

# Vyorius Test

Develop a personalized movie recommendation system in C++ using collaborative filtering. The system predicts the ratings a user would assign to movies based on their past preferences and similarities to other users. It outputs a ranked list of recommended movies for a given user.

## Requirements:

### Input Data:

- A matrix representing user-movie ratings, where:
  - Rows correspond to users.
  - Columns correspond to movies.
  - Entries contain ratings (e.g., 1 to 5) or 0 for unrated movies.
- Example:
  - Movie1, Movie2, Movie3, Movie4, Movie5
  - 5, 3, 0, 1, 4 <- User1
  - 4, 0, 0, 1, 2 <- User2
  - 0, 1, 2, 4, 0 <- User3
  - 3, 0, 4, 0, 3 <- User4

### Implementation:

- Write a C++ program with:
  - A function to load the ratings matrix from a CSV file.
  - A function to calculate similarities between users (or items).
  - A function to predict ratings and recommend top N movies.

### Deliverables:

- **Source Code:**
  - A modular, well-documented C++ program implementing the movie recommendation system.
- **Example Dataset:**
  - A small matrix or CSV file with user-movie ratings to test the system.
- **Program Output:**
  - Predicted ratings for unrated movies for a specific user.
  - A ranked list of the top N recommended movies.
- **Performance Report:**
  - Include metrics like RMSE and a summary of the system's performance.

**Note: Please submit your solution within the given timeframe, and feel free to ask any questions if you need further clarification on the task requirements. Good luck with the task!**