Final Project Submission

Please fill out:

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- Student pace: full time
- Scheduled project review date/time:
- Instructor name:
- Blog post URL:

In [ ]:

In [1]:
```
# Your code here - remember to use markdown cells for comments as well!
import pandas as pd
import numpy
import sqlite3
conn = sqlite3.connect("im.db")
```

Data understanding

In [5]:
```
# movie_basic table
q = ("""
SELECT *
FROM movie_basics;
""")
pd.read_sql(q,conn)
```

Out[5]:

	movie_id	primary_title	original_title	start_year	runtime_minutes	genres
0	tt0063540	Sunghursh	Sunghursh	2013	175.0	Action,Crime,Drama
1	tt0066787	One Day Before the Rainy Season	Ashad Ka Ek Din	2019	114.0	Biography,Drama
2	tt0069049	The Other Side of the Wind	The Other Side of the Wind	2018	122.0	Drama
3	tt0069204	Sabse Bada Sukh	Sabse Bada Sukh	2018	NaN	Comedy,Drama
4	tt0100275	The Wandering Soap Opera	La Telenovela Errante	2017	80.0	Comedy,Drama,Fantasy
...	...	...	...	...	...	...
146139	tt9916538	Kuambil Lagi Hatiku	Kuambil Lagi Hatiku	2019	123.0	Drama
146140	tt9916622	Rodolpho Teóphilo - O Legado de um Pioneiro	Rodolpho Teóphilo - O Legado de um Pioneiro	2015	NaN	Documentary
146141	tt9916706	Dankyavar Danka	Dankyavar Danka	2013	NaN	Comedy
146142	tt9916730	6 Gunn	6 Gunn	2017	116.0	None
146143	tt9916754	Chico Albuquerque - Revelações	Chico Albuquerque - Revelações	2013	NaN	Documentary

146144 rows × 6 columns

In [6]:
```
#movie_rating table
q = ("""
SELECT *
FROM movie_ratings;
""")
pd.read_sql(q,conn)
```

Out[6]:

	movie_id	averagerating	numvotes
0	tt10356526	8.3	31
1	tt10384606	8.9	559
2	tt1042974	6.4	20
3	tt1043726	4.2	50352
4	tt1060240	6.5	21
...	...	...	...
73851	tt9805820	8.1	25
73852	tt9844256	7.5	24
73853	tt9851050	4.7	14
73854	tt9886934	7.0	5
73855	tt9894098	6.3	128

73856 rows × 3 columns

In [7]:
```
#combining the columns basing on the movie_id
q = ("""
SELECT primary_title, genres,runtime_minutes, averagerating, numvotes
FROM movie_basics
JOIN movie_ratings
USING (movie_id)
WHERE averagerating > 5
ORDER BY averagerating DESC
LIMIT 20;
""")

pd.read_sql(q,conn)
```

Out[7]:

	primary_title	genres	runtime_minutes	averagerating	numvotes
0	The Paternal Bond: Barbary Macaques	Documentary	59.0	10.0	5
1	Requiem voor een Boom	Documentary	48.0	10.0	5
2	Freeing Bernie Baran	Crime,Documentary	100.0	10.0	5
3	Hercule contre Hermès	Documentary	72.0	10.0	5
4	Pick It Up! - Ska in the '90s	Documentary	99.0	10.0	5
5	Revolution Food	Documentary	70.0	10.0	8
6	A Dedicated Life: Phoebe Brand Beyond the Group	Documentary	93.0	10.0	5
7	Exteriores: Mulheres Brasileiras na Diplomacia	Documentary	52.0	10.0	5
8	Dog Days in the Heartland	Drama	NaN	10.0	5
9	Fly High: Story of the Disc Dog	Documentary	65.0	10.0	7
10	Calamity Kevin	Adventure,Comedy	77.0	10.0	6
11	The Dark Knight: The Ballad of the N Word	Comedy,Drama	129.0	10.0	5
12	All Around Us	Documentary	NaN	10.0	6
13	I Was Born Yesterday!	Documentary	31.0	10.0	6
14	Ellis Island: The Making of a Master Race in A...	Documentary,History	70.0	10.0	6
15	Renegade	Documentary	NaN	10.0	20
16	The Wedding Present: Something Left Behind	Documentary	87.0	9.9	8
17	LA Foodways	Documentary	56.0	9.9	8
18	Moscow we will lose	Documentary	51.0	9.9	18
19	Wild Karnataka	Documentary	53.0	9.9	10

