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In [1]:

```python
import pandas as pd

rating= 'ratings.csv'
movies= 'movies.csv'
tags = 'tags.csv'
rating = pd.read_csv(rating)
print(rating.shape)
```

```
C:\Users\santh\anaconda3\lib\site-packages\numpy\_distributor_init.py:30: UserWa
rning: loaded more than 1 DLL from .libs:
C:\Users\santh\anaconda3\lib\site-packages\numpy\.libs\libopenblas64__v0.3.21-gc
c_10_3_0.dll
C:\Users\santh\anaconda3\lib\site-packages\numpy\.libs\libopenblas64__v0.3.23-24
6-g3d31191b-gcc_10_3_0.dll
  warnings.warn("loaded more than 1 DLL from .libs:"

(100836, 4)
```

In [2]:

```python
user_ids = rating['userId'].nunique()
print(user_ids)

```

```
610
```

In [3]:

```python
# Movie with the maximum number of user ratings

movies= pd.read_csv(movies)
merged = pd.merge(rating, movies, on='movieId')
movie_ratings = merged.groupby('title')['rating'].count()
max_rated_movie = movie_ratings.idxmax()

print( max_rated_movie)
```

```
Forrest Gump (1994)
```

In [5]:

```python

tags= pd.read_csv(tags)
matrix_movie = movies[movies['title'] == 'Matrix, The (1999)']
merged_tags= pd.merge(tags, matrix_movie, on='movieId')
selected_tags = merged_tags['tag']

# Display the unique tags
unique_tags = selected_tags.unique()
print(unique_tags)
```

```
['martial arts' 'sci-fi' 'alternate universe' 'philosophy'
 'post apocalyptic']
```

In [11]:

```python
# Average user rating for 'Terminator 2: Judgment Day (1991)

terminator_movie = movies[movies['title'] == 'Terminator 2: Judgment Day (199
merged= pd.merge(rating, terminator_movie, on='movieId')

# Calculate the average user rating
avg_rating = merged['rating'].mean()
print( avg_rating)
```

```
3.970982142857143
```

In [12]:

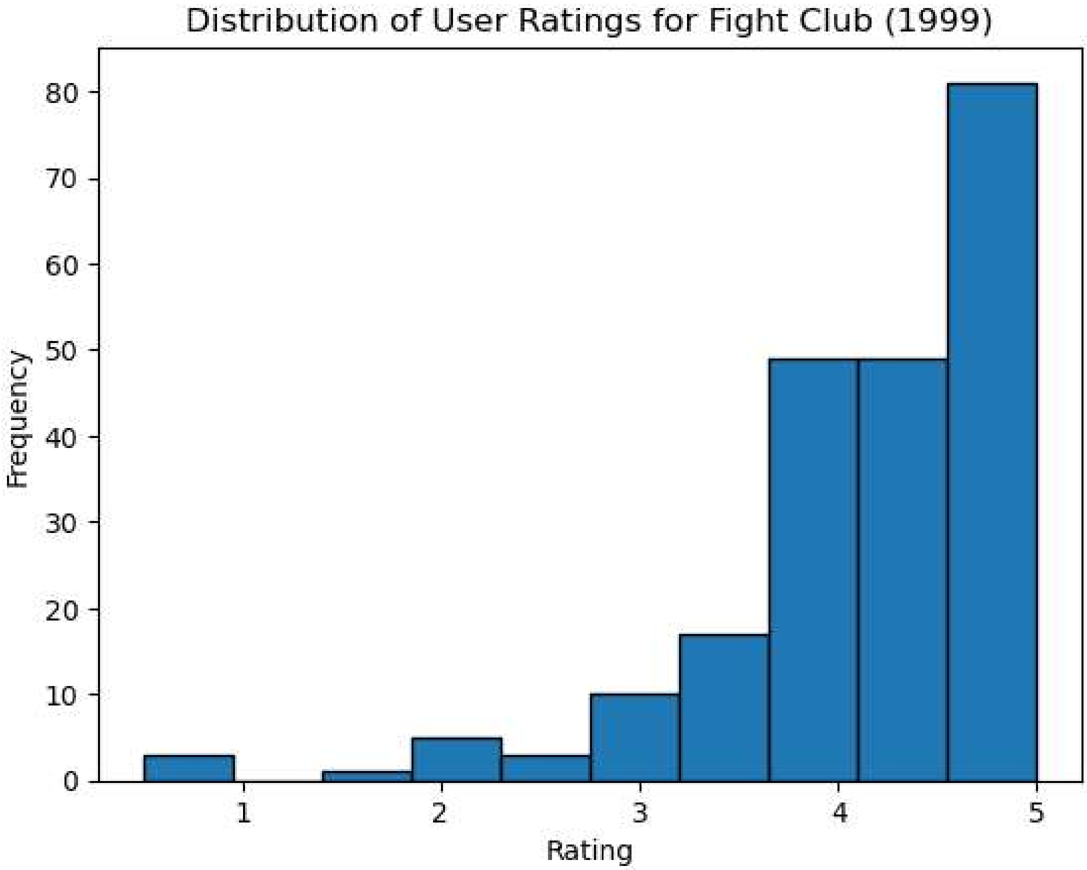
```python
import matplotlib.pyplot as plt

fight_club_movie = movies[movies['title'] == 'Fight Club (1999)']

# Merge the ratings and movies DataFrames on 'movieId'
merged_ = pd.merge(rating, fight_club_movie, on='movieId')

# Plot a histogram of user ratings
plt.hist(merged_['rating'], bins=10, edgecolor='black')
plt.title('Distribution of User Ratings for Fight Club (1999)')
plt.xlabel('Rating')
plt.ylabel('Frequency')
plt.show()

