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1 Netflix Data Analysis

[1]:
```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
```

[2]:
```
df = pd.read_csv('mymoviedb.csv',lineterminator = '\n')
```

[3]:
```
df.head()
```

[3]:
```
  Release_Date                    Title  \
0   2021-12-15  Spider-Man: No Way Home
1   2022-03-01               The Batman
2   2022-02-25                  No Exit
3   2021-11-24                  Encanto
4   2021-12-22          The King's Man

                                            Overview  Popularity  Vote_Count  \
0  Peter Parker is unmasked and no longer able to…    5083.954        8940
1  In his second year of fighting crime, Batman u…    3827.658        1151
2  Stranded at a rest stop in the mountains durin…    2618.087         122
3  The tale of an extraordinary family, the Madri…    2402.201        5076
4  As a collection of history's worst tyrants and…    1895.511        1793

   Vote_Average Original_Language                             Genre  \
0           8.3                en  Action, Adventure, Science Fiction
1           8.1                en           Crime, Mystery, Thriller
2           6.3                en                            Thriller
3           7.7                en  Animation, Comedy, Family, Fantasy
4           7.0                en    Action, Adventure, Thriller, War

                                          Poster_Url
0  https://image.tmdb.org/t/p/original/1g0dhYtq4i…
1  https://image.tmdb.org/t/p/original/74xTEgt7R3…
2  https://image.tmdb.org/t/p/original/vDHsLnOWKl…
3  https://image.tmdb.org/t/p/original/4j0PNHkMr5…
```

```
4  https://image.tmdb.org/t/p/original/aq4Pwv5Xeu…
```

[4]:
```
df['Genre'].head()
```

[4]:
```
0    Action, Adventure, Science Fiction
1             Crime, Mystery, Thriller
2                              Thriller
3    Animation, Comedy, Family, Fantasy
4      Action, Adventure, Thriller, War
Name: Genre, dtype: object
```

1.1 Data Preprossesing

[5]:
```
df.duplicated().sum()
```

[5]:
```
0
```

1.1.1 Basic Statistics

[6]:
```
df.describe()
```

[6]:

	Popularity	Vote_Count	Vote_Average
count	9827.000000	9827.000000	9827.000000
mean	40.326088	1392.805536	6.439534
std	108.873998	2611.206907	1.129759
min	13.354000	0.000000	0.000000
25%	16.128500	146.000000	5.900000
50%	21.199000	444.000000	6.500000
75%	35.191500	1376.000000	7.100000
max	5083.954000	31077.000000	10.000000

[7]:
```
df.describe().round()
```

[7]:

	Popularity	Vote_Count	Vote_Average
count	9827.0	9827.0	9827.0
mean	40.0	1393.0	6.0
std	109.0	2611.0	1.0
min	13.0	0.0	0.0
25%	16.0	146.0	6.0
50%	21.0	444.0	6.0
75%	35.0	1376.0	7.0
max	5084.0	31077.0	10.0

1.1.2 Preprosessing The Date

[38]:
```
df['Release_Date'] = pd.to_datetime(df['Release_Date'])
print(df['Release_Date'].dtypes)
```

```
datetime64[ns]
```

[ ]:
```
# df['Release_Date']=pd.to_datetime(df['Release_Date'])
# print(df['Release_Date'].dtypes)
```

[39]:
```
df['Release_Date']=df['Release_Date'].dt.year
df['Release_Date'].dtypes
```

[39]:
```
dtype('int32')
```

[10]:
```
df.head()
```

[10]:

	Release_Date	Title	Overview	Popularity	Vote_Count	Vote_Average	Original_Language	Genre	Poster_Url
0	2021	Spider-Man: No Way Home	Peter Parker is unmasked and no longer able to…	5083.954	8940	8.3	en	Action, Adventure, Science Fiction	https://image.tmdb.org/t/p/original/1g0dhYtq4i…
1	2022	The Batman	In his second year of fighting crime, Batman u…	3827.658	1151	8.1	en	Crime, Mystery, Thriller	https://image.tmdb.org/t/p/original/74xTEgt7R3…
2	2022	No Exit	Stranded at a rest stop in the mountains durin…	2618.087	122	6.3	en	Thriller	https://image.tmdb.org/t/p/original/vDHsLnOWKl…
3	2021	Encanto	The tale of an extraordinary family, the Madri…	2402.201	5076	7.7	en	Animation, Comedy, Family, Fantasy	https://image.tmdb.org/t/p/original/4j0PNHkMr5…
4	2021	The King's Man	As a collection of history's worst tyrants and…	1895.511	1793	7.0	en	Action, Adventure, Thriller, War	https://image.tmdb.org/t/p/original/aq4Pwv5Xeu…

1.1.3 Droping The Column

[11]:
```
cols = ['Overview','Original_Language','Poster_Url']
df.drop(cols, axis=1, inplace = True)
df.columns
```

[11]:
```
Index(['Release_Date', 'Title', 'Popularity', 'Vote_Count', 'Vote_Average',
       'Genre'],
      dtype='object')
```

[12]:
```
df.head()
```

[12]:

	Release_Date	Title	Popularity	Vote_Count	Vote_Average	Genre
0	2021	Spider-Man: No Way Home	5083.954	8940	8.3	Action, Adventure, Science Fiction
1	2022	The Batman	3827.658	1151	8.1	Crime, Mystery, Thriller
2	2022	No Exit	2618.087	122	6.3	Thriller
3	2021	Encanto	2402.201	5076	7.7	Animation, Comedy, Family, Fantasy
4	2021	The King's Man	1895.511	1793	7.0	Action, Adventure, Thriller, War

[13]:
```
def categorize_col(df,col,labels):
    edges = [df[col].describe()['min'],
             df[col].describe()['25%'],
             df[col].describe()['50%'],
             df[col].describe()['75%'],
             df[col].describe()['max']]
    df[col] = pd.cut(df[col],edges, labels= labels, duplicates='drop')
    return df
```

[14]:
```
labels = ['not_popular', 'below_avg', 'average', 'popular']
categorize_col(df,'Vote_Average',labels)
df['Vote_Average'].unique()
```

[14]:
```
['popular', 'below_avg', 'average', 'not_popular', NaN]
Categories (4, object): ['not_popular' < 'below_avg' < 'average' < 'popular']
```

[15]:
```
df.head()
```

[15]:

	Release_Date	Title	Popularity	Vote_Count	Vote_Average	Genre
0	2021	Spider-Man: No Way Home	5083.954	8940	popular	Action, Adventure, Science Fiction
1	2022	The Batman	3827.658	1151	popular	Crime, Mystery, Thriller

```
2          2022                  No Exit    2618.087         122    below_avg
3          2021                  Encanto    2402.201        5076      popular
4          2021          The King's Man    1895.511        1793      average

                              Genre
0  Action, Adventure, Science Fiction
1           Crime, Mystery, Thriller
2                           Thriller
3  Animation, Comedy, Family, Fantasy
4   Action, Adventure, Thriller, War
```

[16]:
```
df['Vote_Average'].value_counts()
```

[16]:
```
Vote_Average
not_popular    2467
popular        2450
average        2412
below_avg      2398
Name: count, dtype: int64
```

[17]:
```
df.dropna(inplace = True)
df.isna().sum()
```

[17]:
```
Release_Date    0
Title           0
Popularity      0
Vote_Count      0
Vote_Average    0
Genre           0
dtype: int64
```

1.1.4 Spliting the Genre

[18]:
```
df['Genre']=df['Genre'].str.split(', ')
df = df.explode('Genre').reset_index(drop=True)
df.head()
```

[18]:
```
   Release_Date                  Title  Popularity  Vote_Count Vote_Average  \
0          2021  Spider-Man: No Way Home    5083.954        8940      popular
1          2021  Spider-Man: No Way Home    5083.954        8940      popular
2          2021  Spider-Man: No Way Home    5083.954        8940      popular
3          2022               The Batman    3827.658        1151      popular
4          2022               The Batman    3827.658        1151      popular

            Genre
0          Action
1       Adventure
```

```
2  Science Fiction
3            Crime
4          Mystery
```

[19]:
```
#casting Categories into Column

df['Genre'] = df['Genre'].astype('category')
df['Genre'].dtypes
```

[19]:
```
CategoricalDtype(categories=['Action', 'Adventure', 'Animation', 'Comedy',
'Crime',
                  'Documentary', 'Drama', 'Family', 'Fantasy', 'History',
                  'Horror', 'Music', 'Mystery', 'Romance', 'Science Fiction',
                  'TV Movie', 'Thriller', 'War', 'Western'],
, ordered=False, categories_dtype=object)
```

