

# Contents

<b>Abstract</b> .....	0
<b>Introduction</b> .....	1
<b>1.1 BACKGROUND OF STUDY</b> .....	1
<b>1.2 PROBLEM STATEMENT</b> .....	1
<b>1.3 OBJECTIVES</b> .....	2
<b>1.4 SCOPE OF STUDY</b> .....	2
<b>1.5 FEASIBILITY STUDY</b> .....	3
<b>Technologies Used</b> .....	4
<b>2.1. Next.js for Dynamic UI:</b> .....	4
<b>2.1.1. Why Next.js:</b> .....	4
<b>2.2. Axios for Efficient Data Retrieval:</b> .....	5
<b>2.2.1. Why Axios:</b> .....	5
<b>2.3. Cheerio for Web Scraping:</b> .....	6
<b>2.3.1. Why Cheerio:</b> .....	6
<b>2.4. Tailwind for Stylish Design:</b> .....	7
<b>2.4.1. Why Tailwind:</b> .....	8
<b>2.5. Redis for In-Memory Data Storage and Caching:</b> .....	9
<b>2.5.1. Why Redis:</b> .....	9
<b>2.6. JWT-Based Authentication for Secure User Authorization:</b> .....	10
<b>2.6.1. Why JWT-Based Authentication:</b> .....	10
<b>API Endpoints</b> .....	12
<b>3.1. Dynamic API Endpoint:</b> .....	12
<b>3.1.1. Why Dynamic API Endpoint:</b> .....	12
<b>3.1.2. Feature Explanation:</b> .....	12
<b>3.1.3. Importing Required Modules:</b> .....	12
<b>3.1.4. Setting Up URLs:</b> .....	12
<b>3.1.5. Scraper Function:</b> .....	12
<b>3.1.6. GET Request Handler:</b> .....	13
<b>3.2. Comparison API Endpoint:</b> .....	13
<b>3.2.1. Why Comparison API Endpoint:</b> .....	13
<b>3.2.2. Usage</b> .....	14
<b>3.2.3. Scraper Function</b> .....	14

3.2.4. Error Handling.....	15
3.3. Authentication API Endpoint:.....	15
3.3.1. Why Authentication API Endpoint:.....	15
3.3.2. Authentication Process: .....	16
3.3.3. Token Expiration: .....	16
3.3.4. Refresh Tokens: .....	16
3.3.5. Implementation Details: .....	16
3.4. Favorite Product API Endpoint:.....	16
3.4.1. Why Favourite Product API Endpoint:.....	17
3.4.2. Usage: .....	17
3.4.3. Implementation: .....	17
UI Pages.....	18
4.1 Main Page: .....	18
4.1.1. Feature Explanation .....	18
4.1.2. Importing Required Modules .....	18
4.1.3. Home Component .....	18
4.1.4. Homepage Layout .....	18
4.1.5. Navigation Links .....	19
4.1.6. Header .....	19
4.1.7. Description.....	19
4.1.8. Buttons .....	19
4.1.9. Additional Links.....	19
4.2 Search Page: .....	19
4.2.1. UI Elements .....	20
4.2.2. Heading and Subheading .....	20
4.2.3. Search Input .....	20
4.2.4. Search Button .....	20
4.2.5. Description.....	20
4.2.6. Divider.....	20
4.2.7. Additional Description.....	20
4.3 Item List Page: .....	20
4.3.1 State Variables .....	21
4.3.2. useEffect Hook .....	21
4.3.3. Conditional Rendering .....	21
4.3.4. Rendering Individual Items .....	21

4.4 Full Details Page: .....	22
4.5 About Page: .....	22
4.5.1 Creating the Profile Page .....	22
4.5.2 Structure and Styling.....	22
4.6. Authentication Page: .....	23
4.6.1. Login Page:.....	23
4.6.2. Signup Page: .....	23
4.6.3. Forgot Password Page: .....	23
4.6.4. Reset Password Page: .....	23
4.7. Favorite Page: .....	24
4.7.1. Features: .....	24
System Design Overview.....	25
5.1. Entity-Relationship (ER) Diagram .....	25
5.2. High-Level Design (HLD) .....	26
Streamlined Development.....	27
6.1. Introduction to CI/CD .....	27
6.2. Setting up Automated Workflows with GitHub Actions.....	27
6.3. Ensuring Code Quality with Linting and Testing.....	27
6.4. Continuous Integration: Building and Integrating Code Changes.....	28
6.5. Continuous Deployment: Automating Deployment Processes .....	28
Project Snapshots .....	29
Project Links:.....	32
Conclusion.....	33
8.1. User-Centric Design: .....	33
8.2. Efficient Data Retrieval and Parsing:.....	33
8.3. Empowering Users through Comparison: .....	33
References .....	34

