Netflix EDA Project

1. Import Libraries

(a) Import different libraries used.

In [57]:

```
import pandas as pd
import numpy as np
import seaborn as sns
import matplotlib.pyplot as plt

sns.set_theme(style="whitegrid")
```

2. Load Dataset

(a) Loading a CSV file.

In [122…

```
df = pd.read_csv("../data/netflix_titles.csv")
```

3. Basic Information

(a) Identify missing values. (See which columns have null data)

In [112…

```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 8807 entries, 0 to 8806
Data columns (total 13 columns):
 #   Column        Non-Null Count  Dtype 
---  ------        --------------  ----- 
 0   show_id       8807 non-null   object
 1   type          8807 non-null   object
 2   title         8807 non-null   object
 3   director      8807 non-null   object
 4   cast          8807 non-null   object
 5   country       8807 non-null   object
 6   date_added    8807 non-null   object
 7   release_year  8807 non-null   int64 
 8   rating        8807 non-null   object
 9   duration      8804 non-null   object
 10  listed_in     8807 non-null   object
 11  description   8807 non-null   object
 12  genre         8807 non-null   object
dtypes: int64(1), object(12)
memory usage: 894.6+ KB
```

(b) Evaluate the complete statistical summary of all columns, including both numeric and categorical data.

In [111…

```
df.describe(include='all')
```

Out[111…

	show_id	type	title	director	cast	country	date_added	release_yea
count	8807	8807	8807	8807	8807	8807	8807	8807.00000
unique	8807	2	8807	4529	7693	749	1767	Na
top	s1	Movie	Dick Johnson Is Dead	Unknown	Unknown	United States	January 1, 2020	Na
freq	1	6131	1	2634	825	2818	119	Na
mean	NaN	NaN	NaN	NaN	NaN	NaN	NaN	2014.18019
std	NaN	NaN	NaN	NaN	NaN	NaN	NaN	8.81931
min	NaN	NaN	NaN	NaN	NaN	NaN	NaN	1925.00000
25%	NaN	NaN	NaN	NaN	NaN	NaN	NaN	2013.00000
50%	NaN	NaN	NaN	NaN	NaN	NaN	NaN	2017.00000
75%	NaN	NaN	NaN	NaN	NaN	NaN	NaN	2019.00000
max	NaN	NaN	NaN	NaN	NaN	NaN	NaN	2021.00000

(c) Find how many missing (null) values each column has in the given dataset.

In [113…

```
df.isnull().sum()
```

Out[113…

```
show_id         0
type            0
title           0
director        0
cast            0
country         0
date_added      0
release_year    0
rating          0
duration        3
listed_in       0
description     0
genre           0
dtype: int64
```

(d) Finds the number of duplicate rows present in the entire dataset.

In [114…

```
df.duplicated().sum()
```

Out[114…

```
np.int64(0)
```

4. Data Cleaning

(a) Removing Duplicates

In [116…

```
df.drop_duplicates(inplace=True)
```

(b) Handling missing values

In [123…

```
df['director'] = df['director'].fillna("Unknown")
df['country'] = df['country'].fillna("Unknown")
df['cast'] = df['cast'].fillna("Unknown")
df['date_added'] = df['date_added'].fillna(df['date_added'].mode()[0])
df['rating'] = df['rating'].fillna(df['rating'].mode()[0])
```