In [ ]:
```
# checking for all the columns in the database
q="""
SELECT *
FROM movie_basics AS b
LEFT JOIN movie_ratings AS r
ON b.movie_id = r.movie_id
WHERE r.movie_id IS NOT NULL;
"""
table = pd.read_sql(q, conn)
table.head()
```

In [8]:
```
#Looking into the overal data information
df = pd.read_sql(q, conn)
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 20 entries, 0 to 19
Data columns (total 5 columns):
 #   Column           Non-Null Count  Dtype  
---  ------           --------------  -----  
 0   primary_title    20 non-null     object 
 1   genres           20 non-null     object 
 2   runtime_minutes  17 non-null     float64
 3   averagerating    20 non-null     float64
 4   numvotes         20 non-null     int64  
dtypes: float64(2), int64(1), object(2)
memory usage: 932.0+ bytes
```

In [9]:
```
#checking for duplicates
df.duplicated()
```

Out[9]:
```
0     False
1     False
2     False
3     False
4     False
5     False
6     False
7     False
8     False
9     False
10    False
11    False
12    False
13    False
14    False
15    False
16    False
17    False
18    False
19    False
dtype: bool
```

In [10]:
```
 # Write the SQL query to select rows with missing values
q = """
SELECT*
FROM movie_ratings
WHERE averagerating IS NULL OR numvotes IS NULL;
"""

# Execute the query and read the results into a DataFrame
df = pd.read_sql(q, conn)

# Check the number of missing values in each column
missing_values_count = df.isnull().sum()

# Print the result
print(missing_values_count)
```

```
movie_id         0.0
averagerating    0.0
numvotes         0.0
dtype: float64
```

In [11]:
```
 # Write the SQL query to select rows with missing values
q = """
SELECT*
FROM movie_basics
WHERE primary_title IS NULL OR genres IS NULL OR runtime_minutes IS NULL ;
"""

# Execute the query and read the results into a DataFrame
df = pd.read_sql(q, conn)

# Check the number of missing values in each column
missing_values_count = df.isnull().sum()

# Print the result
print(missing_values_count)
```

```
movie_id              0
primary_title         0
original_title       20
start_year            0
runtime_minutes    31739
genres              5408
dtype: int64
```

In [12]:
```
#checking for duplicates  in the movie_basics table
q = ("""
SELECT movie_id, primary_title, original_title, start_year, runtime_minutes, g
FROM movie_basics
GROUP BY movie_id, primary_title, original_title, start_year, runtime_minutes,
HAVING COUNT(*) > 1;
""")
pd.read_sql(q,conn)
```

Out[12]:

movie_id	primary_title	original_title	start_year	runtime_minutes	genres	duplicate_count

In [ ]:

Data preperation

In [ ]:

In [13]:
```
# checking for all the columns in the databas
# this will help in data cleaning
q="""
SELECT *
FROM movie_basics AS b
LEFT JOIN movie_ratings AS r
ON b.movie_id = r.movie_id;
"""
df = pd.read_sql(q, conn)
df.head()
```

Out[13]:

	movie_id	primary_title	original_title	start_year	runtime_minutes	genres	mo
0	tt0063540	Sunghursh	Sunghursh	2013	175.0	Action,Crime,Drama	tt00
1	tt0066787	One Day Before the Rainy Season	Ashad Ka Ek Din	2019	114.0	Biography,Drama	tt00
2	tt0069049	The Other Side of the Wind	The Other Side of the Wind	2018	122.0	Drama	tt00
3	tt0069204	Sabse Bada Sukh	Sabse Bada Sukh	2018	NaN	Comedy,Drama	tt00
4	tt0100275	The Wandering Soap Opera	La Telenovela Errante	2017	80.0	Comedy,Drama,Fantasy	tt01

In [14]:
```
# Drop the rows with missing values from the DataFrame
df_cleaned = df.dropna()

# Check the number of missing values in each column in the cleaned DataFrame
missing_values_count_cleaned = df_cleaned.isnull().sum()

# Print the result
print(missing_values_count_cleaned)
```

```
movie_id           0
primary_title      0
original_title     0
start_year         0
runtime_minutes    0
genres             0
movie_id           0
averagerating      0
numvotes           0
dtype: int64
```

In [15]:
```
# Drop null values from the DataFrame
df.dropna(inplace=True)

# Alternatively, you can assign the result to a new DataFrame
df_cleaned = df.dropna()

# Print the cleaned DataFrame
print(df_cleaned)
```

```
         movie_id                    primary_title  \
0       tt0063540                        Sunghursh
1       tt0066787  One Day Before the Rainy Season
2       tt0069049       The Other Side of the Wind
4       tt0100275         The Wandering Soap Opera
7       tt0137204                  Joe Finds Grace
...           ...                              ...
146113  tt9911774       Padmavyuhathile Abhimanyu
146114  tt9913056                    Swarm Season
146115  tt9913084                 Diabolik sono io
146122  tt9914286                Sokagin Çocuklari
146134  tt9916160                      Drømmeland

                   original_title  start_year  runtime_minutes  \
0                       Sunghursh        2013            175.0
1                  Ashad Ka Ek Din        2019            114.0
2       The Other Side of the Wind        2018            122.0
4            La Telenovela Errante        2017             80.0
7                  Joe Finds Grace        2017             83.0
...                            ...         ...              ...
146113   Padmavyuhathile Abhimanyu        2019            130.0
146114                Swarm Season        2019             86.0
146115           Diabolik sono io        2019             75.0
146122          Sokagin Çocuklari        2019             98.0
146134                 Drømmeland        2019             72.0

                          genres   movie_id  averagerating  numvotes
0              Action,Crime,Drama  tt0063540            7.0      77.0
1                 Biography,Drama  tt0066787            7.2      43.0
2                           Drama  tt0069049            6.9    4517.0
4            Comedy,Drama,Fantasy  tt0100275            6.5     119.0
7       Adventure,Animation,Comedy  tt0137204            8.1     263.0
...                            ...        ...            ...       ...
146113                      Drama  tt9911774            8.4     365.0
146114                Documentary  tt9913056            6.2       5.0
146115                Documentary  tt9913084            6.2       6.0
146122               Drama,Family  tt9914286            8.7     136.0
146134                Documentary  tt9916160            6.5      11.0

[65720 rows x 9 columns]
```

