SNS COLLEGE OF ENGINEERING
Kurumbapalayam (Po), Coimbatore – 641 107
An Autonomous Institution
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DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE

Recommender System

ISSUES AND CHALLENGES IN RECOMMENDER SYSTEM

1.Sparse Recommender systems:

- Generally, majority of the users do not rate most of the items and consequently the ratings matrix becomes very sparse.
- Due to this, the data sparsity problem arises that declines the chances of finding a set of users with similar ratings.
- This is the most eminent drawback of the CF technique.
- This concern can be alleviated by using some additional domain information.

ISSUES AND CHALLENGES IN RECOMMENDER SYSTEM

2.Cold-start problem:

- Cold-start problem presents a collective issue of new item and new user to RSs.
- A new item can’t be recommended initially when it is introduced to a CF system with no ratings.
- For instance, MovieLens (movielens.org) cannot recommend new movies until these have got some initial ratings.
- The new-user problem is bit hard to handle because it is not possible to find similar users or to create a CB profile without previous preferences of a user.

ISSUES AND CHALLENGES IN RECOMMENDER SYSTEM

3.Scalability Problem:

- One vital and foremost issue of RSs today is the scalability of algorithms with large real-world datasets.
- It is becoming challenging to deal with huge and dynamic data sets produced by item-users interactions such as preferences, ratings and reviews.
- It is possible that when some recommendation algorithms are applied on relatively small data sets, they provide the best results, but may reflect inefficient or worst behavior on very large datasets.
- Thus, some advanced large-scale assessment methods are required to deal with this issue.

ISSUES AND CHALLENGES IN RECOMMENDER SYSTEM

4.Robustness of RSs:

- Another major challenge in RSs is its robustness to attacks. Robustness is a performance measure of RSs.
- To gain certain profits, an attacker may generate some fake user profiles based on some attack models, such as Push/Nuke Attacks to make some target items more/less popular respectively.
- Such attacks are collectively called shilling attacks or profile injection attacks.

ISSUES AND CHALLENGES IN RECOMMENDER SYSTEM

5.Privacy Issue:

- To produce quality personalized recommendations, RSs are bound to gather as much user data as possible and to exploit it to the fullest.
- But on the other side, this may create a negative impression on the users' mind about their privacy because the system knows too much about them.
- Thus, such techniques need to be designed that can sensibly, meticulously and carefully use the user data by ensuring that information about the users' true preferences is not freely accessible to malevolent users.


THANK
YOU