5. Univariate Analysis

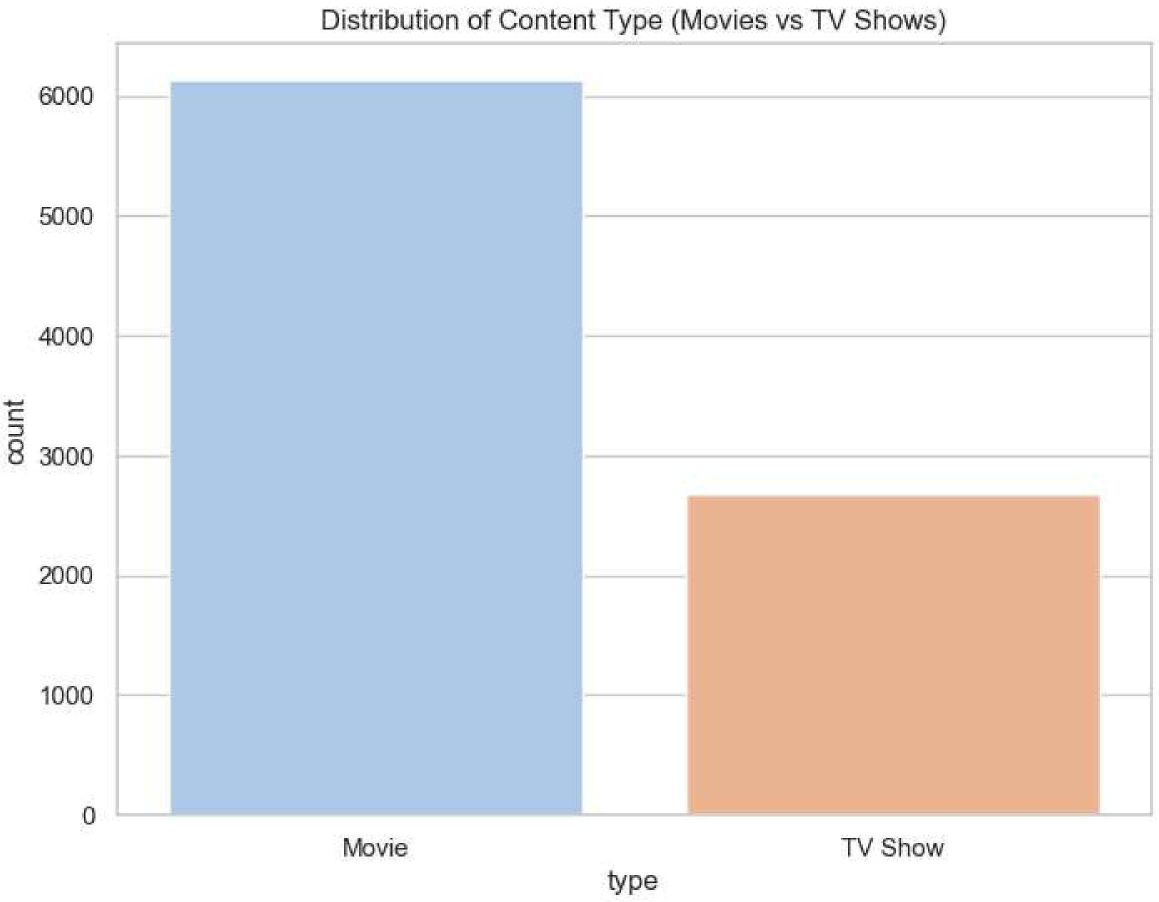
(a) Content Type Distribution

In [124…

```
plt.figure(figsize=(8,6))
sns.countplot(data=df, x='type', hue='type', palette='pastel', legend=False)
plt.title("Distribution of Content Type (Movies vs TV Shows)")

plt.savefig("../images/distribution_type.png")

plt.show()
```



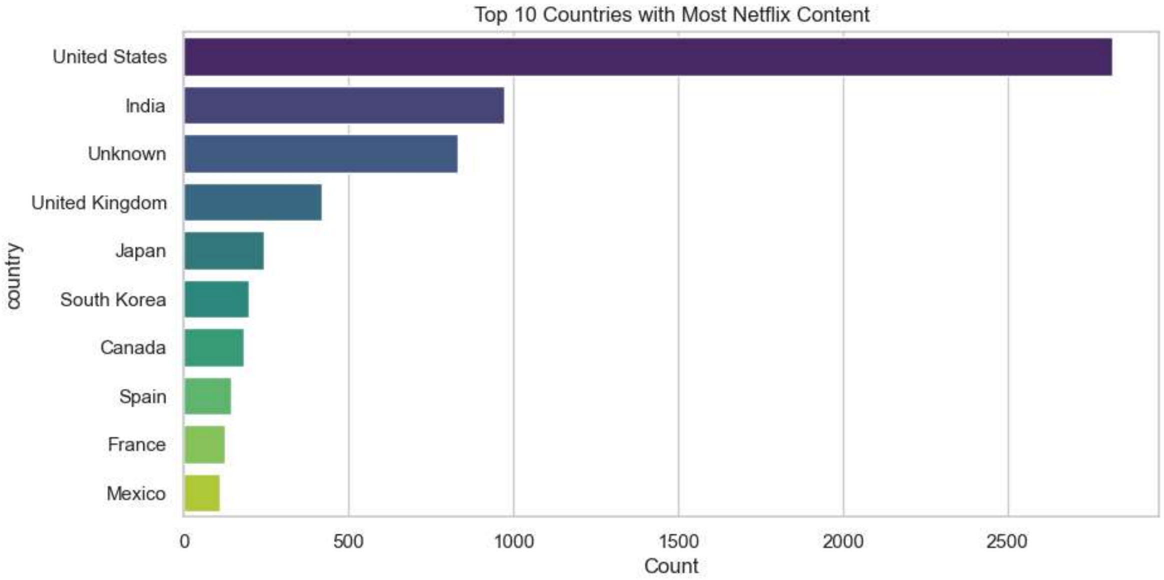
(b) Top 10 Countries Producing Netflix Content

