Requirements Document

Supermarket Price Comparison App

A-Team

# Business Requirements

## Introduction

In this document we will discuss the requirements for developing a supermarket price comparison application that compares grocery prices across the five main supermarkets in New Zealand. Pak ‘n Save, New World, Countdown (Woolworths), the Warehouse and Four Square. The application will scan grocery prices multiple times per day or week and provide users with recommendations on where to shop for the cheapest price within a specific area. It will also retain price data to track price changes over time and across seasons that can be used for comparison.

## Statement of Problem or Need

Consumers are having difficulty comparing grocery prices across different supermarkets in real-time and this often results in them paying higher prices due to the lack of accessible information. Further to that there is a need for an application that not only provides up to date price comparisons but also tracks how prices change over time and seasons.

The problem of grocery shoppers in New Zealand struggling to find and compare the best prices across multiple supermarkets affects budget conscious consumers who want to save money, families managing household expenses and individuals with limited time to shop. The impact of this issue is that shoppers often overpay for groceries, spend unnecessary time visiting multiple supermarkets and miss out on better deals. This increases the household spending, inefficiencies and frustration.

A successful solution would be to provide an automated, real-time price comparison tool that allows shoppers to easily identify the cheapest option for their grocery list within their local area while also offering insights into prince trends over time to help them make good decisions. This will save the shoppers money and reduce the time spent on grocery shopping. That will result in a better shopping experience and customer satisfaction.

## Business Requirements

### List of stakeholders

* + - * **Primary Stakeholders:**
* **Grace:** Project Owner
* **Development Team (Grace, Graham, Declan, Christiaan)**: Responsible for building the application
* **Supermarket Chain**s: Pak ‘n Save, New World, Countdown (Woolworths), and Four Square

**Secondary Stakeholders:**

* **End users**: Consumers looking for the best grocery prices.

### Client

* + - * **Contact Person:** Grace, Project owner

### List of business requirements

1. The application must compare groceries across the five main supermarkets
2. It should provide real-time price data with multiple scans per day. (user should be able to adjust the scan frequency)
3. The application must offer location-based recommendations for the cheapest supermarket nearby.
4. Users should be able create accounts and save grocery lists.
5. Notifications should be sent for big price drops or cheaper alternatives.
6. The application must retain historical data to allow for comparisons over time and analysis of price trends across seasons.

### List of Business Processes

1. **Price Comparison Process:** Fetches and compares the prices from the four supermarkets
2. **User Location Input Process:** Collects and processes the user’s location and provide recommendations
3. **User Account Management Process**: Manages user registration, login and grocery list storage
4. **Notification Process**: Sends alerts to users based on price change.
5. **Historical Data Management Process**: Stores and retrieves historical price data for analysis.

### Quality requirements

1. **Performance:** The app must display and process data quickly to maintain smooth user experience.
2. **Security:** User data, especially personal information and shopping preferences must be securely handled and stored.
3. **Scalability:** The app should be able to handle increasing number of users and added functionality without performance degradation.
4. **Availability:** The app should be available 24/7 with minimal downtime.
5. **Data Integrity:**  The system should accurately store and retrieve data.

**List of Non-functional requirements:**

1. **Security Requirements:**
   1. Secure handling of user data with encryption.
   2. Compliance with relevant data privacy laws and regulations
2. **Other Quality Requirements:**
   1. **Performance**: Data retrieval and user interactions should be responsive and fast.
   2. **Scalability:** Support for a growing user base and an increase in data loads.
   3. **Portability:** The app should be available across multiple web browsers and devices.
   4. **Data Integrity:** Ensuring the stored priced data is accurate over time.

# Business Solution

## Options considered

* **Option 1**

A basic website where the users manually enter the data for price comparisons.

* **Option 2**

A web application with automated data scraping from the supermarket websites, offering real-time comparisons, location-based recommendations and historical price data storage.

* **Option x**

A mobile first application with similar features as option 2 but optimized for mobiles.

## Recommended Solution

### Solution statement

The recommended solution is option 2. The supermarket Price Comparison app is a web-based platform that helps New Zealand grocery shoppers save money and time by making informed decisions on where to buy their groceries. It will offer real-time price comparison across the five major supermarkets, Pak ‘n Save, New World, Countdown (Woolworths), and Four Square.

Unlike other methods where shoppers manually compare prices or rely on inconsistent third-party information, our app provides real-time, automated and up to date data multiple times a day. It also offers location-based recommendations helping users find the cheapest option in the area,

Additionally, our app stores data allowing users to store the grocery list for future ease of use and to track price changes over time and seasons that will help them plan and save money.

### Main Features

1. Real-time price comparison across four major supermarkets
2. Location-based supermarket recommendations
3. Retention of historical data for analysis over time and seasons

### Unique value proposition / Justification

**Uniqueness:** The application will provide real time automated price comparison with requiring user input, offering personalized, location -based recommendations and it will track historical price data to help users understand price trends.

**Justification:** The solution provides the most value by automating the data retrieval process, offering actionable insights and helping users save money.

# Solution Requirements

## Context Diagram

See attached document.

## User Roles

**End User:** A consumer looking for the best prices.

**Admin:** The person managing the back end ensuring data accuracy and monitoring app performance.

## Business Domain Model

See the attached Entity Relationship Diagram

**Description or Definition of each entity:**

**User:** Represent the individual using the application.

**Grocery Item:** The individual grocery item including name, category, sku and price at each supermarket.

**Supermarket:** Each of the four supermarkets, including location and available items.

**Price Comparison:** Captures the comparison data between the supermarkets.

**Price History:** Store historical price data for groceries to enable analysis.

## User Stories

As a user, I want to compare prices for a set of groceries across multiple supermarkets to find the cheapest option.

As a user, I want to use my location so that the app will only look at the supermarkets in my area.

As a user, I want to save my grocery list so that I can easily compare the prices in the future.

As a user, I want to view historical price trends for a specific grocery item so that I can understand when prices are the cheapest to buy in bulk

As a user, I want to add my products to a Cart that will display the total of my shopping. I also want to remove or update the quantities in the cart. I want to access the cart from any screen and want to know if the product is my cart already when looking at products.

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## NON-FUNCTIONAL Requirements

### Security requirements

User authentication and secure data storage of user data.

### Other quality requirements

High availability and fast load times

Scalability to handle increase in traffic

Data Integrity for accurate storage and retrieval of historical price data.

# Scope

Indicate which requirements you plan to include in the first two iterations. Note that this may change as you advance through the project.

## Iteration 1

**List user stories**

Price comparison across four supermarkets.

User location input for recommendations

**List non-functional requirements**

Basic security features (user authentication)

Performance optimization for real-time data processing

## Iteration 2

**List user stories**

User-Account management (registration and login)

Storage and retrieval of historical price data

**List non-functional requirements**

Enhanced security (encryption)

Scalability for growing user base.

Data integrity for historical price data.

## Backlog

**List explicitly what is not included in the first three iterations**

**User Stories:**

Mobile application development

Advanced user analytics (Spending patterns, best time/day to shop)

Notifications

**Non-Functional Requirements:**

Multi language support

Integration with external shopping platforms