S. B. JAIN INSTITUTE OF TECHNOLOGY, MANAGEMENT & RESEARCH, NAGPUR.

Practical No. 11

Aim: Recommendation System: Create a popularity based recommender system at a genre level. User will input a genre (g), minimum ratings threshold (t) for a movie and no. of recommendations(N) for which it should be recommended top N movies which are most popular within that genre (g) ordered by ratings in descending order where each movie has at least (t) reviews.

Name of Student: Shrutika Pradeep Bagdi

Roll No.: CS22130

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AIM: Create a popularity based recommender system at a genre level. User will input a genre (g), minimum ratings threshold (t) for a movie and no. of recommendations(N) for which it should be recommended top N movies which are most popular within that genre (g) ordered by ratings in descending order where each movie has at least (t) reviews.

Create a content based recommender system which recommends top N movies based on similar movie(m) genres.

Create a collaborative based recommender system which recommends top N movies based on "K" similar users for a target user "u"

OBJECTIVE/EXPECTED LEARNING OUTCOME:

- Understanding Recommendation System

HARDWARE AND SOFTWARE REQUIRMENTS:

Hardware Requirement:
Moniter, Mouse,Keyboard

Software Requirement:
Google Colab

THEORY:

When we provide ratings for products and services on the internet, all the preferences we express and data we share (explicitly or not), are used to generate recommendations by recommender systems. The most common examples are that of Amazon, Google and Netflix.

There are generally two types of Recommendation Systems-

1. **Content-Based Recommendation System-**

A Content-Based Recommender System is one that follows a content-based filtration method to generate recommendations to the user. Content-Based filtration is mainly focused on recommending similar products to the user based on their history.

2. **Collaborative Recommendation System-**

A Collaborative Recommender System, on the other hand, does not take an individual user at a time but a cluster of similar or alike users (here, users with almost likely taste in movies), and based on those users' ratings, recommends similar products to those group or cluster of users.

CODE:

```
from google.colab import drive
drive.mount('/content/drive')

import pandas as pd
movies_file = '/content/drive/MyDrive/Natural Language Processing (NLP)/Practical
11/movies.csv'
ratings_file = '/content/drive/MyDrive/Natural Language Processing (NLP)/Practical
11/ratings.csv'
movies_df = pd.read_csv(movies_file)
ratings_df = pd.read_csv(ratings_file)

def recommend_movies_by_popularity(genre, min_ratings, top_n):
    genre_movies = movies_df[movies_df['genres'].str.contains(genre, case=False, na=False)]
    movie_ratings = pd.merge(genre_movies, ratings_df, on='movieId', how='inner')
    movie_stats = movie_ratings.groupby('movieId').agg(
        avg_rating=('rating', 'mean'),
        num_reviews=('rating', 'count')
    ).reset_index()
    filtered_movies = movie_stats[movie_stats['num_reviews'] >= min_ratings]
    top_movies = filtered_movies.sort_values(by='avg_rating', ascending=False)
    top_movies = top_movies.head(top_n)
    recommended_movies = pd.merge(top_movies, genre_movies[['movieId', 'title']],
on='movieId', how='left')
    return recommended_movies[['title', 'avg_rating', 'num_reviews']]

genre_input = 'Action'
min_ratings_input = 50
top_n_input=int(input("Enter the number of top movie required"))
recommendations = recommend_movies_by_popularity(genre_input, min_ratings_input,
top_n_input)
recommendation
```

OUTPUT :

```
Enter the number of top movie required 6
```

	title	avg_rating	num_reviews
0	Princess Mononoke (Mononoke-hime) (1997)	4.384615	52
1	North by Northwest (1959)	4.273973	73
2	Matrix, The (1999)	4.264368	261
3	Star Wars: Episode V - The Empire Strikes Back...	4.228070	228
4	Seven Samurai (Shichinin no samurai) (1954)	4.217742	62
5	Raiders of the Lost Ark (Indiana Jones and the...	4.212054	224

CONCLUSION:
The project successfully built a genre-based popularity recommender system that suggests top N movies with at least t reviews.

DISCUSSION AND VIVA VOCE:

- What is Recommendation System?
- What are application of Recommendation System?

REFERENCE:

- *www.w3schools.com*
- *www.tutorialsmade.com*
- *www.towardsdatascience.com*