**Data Plan**

**Data Sources**

**Product Information Data**: OpenFoodFacts Ireland dataset containing 75,000 Irish market products with comprehensive ingredient lists, nutritional information, barcodes. This database provides essential product metadata including categories and basic sustainability information needed for core allergen detection and recommendation features.

**Allergen Reference Data**: OpenFoodFacts allergen database with 317 allergens identified in UK/Ireland markets, significantly more comprehensive than EU's mandatory 14 allergens. This includes common allergens (milk, nuts, gluten) and specialized ones (specific fruits, food additives, artificial colors, preservatives).

**User-Generated Data**: Personal profiles allow for nutritional tolerance levels from 317 standardized allergens and custom additives, dietary preferences (vegetarian/vegan), sugar/fat content, and users can also upload grocery receipts for consumption tracking and dietary analysis

**Data Generation Strategy**

**User Profile Creation**: During registration, users create allergen profiles through simple selection interfaces. App usage generates scanning history and basic preference data through product interaction patterns.

**Receipt Processing**: Azure Computer Vision API processes uploaded grocery receipts to extract purchase data, enabling consumption tracking, dietary pattern analysis, and monthly overview generation for user insights.

**Data Sufficiency Evidence**

**Comprehensive Market Coverage**: 75,000 Irish products represent complete market coverage including major supermarket chains (Tesco, SuperValu, Dunnes), specialty stores, and international brands, ensuring users can scan virtually any product.

**Allergen Detection**: 317 allergens provide extensive coverage beyond EU's 14 mandatory allergens, addressing both common food allergies and rare sensitivities including specific fruits, chemical additives, and preservatives that standard systems miss.

**Technical Architecture Support**: Complete ingredient lists enable accurate allergen detection. Product categorization supports basic recommendation algorithms. OpenFoodFacts API provides reliable, real-time data access for barcode scanning functionality.

**User Experience Validation**: Sufficient data variety enables comprehensive testing of all core features including barcode scanning accuracy, allergen alert effectiveness, recommendation system relevance, and receipt processing functionality.

**Evaluation Data Requirements**

**System Accuracy Testing**: 50 manually verified products spanning diverse allergen categories, ingredient complexities, and product types to validate detection algorithms across the full spectrum of the 317-allergen database.

**Functional User Testing**: 10-12 volunteers (classmates, friends, family members) conducting comprehensive app testing including barcode scanning functionality, user interface navigation, allergen profile setup, recommendation system usage, and receipt upload processes over 2-week testing periods.

**Performance Metrics Collection**: Comprehensive logging of system response times, API call success rates, scanning accuracy percentages, task completion rates, and error frequency measurements to support technical evaluation and system optimization.