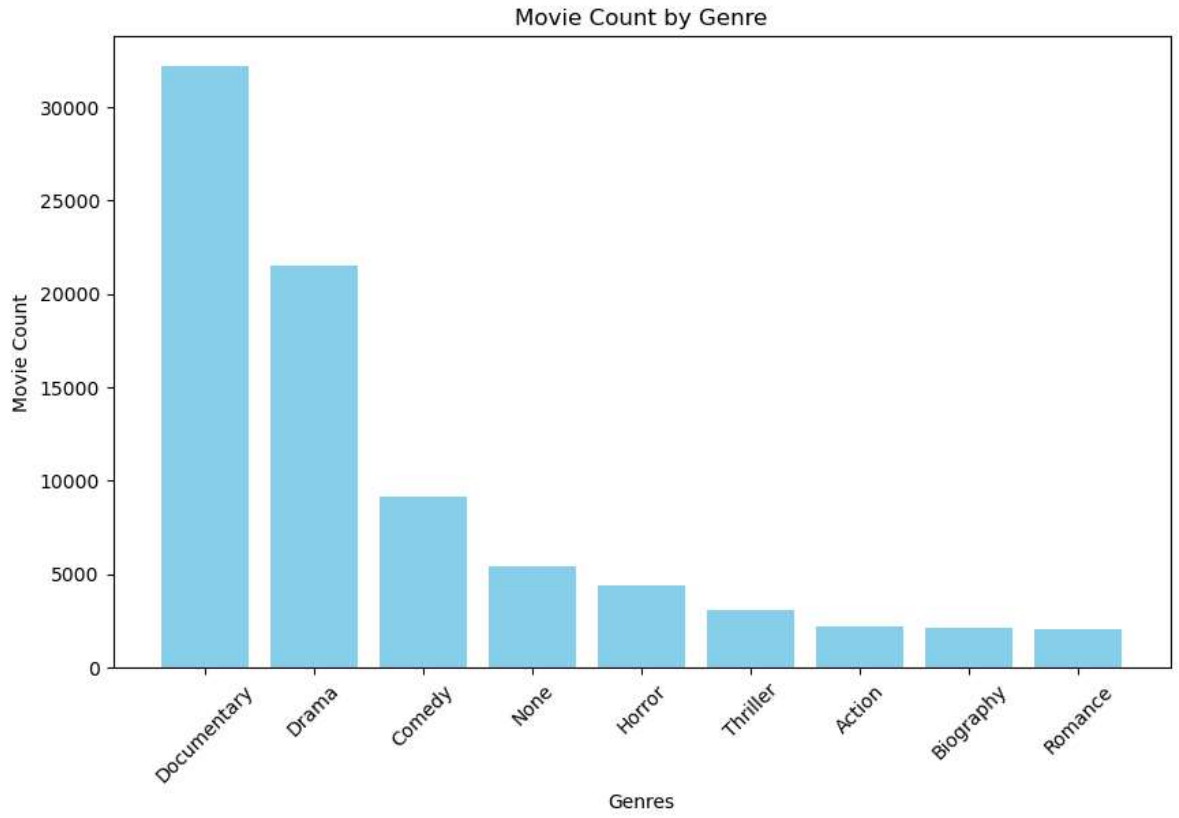
Data visualization

In [3]:
```
#top 10 genres from the movie_basics
import pandas as pd
import matplotlib.pyplot as plt

#i fetched data from the database
data = {
    'genres': ['Documentary', 'Drama', 'Comedy', 'None', 'Horror', 'Comedy', '
    'movie_count': [32185, 21486, 9177, 5408, 4372, 3519, 3046, 2219, 2115, 20
}

df = pd.DataFrame(data)

# Plotting the histogram
plt.figure(figsize=(10, 6))
plt.bar(df['genres'], df['movie_count'], color='skyblue')
plt.xlabel('Genres')
plt.ylabel('Movie Count')
plt.title('Movie Count by Genre')
plt.xticks(rotation=45)
plt.show()
```



In [29]:
```
#reading from tn.movie_budgets
movie_budget=pd.read_csv("tn.movie_budgets.csv")
print(movie_budget.head())
```

```
   id  release_date                                          movie  \
0   1  Dec 18, 2009                                         Avatar
1   2  May 20, 2011  Pirates of the Caribbean: On Stranger Tides
2   3   Jun 7, 2019                                   Dark Phoenix
3   4   May 1, 2015                    Avengers: Age of Ultron
4   5  Dec 15, 2017           Star Wars Ep. VIII: The Last Jedi

  production_budget domestic_gross worldwide_gross
0      $425,000,000   $760,507,625  $2,776,345,279
1      $410,600,000   $241,063,875  $1,045,663,875
2      $350,000,000    $42,762,350    $149,762,350
3      $330,600,000   $459,005,868  $1,403,013,963
4      $317,000,000   $620,181,382  $1,316,721,747
```

