**Software Requirements Specification (SRS) for Personal Sustainable Shopping Assistant.**

**1 . OBJECTIVE**

The \*\*Personal Sustainable Shopping Assistant\*\* software requirements are described in this paper. By offering sustainability scores, recommendations for ethical brands, and suggestions for alternative products, the app aims to help users make environmentally responsible purchasing decisions.

**1.1** **Scope**

The following features are available in the system:

* Finding sustainability ratings by scanning or looking for products
* Offering environmentally friendly substitutes
* Monitoring products' carbon footprints and alerting consumers about ethical brands
* Keeping track of past purchases for sustainability analysis
* Connecting with sustainability databases and APIs from third parties

**1.2 Abbreviations, Definitions, and Acronyms**

* “API” : Application Programming Interface
* “UI/UX” : User Interface / User Experience
* “AES-256” :Advanced Encryption Standard (256-bit key)
* “SRS” :Software Requirements Specification

**1.3 References**

* IEEE 830 SRS Template
* Sustainability research projects
* Existing applications for sustainable shopping

The general description of the system, particular functional and non-functional needs, system models, and additional data are all covered in detail in this document.

**2. SYNOPSIS**

**2.1 A Look at the Product**

In order to gather sustainability data, this program interfaces with external APIs and functions as a stand-alone system that is available on online and mobile platforms.

2.2 **Features of the Product**

* Product Search & Scan: Gives consumers access to product sustainability data
* Eco-Friendly Advice: Offers more environmentally friendly substitutes
* Carbon Footprint Monitoring: Monitors and evaluates consumer purchasing trends
* User Profiles: Stores preferences, wishlists, and previous purchases

**2.3 User Characteristics**

* Consumers: Individuals interested in eco-friendly shopping
* Sustainability Enthusiasts: Users seeking detailed sustainability data
* Researchers: Those analyzing the environmental impact of manufacturing

**2.4 Constraints**

* Requires an active internet connection
* Database of sustainability scores may have limitations
* Integration depends on third-party sustainability rating providers

**2.5 Presumptions and Requirements**

* Users will input accurate product information.
* Real-time sustainability data will be obtained from outside sources.

**3. PARTICULAR CONDITIONS**

**3.1 Necessary Functions**

**3.1.1 Authentication and User Registration**

* Users can safely log in and create accounts.
* For security, passwords must be encrypted.

**3.1.2 Display of Sustainability Score and Product Search**

* Product details can be scanned or entered by users to obtain sustainability data.
* Sustainability ratings are retrieved by the system from outside sources.

**3.1.3 Additional Eco-Friendly Ideas**

Based on factors including material composition, carbon impact, and ethical sourcing, the app suggests more environmentally friendly options.

**3.1.4 Calculator for Carbon Footprint**

Keeps track of consumers' purchases and determines how they affect the environment.

**3.2 Requirements That Are Not Functional**

**3.2.1 Needs for Performance**

Results from product searches ought to appear in three seconds.At least 1000 users must be able to access the system at once.

**3.2.2 Needs for Security**

* AES-256 encryption must be used for all user data.
* HTTPS must be used to secure API conversations.

**3.2.3 Requirements for Usability**

The system has to be online and mobile interface optimized.Screen reader compatibility is one example of an accessibility element that ought to be included.

**3.2.4 Needs for Scalability**

Over time, the system should be able to manage growing user traffic.

**4. MODELS OF SYSTEM**

**4.1 Diagram of the Use Case**

It shows how users, administrators, and sustainability data providers interact.Product Search, Sustainability Score Display, Alternative Suggestions, and Carbon Footprint Tracking are important use cases.

**4.2 Diagram of the Class**

User, Product, SustainabilityScore, RecommendationEngine, Order, and Admin are the primary classes.

**4.3 Diagram of Sequence**

An example might be a user looking for a product. The system displays the score after retrieving sustainability data.

# **5. APPENDICES**

* External API reference documents
* List of ethical brands and sustainability databases

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