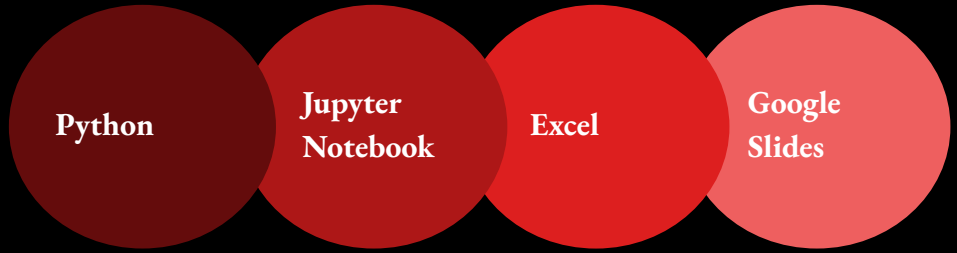
Netflix Data: Cleaning, Analysis and Visualization

Netflix

Objective

The objective of this project is to perform an exploratory data analysis on the Netflix titles dataset to understand global content trends. This includes identifying patterns in release years, country-specific contributions, genre preferences, and growth in TV shows versus movies.

Tools & Technologies Used



NETFLIX

Importing Libraries And Loading Data

```
# Import libraries
import pandas as pd
import plotly.express as px
from IPython.display import display
```

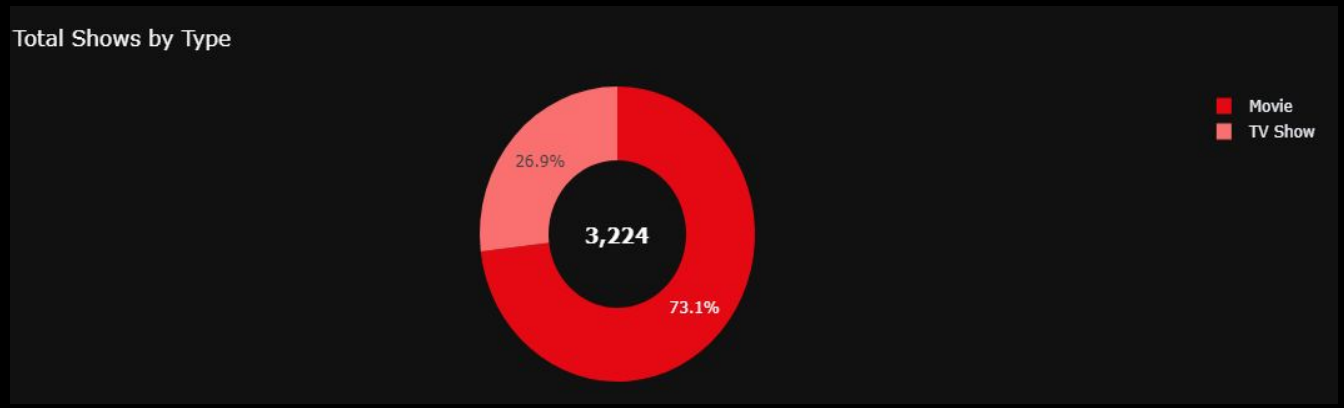
```
# Load Data
df = pd.read_csv("netflix_titles.csv")
df.head()
```

	show_id	type	title	director	cast	country	date_added	release_year	rating	duration	listed_in	description
0	s1	Movie	Dick Johnson Is Dead	Kirsten Johnson	NaN	United States	September 25, 2021	2020	PG-13	90 min	Documentaries	As her father nears the end of his life, filmm...
1	s2	TV Show	Blood & Water	NaN	Ama Qamata, Khosi Ngema, Gail Mabalane, Thaban...	South Africa	September 24, 2021	2021	TV-MA	2 Seasons	International TV Shows, TV Dramas, TV Mysteries	After crossing paths at a party, a Cape Town t...
2	s3	TV Show	Ganglands	Julien Leclercq	Sami Bouajila, Tracy Gotoas, Samuel Jouy, Nabi...	NaN	September 24, 2021	2021	TV-MA	1 Season	Crime TV Shows, International TV Shows, TV Act...	To protect his family from a powerful drug lor...
3	s4	TV Show	Jailbirds New Orleans	NaN	NaN	NaN	September 24, 2021	2021	TV-MA	1 Season	Docuseries, Reality TV	Feuds, flirtations and toilet talk go down amo...
4	s5	TV Show	Kota Factory	NaN	Mayur More, Jitendra Kumar, Ranjan Raj, Alam K...	India	September 24, 2021	2021	TV-MA	2 Seasons	International TV Shows, Romantic TV Shows, TV ...	In a city of coaching centers known to train I...