In [30]:
```
# #reading from
movie_gross=pd.read_csv("bom.movie_gross.csv")
print(movie_gross.head())
```

```
                                        title studio  domestic_gross  \
0                                Toy Story 3     BV     415000000.0
1                  Alice in Wonderland (2010)     BV     334200000.0
2  Harry Potter and the Deathly Hallows Part 1     WB     296000000.0
3                                   Inception     WB     292600000.0
4                        Shrek Forever After   P/DW     238700000.0

  foreign_gross  year
0     652000000  2010
1     691300000  2010
2     664300000  2010
3     535700000  2010
4     513900000  2010
```

In [31]:
```
pd.read_csv("rt.movie_info.tsv", sep='\t', encoding='latin1')
```

Out[31]:

	id	synopsis	rating	genre	director	writer	thea
0	1	This gritty, fast-paced, and innovative police...	R	Action and Adventure|Classics|Drama	William Friedkin	Ernest Tidyman	O
1	3	New York City, not-too-distant-future: Eric Pa...	R	Drama|Science Fiction and Fantasy	David Cronenberg	David Cronenberg|Don DeLillo	
2	5	Illeana Douglas delivers a superb performance ...	R	Drama|Musical and Performing Arts	Allison Anders	Allison Anders	
3	6	Michael Douglas runs afoul of a treacherous su...	R	Drama|Mystery and Suspense	Barry Levinson	Paul Attanasio|Michael Crichton	De
4	7	NaN	NR	Drama|Romance	Rodney Bennett	Giles Cooper	
...	...	...	...	...	...	...	
1555	1996	Forget terrorists or hijackers -- there's a ha...	R	Action and Adventure|Horror|Mystery and Suspense	NaN	NaN	
1556	1997	The popular Saturday Night Live sketch was exp...	PG	Comedy|Science Fiction and Fantasy	Steve Barron	Terry Turner|Tom Davis|Dan Aykroyd|Bonnie Turner	Ju
1557	1998	Based on a novel by Richard Powell, when the l...	G	Classics|Comedy|Drama|Musical and Performing Arts	Gordon Douglas	NaN	Ja
1558	1999	The Sandlot is a coming-of-age story about a g...	PG	Comedy|Drama|Kids and Family|Sports and Fitness	David Mickey Evans	David Mickey Evans|Robert Gunter	Ap
1559	2000	Suspended from the force, Paris cop Hubert is ...	R	Action and Adventure|Art House and Internation...	NaN	Luc Besson	

1560 rows × 12 columns

In [4]:
```
pd.read_csv("rt.reviews.tsv", sep='\t', encoding='latin1')
```

Out[4]:

	id	review	rating	fresh	critic	top_critic	publisher	date
0	3	A distinctly gallows take on contemporary fina...	3/5	fresh	PJ Nabarro	0	Patrick Nabarro	November 10, 2018
1	3	It's an allegory in search of a meaning that n...	NaN	rotten	Annalee Newitz	0	io9.com	May 23, 2018
2	3	... life lived in a bubble in financial dealin...	NaN	fresh	Sean Axmaker	0	Stream on Demand	January 4, 2018
3	3	Continuing along a line introduced in last yea...	NaN	fresh	Daniel Kasman	0	MUBI	November 16, 2017
4	3	... a perverse twist on neorealism...	NaN	fresh	NaN	0	Cinema Scope	October 12, 2017
...	...	...	...	...	...	...	...	...
54427	2000	The real charm of this trifle is the deadpan c...	NaN	fresh	Laura Sinagra	1	Village Voice	September 24, 2002
54428	2000	NaN	1/5	rotten	Michael Szymanski	0	Zap2it.com	September 21, 2005
54429	2000	NaN	2/5	rotten	Emanuel Levy	0	EmanuelLevy.Com	July 17, 2005
54430	2000	NaN	2.5/5	rotten	Christopher Null	0	Filmcritic.com	September 7, 2003
54431	2000	NaN	3/5	fresh	Nicolas Lacroix	0	Showbizz.net	November 12, 2002

54432 rows × 8 columns