Personalized Grocery Shopping Assistant - Project Outline

- Github
- Figma Design
- **Problem Statement**
    - Shopping for groceries is often a tedious and overwhelming task, especially for people trying to stay within a budget or follow a specific diet plan. Consumers often struggle with:
        1. Time-consuming decision-making in grocery stores.
        2. Difficulty sticking to dietary restrictions (e.g., low-carb, gluten-free, vegan).
        3. Limited knowledge about healthier or more affordable alternatives to common ingredients.
        4. Difficulty in meal planning and generating grocery lists.
        5. Over-buying or purchasing unnecessary ingredients.
- **App Concept**
    - A Personalized Grocery Shopping Assistant that utilizes AI and machine learning to create tailored grocery lists based on user preferences, dietary restrictions, and budget constraints. The app will automate the process of creating shopping lists, suggesting healthier or more affordable alternatives, and recommending meals based on available ingredients.
- **Core Features**
    1. **Personalized Grocery List Generation:**
        - Users input dietary restrictions (e.g., gluten-free, low-carb, vegan), food preferences, and budget constraints.
        - The app generates a personalized grocery list based on these parameters. Users can customize or modify the list further to suit their needs.
    2. **Healthier and Budget-Friendly Alternatives:**
        - Using machine learning, the app will recommend healthier or more affordable substitutes for common grocery items.
        - For example, if a user wants to buy "regular milk" but the app knows the user is lactose intolerant, it could suggest almond milk or soy milk.
        - If a user's budget is limited, the app could suggest less expensive alternatives to popular or branded ingredients.
    3. **Diet and Nutrition Insights:**
        - The app provides nutritional information about the items on the grocery list, helping users track calories, macronutrients, and other health metrics.
        - It could also offer suggestions for balanced meal plans based on specific dietary goals (e.g., weight loss, muscle gain, low-sodium diet).
- **Tech Stacks:**
    - **Mobile App:**
        1. React Native frontend, Python or JS/TS backend. AWS Lambda for quick backend functions, Tailwind CSS for styling

2. Flutter frontend, Python or Dart backend. Firebase backend as well for user authentication

- **ML:**
    1. Gemini API (free LLM access)
    2. Develop personal LLM with Pytorch -- find datasets on Kaggle.
    3. **https://www.kaggle.com/datasets/heeraldedhia/groceries-dataset**

- **Competitors:**
    - **AnyList**
    - **Mealime**