Netflix data analysis

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

[3]:
```
df = pd.read_csv('moviedata.csv', lineterminator='\n')
df.head()
```

[3]:

	Release_Date	Title	Overview	Popularity	Vote_Count	Vote_Average	Original_Language	Genre	Poster_Url
0	2021-12-15	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	2022-03-01	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	2022-02-25	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	2021-11-24	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	2021-12-22	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...

[4]:
```
# exploring genres column
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
```

[5] :
```
# check for duplicated rows
df.duplicated().sum()
```

[5] :
```
np.int64(0)
```

[6] :
```
# exploring summary statistics
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] :
```
# Data Cleaning
```

[8] :
```
# casting column a
df['Release_Date'] = pd.to_datetime(df['Release_Date'])
# confirming changes
print(df['Release_Date'].dtypes)
```

```
datetime64[ns]
```

[9] :
```
df['Release_Date'] = df['Release_Date'].dt.year
df['Release_Date'].dtypes
```

[9] :
```
dtype('int32')
```

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

[10] :
```
   Release_Date                  Title  \
0          2021  Spider-Man: No Way Home
1          2022               The Batman
2          2022                  No Exit
```

3	2021	Encanto
4	2021	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...

Dropping Overview, Original_Languege and Poster-Url

[11] :
```
# making list of column to be dropped
cols = ['Overview', 'Original_Language', 'Poster_Url']
```

[12] :
```
# dropping columns and confirming changes
df.drop(cols, axis = 1, inplace = True)
df.columns
```

[12]:
```
Index(['Release_Date', 'Title', 'Popularity', 'Vote_Count', 'Vote_Average',
       'Genre'],
      dtype='object')
```

categorizing Vote_Average column We would cut the Vote_Average values and make 4 categories: popular average below_avg not_popular to describe it more using catigorize_col() function provided above.

[17]:
```
def catigorize_col (df, col, labels):
    """
    catigorizes a certain column based on its quartiles

    Args:
    (df) df - dataframe we are proccesing
    (col) str - to be catigorized column's name
```

```
    (labels) list - list of labels from min to max

    Returns:
    (df) df - dataframe with the categorized col
    """

    # setting the edges to cut the column accordingly
    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
```

[18]:
```
df.head()
```

[18]:

	Release_Date	Title	Popularity	Vote_Count	Vote_Average	\
0	2021	Spider-Man: No Way Home	5083.954	8940	popular	
1	2022	The Batman	3827.658	1151	popular	
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

[19]:
```
# exploring column
df['Vote_Average'].value_counts()
```

[19]:
```
Vote_Average
not_popular     2467
popular         2450
average         2412
below_avg       2398
Name: count, dtype: int64
```

[20]:
```
# dropping NaNs
df.dropna(inplace = True)
# confirming
df.isna().sum()
```

[20] :
```
Release_Date    0
Title           0
Popularity      0
Vote_Count      0
Vote_Average    0
Genre           0
dtype: int64
```

we'd split genres into a list and then explode our dataframe to have only one genre per row for ezch movie

[21] :
```
# split the strings into lists
df['Genre'] = df['Genre'].str.split(', ')
# explode the lists
df = df.explode('Genre').reset_index(drop=True)
df.head()
```

[21]:

	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

[22] :
```
# casting column into category
df['Genre'] = df['Genre'].astype('category')
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
```

[23] :
```
df.nunique()
```

[23]:
```
Release_Date      100
Title            9415
Popularity       8088
Vote_Count       3265
Vote_Average        4
Genre              19
dtype: int64
```

Now dataset is cleaned and we will be able to dig into visualization and analysis

Data Visualization here, we'd use Matplotlib and seaborn for making some informative visuals to gain insights abut our data.

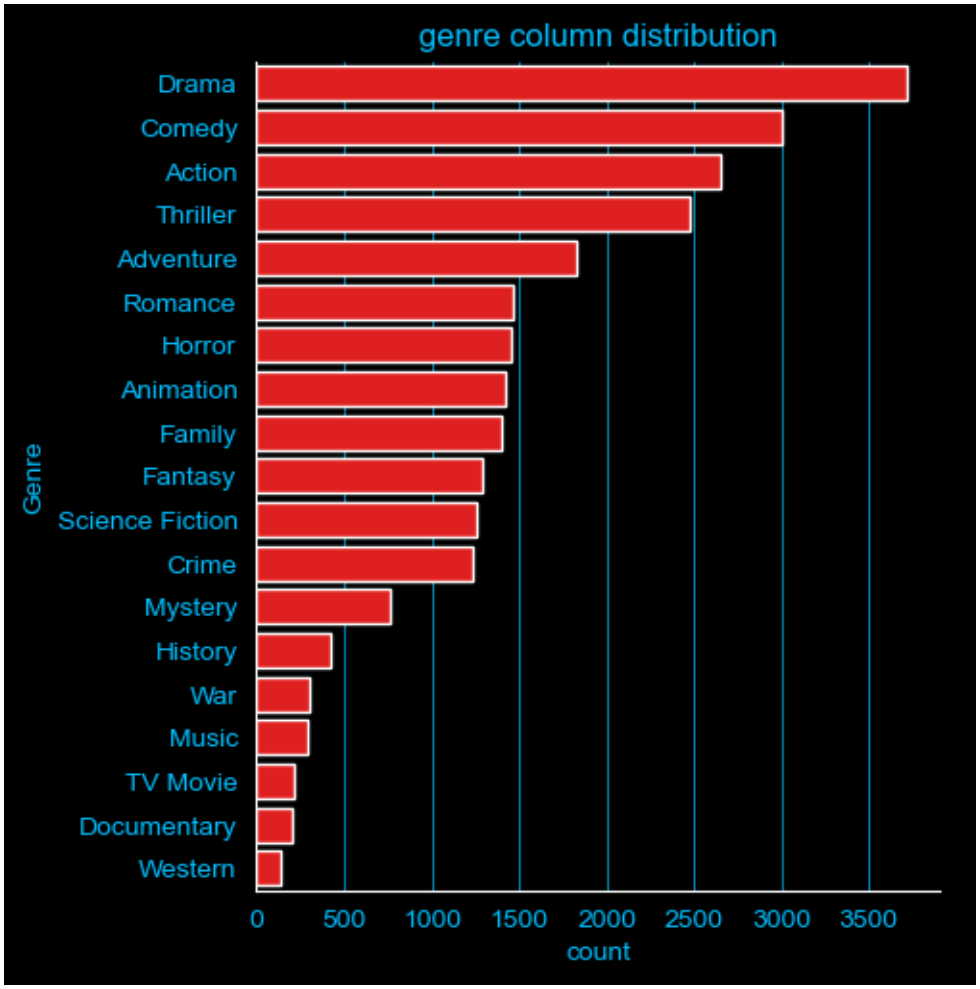
[37]:
```
# setting up seaborn configurations
import matplotlib.pyplot as plt
import seaborn as sns

# Set base dark background
sns.set_style("darkgrid")

# Customize dark background and grid colors
plt.rcParams.update({
    'axes.facecolor': 'black',          # plot background
    'figure.facecolor': 'black',        # full figure background
    'grid.color': '#ff0000',            # bright blue gridlines
    'grid.linewidth': 0.5,
    'axes.labelcolor': '#ff0000',       # axis labels
    'xtick.color': '#00bfff',           # x-tick labels
    'ytick.color': '#00bfff',           # y-tick labels
    'text.color': '#00bfff',            # plot title & annotations
})
```

Q1: What is the most frequent genre in the dataset?

[31]:
```
# visualizing genre column
sns.catplot(y = 'Genre', data = df, kind = 'count',
 order = df['Genre'].value_counts().index,
 color = '#ff0000')
plt.title('genre column distribution')
plt.show()
```



we can notice from the above visual that Drama genre is the most frequent genre in our dataset and has appeared more than 14% of the times among 19 other genres

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

[32]:
```
# checking max popularity in dataset
df[df['Popularity'] == df['Popularity'].max()]
```

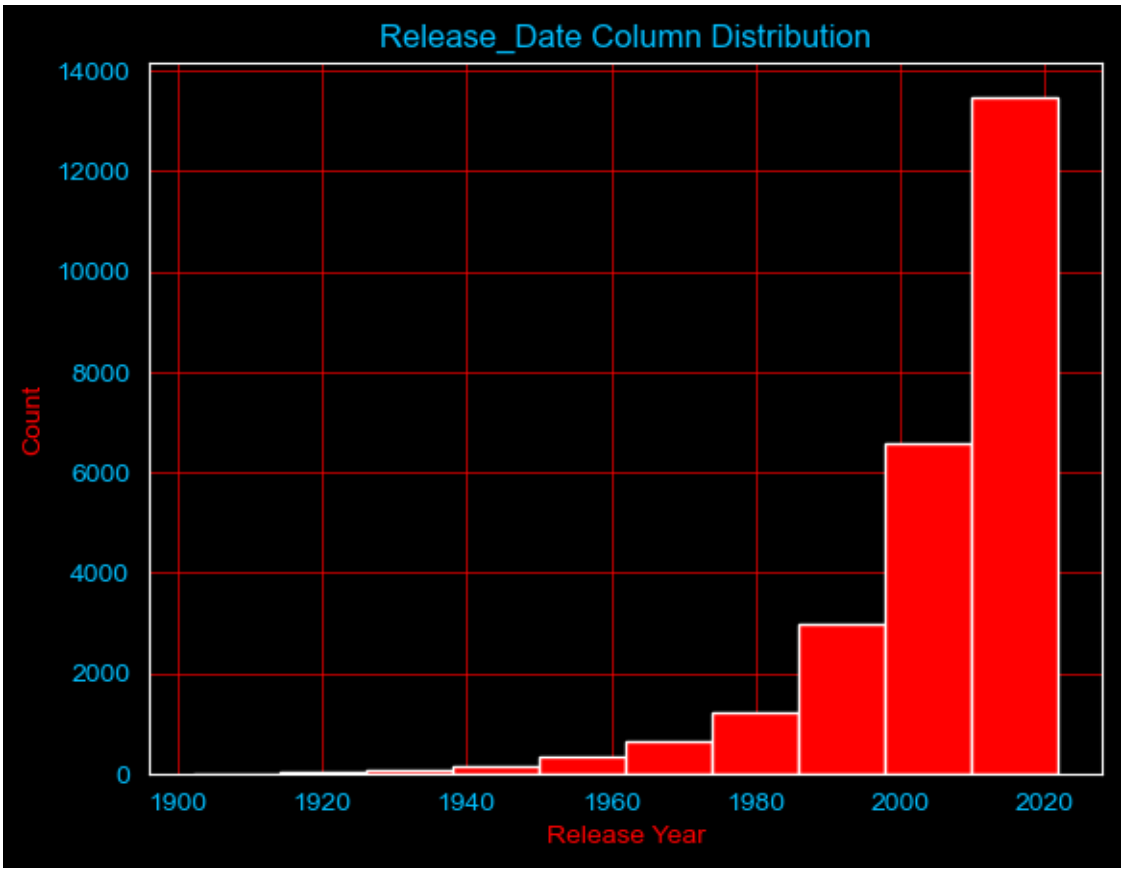
[32]:

	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	

	Genre
0	Action
1	Adventure
2	Science Fiction

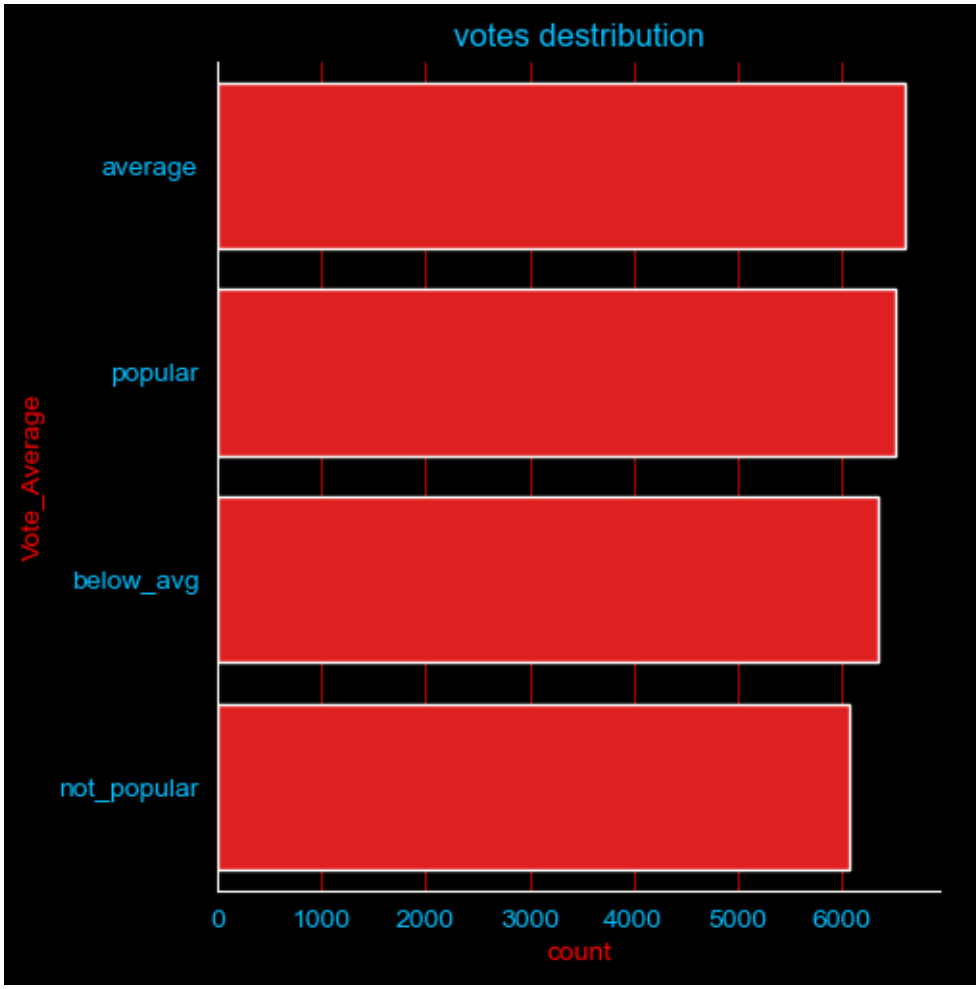
Which year has the most filmmed movies?

[39]:
```
df['Release_Date'].hist(color='red')    #  Set bar color to red
plt.title('Release_Date Column Distribution')
plt.xlabel('Release Year')
plt.ylabel('Count')
plt.show()
```



What genres has highest votes ?

[38]:
```
# visualizing vote_average column
sns.catplot(y = 'Vote_Average', data = df, kind = 'count',
 order = df['Vote_Average'].value_counts().index,
 color = '#ff0000')
plt.title('votes destribution')
plt.show()
```


votes destribution
average
popular
below_avg
not_popular
Vote_Average
0
1000
2000
3000
4000
5000
6000
count

THANK YOU