Streaming Services Analysis

Team Members:
Salita Santiago
Shayna Chernak
Hima Gharat
Marcellis Valentin

Hulu

30 Million subscribers

Netflix

183 Million subscribers

More than 55% of the US population uses streaming services

Amazon

150 Million subscribers

Netflix's reported 2020 revenue was 5.77 Billion

Disney

60 Million subscribers

Disney launched a year ago and has already surpassed Hulu's subscription total

Biggest viewing increase is due to viewing time on smartphones

Do Ratings Matter?

- Streaming platforms have changed how we consume content.
- Platforms like Rotten Tomatoes and IMDB give viewers the ability to rate this content on a public forum.
- We wanted to explore a possible link between the average ratings of shows and movies on streaming platforms and which type of content streaming platforms are leaning more towards.

Data Extraction

- Data sources- CSV files from Kaggle
- Loaded into Pandas/Jupyter Notebook

In [1]:
```
import pandas as pd
from sqlalchemy import create_engine
```

In [2]:
```
movie_file = (r"C:\UPenn\ETL_Project\Netflix_Data_Analysis\movies.csv")
movie_df = pd.read_csv(movie_file)
movie_df.head()
```

Out[2]:

	ID	Title	Year	Age	IMDb	Rotten Tomatoes	Netflix	Hulu	Prime Video	Disney+	Type	Directors	Genres	Country	
0	1	Inception	2010	13+	8.8	87%	1	0	0	0	0	Christopher Nolan	Action,Adventure,Sci-Fi,Thriller	United States,United Kingdom	English,Japane
1	2	The Matrix	1999	18+	8.7	87%	1	0	0	0	0	Lana Wachowski,Lilly Wachowski	Action,Sci-Fi	United States	
2	3	Avengers: Infinity War	2018	13+	8.5	84%	1	0	0	0	0	Anthony Russo,Joe Russo	Action,Adventure,Sci-Fi	United States	
3	4	Back to the Future	1985	7+	8.5	96%	1	0	0	0	0	Robert Zemeckis	Adventure,Comedy,Sci-Fi	United States	
4	5	The Good, the Bad and	1966	18+	8.8	97%	1	0	1	0	0	Sergio Leone	Western	Italy,Spain,West Germany	

In [3]:
```
tv_file = (r"C:\UPenn\ETL_Project\Netflix_Data_Analysis\tv_shows.csv")
tv_df= pd.read_csv(tv_file)
tv_df.head()
```

Out[3]:

	ID_Number	Title	Year	Age	IMDb	Rotten Tomatoes	Netflix	Hulu	Prime Video	Disney+
0	0	Breaking Bad	2008	18+	9.5	96%	1	0	0	0
1	1	Stranger Things	2016	16+	8.8	93%	1	0	0	0
2	2	Money Heist	2017	18+	8.4	91%	1	0	0	0
3	3	Sherlock	2010	16+	9.1	78%	1	0	0	0
4	4	Better Call Saul	2015	18+	8.7	97%	1	0	0	0

In [4]:
```
#Transform Movie DataFrame
```

Data Transformation

- Cleaned data to include only pertinent information and assigned unique names to each column

In [4]:

```
#Transform Movie DataFrame
movie_cols= ["Title", "IMDb", "Netflix", "Hulu", "Prime Video", "Disney+" ]
movie_transformed= movie_df[movie_cols].copy()

#Rename column headers
movie_transformed = movie_transformed.rename(columns={"Title": "movietitle_id",
                                                      "IMDb" : "movieimdb_id",
                                                      "Netflix": "movienetflix_id",
                                                      "Hulu": "moviehulu_id",
                                                      "Prime Video": "movieprime_id",
                                                      "Disney+": "moviedisney_id"})
movie_transformed.head()
```

Out[4]:

	movietitle_id	movieimdb_id	movienetflix_id	moviehulu_id	movieprime_id	moviedisney_id
0	Inception	8.8	1	0	0	0
1	The Matrix	8.7	1	0	0	0
2	Avengers: Infinity War	8.5	1	0	0	0
3	Back to the Future	8.5	1	0	0	0
4	The Good, the Bad and the Ugly	8.8	1	0	1	0

In [5]:

```
#Transform TV DataFrame
tv_cols= ["Title", "IMDb", "Netflix", "Hulu", "Prime Video", "Disney+" ]
tv_transformed= tv_df[tv_cols].copy()

#Rename column headers
tv_transformed = tv_transformed.rename(columns={"Title": "tvtitle_id",
                                                "IMDb" : "tvimdb_id",
                                                "Netflix": "tvnetflix_id",
                                                "Hulu": "tvhulu_id",
                                                "Prime Video": "tvprime_id",
                                                "Disney+": "tvdisney_id"})
tv_transformed.head()
```

Out[5]:

	tvtitle_id	tvimdb_id	tvnetflix_id	tvhulu_id	tvprime_id	tvdisney_id
0	Breaking Bad	9.5	1	0	0	0
1	Stranger Things	8.8	1	0	0	0
2	Money Heist	8.4	1	0	0	0
3	Sherlock	9.1	1	0	0	0