---

---

## Abstract

Price comparison sites are designed to compare the price of goods and services from a range of providers, which will help consumers in making decision to choose products that will save their money through online. Considering the customers' busy lifestyle especially those who are living in the city area, most of the consumers prefer to buy their needs through the internet because it save their time. Besides, consumers always go for the cheaper price in purchasing products therefore by using price comparison website, customers don't have to travel from shop to shop only to survey the price offered by different shops for the same product. They can just check it from the price comparison website itself and decide where they should buy the products they need. This project, named as PriceWar.com is the place where shoppers could find the great deals on the home groceries products. The best deals will be clearly highlighted. Even though not all consumers are buying online, but it is one of the ways to help consumers increase their price awareness. Consumers have the right to know whether the price they are seeing in the shops are good deals as it is claimed or not. Thus it is an advantage for the consumers who are always aware about the current price of a certain product so that they are not cheated by the big words advertised by the shops. The website also beneficial to the sellers/retailers as they will be able to advertise their products and promote their shops at the same time. Unlike the giant supermarkets that have their own website, most of the owners of small groceries shop do not have the skills to get their own website or blog to promote their business online. Thus, with this website, the chances are open for the interested groceries shop owners to advertise their products in the website. They just need to provide the price information regularly and the admin of the website will do the rest

# CHAPTER 1

---

## Introduction

### 1.1 BACKGROUND OF STUDY

In today's fast-paced world, where every penny counts, consumers are increasingly turning to price comparison websites to make informed purchasing decisions. These platforms act as virtual marketplaces, bridging the gap between buyers and sellers by offering a comprehensive array of product prices. Among these, PriceWar.com stands out for its unique focus on essential home groceries, catering to the everyday needs of consumers. From onions and chilies to fish and chicken, PriceWar.com provides users with a centralized hub for comparing prices, thereby empowering them to make cost-effective choices.

The prevalence of internet usage, with a staggering 59% penetration rate in Malaysia alone, underscores the relevance and potential impact of PriceWar.com. As more individuals embrace online shopping and digital convenience, the demand for platforms like PriceWar.com is expected to soar, offering a timely solution for busy consumers seeking to streamline their grocery shopping experience.

### 1.2 PROBLEM STATEMENT

While the concept of price comparison websites has gained traction in various sectors, the domain of home groceries remains relatively underserved, particularly in regions like India. This dearth of comprehensive platforms leaves consumers grappling with the challenge of effectively comparing prices for essential items, often resulting in overspending or missed savings opportunities. Moreover, prevalent misconceptions, such as assuming that supermarkets invariably offer the best prices, further compound the issue, leading to suboptimal purchasing decisions.

For retailers, traditional advertising methods present their own set of challenges, including high costs and adverse environmental impacts. In this landscape, the need for a sophisticated, user-

friendly price comparison website like PriceWar.com becomes increasingly apparent, offering a win-win solution for both consumers and sellers alike.

### 1.3 OBJECTIVES

This project aims to achieve the following objectives:

- 1 **Provide customers with a comprehensive list of price comparisons:** By aggregating prices from various retailers and supermarkets, PriceWar.com aims to arm consumers with the information they need to make informed purchasing decisions.
- 2 **Foster price consciousness among consumers:** Through regular exposure to price differentials, PriceWar.com seeks to cultivate a culture of mindful spending among users, empowering them to prioritize value and savings.
- 3 **Regularly update the price database:** To ensure accuracy and relevance, PriceWar.com is committed to maintaining a dynamic database that reflects real-time price fluctuations and promotions.
- 4 **Offer users a seamless platform:** By prioritizing user experience and accessibility, PriceWar.com endeavors to provide a user-friendly interface that facilitates effortless price comparison and navigation.

### 1.4 SCOPE OF STUDY

The scope of the Deal Checker project encompasses all internet users in India, with a particular emphasis on individuals utilizing the internet for business purposes. As internet usage continues to surge in Malaysia, PriceWar.com stands poised to capture a significant market segment, offering unparalleled convenience and value to users. Moreover, the platform's mobile accessibility ensures that users can access price comparisons anytime, anywhere, further enhancing their shopping experience.

Additionally, social media integration presents a ripe opportunity for PriceWar.com to extend its reach and engage with users on popular platforms, thereby maximizing its impact and relevance in the digital landscape.

## **SIGNIFICANCE OF THE PROJECT**

Deal Checker isn't just another price comparison website it's a game-changer for both consumers and sellers. For consumers, it represents a lifeline in an increasingly complex retail landscape, offering clarity and transparency amidst a sea of choices and price points. By empowering users to make informed decisions, PriceWar.com plays a pivotal role in promoting financial literacy and responsible spending habits.

For sellers, Deal Checker offers a powerful marketing platform to showcase their products and promotions to a captive audience. Through targeted email campaigns and strategic partnerships, sellers can leverage Deal Checker to drive sales and boost brand visibility in a cost-effective manner.

### **1.5 FEASIBILITY STUDY**

The feasibility of the Deal Checker project hinges on both technical and operational considerations. From a technical standpoint, the utilization of cutting-edge tools such as NEXT.js, Axios, and Cheerio ensures a robust and scalable platform capable of delivering real-time price comparisons with precision and efficiency. Likewise, the integration of languages like Tailwind enhances the platform's aesthetics and user experience, further solidifying its appeal to consumers.

Operationally, Deal Checker is designed to meet the evolving needs and expectations of its users, offering a seamless and intuitive interface that simplifies the price comparison process. By focusing on technical excellence and operational efficiency, PriceWar.com endeavors to set a new standard for price comparison websites, revolutionizing the way consumers shop for groceries online.