

Exclamatory Data Analysis
&
Data Visualization
Of
NETFLIX Movies and TV Shows
Using Python

Introduction

Netflix, Inc. is an American technology and media services provider and production company headquartered in Los Gatos, California. Netflix was founded in 1997 by Reed Hastings and Marc Randolph in Scotts Valley, California. The company's primary business is its subscription-based streaming service, which offers online streaming of a library of films and television series, including those produced in-house.

Netflix is a popular entertainment service used by people around the world. This EDA will explore the Netflix dataset through visualizations and graphs using python libraries, matplotlib, and seaborn.

We've used TV Shows and Movies listed on the Netflix dataset from Kaggle. The dataset consists of TV Shows and Movies available on Netflix as of 2019. The dataset is collected from Flixable, which third-party Netflix search engine. We've done the analysis in Python by using its libraries like Numpy, Pandas, matplotlib, Seaborn.

By using These libraries we are able to import the dataset, clean the data, analyse and visualize the data the dataset from Kaggle Database.

Code and Resources

We have analysed the dataset using python. The dataset that we have taken can contains information about movies, Tv shows, documentaries that are owned by NETFLIX Platform . We have done EDA and Data Visualization for NETFLIX Data.

Importing python Libraries - numpy,panda,matplotlib,seaborn

```
In [3]: import numpy as np
import pandas as pd
import matplotlib
import matplotlib.pyplot as plt
import seaborn as sns
import warnings
warnings.filterwarnings('ignore')

sns.set_style('darkgrid')
matplotlib.rcParams['font.size'] = 14
matplotlib.rcParams['figure.facecolor'] = '#00000000'
```

Reading Data from dataset

```
In [2]: netflix_data=pd.read_excel("netflix1.xlsx")
netflix_data
```

	show_id	type	title	director	cast	country	date_added	release_year	rating	duration	listed_in	description
0	81145628	Movie	Norm of the North: King Sized Adventure	Richard Finn, Tim Malby	Alan Marriott, Andrew Toth, Brian Dobson, Cole...	United States, India, South Korea, China	September 9, 2019	2019.0	TV-PG	90 min	Children & Family Movies, Comedies	Before planning an awesome wedding for his gra...
1	80117401	Movie	Jandino: Whatever it Takes	NaN	Jandino Asporaat	United Kingdom	September 9, 2016	2016.0	TV-MA	94 min	Stand-Up Comedy	Jandino Asporaat riffs on the challenges of ra...
2	70234439	TV Show	Transformers Prime	NaN	Peter Cullen, Sumalee Montano, Frank Welker, J...	United States	September 8, 2018	2018.0	TV-Y7-FV	1 Season	Kids TV	With the help of three human allies, the Autob...
3	80059654	TV Show	Transformers: Robots in Disguise	NaN	Will Friedle, Darren Criss, Constance Zimmer, ...	United States	September 8, 2018	2018.0	TV-Y7	1 Season	Kids TV	When a prison ship crash unleashes hundreds of...
4	80125979	Movie	#realityhigh	Fernando Lebrja	Nesta Cooper, Kate Walsh, John Michael Higgins...	United States	September 8, 2017	2017.0	TV-14	99 min	Comedies	When nerdy high schooler Dani finally attracts...
...
6230	80000603	TV Show	Red vs. Blue	NaN	Burnie Burns, Jason Saldana, Gustavo Sorola, G...	United States	NaN	2015.0	NR	13 Seasons	TV Action & Adventure, TV Comedies, TV Sci-Fi ...	This parody of first-person shooter games, mil...
6231	70285664	TV Show	Maron	NaN	Marc Maron, Judd Hirsch, Josh Brener, Nora Zeh...	United States	NaN	2016.0	TV-MA	4 Seasons	TV Comedies	Marc Maron stars as Marc Maron, who stars as Marc Maron, who interviews...
6232	80110008	Movie	Little Baby Bum: Nursery Rhyme Friends	NaN	NaN	NaN	NaN	2016.0	TV-MA	60 min	Movies	Nursery rhymes and original music for children...
6233	70281022	TV Show	A Young Doctor's Notebook and Other Stories	NaN	Daniel Radcliffe, Jon Hamm, Adam Godley, Chris...	United Kingdom	NaN	2013.0	TV-MA	2 Seasons	British TV Shows, TV Comedies, TV Dramas	Set during the Russian Revolution, this comic...
6234	70153404	TV Show	Friends	NaN	Jennifer Aniston, Courteney Cox, Lisa Kudrow, ...	United States	NaN	2003.0	TV-14	10 Seasons	Classic & Cult TV, TV Comedies	This hit sitcom follows the merry misadventur...

6235 rows × 12 columns

Converting data into Dataframe for our convenience

```
In [3]: netflix_df=pd.DataFrame(netflix_data)
netflix_df
```

	show_id	type	title	director	cast	country	date_added	release_year	rating	duration	listed_in	description
0	81145628	Movie	Norm of the North: King Sized Adventure	Richard Finn, Tim Malby	Alan Marriott, Andrew Toth, Brian Dobson, Cole...	United States, India, South Korea, China	September 9, 2019	2019.0	TV-PG	90 min	Children & Family Movies, Comedies	Before planning an awesome wedding for his gra...
1	80117401	Movie	Jandino: Whatever it Takes	NaN	Jandino Asporaat	United Kingdom	September 9, 2016	2016.0	TV-MA	94 min	Stand-Up Comedy	Jandino Asporaat riffs on the challenges of ra...
2	70234439	TV Show	Transformers Prime	NaN	Peter Cullen, Sumalee Montano, Frank Welker, J...	United States	September 8, 2018	2018.0	TV-Y7-FV	1 Season	Kids TV	With the help of three human allies, the Autob...
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6232	80110008	Movie	Little Baby Bum: Nursery Rhyme Friends	NaN	NaN	NaN	NaN	2016.0	TV-MA	60 min	Movies	Nursery rhymes and original music for children...
6233	70281022	TV Show	A Young Doctor's Notebook and Other Stories	NaN	Daniel Radcliffe, Jon Hamm, Adam Godley, Chris...	United Kingdom	NaN	2013.0	TV-MA	2 Seasons	British TV Shows, TV Comedies, TV Dramas	Set during the Russian Revolution, this comic...
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6235 rows × 12 columns

To know shape of Dataset

```
In [4]: netflix_df.shape
```

```
Out[4]: (6235, 12)
```

To view first 5 rows

```
In [5]: netflix_df.head(5)
```

	show_id	type	title	director	cast	country	date_added	release_year	rating	duration	listed_in	description
0	81145628	Movie	Norm of the North: King Sized Adventure	Richard Finn, Tim Malby	Alan Marriott, Andrew Toth, Brian Dobson, Cole...	United States, India, South Korea, China	September 9, 2019	2019.0	TV-PG	90 min	Children & Family Movies, Comedies	Before planning an awesome wedding for his gra...
1	80117401	Movie	Jandino: Whatever it Takes	NaN	Jandino Asporaat	United Kingdom	September 9, 2016	2016.0	TV-MA	94 min	Stand-Up Comedy	Jandino Asporaat riffs on the challenges of ra...
2	70234439	TV Show	Transformers Prime	NaN	Peter Cullen, Sumalee Montano, Frank Welker, J...	United States	September 8, 2018	2018.0	TV-Y7-FV	1 Season	Kids TV	With the help of three human allies, the Autob...
3	80059654	TV Show	Transformers: Robots in Disguise	NaN	Will Friedle, Darren Criss, Constance Zimmer, ...	United States	September 8, 2018	2018.0	TV-Y7	1 Season	Kids TV	When a prison ship crash unleashes hundreds of...
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...
6230	80000603	TV Show	Red vs. Blue	NaN	Burnie Burns, Jason Saldana, Gustavo Sorola, G...	United States	NaN	2015.0	NR	13 Seasons	TV Action & Adventure, TV Comedies, TV Sci-Fi ...	This parody of first-person shooter games, mil...
6231	70285664	TV Show	Maron	NaN	Marc Maron, Judd Hirsch, Josh Brener, Nora Zeh...	United States	NaN	2016.0	TV-MA	4 Seasons	TV Comedies	Marc Maron stars as Marc Maron, who stars as Marc Maron, who interviews...
6232	80110008	Movie	Little Baby Bum: Nursery Rhyme Friends	NaN	NaN	NaN	NaN	2016.0	TV-MA	60 min	Movies	Nursery rhymes and original music for children...
6233	70281022	TV Show	A Young Doctor's Notebook and Other Stories	NaN	Daniel Radcliffe, Jon Hamm, Adam Godley, Chris...	United Kingdom	NaN	2013.0	TV-MA	2 Seasons	British TV Shows, TV Comedies, TV Dramas	Set during the Russian Revolution, this comic...
6234	70153404	TV Show	Friends	NaN	Jennifer Aniston, Courteney Cox, Lisa Kudrow, ...	United States	NaN	2003.0	TV-14	10 Seasons	Classic & Cult TV, TV Comedies	This hit sitcom follows the merry misadventur...

