**Functionality Document for Hotel Search and Recommendation Application**

#### **1. Search Functionality**

**Description:**  
Users must be able to search for hotels based on area and keyword.

* **Input Options:**
  + **Area:** Users can specify a location (city, neighborhood, etc.) where they want to search for hotels.
  + **Keyword:** Users can input keywords such as "beach," "pool," "luxury," etc., to refine their search.
* **Expected Behavior:**
  + The system searches the Elasticsearch index for hotels matching the area and keyword.
  + Results should display relevant hotels sorted by relevance, price, or rating (user configurable).

#### **2. Filter Functionality**

**Description:**  
Users must be able to filter search results based on specific criteria.

* **Available Filters:**
  + **Price Range:** Set a minimum and maximum price (e.g., $50–$300).
  + **Room Type:** Options such as "Private Room," "Entire Home/Apt," "Shared Room."
  + **Number of Reviews:** Specify a minimum number of reviews for filtering.
  + **Availability:** Filter based on available dates (e.g., hotels with at least 100 days available in a year).
  + **Host Listings Count:** Filter based on the number of listings managed by a host.
* **Expected Behavior:**
  + Filters can be applied dynamically to the results.
  + Results update in real time as filters are added or removed.

#### **3. Display on Map**

**Description:**  
Hotels must be displayed on an interactive map for better user visualization.

* **Expected Features:**
  + Integrate a mapping service (e.g., Google Maps or Leaflet).
  + Display each hotel as a marker on the map.
  + Clicking on a marker opens a popup showing the hotel’s details (name, price, room type, etc.).
* **Data Required for Map Display:**
  + **Latitude and Longitude** fields from the dataset.
  + Hotel name, room type, and price for tooltips.
* **Implementation Steps:**
  + Fetch search results from Elasticsearch with latitude and longitude.
  + Plot the results dynamically on the map.
  + Ensure the map adjusts its view to fit all plotted hotels.

#### **4. Recommendations Based on Current Location**

**Description:**  
The application must recommend hotels near the user's current location.

* **Features:**
  + Determine the user’s current location using GPS or IP-based geolocation.
  + Display recommended hotels within a certain radius (e.g., 10 miles).
  + Allow users to adjust the radius dynamically for broader or narrower recommendations.
* **Recommendation Logic:**
  + Use proximity search in Elasticsearch to find hotels near the user’s location.
  + Rank results by price, rating, or reviews.