**Personalized Skincare Product Recommendation System**

**Overview**

A data-driven, AI-powered skincare recommendation system that offers users personalized product suggestions based on a short questionnaire. It will generate tailored recommendations using a lightweight approach focused on understanding the user’s unique skin type, primary concerns, and lifestyle factors. Users will receive curated recommendations for core skincare products in each essential category (cleanser, toner, serum, and moisturizer), providing an efficient and accessible experience for building a personalized skincare routine.

**Problem Statement**

Selecting the right skincare products is challenging for consumers, especially given the vast range of products on the market. Users often struggle to choose products that fit their skin type and specific needs, leading to trial-and-error purchases and dissatisfaction. This aims to streamline this process by providing users with personalized recommendations that reduce guesswork, align with their individual needs, and enhance the effectiveness of their skincare routine.

**Goals and Objectives**

To develop a personalized skincare recommendation system that simplifies product selection by providing tailored suggestions in each category essential to a skincare routine.

**Objectives**:

1. **User-Friendly Questionnaire**: Create a short, intuitive questionnaire to capture user data on skin type, skin concerns, and lifestyle factors.
2. **Data-Driven Product Matching**: Develop a rule-based and data-driven recommendation engine that matches user responses with product attributes.
3. **Single Product Recommendation per Category**: Recommend one best-suited product per category (cleanser, toner, serum, and moisturizer) to keep the experience simple and focused.
4. **Interactive and Informative UI**: Design a user interface that presents recommendations clearly, with explanations on why each product was selected based on the user’s profile.

**Deliverables**:

1. **Questionnaire Module**: A web/mobile interface that captures user information on skin type, concerns, and lifestyle factors.
2. **Recommendation Engine**: A backend system that processes user responses to generate personalized recommendations.
3. **Product Database**: A structured database of skincare products with detailed attributes such as ingredients, product types, and skin compatibility.
4. **User Interface**: A clean, interactive frontend display for receiving the answers presenting recommendations and explanations.

**Methodology**

**Phase 1: Research and Planning**

* Conduct user research to define key factors (skin types, common concerns, etc.).
* Create a database schema to store product attributes relevant to the recommendation process.
* Outline key questionnaire questions based on industry best practices.

**Phase 2: Development**

* Develop a questionnaire interface in Flutter (for cross-platform compatibility).
* Build a product database and define a rule-based system for matching products.
* Implement a basic recommendation algorithm (rule-based filtering and ranking) that selects one product per category.
* Design a clean and engaging user interface.

**Phase 3: Testing and Iteration**

* Test the recommendation engine for accuracy and user satisfaction.
* Collect feedback to refine the questionnaire and recommendation logic.

**Resources and Technologies**

* **Frontend**: Flutter for cross-platform mobile compatibility.
* **Backend**: Django or Flask for API and data handling.
* **Database**: PostgreSQL or MongoDB for storing user responses and product attributes.
* **Machine Learning Models (Optional)**: For future enhancements, collaborative filtering or clustering techniques for more advanced recommendations.
* **Hosting**: Cloud-based solution (e.g., AWS or Google Cloud Platform) for database and backend services.