```



In [13]:

```python
# Most popular movie based on average user ratings

average_ratings = merged.groupby('title')['rating'].mean()
most_popular_movie = average_ratings.idxmax()

print( most_popular_movie)
```

```
Most popular movie based on average user ratings: Terminator 2: Judgment Day (19
91)
```

In [15]:

```python
# Most popular movie based on average user ratings (with more than 50 ratings

grouped_ratings = rating.groupby('movieId')['rating'].agg(['count', 'mean']).

merge_ = pd.merge(movies, grouped_ratings, on='movieId', how='inner')
filtered_movies = merge_[merge_['count'] > 50]
most_popular_movie = filtered_movies.loc[filtered_movies['mean'].idxmax(), 't

print(most_popular_movie)
```

```
Most popular movie based on average user ratings (with more than 50 ratings): Sh
awshank Redemption, The (1994)
```

In [23]:

```python
# Top 5 popular movies based on the number of user ratings

grouped_ratings = rating.groupby('movieId')['rating'].agg(['count', 'mean']).
merged_df = pd.merge(movies, grouped_ratings, on='movieId', how='inner')
filtered_movies = merged_df[merged_df['count'] > 50]
sorted_movies = filtered_movies.sort_values(by='count', ascending=False)
top_5_movies = sorted_movies.head(5)


# Display the titles of the top 5 movies
print(top_5_movies['title'])

```

```
314                     Forrest Gump (1994)
277       Shawshank Redemption, The (1994)
257                     Pulp Fiction (1994)
510       Silence of the Lambs, The (1991)
1938                     Matrix, The (1999)
Name: title, dtype: object
```

In [20]:

```python
# Third most popular Sci-Fi movie based on the number of user ratings

ratings = rating.groupby('movieId')['rating'].agg(['count', 'mean']).reset_in
merged_df = pd.merge(movies, ratings, on='movieId', how='inner')
filtered_movies = merged_df[merged_df['count'] > 50]
sci_fi_movies = filtered_movies[filtered_movies['genres'].str.contains('Sci-F
sorted_ = sci_fi_movies.sort_values(by='count', ascending=False)

# Step 6: Select the third most popular Sci-Fi movie
third_most_popular_sci_fi = sorted_.iloc[2]
print(third_most_popular_sci_fi['title'])
```

```
Jurassic Park (1993)
```

In [22]:

```python
# MovieId of the movie with the highest average user rating

average_ratings = rating.groupby('movieId')['rating'].mean().reset_index()
highest_rated_movie_id = average_ratings.loc[average_ratings['rating'].idxmax

print(highest_rated_movie_id)

```

```
53
```

In [17]:

```python
# MovieId of the Sci-Fi movie with the highest average user rating (IMDb)

grouped_ratings = rating.groupby('movieId')['rating'].agg(['count', 'mean']).
merged_df = pd.merge(movies, grouped_ratings, on='movieId', how='inner')
sci_fi_movies = merged_df[merged_df['genres'].str.contains('Sci-Fi')]
sci_fi_movie = sci_fi_movies.loc[sci_fi_movies['mean'].idxmax(), 'movieId']

print( sci_fi_movie)
```

```
3687
```

In [ ]:

```python

```