Experiment 8

```python
def recommend_movies_for_user(user_id, matrix, top_n=5):
    cluster_label = matrix.loc[user_id, 'cluster']
    cluster_users = matrix[matrix['cluster'] == cluster_label].drop(columns='cluster')

    unrated_items = cluster_users.columns[cluster_users.loc[user_id] == 0]

    recommendations = []
    for item_id in unrated_items:
        pred = predict_rating(user_id, item_id, matrix)
        recommendations.append((item_id, pred))

    top_recommendations = sorted(recommendations, key=lambda x: x[1], reverse=True)[:top_n]
    return [(id_to_title.get(int(item_id), f"Movie {int(item_id)}"), round(pred, 2)) for item_id, pred in top_recommendations]
```

```python
recommendations = recommend_movies_for_user(100, user_item_matrix)
for title, score in recommendations:
    print(f"{title} → Predicted Rating: {score}")
```

```
Doom Generation, The (1995) → Predicted Rating: 3.0
Nadja (1994) → Predicted Rating: 3.0
Brother Minister: The Assassination of Malcolm X (1994) → Predicted Rating: 3.0
Carlito's Way (1993) → Predicted Rating: 3.0
Robert A. Heinlein's The Puppet Masters (1994) → Predicted Rating: 3.0
```