Data Loading

- Once data was transformed, we created a database connection to PostgreSQL

```
#Rename column headers
tv_transformed = tv_transformed.rename(columns={"Title": "tvtitle_id",
                                                "IMDb" : "tvimdb_id",
                                                "Netflix": "tvnetflix_id",
                                                "Hulu": "tvhulu_id",
                                                "Prime Video": "tvprime_id",
                                                "Disney+": "tvdisney_id"})
tv_transformed.head()
```

Out[5]:

	tvtitle_id	tvimdb_id	tvnetflix_id	tvhulu_id	tvprime_id	tvdisney_id
0	Breaking Bad	9.5	1	0	0	0
1	Stranger Things	8.8	1	0	0	0
2	Money Heist	8.4	1	0	0	0
3	Sherlock	9.1	1	0	0	0
4	Better Call Saul	8.7	1	0	0	0

In [6]:

```
#create database connection
connection_string = "postgres:rycbar706@localhost:5432/Streaming_Service_Analysis"
engine= create_engine(f'postgresql://{connection_string}')
```

In [7]:

```
#confirm tables
engine.table_names()
```

Out[7]: []

In [8]:

```
#load dataframes into database
movie_transformed.to_sql(name= 'movie', con=engine, if_exists='append', index= True)
```

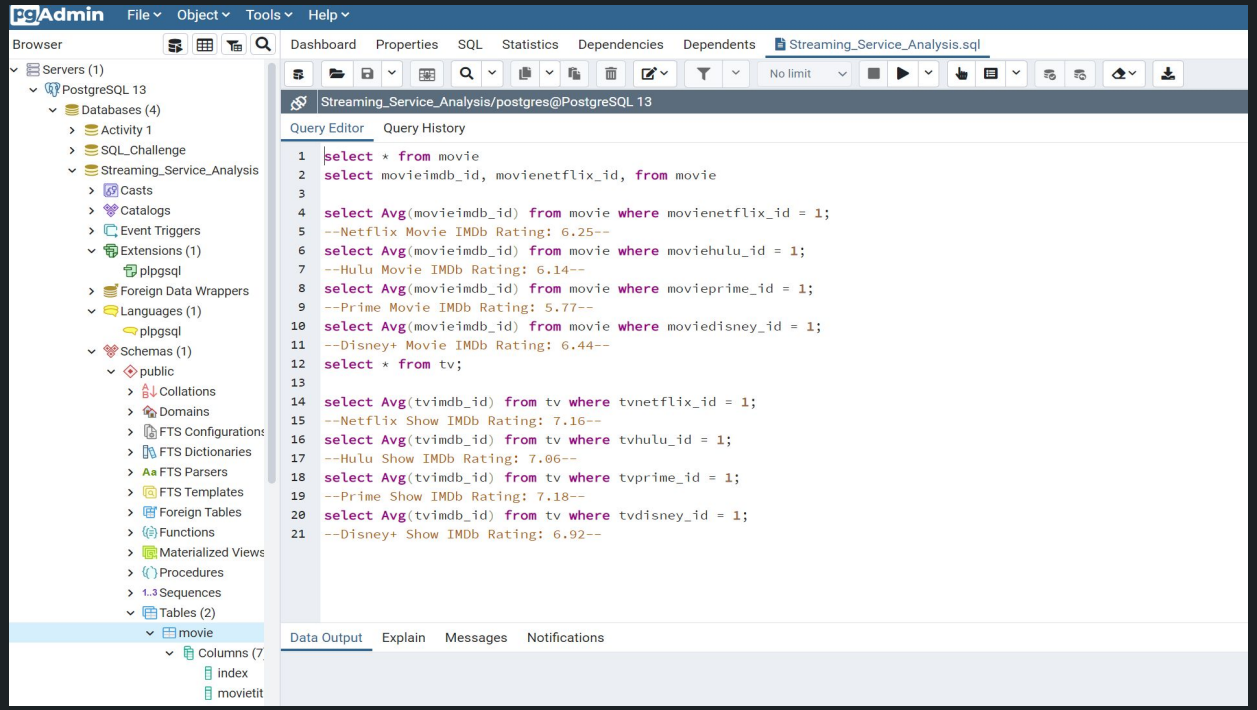
In [9]:

```
tv_transformed.to_sql(name= "tv", con=engine, if_exists= 'append', index= True)
```

In [ ]:

SQL Queries

- Queried averages of IMDb Ratings of shows and movies from each streaming platform to determine which is more popular in each



Conclusion

- Based on the ratings on IMDB, we found that TV shows had higher ratings compared to Movies.
- This leads us to believe that, on average, viewers tend to like TV shows more than movies.

DATA SOURCES

https://www.kaggle.com/ruchi798/tv-shows-on-netflix-prime-video-hulu-and-disney?select=tv_shows.csv

https://www.kaggle.com/ruchi798/movies-on-netflix-prime-video-hulu-and-disney?select=MoviesOnStreamingPlatforms_updated.csv

References:

https://www.investopedia.com/articles/markets/051215/who-are-netflixs-main-competitors-nflx.asp

Questions?