, Unbiased, and Scalable analysis of reviews.
- ❑ Helps consumers make informed purchase decisions and assists businesses in understanding customer sentiment trends.

Advantages of the Proposed System

- ❑ Automates review collection and sentiment evaluation, reducing manual effort.
- ❑ Provides unbiased and consistent sentiment analysis using pre-trained ML models.
- ❑ Offers actionable insights through Weighted Sentiment Score and Recommendation Score.
- ❑ Improves consumer decision-making by categorizing products as Recommended, Good, or Not Recommended.
- ❑ Scalable for processing large datasets with efficient storage in Excel.
- ❑ Simplifies data management and ensures accessibility for future reference.

LITERATURE SURVEY

Sentiment Analysis in E-commerce Reviews (Liu et al., 2018)

ADVANTAGES:

- Highlights the importance of automated review analysis for e-commerce.
- Emphasizes customer sentiment as a key metric for product evaluation.

DIS-ADVANTAGES:

- Focused primarily on traditional NLP approaches.
- Limited scalability for real-time automation.

Application of Robotic Process Automation in Text Mining (Willcocks et al., 2020)

ADVANTAGES:

- Demonstrates the use of RPA tools for automating repetitive tasks.
- Showcases how RPA enhances data processing speed and accuracy.

DIS-ADVANTAGES:

- Lack of focus on integrating advanced AI for sentiment analysis.
- Limited application in customer review analysis.

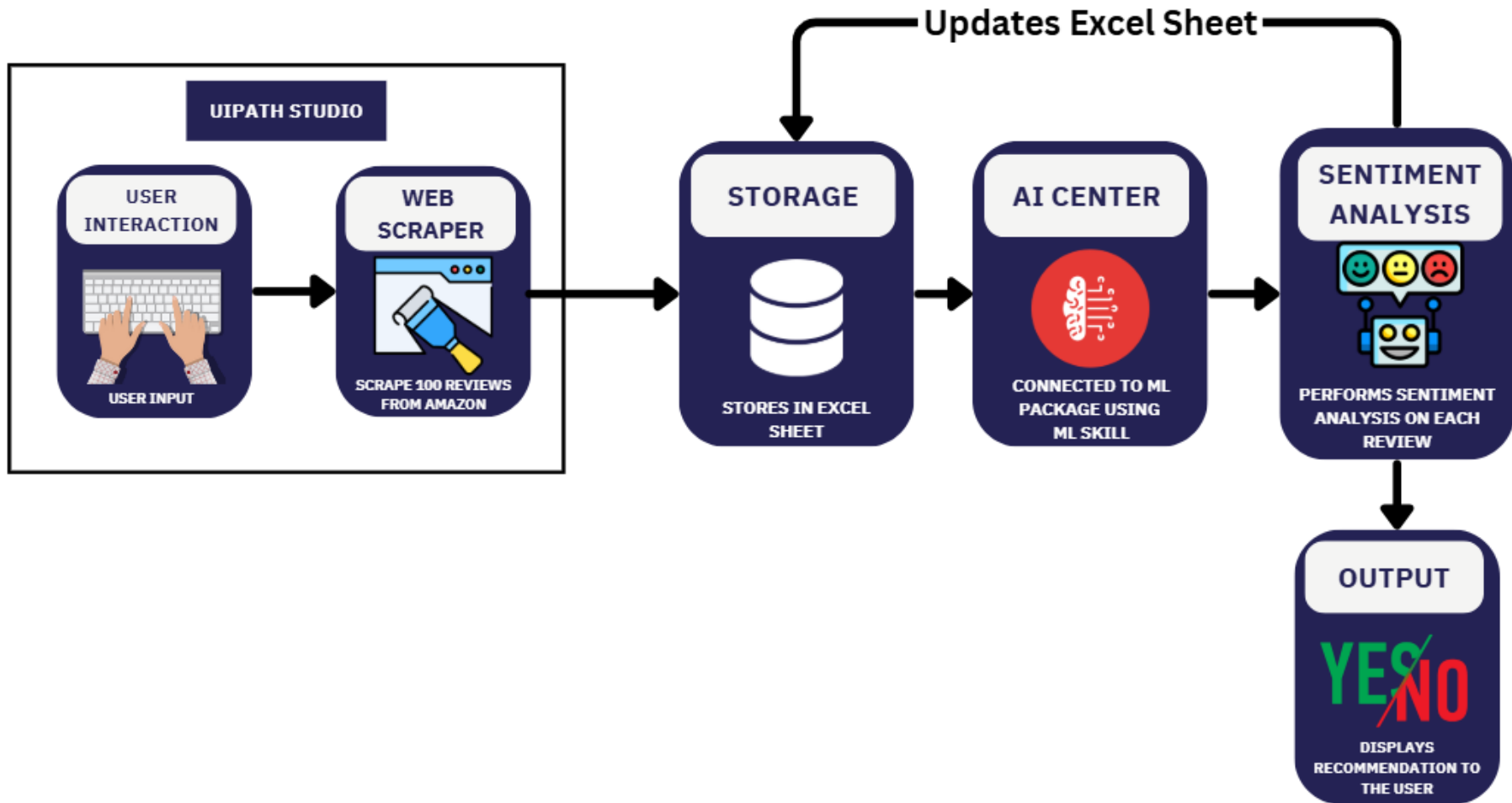
Main Objective

To design and develop an automated system for analyzing product reviews using UiPath Studio and AI Center.

Key goals:

- ☐ Extract product details and reviews from e-commerce platforms.
- ☐ Perform sentiment analysis using pre-trained ML models in AI Center.
- ☐ Compute Weighted Sentiment Score (WSS) and Recommendation Score (RS).
- ☐ Categorize products based on sentiment analysis: Recommended, Good Product, or Not Recommended.
- ☐ Save data and results in Excel for effective storage and accessibility.
- ☐ Enable efficient and accurate decision-making for consumers and businesses.

ARCHITECTURE DIAGRAM



SYSTEM REQUIREMENTS

HARDWARE SPECIFICATIONS :

Processor	Intel i5 or Higher
RAM	8 GB Minimum (16 GB recommended)
Hard Disk	500 GB Storage or more
Operating System	Windows 10 or higher
Display	Full HD Monitor (1920 or 1080 resolution)
Internet Connection	Stable Broad for UiPath AI center Access

SOFTWARE SPECIFICATIONS :

UiPath Studio (Enterprise or Community Edition)

UiPath AI Center for ML Model Integration

Microsoft Excel (2016 or higher) for data storage and processing

Web Browser : Google Chrome or Microsoft Edge for Data Extraction

Windows-Compatible drivers for UiPath application.

FUNCTIONAL DESCRIPTION

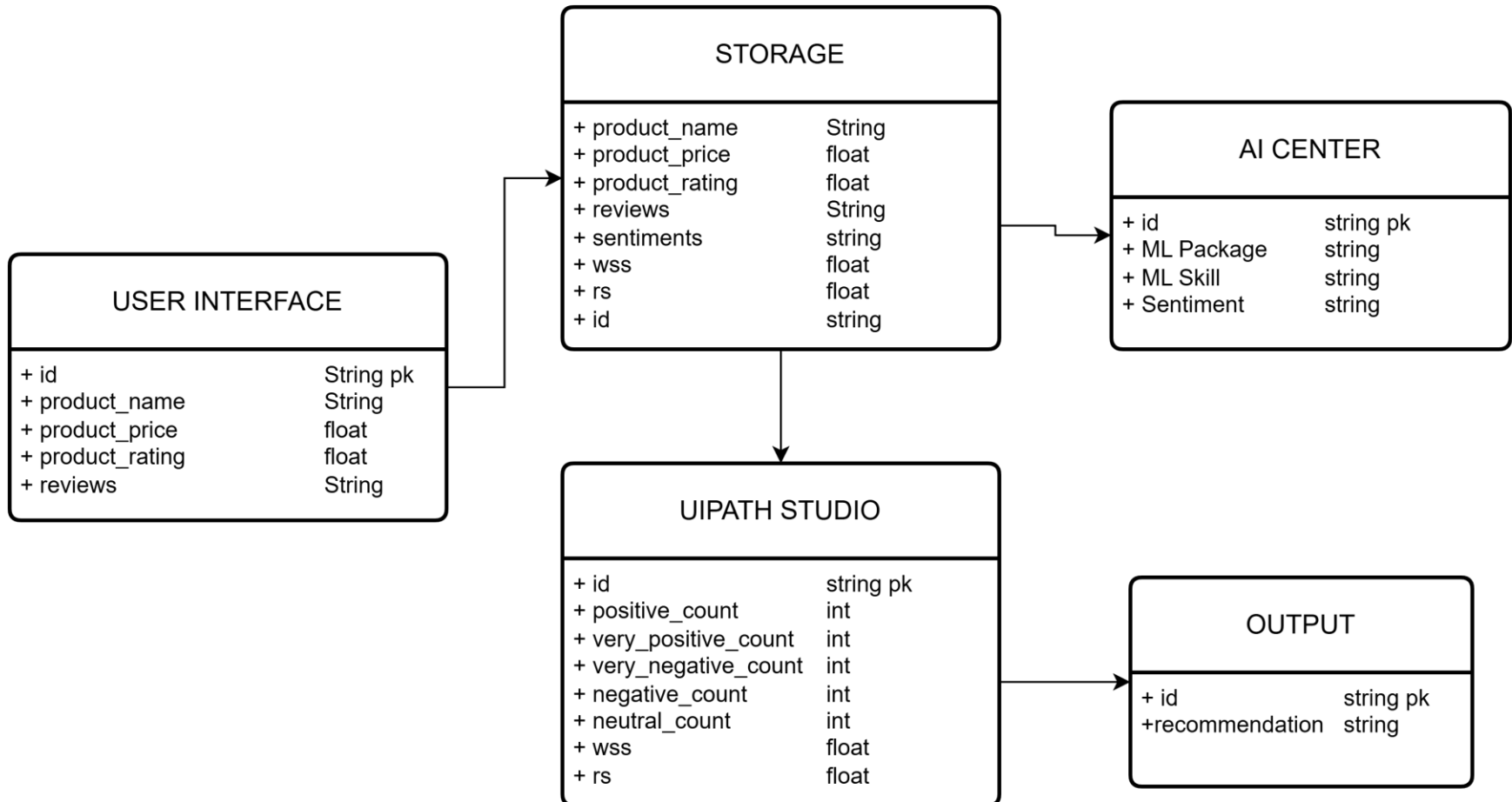
MODULE 1 : DATA EXTRACTION AND STORAGE

- ❑ Extracts product details (name, price, rating) and reviews from E-commerce platforms using UiPath Studio.
- ❑ Reviews are stored in an Excel workbook for structured and accessible data handling.

MODULE 2 : SENTIMENT ANALYSIS AND RECOMMENDATION

- ❑ Reviews are processed through the pre-trained sentiment analysis model in UiPath AI Center using ML Skill.
- ❑ Calculates Weighted Sentiment Score (WSS) and Recommendation Score (RS) to categorize the product into:
 - ❖ Recommended
 - ❖ Good Product
 - ❖ Not Recommended
- ❑ Final data, including sentiment classifications and recommendations, is appended to the Excel workbook.

ENTITY – RELATIONSHIP DIAGRAM



PROCESS DESIGN

MAIN PROCESS

- ❑ **User Input:** Product details entered through an input dialog box in UiPath Studio.
- ❑ **Data Extraction:** Browser automation extracts product details and reviews.
- ❑ **Sentiment Analysis:** Pre-trained ML model in UiPath AI Center analyzes reviews.
- ❑ **Calculations:** WSS and RS are calculated in UiPath Studio.
- ❑ **Recommendations:** Product categorization and results storage in Excel.

SUB PROCESS

- ❑ **Review Collection:** Extracts 100 reviews from the review section of the e-commerce platform using Table Extraction.
- ❑ **Sentiment Processing:** Integrates ML Skill to analyze and classify each review as positive, negative, or neutral.
- ❑ **Data Management:** Updates the Excel workbook with review sentiments, counts, and scores for comprehensive reporting.

IMPLEMENTATION

Use Browser Chrome: Amazon.in:Customer reviews: Daikin 1.5 To...

Browser URL *

uri

Do

Get Text [Product Title]

Get Text [Product Price]

Get Text [Review Summary]

Get Text [Rating]

Click [Review button]

Click [See more reviews]

Extract Reviews as Data Table

Extract to

Reviews

REVIEW EXTRACTION

Reviews	Description	Confidence	Sentiment Analysis
Shoe Bag: A Must-Have for Travel and Organization!	The Boldfit Shoe Bag is compact, durable, keeps shoes clean, organizes luggage, and even helps tidy up your closet. I recently bought a shoe bag from Bold Fit, and I am extremely satisfied with its quality and practicality. Here are a few reasons why I highly recommend this product: Durability: This shoe bag is made from very robust material that can withstand a lot of wear and tear. It feels solid and has remained in excellent condition even with frequent use. Design: The shoe bag features a modern and stylish design with a strong zipper and a convenient handle. It's compact but roomy enough to fit my shoes comfortably, making it ideal for both travel and gym use. Versatility: This bag isn't just for shoes. I've used it to store toiletries, gym gear, and other essentials when traveling. It's a versatile addition to my luggage. Ventilation: One of the best features is the ventilation. The bag has mesh panels that allow air to circulate, preventing odors and keeping my shoes fresh. Easy to Clean: The material is simple to wipe down and clean, which is essential after using it for gym shoes or hiking boots.		
Durable and Convenient Shoe Bag - Perfect for Travel			