Visualisations

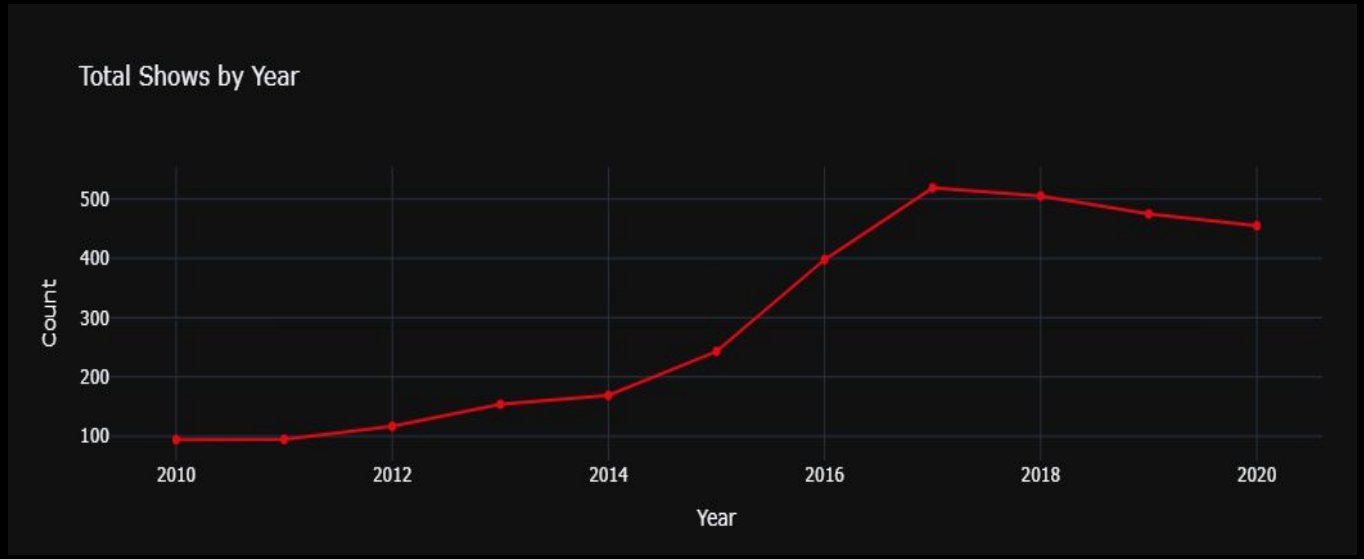
Total Shows By Type

```python
# Data prep
type_counts = df_filtered['type'].value_counts().reset_index()
type_counts.columns = ['Type', 'Count']
total_shows = type_counts['Count'].sum()

# Donut chart
fig1 = px.pie(type_counts, values='Count', names='Type', hole=0.5,
              color_discrete_sequence=['#e50914', '#fa7070'])
fig1.update_layout(
    template='plotly_dark',
     title=dict(text='Total Shows by Type', x=0.04, xanchor='left', font=dict(color='white')),
    annotations=[dict(text=f"<b>{total_shows:,}</b>", x=0.5, y=0.5, showarrow=False, font=dict(size=16, color='white'))]
)

fig1.show()
```



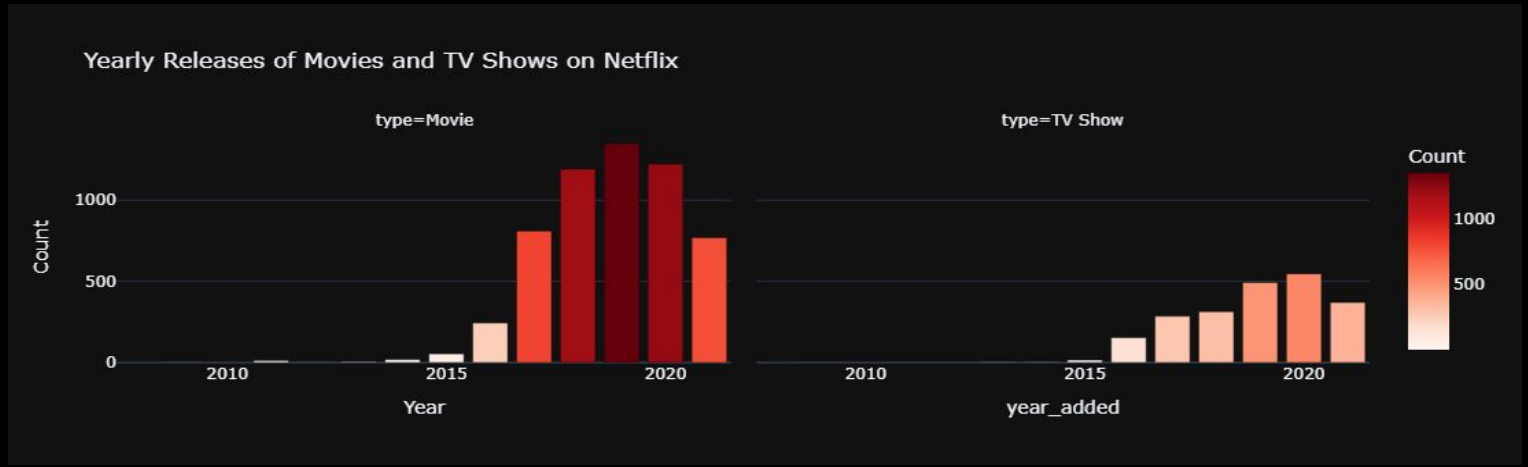
Total Shows By Year

```python
# total shows by year
year_counts = df_filtered['release_year'].value_counts().sort_index().reset_index()
year_counts.columns = ['Year', 'Count']
fig2 = px.line(year_counts, x='Year', y='Count', title='Total Shows by Year', markers=True)
fig2.update_traces(line_color='#e50914')
fig2.update_layout(template='plotly_dark')
fig2.show()
```