In [125…

```
country_series = df['country'].value_counts().head(10)
plt.figure(figsize=(10,5))
sns.barplot(x=country_series.values, y=country_series.index, hue=country_series.
plt.title("Top 10 Countries with Most Netflix Content")
plt.xlabel("Count")

plt.savefig("../images/country_counts.png")

plt.show()
```



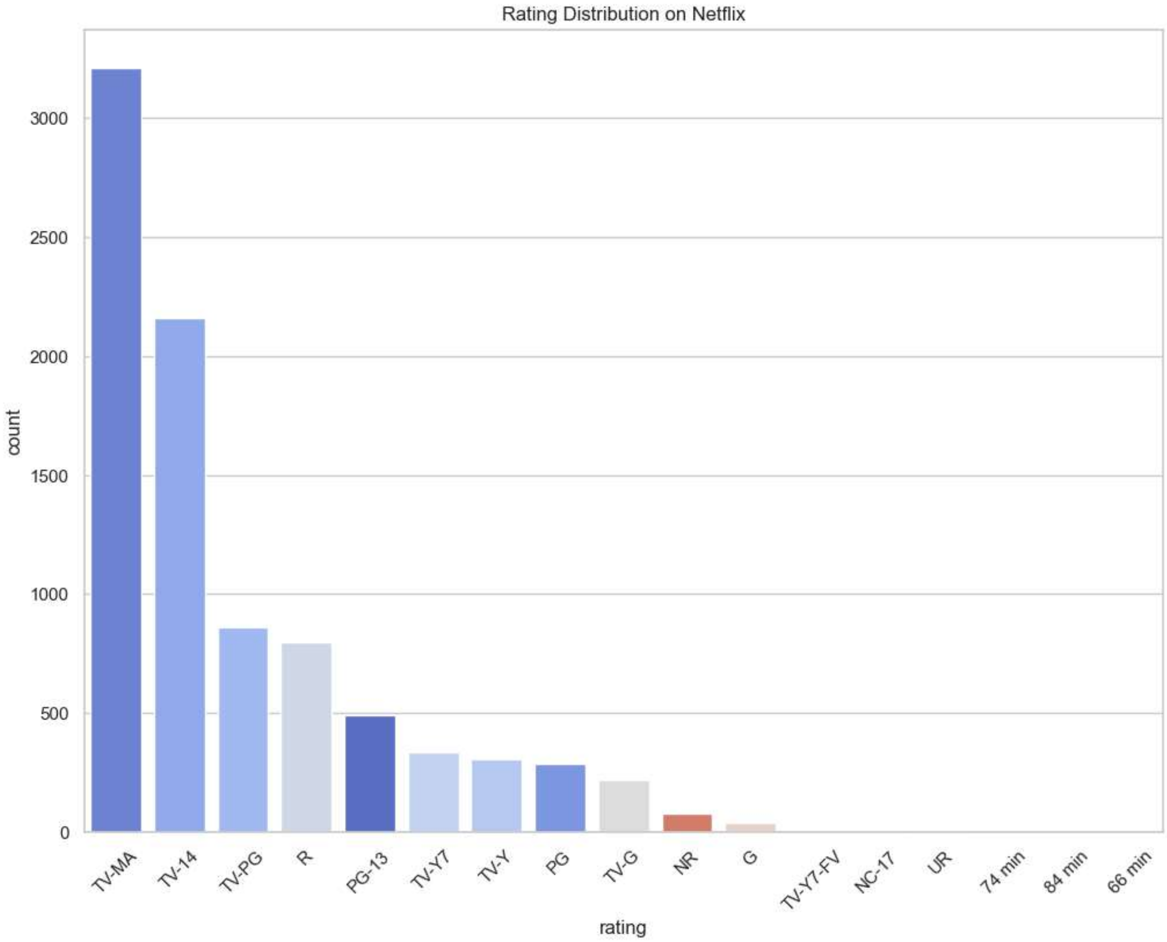
(c) Rating Distribution

In [98]:

```
plt.figure(figsize=(12,9))
sns.countplot(data=df, x='rating', hue='rating', order=df['rating'].value_counts
plt.title("Rating Distribution on Netflix")
plt.xticks(rotation=45)

plt.savefig("../images/ratings_bar.png")

plt.show()
```



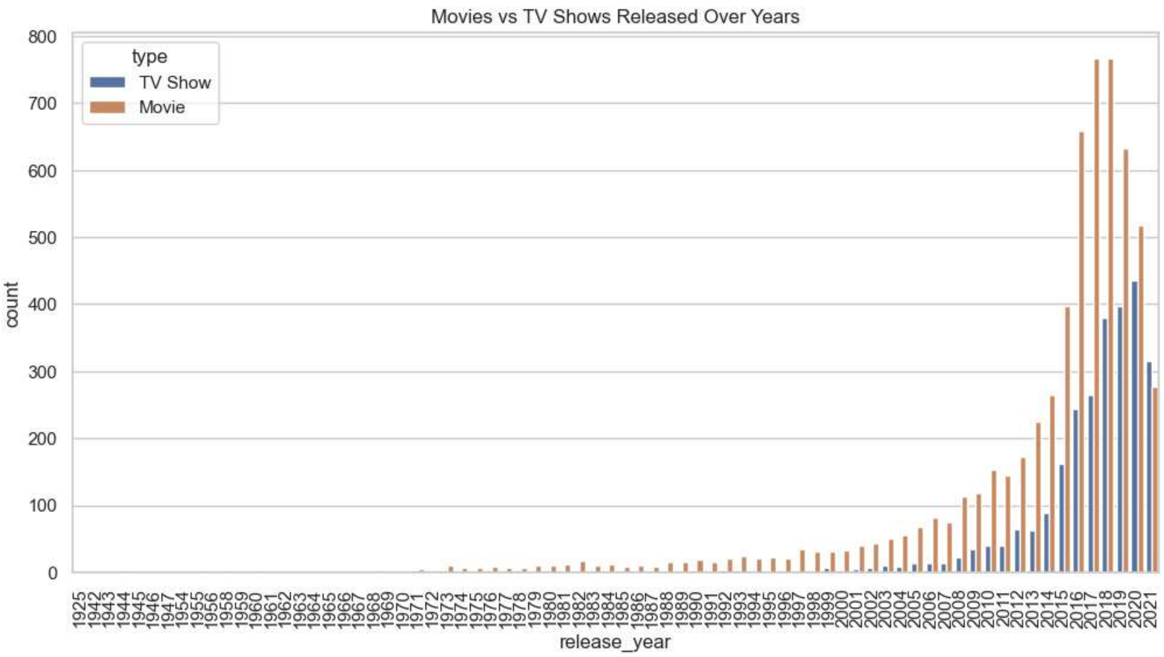
6. Bivariate Analysis

(a) Movies vs TV shows over the years.

In [100…

```
df['release_year'] = df['release_year'].astype(int)
plt.figure(figsize=(12,6))
sns.countplot(data=df, x='release_year', hue='type')
plt.title("Movies vs TV Shows Released Over Years")
plt.xticks(rotation=90)
plt.savefig("../images/Movies_TV shows_released.png")

plt.show()
```



(b) Most common Genres.

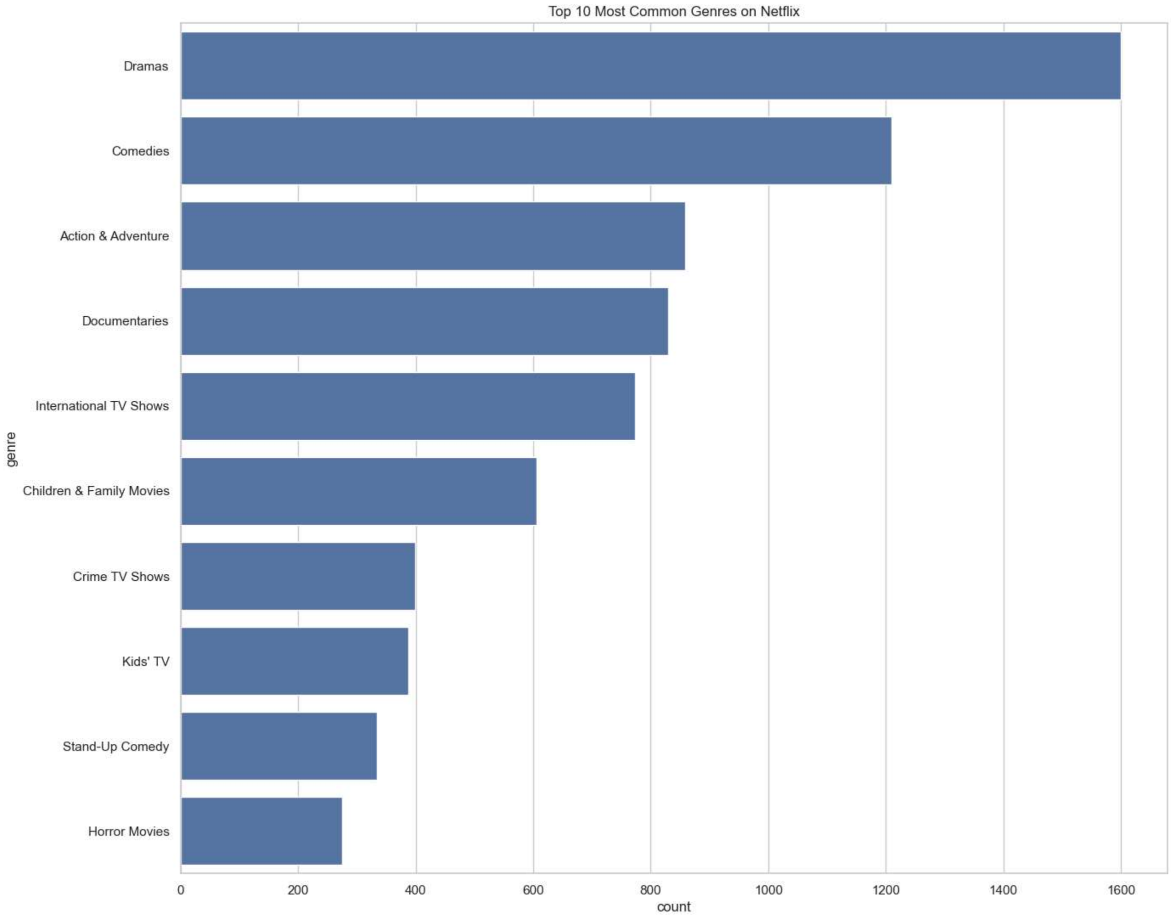
In [110…

```
df['genre'] = df['listed_in'].apply(lambda x: x.split(",")[0])

plt.figure(figsize=(15,13))
sns.countplot(data=df, y='genre', order=df['genre'].value_counts().head(10).inde
plt.title("Top 10 Most Common Genres on Netflix")

plt.savefig("../images/10_most_common_Genres_Netflix.png")

plt.show()
```



7. Insights Summary

In [103…

```
print("Key Insights:")
print("1. Netflix has more Movies than TV Shows.")
print("2. The USA and India produce the most content on Netflix.")
print("3. The most common rating is TV-MA (adult audience).")
print("4. Drama and International Movies are the most common genres.")
print("5. Netflix content peaked in the mid-2010s.")
```

```
Key Insights:
1. Netflix has more Movies than TV Shows.
2. The USA and India produce the most content on Netflix.
3. The most common rating is TV-MA (adult audience).
4. Drama and International Movies are the most common genres.
5. Netflix content peaked in the mid-2010s.
```