6235 rows × 12 columns

Displaying The Information of our Dataset

```
In [7]: netflix_df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 6235 entries, 0 to 6234
Data columns (total 12 columns):
#   Column      Non-Null Count  Dtype
---  ---
0   show_id     6235 non-null   object
1   type        6234 non-null   object
2   title       6234 non-null   object
3   director    4265 non-null   object
4   cast        5664 non-null   object
5   country     5798 non-null   object
6   date_added  6223 non-null   object
7   release_year 6234 non-null   float64
8   rating      6224 non-null   object
9   duration    6234 non-null   object
10  listed_in   6234 non-null   object
11  description  6234 non-null   object
dtypes: float64(1), object(11)
memory usage: 584.7+ KB
```

To determine dimension of dataset

```
In [8]: netflix_df.ndim
```

```
Out[8]: 2
```

To check Null values in our dataset

```
In [9]: netflix_df.isnull()
```

	show_id	type	title	director	cast	country	date_added	release_year	rating	duration	listed_in	description
0	False	False	False	False	False	False	False	False	False	False	False	False
1	False	False	False	True	False	False	False	False	False	False	False	False
2	False	False	False	True	False	False	False	False	False	False	False	False
3	False	False	False	True	False	False	False	False	False	False	False	False
4	False	False	False	False	False	False	False	False	False	False	False	False
...
6230	False	False	False	True	False	False	True	False	False	False	False	False
6231	False	False	False	True	False	False	True	False	False	False	False	False
6232	False	False	False	True	True	True	True	False	True	False	False	False
6233	False	False	False	True	False	True	True	False	False	False	False	False
6234	False	False	False	True	False	False	True	False	False	False	False	False

6235 rows × 12 columns

To display total no. of null values

```
In [10]: netflix_df.isnull().sum()
```

```
Out[10]: show_id      0
type          1
title         1
director      1970
cast          571
country       477
date_added    12
release_year   1
rating        11
duration      1
listed_in     1
description   1
dtype: int64
```

To display sum of duplicates

```
In [11]: netflix_df.duplicated().sum()
```

```
Out[11]: 0
```

To display Column names

```
In [12]: netflix_df.columns
```

```
Out[12]: Index(['show_id', 'type', 'title', 'director', 'cast', 'country', 'date_added',
      'release_year', 'rating', 'duration', 'listed_in', 'description'],
      dtype='object')
```

To display top 30 rows of basic info for a movie or a TV show

```
In [13]: netflix_df[['title','cast','country','description']].head(30)
```

	title	cast	country	description
0	Norm of the North: King Sized Adventure	Alan Marriott, Andrew Toth, Brian Dobson, Cole...	United States, India, South Korea, China	Before planning an awesome wedding for his gra...
1	Jandino: Whatever it Takes	Jandino Asporaat	United Kingdom	Jandino Asporaat riffs on the challenges of ra...
2	Transformers Prime	Peter Cullen, Sumalee Montano, Frank Welker, J...	United States	With the help of three human allies, the Autob...
3	Transformers: Robots in Disguise	Will Friedle, Darren Criss, Constance Zimmer, ...	United States	When a prison ship crash unleashes hundreds of...
4	#realityhigh	Nesta Cooper, Kate Walsh, John Michael Higgins...	United States	When nerdy high schooler Dani finally attracts...
5	Apaches	Alberto Ammann, Eloy Azorin, Verónica Echegui...	Spain	A young journalist is forced into a life of cr...
6	Automata	Antonio Banderas, Dylan McDermott, Melanie Gri...	Bulgaria, United States, Spain, Canada	In a dystopian future, an insurance adjuster f...
7	Fabrizio Copano: Solo pienso en mi	Fabrizio Copano	Chile	Fabrizio Copano takes audience participation L...
8	Fire Chasers	NaN	United States	As California's 2016 fire season rages, brave ...
9	Good People	James Franco, Kate Hudson, Tom Wilkinson, Omar...	United States, United Kingdom, Denmark, Sweden	A struggling couple can't believe their luck w...
10	Joaquin Reyes: Una y no más	Joaquin Reyes	NaN	Comedian and celebrity impersonator Joaquin Re...
11	Kidnapping Mr. Heineken	Jim Sturgess, Sam Worthington, Ryan Kwatra, A...	Netherlands, Belgium, United Kingdom, United S...	When beer magnate Alfred "Freddy" Heineken is ...
12	Krish Trish and Baliboy: Battle of Wits	Damandeep Singh Baggan, Smita Malhotra, Baba S...	NaN	A team of minstrels, including a monkey, cat a...
13	Krish Trish and Baliboy: Best Friends Forever	Damandeep Singh Baggan, Smita Malhotra, Deepak...	NaN	An artisan is cheated of his payment, a lion o...
14	Krish Trish and Baliboy: Battle of Wits	Damandeep Singh Baggan, Smita Malhotra, Baba S...	NaN	A cat, monkey and donkey team up to narrate fo...
15	Krish Trish and Baliboy: Comics of India	Damandeep Singh Baggan, Smita Malhotra, Baba S...	NaN	In three comic-strip-style tales, a boy tries...
16	Krish Trish and Baliboy: Oversmartness Never	Rishi Gamhir, Smita Malhotra, Deepak Chodra	NaN	A cat, monkey and donkey learn the consequence...
17	Krish Trish and Baliboy: Part II	Damandeep Singh Baggan, Smita Malhotra, Baba S...	NaN	Animal minstrels narrate stories about a mork...
18	Krish Trish and Baliboy: The Greatest Trick	Damandeep Singh Baggan, Smita Malhotra, Baba S...	NaN	The consequences of mischief are explored in s...
19	Love	Karl Glusman, Klara Koshin, Asmi Muycoff, Ugo ...	France, Belgium	A man in an unsatisfying marriage recalls the ...
20	Marlathan Romance	Tom O'Brien, Katherine Waterston, Caitlin Fitz...	United States	A filmmaker working on a documentary about lov...
21	Moonwalkers	Ron Perlman, Rupert Grint, Robert Sheehán, Ste...	France, Belgium	A brain-added war vet, a talking band manager...
22	Rolling Papers	NaN	United States, Uruguay	In 1989, a young doctor industry takes a hit, The Den...
23	Stonehearst Asylum	Kate Beckinsale, Jim Sturgess, David Thewlis, ...	United States	As a volatile young couple who have been toget...
24	The Runner	Nicolas Cage, Sarah Paulson, Connie Nielsen, W...	United States	A New Orleans politician finds his idealistic ...
25	6 Years	Tatasa Farniga, Ben Rosenfield, Lindsay Burdge...	United States	Women who've been sexually brutalized in war-l...
26	Castle of Wonders	Chaiyapoi Pupert, Jintarutda Lummakaron, Worra...	NaN	As four couples with different lifestyles go l...
27	City of Joy	NaN	United States	When an intimate look at the emotionally charg...
28	First and Last	NaN	NaN	Take an intimate look at the emotionally charg...
29	Laddaland	Saharai Sangkapreecha, Pok Piyatida Woramusuk...	Thailand	When a family moves into an upscale housing de...

To Display different movies and Tv shows details in Netflix of Top 15 data

```
In [14]: netflix_df[['title','type','country','release_year','duration','listed_in']].head(15)
```

	title	type	country	release_year	duration	listed_in
0	Norm of the North: King Sized Adventure	Movie	United States, India, South Korea, China	2019.0	90 min	Children & Family Movies, Comedies
1	Jandino: Whatever it Takes	Movie	United Kingdom	2016.0	94 min	Stand-Up Comedy
2	Transformers Prime	TV Show	United States	2018.0	1 Season	Kids TV
3	Transformers: Robots in Disguise	TV Show	United States	2018.0	1 Season	Kids TV
4	#realityhigh	Movie	United States	2017.0	99 min	Comedies
5	Apaches	Movie	Spain	2016.0	1 Season	Crime TV Shows, International TV Shows, Span...
6	Automata	Movie	Bulgaria, United States, Spain, Canada	2014.0	110 min	International Movies, Sci-Fi & Fantasy, Thrillers
7	Fabrizio Copano: Solo pienso en mi	Movie	Chile	2017.0	60 min	Stand-Up Comedy
8	Fire Chasers	TV Show	United States	2017.0	1 Season	Docuseries, Science & Nature TV
9	Good People	Movie	United States, United Kingdom, Denmark, Sweden	2014.0	90 min	Action & Adventure, Thrillers
10	Joaquin Reyes: Una y no más	Movie	NaN	2017.0	78 min	Stand-Up Comedy
11	Kidnapping Mr. Heineken	Movie	Netherlands, Belgium, United Kingdom, United S...	2015.0	95 min	Action & Adventure, Dramas, International Movies
12	Krish Trish and Baliboy	Movie	NaN	2009.0	58 min	Children & Family Movies
13	Krish Trish and Baliboy: Battle of Wits	Movie	NaN	2013.0	62 min	Children & Family Movies
14	Krish Trish and Baliboy: Best Friends Forever	Movie	NaN	2016.0	65 min	Children & Family Movies

Data cleaning

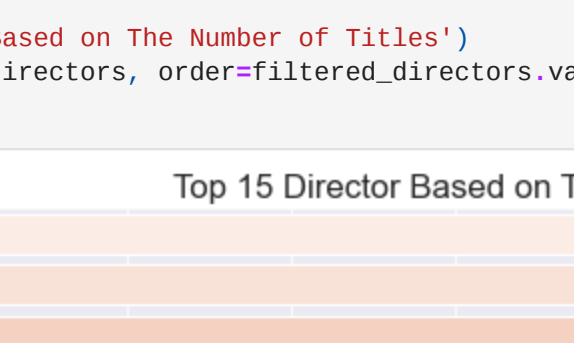
```
In [15]: #handling missing value
netflix_df.director.fillna("No Director", inplace=True)
netflix_df.cast.fillna("No Cast", inplace=True)
netflix_df.country.fillna("Country Unavailable", inplace=True)
netflix_df.dropna(subset=["date_added", "rating"], inplace=True)
```

Data Visualization

Netflix Content By Type

```
In [16]: plt.figure(figsize=(12,6))
plt.title('Percentage of Netflix Titles that are either Movies or TV Shows',fontsize=25, fontweight='bold')
g = sns.countplot(y = filtered_genres, order=filtered_genres.value_counts().index[:25])
plt.figure(figsize=(12,7))
plt.title('Top 25 Genres on Netflix')
plt.xlabel('Titles')
plt.ylabel('Genres')
plt.show()
```

Percentage of Netflix Titles that are either Movies or TV Shows



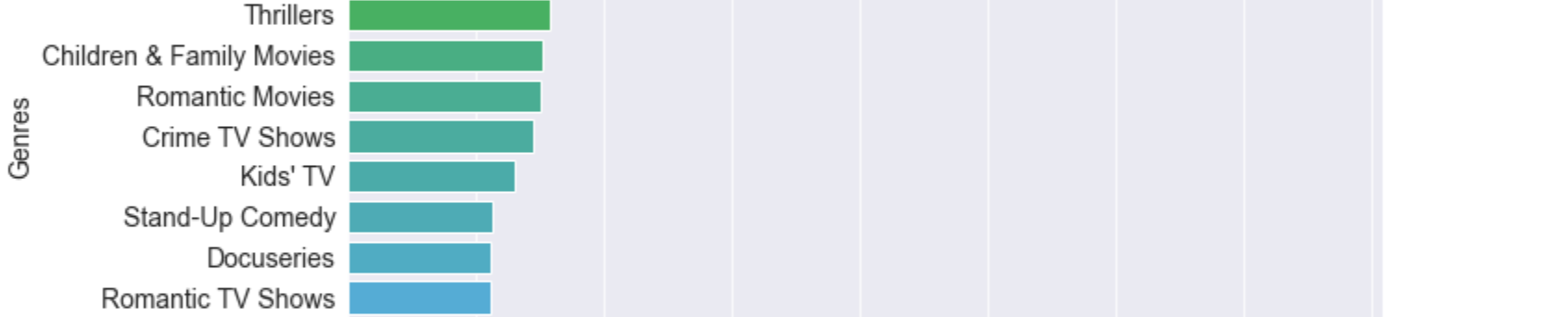
Countries by the Amount that Produces Content

```
In [17]: filtered_countries = netflix_df.set_index('title').country.str.split(' ', expand=True).stack().reset_index(level=1, drop=True);
filtered_countries = filtered_countries[filtered_countries != 'Country Unavailable']
plt.figure(figsize=(13,7))
g = sns.countplot(y = filtered_countries, order=filtered_countries.value_counts().index[:30])
plt.title('Top 30 Countries Contributor on Netflix')
plt.xlabel('Titles')
plt.ylabel('Countries')
plt.show()
```



Top Directors on Netflix

```
In [18]: filtered_directors = netflix_df.set_index('title').director.str.split(' ', expand=True).stack().reset_index(level=1, drop=True)
filtered_directors = filtered_directors[filtered_directors != 'No Director']
sns.countplot(y = filtered_directors, order=filtered_directors.value_counts().index[:15], palette='Reds')
plt.show()
```



Top Genres on Netflix

```
In [19]: filtered_genres = netflix_df.set_index('title').listed_in.str.split(' ', expand=True).stack().reset_index(level=1, drop=True);
filtered_genres = filtered_genres[filtered_genres != 'Country Unavailable']
g = sns.countplot(y = filtered_gen
```