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# Source code for AI-driven movie matchmaking recommendation systems
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```
import pandas as pd
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```
from sklearn.metrics.pairwise import cosine_similarity
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```
from sklearn.feature_extraction.text import TfidfVectorizer
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```
# Sample movie dataset
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```
movies = pd.DataFrame({'MovieID': [1, 2, 3, 4], 'Title': ['Inception', 'Titanic',  
'Avatar', 'The Matrix'], 'Genres': ['Sci-Fi Thriller', 'Romance Drama', 'Sci-Fi  
Action', 'Sci-Fi Action']})
```

```
# Sample user rating dataset
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```
ratings = pd.DataFrame({'UserID': [1, 1, 2, 2, 3], 'MovieID': [1, 2, 2, 3, 4],  
'Rating': [5, 3, 4, 5, 4]})
```

```
# Step 1: Content-Based Filtering using Genre
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```
tfidf = TfidfVectorizer()
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```
genre_matrix = tfidf.fit_transform(movies['Genres'])
```

```
genre_sim = cosine_similarity(genre_matrix)
```

```
# Step 2: Build user-movie matrix
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```
user_movie_matrix = ratings.pivot_table(index='UserID',  
columns='MovieID', values='Rating').fillna(0)
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```
# Step 3: Recommend for a specific user
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```
def recommend_movies(user_id):
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```
    seen_movies = ratings[ratings['UserID'] == user_id]['MovieID'].tolist()
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```
    scores = pd.Series(dtype='float64')
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```
for movie_id in seen_movies:
    idx = movies[movies['MovieID'] == movie_id].index[0]
    sim_scores = list(enumerate(genre_sim[idx]))

    for i, score in sim_scores:
        if movies.loc[i, 'MovieID'] not in seen_movies:
            scores[movies.loc[i, 'Title']] = scores.get(movies.loc[i, 'Title'], 0) +
score

recommendations = scores.sort_values(ascending=False)
return recommendations.head(3)

# Output for user 1
print("Top Recommendations for User 1:")
print(recommend_movies(1))
```