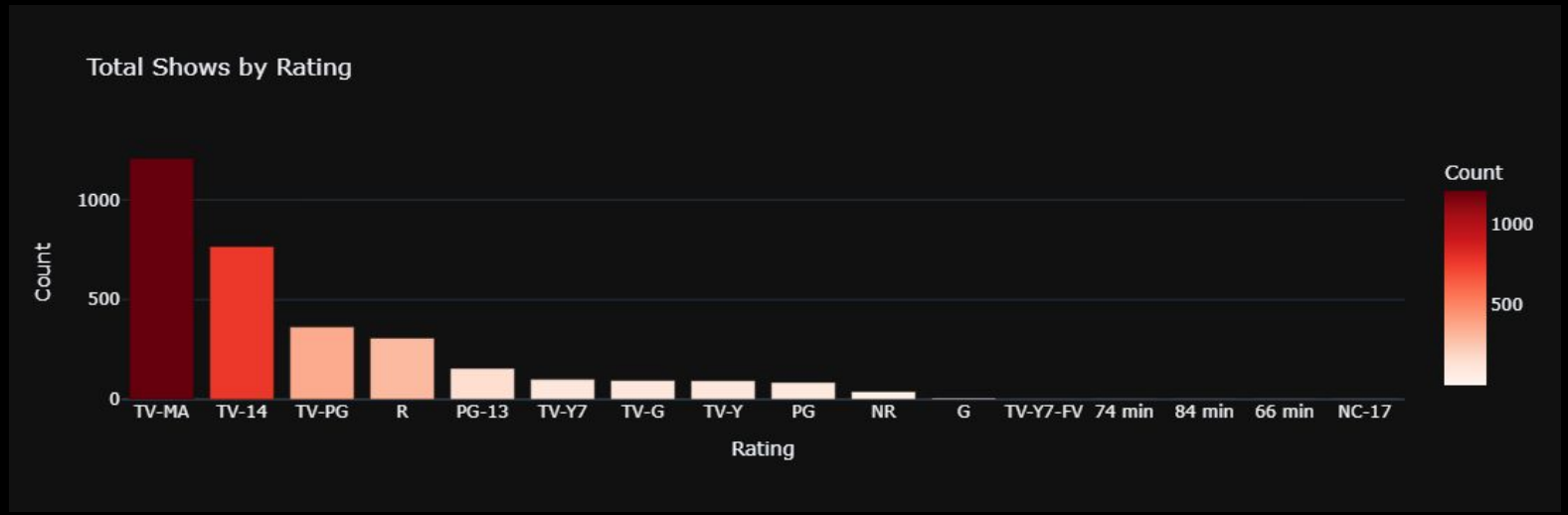
Yearly Releases of Movies and TV Shows on Netflix

```python
# Ensure date_added is datetime and extract year
df['date_added'] = pd.to_datetime(df['date_added'], errors='coerce')
df['year_added'] = df['date_added'].dt.year

# Drop missing values
df_year = df.dropna(subset=['year_added'])

# Group by year and type
yearly_grouped = df_year.groupby(['year_added', 'type']).size().reset_index(name='Count')

# Sort by year
yearly_grouped = yearly_grouped.sort_values('year_added')

# Plot with continuous red scale based on Count
fig3 = px.bar(yearly_grouped, x='year_added', y='Count', color='Count',
              color_continuous_scale='reds',
              barmode='group', facet_col='type',
              title='Yearly Releases of Movies and TV Shows on Netflix',
              template='plotly_dark')

fig3.update_layout(xaxis_title='Year', yaxis_title='Count')
fig3.show()
```