[20]:
```
df.info
```

[20]:
```
<bound method DataFrame.info of        Release_Date
Title  Popularity  \
0              2021               Spider-Man: No Way Home    5083.954
1              2021               Spider-Man: No Way Home    5083.954
2              2021               Spider-Man: No Way Home    5083.954
3              2022                            The Batman    3827.658
4              2022                            The Batman    3827.658
…               …                                     …           …
25547          2021  The United States vs. Billie Holiday      13.354
25548          2021  The United States vs. Billie Holiday      13.354
25549          1984                               Threads      13.354
25550          1984                               Threads      13.354
25551          1984                               Threads      13.354

       Vote_Count Vote_Average            Genre
0            8940      popular           Action
1            8940      popular        Adventure
2            8940      popular  Science Fiction
3            1151      popular            Crime
4            1151      popular          Mystery
…             …           …                …
25547         152      average            Drama
25548         152      average          History
25549         186      popular              War
25550         186      popular            Drama
25551         186      popular  Science Fiction

[25552 rows x 6 columns]>
```

[21]:
```
df.head()
```

[21]:
```
   Release_Date                  Title  Popularity  Vote_Count Vote_Average  \
0          2021  Spider-Man: No Way Home    5083.954        8940      popular
1          2021  Spider-Man: No Way Home    5083.954        8940      popular
2          2021  Spider-Man: No Way Home    5083.954        8940      popular
3          2022               The Batman    3827.658        1151      popular
4          2022               The Batman    3827.658        1151      popular

             Genre
0           Action
1        Adventure
2  Science Fiction
3            Crime
4          Mystery
```

2 Data Visualization

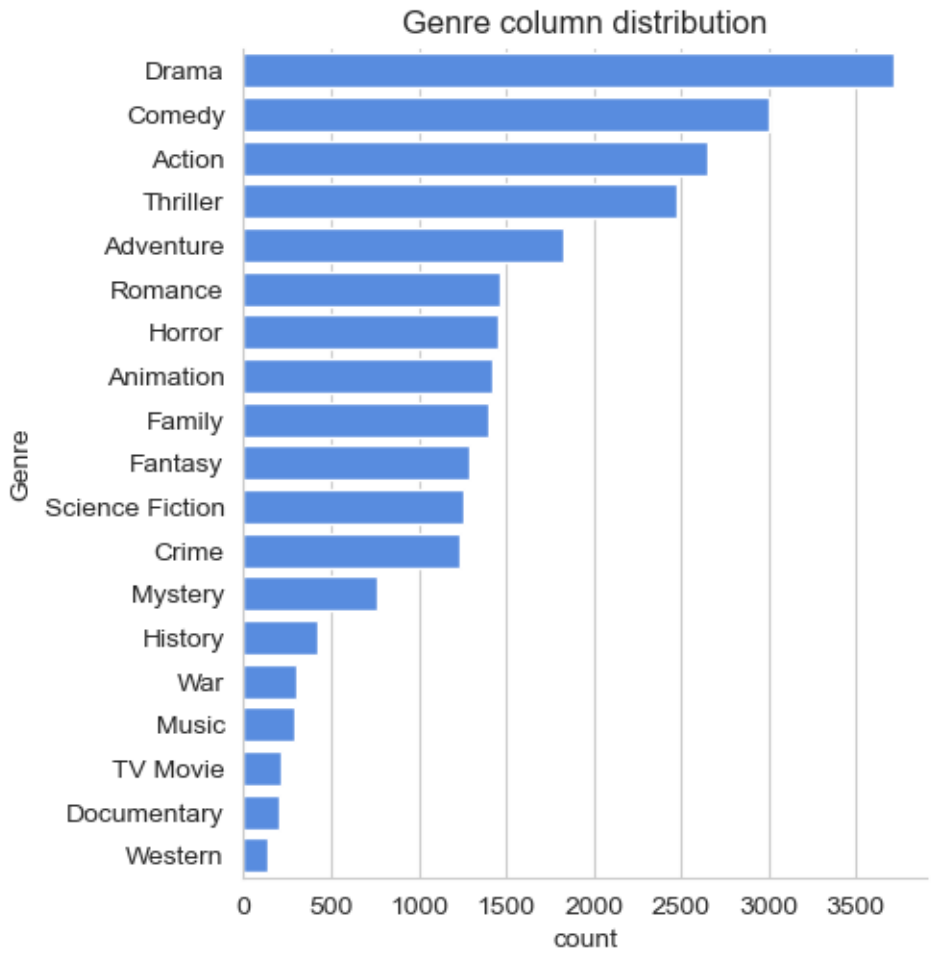
[22]:
```
sns.set_style('whitegrid')
```

2.1 1. What is the Most Frequent Genre of movies released on Netflix?

[23]:
```
df['Genre'].describe()
```

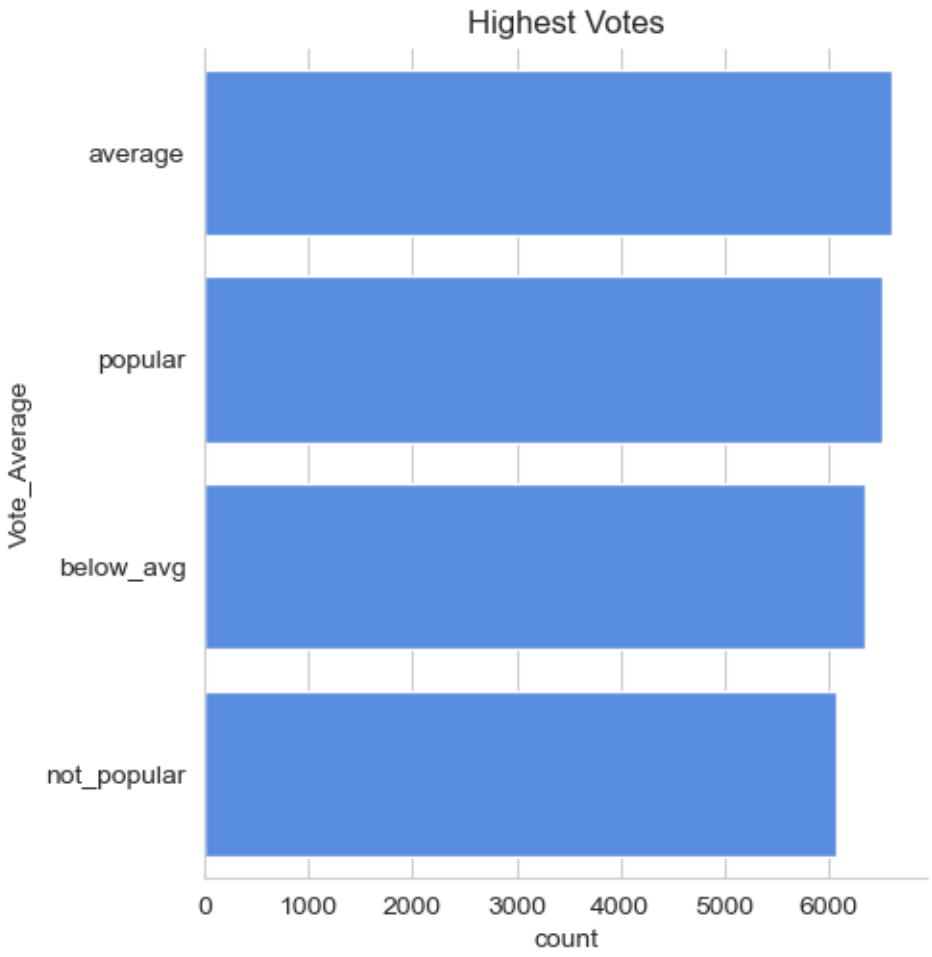
[23]:
```
count     25552
unique       19
top       Drama
freq       3715
Name: Genre, dtype: object
```

[24]:
```
sns.catplot(y= 'Genre',data = df, kind = 'count',
            order = df['Genre'].value_counts().index,
            color = '#4287f5')
plt.title('Genre column distribution')
plt.show()
```



2.2 2. Which has highest votes in vote avg column?

[25]:
```
sns.catplot(y= 'Vote_Average' , data = df,kind='count',
            order = df['Vote_Average'].value_counts().index,
            color = '#4287f5')
plt.title('Highest Votes')
plt.show()
```



[26]:
```
# sns.catplot(y='Vote_Average'data=df,kind = 'count',
#             order =df['Vote_Average'].value_counts().index
#             color='#4287f5'
# )
```

2.3 3. Which Movie got the highest popularity? What's its Genre?

[28]:
```
df[df['Popularity']==df['Popularity'].max()]
```

[28]:

	Release_Date	Title	Popularity	Vote_Count	Vote_Average	Genre
0	2021	Spider-Man: No Way Home	5083.954	8940	popular	Action
1	2021	Spider-Man: No Way Home	5083.954	8940	popular	
2	2021	Spider-Man: No Way Home	5083.954	8940	popular	

```
1        Adventure
2  Science Fiction
```

2.4 4. Which Movie got the Lowest popularity? What's its Genre?

