Attempt #1

Jul 29, 10:42 AM

Marks: 4

**Question 1**

Incorrect Answer

Marks: 0/1

Which of the following is a limitation of Collaborative Filtering?

It cannot handle both explicit and implicit feedback from user

You Selected

It can be computationally expensive for large datasets as it needs to calculate similarities between items or users

Correct Option

It can handle the cold start problem well

It cannot provide personalized recommendations to the users

Collaborative Filtering can be computationally expensive for large datasets, especially for User-based Collaborative Filtering, which requires computing similarity between all pairs of users. This can make it challenging to scale to vast datasets.

**Question 2**

Incorrect Answer

Marks: 0/1

Which of the following statements is true about the Clustering technique in Recommendation Systems?

Clustering assumes all users are similar or all items are similar

You Selected

Clustering is used to find groups of dissimilar types of data

Clustering is based on user-item interactions and assumes similar users/items are in the same cluster

Correct Option

Clustering requires calculating the average rating of items and subtracting them from every rating given by that user

Clustering is based on user-item interactions and assumes similar users/items are in the same cluster. In recommendation systems, clustering is used to group users or items based on their similarities in terms of their behavior, preferences, or characteristics. By clustering similar users or items together, recommendations can be made based on the preferences or patterns observed within each cluster.

**Question 3**

Correct Answer

Marks: 1/1

Suppose you are designing a Movie Recommender System based on Content-based Filtering. What hypothetical characteristics of movies could you use to make recommendations to users?

A) The user's favourite genre

B) The director of the movie

C) The duration of the movie

Only A and B

Only A

A, B, and C

You Selected

Only C

Content-based Filtering utilizes additional information about items, such as movies, to make recommendations. This additional information can include various characteristics of movies such as genre, director, duration, actors, plot summary, and other features that can describe the content of the movie. Therefore, all of the above options are characteristics that can be used in Content-based Filtering for movie recommendations.

**Question 4**

Correct Answer

Marks: 1/1

Which of the following examples demonstrates the use of a Recommendation System?

A search engine showing results based on keywords

A calculator app performing arithmetic operations

Netflix suggesting similar movies based on your viewing history

You Selected

A weather app showing the current temperature in your area

A recommendation system is a system or an automated system that provides suggestions/recommendations to users. In the case of Netflix, it suggests similar movies based on the user's viewing history. Option a) describes a search engine showing results based on keywords, which is not an example of a recommendation system.

**Question 5**

Correct Answer

Marks: 1/1

What is the difference between Collaborative Filtering and Content-based Filtering in Recommendation Systems?

Collaborative Filtering uses only item features, while Content-based Filtering uses user features

Collaborative Filtering predicts a user's preference based on similar preferences of other users, while Content-based Filtering predicts a user's preference based on the characteristics of items they have previously liked

You Selected

Collaborative Filtering has no cold start problem, while Content-based Filtering faces a cold start problem

There is no difference between Collaborative Filtering and Content-based Filtering

Collaborative Filtering and Content-based Filtering are two common approaches to recommendation systems. Collaborative Filtering uses data on the past behavior of users to predict their future preferences. This involves finding other users with similar preferences and recommending items they have liked but the user hasn't seen yet. Content-based filtering, on the other hand, focuses on the characteristics of items a user has liked in the past and recommends items with similar features or attributes.

**Question 6**

Correct Answer

Marks: 1/1

What is the purpose of Singular Value Decomposition (SVD) in Recommendation Systems?

To decompose the user-item matrix into latent factors

You Selected

To identify the most or least popular items in the dataset

To increase the number of features/dimensions in the user-item matrix

To replace missing values in the user-item matrix with an irrational number

Singular Value Decomposition (SVD) is a matrix factorization technique that is commonly used in recommendation systems to decompose the user-item matrix into latent factors. These factors represent underlying characteristics or features of the items and users and allow for more accurate predictions of user preferences. SVD can help to reduce the dimensionality of the matrix and can be used to fill in missing values as well.

**Question 7**

Incorrect Answer

Marks: 0/1

Which of the following is NOT true about Singular Value Decomposition (SVD)?

SVD decomposes a matrix into three smaller matrices that can be used to reconstruct the original matrix

You Selected

SVD estimates the missing values in the user-item interaction matrix

The shapes of the U and V matrices are mxr and rxn, respectively, where m represents the number of users (rows), n represents the number of items (columns) in the user-item interaction matrix, and r represents the number of latent features

Latent features generated by SVD represent directly observable and interpretable characteristics of users or items

Correct Option

Truncated SVD produces matrices with a specified number of columns, not necessarily n columns, and is more effective for sparse matrices.

**Question 8**

Incorrect Answer

Marks: 0/1

Which of the following statements is true regarding the use of neural networks in Recommendation Systems?

Neural Networks are not useful in Recommendation Systems because they are too complex

You Selected

Neural Networks can only be used in Recommendation Systems for predicting ratings of products that are popular

Neural Networks can be used in Recommendation Systems for both rating prediction and item recommendation

Correct Option

Neural Networks are only effective in small Recommendation Systems with few users and items

Neural Networks are a powerful tool for making recommendations in large and complex systems. They can be used to predict user ratings for products, but they can also be used to recommend specific items to users based on their preferences and behavior. Neural networks can handle large amounts of data and learn complex relationships between users, items, and their attributes, making them a popular choice for recommendation systems.

**Question 9**

Incorrect Answer

Marks: 0/1

What is the first step involved in applying Clustering technique in Recommendation Systems?

Obtain representation of each user in low-dimension space

Perform K-means clustering

You Selected

Compute similarity between each pair of N users

Correct Option

Observing characteristics of clusters

Step 1 in the given process involves computing similarity between each pair of N users. This is typically done using a similarity metric such as cosine similarity or Pearson correlation. The result is a similarity matrix of size N x N, where each entry (i,j) represents the similarity between user i and user j.

**Question 10**

Incorrect Answer

Marks: 0/1

Which of the following is an advantage of using Hybrid Recommendation Systems based on Popularity and Collaborative Filtering Recommendation Systems?

Improved accuracy in recommending items

You Selected

Simpler implementation compared to other recommendation systems

Ability to handle cold-start problem without additional data

Correct Option

Requires less computational resources compared to other recommendation systems

Hybrid recommendation systems based on popularity and collaborative filtering can help address the cold-start problem, which is a common issue in recommendation systems.

In the cold-start problem, there is insufficient data about a new user or item to provide accurate recommendations. Popularity-based recommendation systems can be used to provide recommendations for new items that have not yet been rated by users or for new users who have not yet provided ratings. Collaborative filtering can be used to provide recommendations for users with similar preferences or behavior, even if they have not yet rated the same items.

By combining these two approaches in a hybrid recommendation system, it is possible to address the cold-start problem.