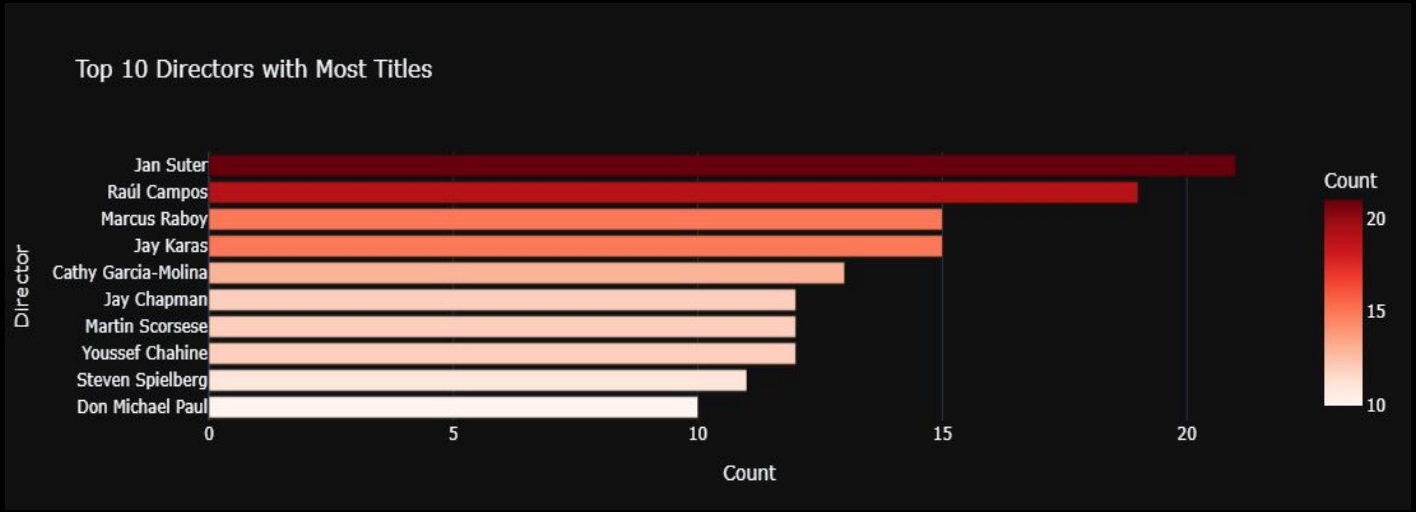
Total Shows By Rating

```python
# Count the number of shows per rating
rating_counts = df_filtered['rating'].value_counts().reset_index()
rating_counts.columns = ['Rating', 'Count']
fig4 = px.bar(rating_counts, x='Rating', y='Count', title='Total Shows by Rating',
              color='Count', color_continuous_scale='reds')
fig4.update_layout(template='plotly_dark')
fig4.show()
```



Top 10 Directors With Most Titles

```python
# Clean and preprocess
top_directors = df['director'].dropna().str.split(', ').explode()

# Remove 'Unknown' or any invalid entries
top_directors = top_directors[top_directors.str.lower() != 'unknown']

# Get top 10 directors
top_directors = top_directors.value_counts().head(10).reset_index()
top_directors.columns = ['Director', 'Count']
top_directors = top_directors.sort_values('Count', ascending=True)

# Plot
fig5 = px.bar(top_directors,
              x='Count',
              y='Director',
              orientation='h',
              color='Count',
              color_continuous_scale='reds',
              title='Top 10 Directors with Most Titles',
              template='plotly_dark')

fig5.show()
```



Total Netflix Shows By Country

```python
# Fill missing and handle multiple countries
df['country'] = df['country'].fillna('Unknown')
country_exploded = df['country'].str.split(', ').explode()

# Count total shows by country
country_counts = country_exploded.value_counts().reset_index()
country_counts.columns = ['Country', 'Count']

# Remove 'Unknown' if needed
country_counts = country_counts[country_counts['Country'] != 'Unknown']

# World map visualization
fig6 = px.choropleth(country_counts,
                     locations='Country',
                     locationmode='country names',
                     color='Count',
                     color_continuous_scale='reds',
                     title='Total Netflix Shows by Country',
                     template='plotly_dark')

# Customize title style
fig6.update_layout(title_font=dict(color='white'))

fig6.show()
```

Conclusion

Key Insights

Movies dominate, but TV Shows are rapidly increasing.
Content is led by the US, followed by India , Canada and the UK.
Netflix is steadily increasing its content each year, reflecting a strong growth strategy.
Most titles are rated TV-MA and indicating a primary focus on teen and adult audiences.

Final Thought

Netflix's library shows a strong U.S. presence with growing global contributions. Seasonal release patterns and continued investment in local content point to increasing diversity in both countries and genres.