In [5]:
```
import numpy as np
```

In [6]:
```
import pandas as pd
```

In [7]:
```
import matplotlib.pyplot as plt
```

In [8]:
```
import seaborn as sns
```

In [10]:
```
df = pd.read_csv('mymoviedb.csv',  lineterminator= '\n')
```

In [11]:
```
df.head()
```

Out[11]:

	Release_Date	Title	Overview	Popularity	Vote_Count	Vote_Average	O
0	2021-12-15	Spider-Man: No Way Home	Peter Parker is unmasked and no longer able to...	5083.954	8940	8.3	
1	2022-03-01	The Batman	In his second year of fighting crime, Batman u...	3827.658	1151	8.1	
2	2022-02-25	No Exit	Stranded at a rest stop in the mountains durin...	2618.087	122	6.3	
3	2021-11-24	Encanto	The tale of an extraordinary family, the Madri...	2402.201	5076	7.7	
4	2021-12-22	The King's Man	As a collection of history's worst tyrants and...	1895.511	1793	7.0	

In [12]:
```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 9827 entries, 0 to 9826
Data columns (total 9 columns):
 #   Column             Non-Null Count  Dtype  
---  ------             --------------  -----  
 0   Release_Date       9827 non-null   object 
 1   Title              9827 non-null   object 
 2   Overview           9827 non-null   object 
 3   Popularity         9827 non-null   float64
 4   Vote_Count         9827 non-null   int64  
 5   Vote_Average       9827 non-null   float64
 6   Original_Language  9827 non-null   object 
 7   Genre              9827 non-null   object 
 8   Poster_Url         9827 non-null   object 
dtypes: float64(2), int64(1), object(6)
memory usage: 691.1+ KB
```

In [13]:
```
df['Genre'].head()
```

Out[13]:
```
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
```

In [14]:
```
df.duplicated().sum()
```

Out[14]:
```
np.int64(0)
```

In [15]:
```
df.duplicated()
```

Out[15]:
```
0       False
1       False
2       False
3       False
4       False
        ...
9822    False
9823    False
9824    False
9825    False
9826    False
Length: 9827, dtype: bool
```

In [16]:
```
df.describe()
```

Out[16]:

	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

In [25]:
```
 #Exploration summmary

# we have a dataframe consisting of 9827 rows and 9 columns
# our dataset looks a bit with tidy with no duplicates values.
# Release_Date columns needs to be casted into date time to extract only the y
# Overview, Original_language and Poster_url wouldn't be so useful for these a
# There is noticable outliers in popularity column.
# Vote_average better can be used for proper analysis.
# Genre column has coma separated values and white spaces that is not needed t
```

In [27]:
```
df['Release_Date']=pd.to_datetime(df['Release_Date'])
print(df['Release_Date'].dtype)
```

```
datetime64[ns]
```

In [30]:
```
df['Release_Date']= df['Release_Date'].dt.year
df['Release_Date'].dtypes
```

Out[30]:
```
dtype('int32')
```

df.head()

In [31]:
```
df.head()
```

Out[31]:

	Release_Date	Title	Overview	Popularity	Vote_Count	Vote_Average	O
0	2021	Spider-Man: No Way Home	Peter Parker is unmasked and no longer able to...	5083.954	8940	8.3	
1	2022	The Batman	In his second year of fighting crime, Batman u...	3827.658	1151	8.1	
2	2022	No Exit	Stranded at a rest stop in the mountains durin...	2618.087	122	6.3	
3	2021	Encanto	The tale of an extraordinary family, the Madri...	2402.201	5076	7.7	
4	2021	The King's Man	As a collection of history's worst tyrants and...	1895.511	1793	7.0	

In [32]:
```
# Dropping the columns
```

In [39]:
```
cols = ['Overview', 'Original_Language','Poster_Url']
```

In [40]:
```
df.drop(cols, axis = 1, inplace= True)
df.columns
```

Out[40]:
```
Index(['Release_Date', 'Title', 'Popularity', 'Vote_Count', 'Vote_Average',
       'Genre'],
      dtype='object')
```

In [41]:
```
df.head()
```

Out[41]:

	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

In [42]:
```
df.tail()
```

Out[42]:

	Release_Date	Title	Popularity	Vote_Count	Vote_Average	Genre
9822	1973	Badlands	13.357	896	7.6	Drama, Crime
9823	2020	Violent Delights	13.356	8	3.5	Horror
9824	2016	The Offering	13.355	94	5.0	Mystery, Thriller, Horror
9825	2021	The United States vs. Billie Holiday	13.354	152	6.7	Music, Drama, History
9826	1984	Threads	13.354	186	7.8	War, Drama, Science Fiction

In [43]:
```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 9827 entries, 0 to 9826
Data columns (total 6 columns):
 #   Column        Non-Null Count  Dtype  
---  ------        --------------  -----  
 0   Release_Date  9827 non-null   int32  
 1   Title         9827 non-null   object 
 2   Popularity    9827 non-null   float64
 3   Vote_Count    9827 non-null   int64  
 4   Vote_Average  9827 non-null   float64
 5   Genre         9827 non-null   object 
dtypes: float64(2), int32(1), int64(1), object(2)
memory usage: 422.4+ KB
```

Categorizing average vote column we would cut the vote_average values into 4 categories:popular, average, below_avg, not_popular to describe it more using catigorize_col() function provided above.

In [48]:
```
def catigorize_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
```

In [49]:
```
labels= ['not_popular',' below_average', ' average', ' popular']

catigorize_col(df, 'Vote_Average', labels)

df['Vote_Average'].unique()
```

Out[49]:
```
[' popular', ' below_average', ' average', 'not_popular', NaN]
Categories (4, object): ['not_popular' < ' below_average' < ' average' < ' po
pular']
```

In [50]:
```
df.head()
```

Out[50]:

	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_average	Thriller
3	2021	Encanto	2402.201	5076	popular	Animation, Comedy, Family, Fantasy
4	2021	The King's Man	1895.511	1793	average	Action, Adventure, Thriller, War

In [51]:
```
df['Vote_Average'].value_counts()
```

Out[51]:
```
Vote_Average
not_popular       2467
 popular          2450
 average          2412
 below_average    2398
Name: count, dtype: int64
```

In [52]:
```
df.dropna(inplace=True)
df.isna().sum()
```

Out[52]:
```
Release_Date    0
Title           0
Popularity      0
Vote_Count      0
Vote_Average    0
Genre           0
dtype: int64
```

In [53]:
```
df.head()
```

Out[53]:

	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_average	Thriller
3	2021	Encanto	2402.201	5076	popular	Animation, Comedy, Family, Fantasy
4	2021	The King's Man	1895.511	1793	average	Action, Adventure, Thriller, War

We will splity into a list the genres and then explode our dataframe

In [54]:
```
df['Genre']=df['Genre'].str.split(', ')

df= df.explode('Genre').reset_index(drop= True)
df.head()
```

Out[54]:

	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	Adventure
2	2021	Spider-Man: No Way Home	5083.954	8940	popular	Science Fiction
3	2022	The Batman	3827.658	1151	popular	Crime
4	2022	The Batman	3827.658	1151	popular	Mystery

In [56]:
```
# casting column into category
df['Genre']= df['Genre'].astype('category')
df['Genre'].dtypes
```

Out[56]:
```
CategoricalDtype(categories=['Action', 'Adventure', 'Animation', 'Comedy', 'C
rime',
                  'Documentary', 'Drama', 'Family', 'Fantasy', 'History',
                  'Horror', 'Music', 'Mystery', 'Romance', 'Science Fiction',
                  'TV Movie', 'Thriller', 'War', 'Western'],
, ordered=False, categories_dtype=object)
```

In [57]:
```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 25552 entries, 0 to 25551
Data columns (total 6 columns):
 #   Column        Non-Null Count  Dtype
---  ------        --------------  -----
 0   Release_Date  25552 non-null  int32
 1   Title         25552 non-null  object
 2   Popularity    25552 non-null  float64
 3   Vote_Count    25552 non-null  int64
 4   Vote_Average  25552 non-null  category
 5   Genre         25552 non-null  category
dtypes: category(2), float64(1), int32(1), int64(1), object(1)
memory usage: 749.6+ KB
```

In [60]:
```
df.nunique()
```

Out[60]:
```
Release_Date     100
Title           9415
Popularity      8088
Vote_Count      3265
Vote_Average       4
Genre             19
dtype: int64
```

In [ ]:
```

```

In [61]:
```
df.head()
```

Out[61]:

	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	Adventure
2	2021	Spider-Man: No Way Home	5083.954	8940	popular	Science Fiction
3	2022	The Batman	3827.658	1151	popular	Crime
4	2022	The Batman	3827.658	1151	popular	Mystery

Data Visualization

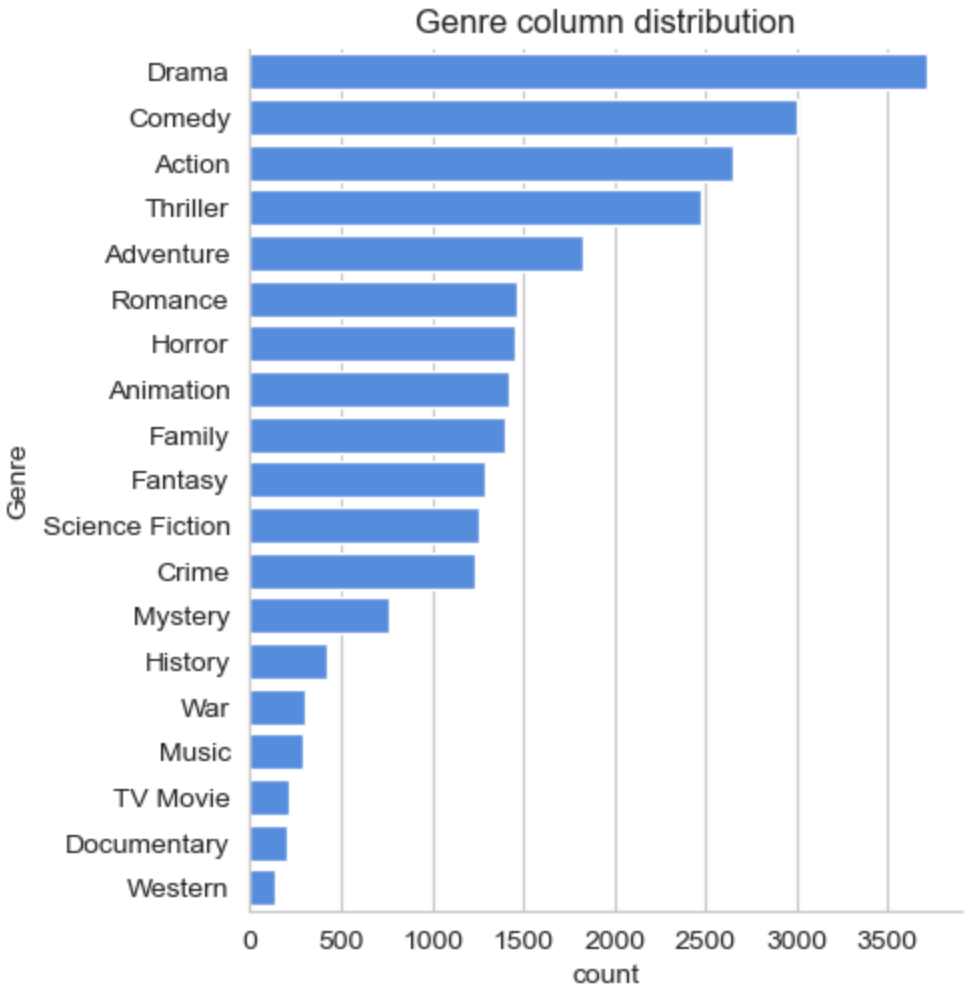
In [62]:
```
sns.set_style('whitegrid')
```

what is the most frequent genre of moves on netflix?

In [63]:
```
df['Genre'].describe()
```

Out[63]:
```
count     25552
unique       19
top       Drama
freq       3715
Name: Genre, dtype: object
```

In [65]:
```
sns.catplot(y= 'Genre', data= df, kind='count',order= df["Genre"].value_counts
            color='#4287f5')
plt.title("Genre column distribution")
plt.show()
```



Which has the highest votes in vote average column?

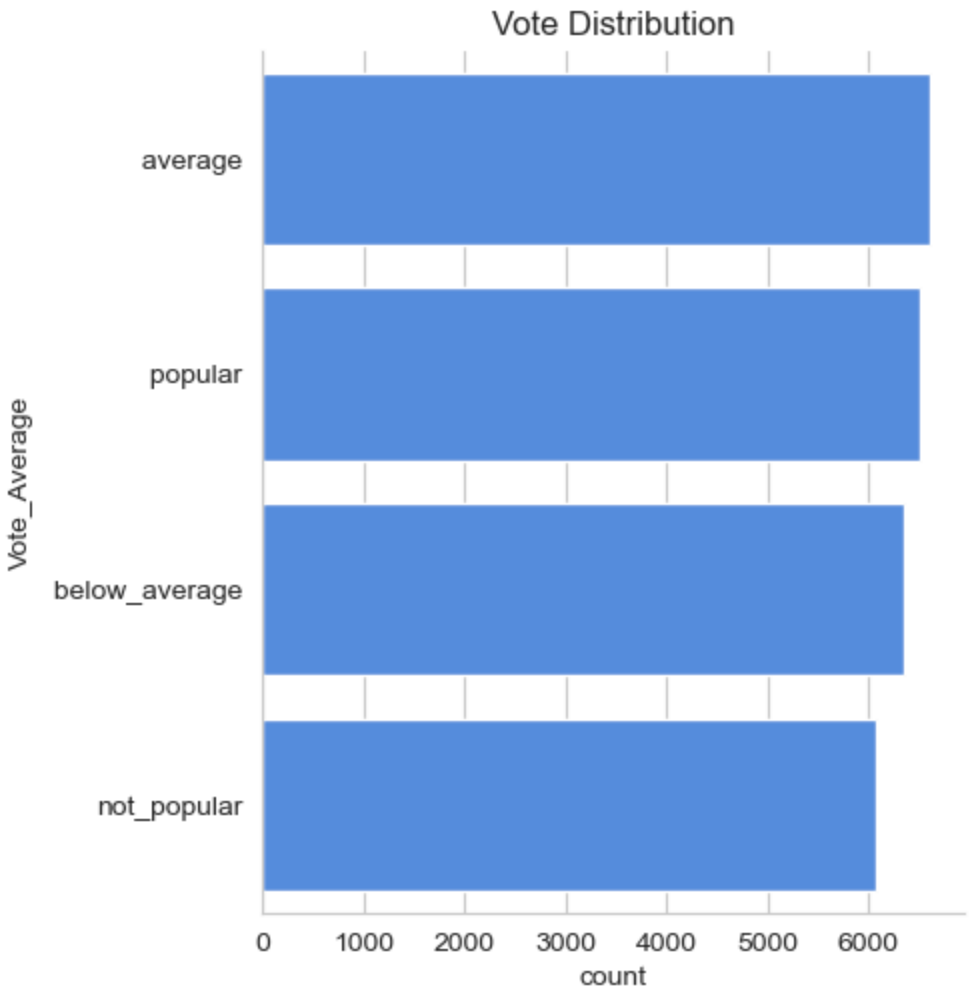
In [66]:
```
df.head()
```

Out[66]:

	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	Adventure
2	2021	Spider-Man: No Way Home	5083.954	8940	popular	Science Fiction
3	2022	The Batman	3827.658	1151	popular	Crime
4	2022	The Batman	3827.658	1151	popular	Mystery

In [69]:

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



What movie got the highest popularity? what's the genre?

In [70]:
```
df.head(2)
```

Out[70]:

	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	Adventure

In [72]:
```
df[df['Popularity']==df['Popularity'].max()]
```

Out[72]:

	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	Adventure
2	2021	Spider-Man: No Way Home	5083.954	8940	popular	Science Fiction

What movie got the lowest popularity? what its genre?

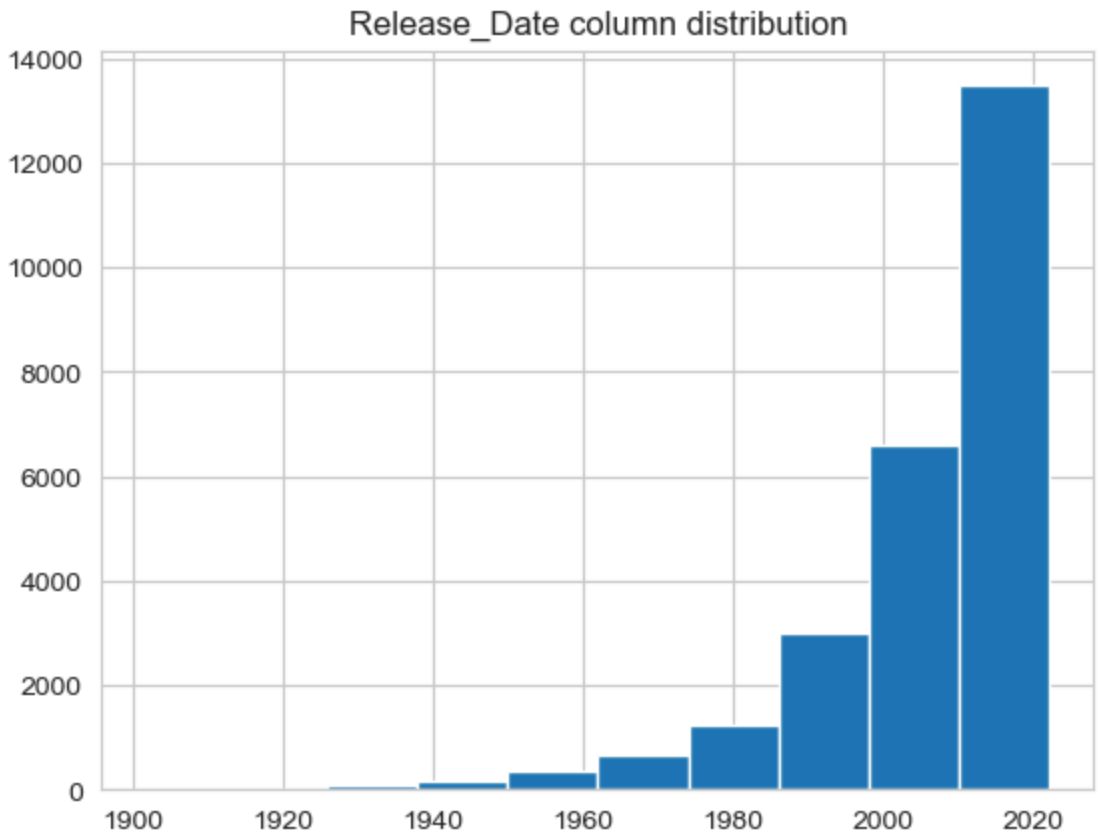
In [73]:
```
df[df['Popularity']== df['Popularity'].min()]
```

Out[73]:

	Release_Date	Title	Popularity	Vote_Count	Vote_Average	Genre
25546	2021	The United States vs. Billie Holiday	13.354	152	average	Music
25547	2021	The United States vs. Billie Holiday	13.354	152	average	Drama
25548	2021	The United States vs. Billie Holiday	13.354	152	average	History
25549	1984	Threads	13.354	186	popular	War
25550	1984	Threads	13.354	186	popular	Drama
25551	1984	Threads	13.354	186	popular	Science Fiction

What year has the most filmed movies?

In [74]:
```
df['Release_Date'].hist()
plt.title('Release_Date column distribution')
plt.show()
```



Conclusion Drama genre is the most frequant genre in this dataset and has appeared mor ethan 14% of the timesamong 19 other genres. 2. We have 25.5% of our dataset with popular vote(6520 rows). Drama again gets the highest popularity among the fans by being for more than 18.5% of movies overall 3. Spider-man: No way home has the highest popularity rate in our dataset and it's has action, adventure and science friction. 4. The united states, thread' has the lowest rate in this dataset and it has genre of music, drama, war ,'sci-fi' and history. 5. Year 2020 has the highest filming rate in this dataset.

In [ ]:

In [ ]:

In [ ]: