



## **Shopping Advisor**



### **A PROJECT REPORT**

*submitted by*

|                        |                       |
|------------------------|-----------------------|
| <b>Kamal S</b>         | <b>(715521104020)</b> |
| <b>Kamal Chander R</b> | <b>(715521104021)</b> |
| <b>Ram Kumar R M</b>   | <b>(715521104031)</b> |

**Department Computer Science and Engineering**

**PSG Institute of Technology and Applied Research  
Coimbatore 641 062**

**ANNA UNIVERSITY: CHENNAI-600025**

**APRIL 2024**

## **ABSTRACT**

The shopping advisor Chrome extension is a tool designed to enhance the online shopping experience on Amazon by providing users with concise summaries and recommendations for products based on analysis of product pages and reviews. Users, both customers, and sellers, register for the service, and the extension retrieves product information from Amazon product page. Using natural language processing techniques, the system analyzes product details and reviews to generate summaries that include key features, pros and cons, and a buy recommendation. Users can interact with the summaries, leave reviews, and sellers receive feedback for product improvement. The system continuously updates its analysis algorithms based on user feedback and usage patterns, aiming to improve the accuracy and relevance of its recommendations over time.

## **LIST OF ABBREVIATIONS**

|      |                                    |
|------|------------------------------------|
| API  | Application Programming Interface  |
| CLI  | Command Line Interface             |
| CPU  | Central Processing Unit            |
| GCP  | Google Cloud Platform              |
| GUI  | Graphical User Interface           |
| HTTP | Hypertext Transfer Protocol        |
| IDE  | Integrated Development Environment |
| IP   | Internet Protocol                  |
| JS   | JavaScript                         |
| JSON | JavaScript Object Notation         |
| JWT  | JSON Web Token                     |
| WS   | Web Sockets                        |
| XML  | Xtensible Markup Language          |

## **TABLE OF CONTENTS**

| <b>CHAPTER NO</b> | <b>TITLE</b>                               | <b>PAGE NO</b> |
|-------------------|--|----------------|
|                   | <b>ABSTRACT</b>                            | <b>1</b>       |
|                   | <b>LIST OF ABBREVIATIONS</b>               | <b>2</b>       |
| <b>1</b>          | <b>SOFTWARE REQUIREMENTS SPECIFICATION</b> |                |
|                   | 1.1 INTRODUCTION                           | 1              |
|                   | 1.2 OVERALL DESCRIPTION                    | 2              |
|                   | 1.3 EXTERNAL INTERFACE REQUIREMENTS        | 3              |
|                   | 1.4 SYSTEM FEATURES                        |                |
|                   | 1.5 OTHER NONFUNCTIONAL REQUIREMENTS       |                |
|                   | 1.6 OTHER REQUIREMENTS                     |                |
| <b>2</b>          | <b>SYSTEM DESCRIPTION</b>                  |                |
|                   | 2.1 PROBLEM                                | 5              |
|                   | 2.2 AFFECTS                                | 6              |
|                   | 2.3 IMPACTS                                | 7              |
|                   | 2.4 KEY FEATURES                           |                |
| <b>3</b>          | <b>IMPLEMENTATIONS</b>                     |                |
|                   | 3.1 CODE                                   | 9              |

|          |                       |    |
|----------|-----------------------|----|
| <b>4</b> | <b>SYSTEM TESTING</b> |    |
|          | 4.1 TESTING           | 14 |
|          | 4.2 RESULTS           | 15 |
| <b>5</b> | <b>CONCLUSIONS</b>    |    |
|          | 5.1 CONCLUSION        |    |

# SOFTWARE REQUIREMENTS SPECIFICATION

## 1.1 Introduction

### 1.1.1 Purpose

This document outlines the development plan for a web browser extension designed to provide users with informed advice for their product purchase decisions across various e-commerce platforms. Additionally, it aims to equip sellers with detailed insights into their product statistics, offering actionable suggestions for enhancing sales and analytics.

### 1.1.2 Document Conventions

Technical terms whose definitions are in Appendix are given in italics throughout the document. Links in this document appear in blue and are underlined.

### 1.1.3 Intended Audience and Reading Suggestions

This project serves as a prototype for a web extension, offering utility primarily to users with access to the CRX or XPI enabling direct installation via developer settings. It is beneficial for online shoppers who aim to make informed decisions and sellers aiming to enhance their product sales by analyzing their product metrics.

### 1.1.4 References

- <https://developer.chrome.com/docs/extensions/get-started>
- <https://platform.openai.com/docs/introduction>
- <https://webservices.amazon.com/paapi5/documentation/>
- <https://github.com/topics/chrome-extension>
- <https://github.com/topics/amazon-api>

## **1.2 Overall Description**

### **1.2.1 Product Perspective**

The Shopping Advisor is a web extension created to assist users with their shopping decisions on e-commerce platforms, while also enabling sellers to analyze their product metrics and receive improvement suggestions. It operates within the user's browser environment, providing a convenient and efficient tool for both buyers and sellers.

### **1.2.2 Product Functions:**

The Shopping Advisor will:

- Condense information and provide comprehensive summary
- Analyze product information from e-commerce platforms
- Helps make purchase decisions
- Suggest the best value product to be purchased
- Analyze the product metrics and suggest improvements to sellers
- Give comparison between the seller's products and his competitors

### **1.2.3 User Classes and Characteristics**

Customer : Uses the web extension for their personal shopping needs

Seller : Uses the web extension to view product score and suggestions

Database Administrator : Manages the database and validates the users

### **1.2.4 Operating Environment**

The Shopping Advisor is made to operate within web browsers such as Chrome and Firefox as an extension.

### **1.2.5 Design and Implementation Constraints**

- Web extension development based on browser guidelines
- Integration with e-commerce platforms' APIs for data retrieval
- Integration with ChatGPT for providing decision results and suggestions.

### **1.2.6 User Documentation**

The user documentation will have a manual that will help the user understand the extension's features and how to use the application for smooth functioning.

### **1.2.7 Assumptions and Dependencies**

The extension assumes access to APIs of e-commerce platforms to retrieve and analyze product information and depends on the ChatGPT model to effectively provide suggestions and decisions based on goals.

## **1.3 External Interface Requirements**

### **1.3.1 User Interfaces**

Browser extension UI: A user-friendly interface within the browser that seamlessly integrates with the e-commerce site. Intuitive product comparison feature allowing users to easily compare prices, reviews, and specifications. Customizable settings menu for users to personalize their browsing and shopping experience.

### **1.3.2 Hardware Interfaces**

The web extension will work on any hardware that supports a web browser. Compatibility with various screen resolutions and sizes for optimal display on different devices.

### **1.3.3 Software Interfaces**

Integration with e-commerce platforms' APIs. Compatibility with various screen resolutions and sizes for optimal display on different devices.

### **1.3.4 Communications Interfaces**

The extension communicates with e-commerce platforms to retrieve product information and analyze it. Real-time notifications to users for updates on tracked products or price changes.

Secure encrypted communication channels to protect user data during transactions.

## **1.4 System Features**

### **1.4.1 Product Analysis**

#### **4.1.1 Description and Priority**

This feature enables the extension to analyze product information from e-commerce platforms to provide recommendations. Priority: High.

#### **4.1.2 Stimulus/Response Sequences**

User selects a product.

Extension retrieves product information.

Extension analyzes product features, reviews, and prices.



Extension provides personalized recommendations.

#### 4.1.3 Functional Requirements

REQ-1: Retrieve product information from e-commerce platforms.

REQ-2: Analyze product features, reviews, and prices.

REQ-3: Generate personalized recommendations for users.

### 1.4.2 Product Summarisation

#### 1.4.2.1 Description and Priority

This feature enables the extension to summarize the product data to make it easy for the user. Priority: High.

#### 1.4.2.2 Stimulus/Response Sequences

- User selects product
- Product information sent to server
- Summarisation takes place
- Extension provides user friendly display of summary.

#### 4.2.3 Functional Requirements

REQ-1: Retrieve product information from e-commerce platforms.

REQ-2: Analyze product information.

REQ-3: Generate product summary.

### 1.4.3 Product Decision

#### 1.4.3.1 Description and Priority

This feature enables the extension to analyze the product summary and recommend a decision regarding purchase of the product. Priority: Medium.

#### 1.4.3.2 Stimulus/Response Sequences

- User selects product
- Product information sent to server
- Summarisation is processed to generate decision
- Extension provides the user a decision with reasoning.
- Analyses the final decision against the model and ensures high accuracy.

#### 4.3.3 Functional Requirements

REQ-1: Retrieve product information from e-commerce platforms.

REQ-2: Analyze product summary.

REQ-3: Generate decision based on summary.

REQ-4: Evaluate decisions based on standards and provide final decisions.

## **1.4.4 Seller Product Analysis**

### **1.4.5 Description and Priority**

This feature allows the extension to analyze the product's metrics and suggest changes to be made to improve the product score. Priority: Medium.

### **1.4.6 Stimulus/Response Sequences**

- Seller selects product
- Product information sent to server
- Metrics processed to generate product score and suggestions.
- Extension provides the seller the suggestions with reasoning.

### **4.3.3 Functional Requirements**

REQ-1: Retrieve product information from e-commerce platforms.

REQ-2: Analyze product metrics.

REQ-3: Generate suggestions based on summary.

## **1.5 Other Nonfunctional Requirements**

### **1.5.1 Performance Requirements**

- The extension should respond to user actions within 3 seconds.
- Data retrieval from e-commerce platforms should occur within 5 seconds.

### **1.5.2 Safety Requirements**

No specific safety requirements identified.

### **1.5.3 Security Requirements.**

- User data should be handled with care.
- The extension should not store sensitive user information locally.
- The sellers should be verified and authorized.
- Databases should be secure and not directly accessible to users.

### **1.5.4 Software Quality Attributes**

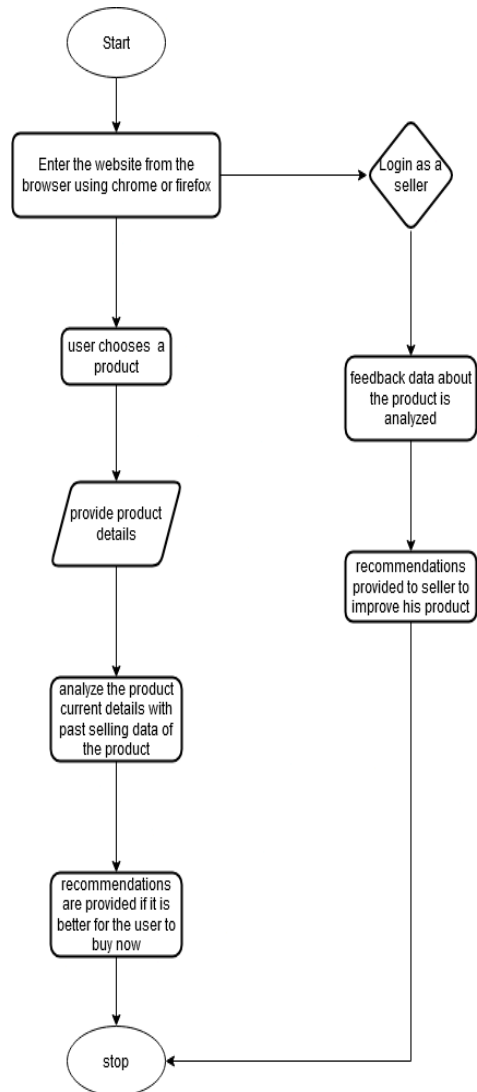
- Usability: The extension should have an intuitive user interface.
- Reliability: The extension should provide accurate decisions consistently.

## 1.5.5 Business Rules

- The extension should adhere to e-commerce platforms' terms of service.
- User data should be handled adhering to privacy regulations.

## 1.6 Other Requirements

### 1.6.1 Analysis Models



(Fig 1.1 - Analysis models)

## **SYSTEM DESCRIPTION**

### **2.1 PROBLEM**

Customers miss out on sales and discounts for products. They also do not know the fluctuations in the price of the product over a period of time. The purpose of this project is to give suggestions regarding the product of the user's choice based on the reviews and price trends.

### **2.2 AFFECTS**

Stakeholders:

Stakeholders for this system include developers, sellers, and end-users.

- **Developers:** They will be responsible for creating and maintaining the system, ensuring it functions without any errors and delivers accurate information to the end-users.
- **Sellers:** They can use the shopping advisor to understand user preferences and find the improvement metrics for their products.
- **End-Users:** They will benefit from a streamlined shopping experience, with access to detailed product information, reviews, price comparisons, and trend analysis, which will help them to make informed purchasing decisions.

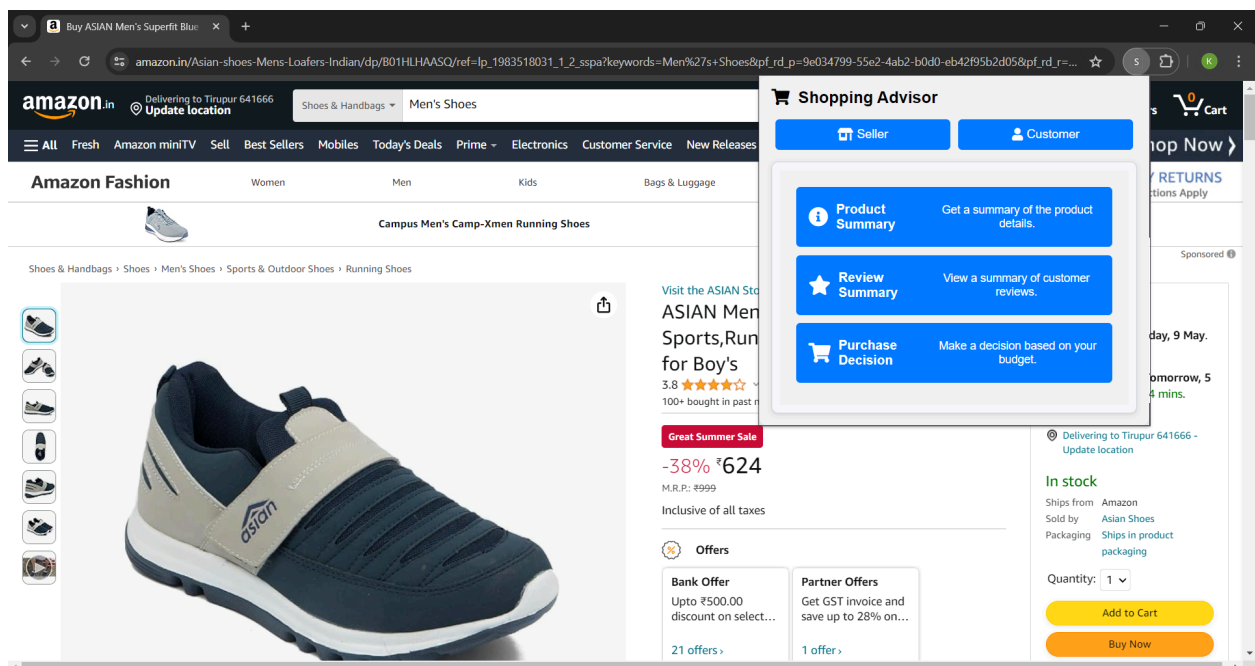
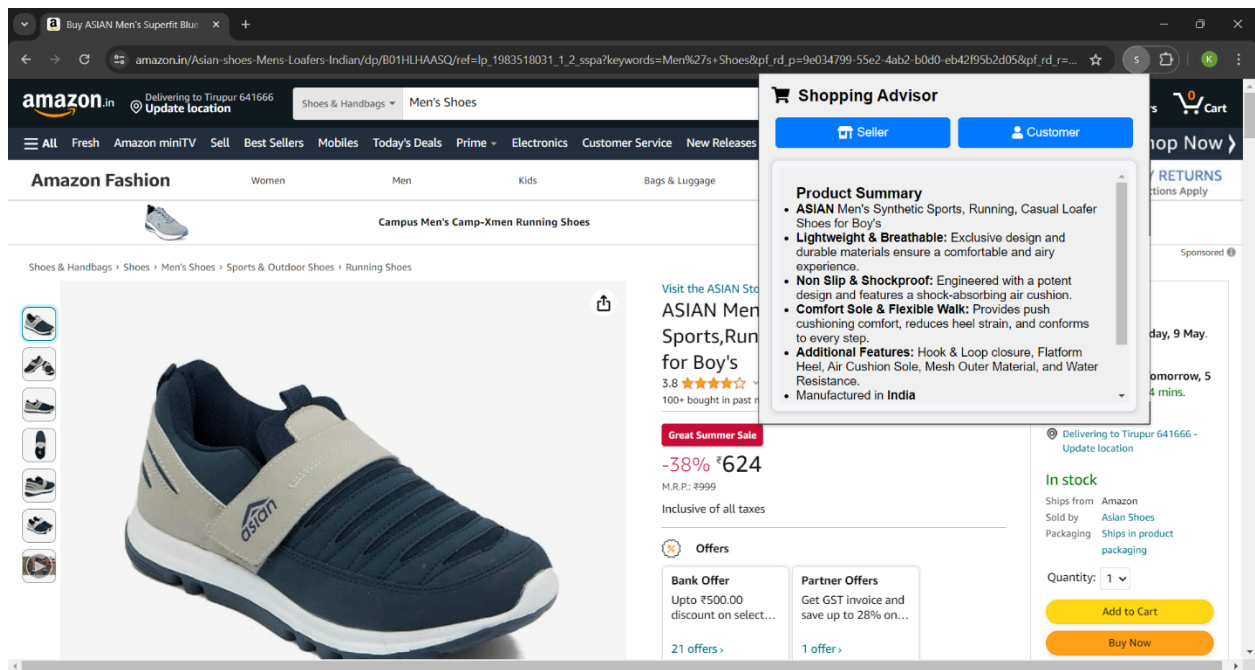
### **2.3 IMPACTS**

- **Enhanced Shopping Experience:** Users will have access to product information, summarised reviews, and price comparisons from multiple e-commerce platforms, leading to an enhanced shopping experience.
- **Increased Efficiency:** The shopping advisor will save users time and effort by displaying all the relevant information in one place, eliminating the need for the user to manually search and compare products across different websites.
- **Market Insights:** Sellers can gain insights into consumer preferences and know how the consumers view their product.

