1. **Overview**

*This project is a hotel booking system featuring separate dashboards for users and admins, secure authentication, and an AI-driven search on the homepage. It includes a prices page that gathers hotel data from external APIs. The system is built using Laravel for the backend, Blade with Tailwind CSS for the frontend, and MySQL for the database.*

**2. Functional Requirements**

* **2.1 Home Page and AI-Powered Search**
* **FR-2.1.1 Search Bar Integration:**
  + The home page will feature a prominent search bar that accepts user inputs for keywords, destination, dates (check-in/out), and additional filters such as price range and star rating.
  + The system should provide real-time suggestions as users type.
* **FR-2.1.2 AI Recommendation Engine:**
  + An integrated AI module will analyze user input, historical booking data, and preferences to generate personalized hotel recommendations.
  + The AI component will also adjust results based on user feedback and continuously learn to improve relevance.
* **2.2 Authentication and Account Management**
* **FR-2.2.1 User Registration:**
  + Provide a secure registration page where new users can sign up by supplying details (email, password, and basic profile information).
  + Email verification will be required to confirm valid registration.
* **FR-2.2.2 User Login:**
  + Implement a secure, password-based login system.
  + Manage user sessions efficiently to maintain secure, persistent logins.
* **FR-2.2.3 Security Measures:**
  + Implement strong encryption for passwords and sensitive data.
  + Regular input validation and security audits will be incorporated to mitigate potential vulnerabilities.
* **2.3 Dashboard Functionality**
* **FR-2.3.1 User Dashboard:**
  + Users will have a personalized dashboard displaying current and past hotel bookings.
  + Provide functionalities for updating personal details, modifying reservations, and canceling bookings.
  + Include a notification system to alert users of booking confirmations, changes, and targeted promotional offers.
* **FR-2.3.2 Admin Dashboard:**
  + Administrators will have a dedicated dashboard to manage overall system operations.
  + Capabilities include managing user accounts (activation, deactivation), editing or deleting reservations, and adjusting pricing or promotional offers.
* **2.4 Prices and Deals Page**
* **FR-2.4.1 Aggregated Listings:**
  + The system shall display aggregated hotel listings pulled from multiple external hotel booking APIs.
  + Users must be able to filter and sort listings by price, star rating, location, or special promotions.
* **FR-2.4.2 Dynamic Updates and AI Integration:**
  + Integrate AI-driven analysis to highlight the most affordable and high-quality hotel options.
  + Offer personalized deal suggestions based on user history and preferences.