2) Write about strengths and weaknesses of neighbourhood based methods.

Ans:- ① User - based collaborative filtering :-

This approach finds users with similar behaviour and recommends items based on their preferences.

- Strengths :-

① Highly Personalized :-

Since recommendations are based on user similarity, they are tailored to individual tastes

② Great for dynamic preferences :-

Works well when user behaviour frequently changes.

③ Easier To understand and interpret :-

If a person enjoys the same TV show as you, their preferences can guide your new recommendations.

- Weakness :-

① Scalability issues :-

As the number of users increases, computing similarities among them becomes expensive.

② Cold - start problem (users) :-

A new user with no interaction history won't get good recommendations.

⑤ Frequent Recalculation needed :-

Since user preferences change over time, similarity calculations must be updated regularly.

(11) Item - based collaborative filtering :-

This method finds similar items based on how users have interacted with them

- Strengths :-

① More scalable :-

Item similarities are relatively stable, so recommendation can be precomputed and stored.

② Handles sparse data better :-

Even if user interact with few items, strong item relationships can still generate useful recommendations.

③ Cold start is less of an issue (for users) :-

Even new users can receive recommendations based on items they view or interact with.

- Weakness :-

① Cold Start problem (for item) :-

A brand new item with no interactions won't be recommended effectively.

② Less personalized :-

Since recommendations are based on item similarity based rather than user specific preferences, they might not feel highly tailored.

③ Fail with unique preferences :-

Users with niche preferences may not get useful recommendations.