**Recommendation System  
Interview Questions**

1. **Can you explain the difference between user-based and item-based collaborative filtering?**

**User-Based Collaborative Filtering**

* **Concept**: Recommends items based on the preferences of similar users.
* **How It Works**: Finds users with similar tastes to the target user and recommends items they liked but the target user hasn't interacted with.
* **Example**: If User A and User B both liked Anime X, User B might be recommended Anime Y that User A enjoyed.

**Item-Based Collaborative Filtering**

* **Concept**: Recommends items based on the similarity between items themselves.
* **How It Works**: Looks at items that the target user has liked and finds other items that are similar.
* **Example**: If a user liked Anime X, they might be recommended Anime Y if Y is similar to X.

**Key Difference**

* **User-Based** focuses on user similarities, while **Item-Based** focuses on item similarities.

1. **What is collaborative filtering, and how does it work?**

**Collaborative Filtering**

**Definition**: Collaborative filtering is a technique used in recommendation systems to predict a user's preferences based on the preferences of other users.

**How It Works**

1. **Data Collection**: Gathers user-item interactions, such as ratings, clicks, or purchases.
2. **Similarity Calculation**:
   * **User-Based**: Measures similarities between users. For example, if User A and User B have rated several items similarly, they are considered similar.
   * **Item-Based**: Measures similarities between items. For example, if many users rate both Item X and Item Y highly, those items are considered similar.
3. **Recommendations**:
   * In user-based, a user receives recommendations based on what similar users liked.
   * In item-based, recommendations are made based on items similar to those the user has liked.