BUSINESS CASE PROPOSAL

AI Integrated Grocery List App

* Arashdeep Singh
* Jeevanjot Khehra
* Mustafa Toygar Baykal
* Vedant Sharma

**1. Introduction/Background**

In today's fast-paced world, grocery shopping often becomes a time-consuming chore as consumers navigate multiple aisles, leading to wasted time and impulse purchases. Recognizing this inefficiency, our proposed Grocery Assistant app aims to streamline the shopping experience by leveraging AI technology to predict users' needs based on their historical shopping data and preferences.

**2. Business Objective**

The Grocery Assistant app will ease and speed up users' grocery shopping using AI. The app will help people to make their shopping faster by predicting users' needs. The app will save users time, money and health. The app will also make suggestions such as budget, dietary goals, and health needs. Users will be able to pick goals such as weight-loss, vegan consuming, eating only organic, gluten-free eating etc. Another feature will provide users with complete recipes and provide their ingredients in their shopping list as users select a meal cook. Additionally, the app may offer real-time discount alerts and suggestions for products.

**3. Current Situation and Problem/Opportunity Statement**

In a real-life scenario, our users will typically walk through multiple aisles of a grocery store, which leads to wasted time and impulse buys. There is a significant opportunity to streamline the shopping process using AI technology. This project presents an opportunity to add efficiency to a mundane task like grocery shopping by providing an AI-powered grocery list that anticipates user needs and shopping habits. While we have some grocery list apps that are used as a simple to-do list app, none of them fully leverage the design of an AI model to provide personalized recommendations that can help users adhere to specific budgets, dietary goals, and preferences. This creates a gap between user experience and raises the idea of integrating a new AI model to our daily lives.

**4. Critical Assumptions and Constraints**

The project will assume that:

* All users will engage with the app regularly for tracking grocery habits which in hindsight, will provide user data to train and refine the decisions made by our AI model.
* AI models can accurately predict users' shopping needs based on historical data; however, this model cannot adhere to externals factors unless relevant data is provided.
* Data privacy and security will be key, ensuring that personal shopping habits are stored and analyzed safely.
* The app must be user-friendly and accessible across multiple devices. This project can also integrate convenient accessibility to cloud storage which will result in a seamless transition from one device to another.
* It should integrate with major retailers for a unified shopping experience.

Constraints include:

* Initial development costs must be kept within a budget of $100,000 with a plus-minus margin of $20,000.
* The app must be developed within the confined time limit of regular submissions of our project work.
* It must comply with all relevant privacy and data security regulations to ensure a good firewall against legal authorities.

5. Preliminary Project Requirements

* AI-Powered List Generation: The app should analyze users' previous grocery purchases and predict their current needs. The system will suggest a grocery list based on factors such as frequently bought items, seasonal availability, and consumption habits.
* Customizable Preferences: Users can set preferences for their shopping lists (e.g., budget-conscious, weight loss goals, dietary restrictions like vegan or gluten-free).
* Recipe Integration: The app should include meal planning and recipe suggestions. Based on selected recipes, the app will automatically populate the shopping list with required ingredients.
* Budget & Health Goals: The app should offer the ability to track spending and choose health-related goals (low-calorie, high-protein, organic foods).
* Real-time Discounts and Offers: The app should fetch real-time deals and suggest budget-friendly alternatives.
* Navigation Optimization: The app should suggest the best route through the store to minimize time spent walking, based on the layout of the user's preferred store.
* Security and Data Privacy: The app must ensure that user data, such as past purchases and preferences, is kept private and secure.

**6. Potential Risks**

* User Adoption Risk: The app may face a lack of interest or slow adoption due to users being unfamiliar with AI-driven shopping assistants or being resistant to change.
* Data Privacy Concerns: Collecting and analyzing user data (e.g., purchase history, dietary preferences) might raise privacy concerns. Users may be hesitant to share their information.
* Technical Risk: Predicting a user’s needs accurately through AI requires advanced algorithms. If the AI's predictions are not accurate or user-friendly, it may lead to user dissatisfaction.
* Dependency on Retailers: The app's effectiveness could be constrained by partnerships with retailers for real-time discount offers, store layouts, and inventory data.
* Budget Overruns: Development, especially of AI algorithms, could require more time and money than initially estimated.
* Competition Risk: The market for grocery list apps is competitive, with other players like Out of Milk or AnyList already established. Differentiation through AI must be convincing.

**7. Why is this a substantial project that warrants to be a 2 semester project. Provide a substantiated argument.**

Developing the AI Integrated Grocery List App is a substantial project that justifies a two-semester timeframe due to work required on multiple fronts. It requires AI development to accurately predict user needs and create a personalized engine, cross-platform deployment for iOS and Android users, and integration with external systems via API whilst protecting user information. All these tasks involve multiple layers of complexity and require extensive testing and incorporation of user feedback.

Given these factors, a two-semester period is realistic and necessary to form a capable team and deliver a high-quality, fully functional app that addresses technical complexities, and meets user expectations in a competitive market.