### **2.4 KEY FEATURES**

- Accept user requests for specific products or categories.
- Provide a summary of product details, including descriptions, specifications, and prices.
- Analyze product reviews from multiple sources to determine user satisfaction and product quality.
- Compare prices for the same product across different e-commerce platforms to ensure users get the best deal.
- Track price fluctuations over time to advise users on the optimal time to purchase.

### 3. RESULTS



amazon.in Buy ASIAN Men's Superfit Blue x +

amazon.in Delivering to Tirupur 641666 Update location Shoes & Handbags Men's Shoes

All Fresh Amazon miniTV Sell Best Sellers Mobiles Today's Deals Prime Electronics Customer Service New Releases

Amazon Fashion Women Men Kids Bags & Luggage

Campus Men's Camp-Xmen Running Shoes

Shoes & Handbags > Shoes > Men's Shoes > Sports & Outdoor Shoes > Running Shoes

Visit the ASIAN Store ASIAN Men's Sports, Running Shoes for Boy's 3.8 ★★★★★ 100+ bought in past month

Great Summer Sale -38% ₹624 M.R.P.: ₹999 Inclusive of all taxes

Offers Bank Offer Upto ₹500.00 discount on select... 21 offers > Partner Offers Get GST invoice and save up to 28% on... 1 offer >

Shopping Advisor

Seller Customer

Purchase Decision

Enter budget 500 Submit

- Customers like the value and weight of the shoes.
- Some complain about the hard sole and comfort.
- Opinions are mixed on comfort and fit.
- The price of the product is 624
- The user budget is:500

The cost of the shoe exceeds the given budget. Also, the comfort level may be a concern based on the mixed reviews. It might not be advisable to buy this product.

Delivering to Tirupur 641666 - Update location

In stock

Ships from Amazon Sold by Asian Shoes Packaging Ships in product packaging

Quantity: 1 Add to Cart Buy Now

amazon.in Buy ASIAN Men's Superfit Blue x +

amazon.in Delivering to Tirupur 641666 Update location Shoes & Handbags Men's Shoes

All Fresh Amazon miniTV Sell Best Sellers Mobiles Today's Deals Prime Electronics Customer Service New Releases

Amazon Fashion Women Men Kids Bags & Luggage

Campus Men's Camp-Xmen Running Shoes

Shoes & Handbags > Shoes > Men's Shoes > Sports & Outdoor Shoes > Running Shoes

Visit the ASIAN Store ASIAN Men's Sports, Running Shoes for Boy's 3.8 ★★★★★ 100+ bought in past month

Great Summer Sale -38% ₹624 M.R.P.: ₹999 Inclusive of all taxes

Offers Bank Offer Upto ₹500.00 discount on select... 21 offers > Partner Offers Get GST invoice and save up to 28% on... 1 offer >

Shopping Advisor

Seller Customer

Improvements

- Quality: Improve the quality of the sole to make it more comfortable and durable.
- Comfort: Provide more cushioning and arch support to improve comfort.
- Fit: Offer a wider range of sizes and widths to ensure a better fit for all customers.
- Ease of use: Add features such as easy-on/easy-off laces or slip-on designs to improve ease of use.
- Suitability for running: Consider adding features such as a more flexible sole or a breathable upper

Delivering to Tirupur 641666 - Update location

In stock

Ships from Amazon Sold by Asian Shoes Packaging Ships in product packaging

Quantity: 1 Add to Cart Buy Now

## **CONCLUSION**

### **5.1 CONCLUSION**

In conclusion, the shopping advisor Chrome extension serves as a valuable tool for both customers and sellers. By providing concise summaries and recommendations based on thorough analysis of product pages and reviews, the extension empowers users to make more informed purchasing decisions. Customers benefit from quick insights into product features and overall sentiment, while sellers gain valuable feedback for product improvement. With continuous updates and refinement of its analysis algorithms, the extension aims to enhance the online shopping experience for all users, ultimately fostering a more efficient and satisfying shopping environment.