



DEVELOPMENT 200 TERM 4

OPEN BRIEF PROPOSAL

CHEAPR

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01 Problem Statement

The rising cost of food & groceries in South Africa (especially post-COVID) places a lot of pressure on households, particularly for low- to middle-income earners. Shoppers often find themselves having to visit multiple stores to secure the best deals, which can be very time consuming. Furthermore, the lack of easily accessible, up-to-date information on compared grocery prices contributes to the problem, forcing shoppers to either pay higher prices or spend significant time searching for cheaper alternatives.

CHEAPR aims to solve this issue by providing a community-driven platform where users can add, update, and compare grocery prices across multiple South African stores. Users will be able to create shopping lists based on the cheapest available prices, and make informed purchasing decisions to save money.



02

Target Audience

The main users of **CHEAPR** include: low- to middle-income households who are particularly affected by rising food prices, general shoppers who want to save money and who like finding the best deals, and individuals who enjoy contributing to platforms that benefit society as a whole.

03

Tech Stack



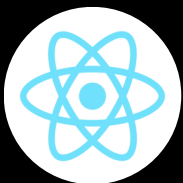
Firebase

Will handle user authentication, database storage, and real-time syncing of product price data.



Express

The backend framework - responsible for handling API requests and facilitating communication between the frontend and Firebase.



React

Used to build a responsive interface where users can view products, add prices, and manage shopping lists.



Node.js

Run the backend and handle server-side logic for features like user role management and CRUD operations for product prices.

04

Application Features

User Roles

There are two types of users that would be able to login/sign up; standard users - who can add/update product prices, create shopping lists, view the cheapest prices across stores, or submit new products, to be approved by an admin. Admin users will have the ability to approve or reject new products submitted by users, ensuring data integrity and accuracy.



Product Price Management (CRUD)

- Create: Users can manually add a new product or price entry. New products will be sent for admin approval.
- Read: Users can browse products and see the latest prices across multiple stores. Product pages will display the last updated date.
- Update: Users can update the price of an existing product if they find a more accurate or current price. A timestamp will be added for transparency.
- Delete: Admins will have the ability to delete duplicate or incorrect product entries.

Categorisation & Sorting

Users will be able to sort the products alphabetically, by price or by last approval date. Furthermore, users will be able to “filter” items by visiting a specific category / group of products (like Eggs & Dairy, Soft Drinks, etc.)

Shopping Lists

Users can create shopping lists of products they frequently buy. The website will automatically calculate the cheapest trip to purchase all items on the list and also show users how much they are saving compared to the most expensive price of the items in their list.

05 Database Design

Using Firebase, the database will be structured with key collections such as:

Products: Stores product information, including name, category, and the pricing (price amount, store name, and last updated timestamp.)

Categories: Each product's id will be stored in a tree-like structure of categories, subcategories and productTypes.

Users: Stores user details, including their role (standard or admin), and their cart information (product's ids in an array).

06 UI & UX

The UI will follow a clean, simple and intuitive Google-esque design, to make the complexity of information easy to understand. The use of UI element colours would be minimal, as product images would feature frequently. UI elements such as forms for adding/updating product prices, would be clear, simple and straight-forward in design, with proper form validation.

07 Security Considerations

Authentication: Firebase Authentication will be used to ensure only logged-in users can interact with the platform.

Role-based Access: Admins will have additional privileges like approving products and managing content.

Data Validation: Input validation will be enforced to ensure that product entries and prices are accurate.

Security Rules: Firebase Security Rules will be implemented to control access to sensitive data, preventing unauthorised users from making changes.

08 Project Timeline

16-30 September	Initial planning, database schema design, and setting up Firebase and the Express backend.
1-15 October	Develop the core CRUD functionality and user authentication.
16-31 October	Implement advanced features like shopping lists, price history graphs, and notifications.
1-7 November	Testing, debugging, and preparing for deployment.
8 November	Final project submission

09 Challenges & Risks

Data Accuracy: Relying on users to input product prices may lead to inaccurate or outdated data. A possible solution is implementing a reporting system where users can report a price for being inaccurate.

User Engagement: Encouraging users to continuously update prices could be challenging. Offering incentives, like discounts/prizes could boost participation.

Scaling: As more users contribute to the platform, performance could degrade. This can be mitigated by optimising database queries.

10 Conclusion

CHEAPR has the potential to significantly impact on South Africans' lives and the economy. By empowering users with the tools and information to see the best prices of different stores across South Africa, not only would it save them time, but also make their cost of living more affordable and convenient - especially for the large majority of South Africans who are in a difficult financial situation.