EXCEL STORAGE

MLSkill

Connection Mode

Endpoint

ML Skill URL

{ } "https://ai-uipath-sea.descover.com/public/t" L⁺

API Key

{ } "a155df3e-597a-40bd-87d7-b70b6893321b" L⁺

Test Skill

Input Type

JSON

Item

{ } CurrentRow("Reviews").ToString L⁺

JSONResponse

{ } JSONResponse_from_ML_Skill L⁺

{:} Deserialize JSON

JSON string *

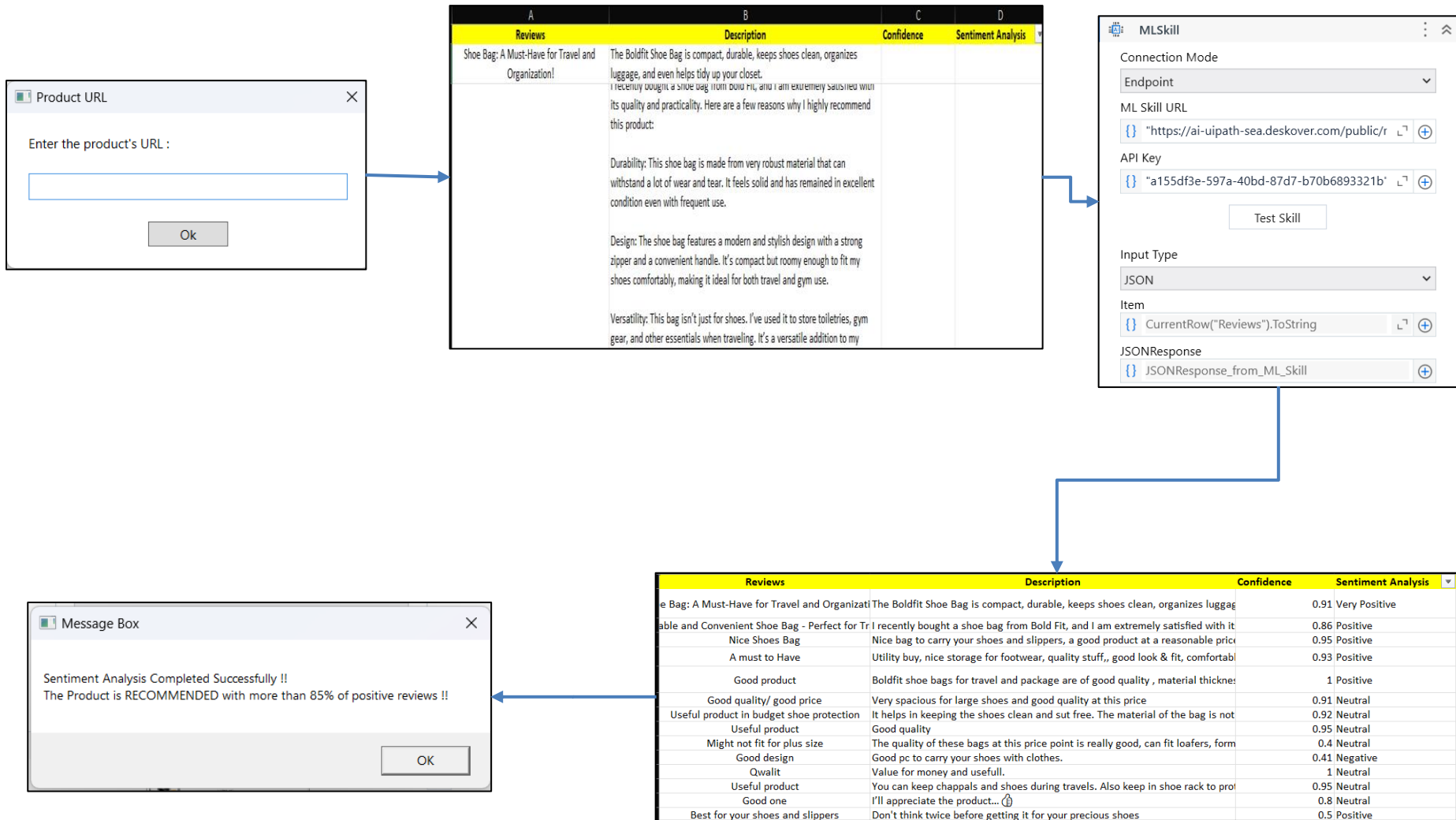
{ } JSONResponse_from_ML_Skill L⁺

SENTIMENT ANALYSIS

SENTIMENT ANALYSIS REPORT

Reviews	Description	Confidence	Sentiment Analysis
Shoe Bag: A Must-Have for Travel and Organization!	The Boldfit Shoe Bag is compact, durable, keeps shoes clean, organizes luggage, and even helps tidy up your closet. I recently bought a shoe bag from Bold Fit, and I am extremely satisfied with its quality and practicality. Here are a few reasons why I highly recommend this product:	0.91	Very Positive
Durable and Convenient Shoe Bag - Perfect for Travel	I recently bought a shoe bag from Bold Fit, and I am extremely satisfied with its quality and practicality. Here are a few reasons why I highly recommend this product:	0.86	Positive
Nice Shoes Bag	Nice bag to carry your shoes and slippers, a good product at a reasonable price	0.95	Positive
A must to Have	Utility buy, nice storage for footwear, quality stuff,, good look & fit, comfortable	0.93	Positive
Good product	Boldfit shoe bags for travel and package are of good quality , material thickness	1	Positive
Good quality/ good price	Very spacious for large shoes and good quality at this price	0.91	Neutral
Useful product in budget shoe protection	It helps in keeping the shoes clean and safe. The material of the bag is not	0.92	Neutral
Useful product	Good quality	0.95	Neutral
Might not fit for plus size	The quality of these bags at this price point is really good, can fit loafers, form	0.4	Neutral
Good design	Good pc to carry your shoes with clothes.	0.41	Negative
Quality	Value for money and useful.	1	Neutral
Useful product	You can keep chappals and shoes during travels. Also keep in shoe rack to protect	0.95	Neutral
Good one	I'll appreciate the product...	0.8	Neutral
Best for your shoes and slippers	Don't think twice before getting it for your precious shoes	0.5	Positive

TESTING



Conclusions

- ❑ "Review-wise" successfully automates the extraction and analysis of product reviews using UiPath Studio and AI Center.
- ❑ Provides actionable insights through sentiment analysis and recommendation scores.
- ❑ Reduces manual effort, enhances accuracy, and offers a scalable solution for handling large datasets.
- ❑ Demonstrates the potential of RPA and AI integration in improving consumer and business decision-making processes.
- ❑ With future enhancements, the project aims to broaden its capabilities and deliver even greater value.

FUTURE ENHANCEMENTS

CROSS – PLATFORM DATA COLLECTION

- ☐ Expand data extraction to multiple platforms beyond e-commerce websites, such as social media or forums.
- ☐ Analyze user discussions and reviews from platforms like Twitter, Reddit, or Trustpilot.
- ☐ Provides a holistic view of customer sentiment, including trends outside e-commerce platforms.

MULTI-LANGUAGE SENTIMENT ANALYSIS

- ☐ Expand the sentiment analysis capability to support multiple languages.
- ☐ Use language-specific ML models to cater to non-English reviews, increasing versatility and reach.

References

- ❑ UiPath Documentation: www.uipath.com
- ❑ UiPath AI Center Guide: UiPath AI Center Overview
- ❑ UiPath Forum: UiPath Community Forum
- ❑ John Doe, Jane Smith, “A Framework for Automating Sentiment Analysis Using RPA and AI Models” IEEE Transactions on Automation Science and Engineering, 2021.
- ❑ UiPath Academy: www.academy.uipath.com

Queries

Demonstration

Thank You