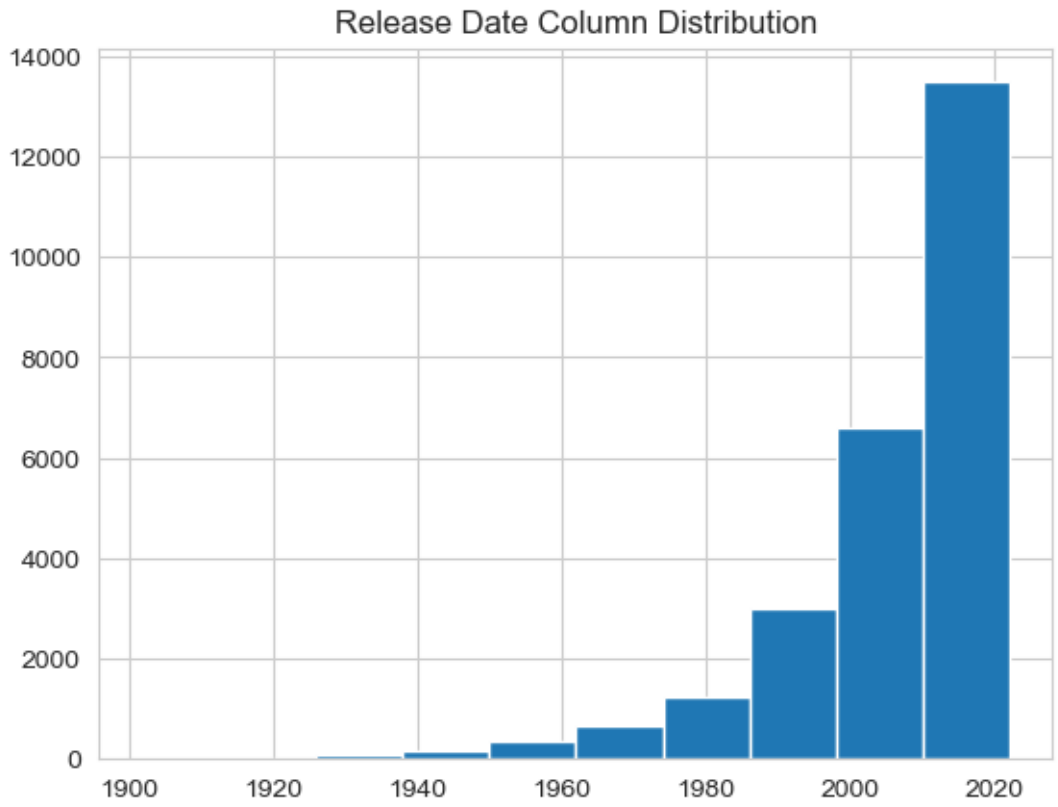
[29]:
```
df[df['Popularity']==df['Popularity'].min()]
```

[29]:
```
       Release_Date                                Title  Popularity  \
25546          2021  The United States vs. Billie Holiday      13.354
25547          2021  The United States vs. Billie Holiday      13.354
25548          2021  The United States vs. Billie Holiday      13.354
25549          1984                               Threads      13.354
25550          1984                               Threads      13.354
25551          1984                               Threads      13.354

       Vote_Count Vote_Average            Genre
25546         152      average            Music
25547         152      average            Drama
25548         152      average          History
25549         186      popular              War
25550         186      popular            Drama
25551         186      popular  Science Fiction
```

2.5 Which Year has The most filmmed movies?

[31]:
```
df['Release_Date'].hist()
plt.title('Release Date Column Distribution')
plt.show()
```



[ ]:
```
# df['Release_Date'].hist()
# plt.title('Release Date')
# plt.show()
```

2.6 Conclusion

Q1. 1. What is the Most Frequent Genre of movies released on Netflix?

-> The Drama Genre is the Most frequent in our dataset and has appeared more than 14% of the time among 19 other genres.

Q2. Which has the highest votes in the vote average column?

-> We have 25.5% of our dataset with popular vote (6520 rows). Drama again gets the highest popularity among fans by having more than 18.5% of movies.

Q3. Which Movie got the highest popularity? What's its Genre?

-> Spider-Man: No Way Home has the highest popularity rate in our dataset and it has genres of music, drama, 'war', 'sci-fi' and history.

Q4. Which Movie got the Lowest popularity? What's its Genre?

-> The year 2020 has the filming rate in our dataset.

[ ]: