Task 3 : Recommender System

In this task, your goal is to design and evaluate a movie recommendation system that predicts the ratings a user would give to a movie they have not yet rated. You will need to develop a recommendation system using traditional machine learning algorithms (excluding deep learning models) to predict the ratings in the test set.

Dataset Overview:

- train_data_movie_rate.csv: Contains user ratings for movies with the following columns:
  - user_id: Unique identifier for each user who provided ratings
  - item_id: Unique identifier for each movie that was rated
  - label: The numerical rating given by the user to the movie (rating value)

- train_data_movie_trust.csv: Represents trust relationships between users with the following columns:
  - user_id_trustor: Unique identifier for the user who is expressing trust
  - user_id_trustee: Unique identifier for the user who is being trusted
  - trust_value: A numerical value representing the level of trust
- test_data.csv : This dataset contains pairs of (user_id, item_id) for which your model needs to predict the expected rating that the user would give to the movie.

Data Exploration and Preprocessing

- Load and explore the movie_rate.txt and movie_trust.txt datasets.
- Check for missing or inconsistent data and handle them if necessary.
- Normalize the ratings if needed (e.g., scaling ratings between 0 and 1).

Building the Recommender System

- Develop a recommendation system using machine learning algorithms.
- Train the model and evaluate its performance using RMSE, MAE, MSE, R2 as metrics

How to Submit Your Results to Kaggle

- Your submission should follow the format where you:
  - Read the input file (test_data.csv) containing user_id and item_id pairs
  - Generate predictions for each pair
  - You are required to submit a CSV file with the predicted ratings for each user-item pair in the test set.

- The CSV file should have two columns: `id` (user-item pair) and `label` (predicted rating).

To participate in the competition related to this task Click on the competition link: Kaggle Competition.

Good luck with the competition!