DSC640-T301_Week_1&2_Damico

September 7, 2024

[96]:
```
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
```

[97]:
```
# Load the datasets
file_path_countries = r"C:\Users\Joseph\Desktop\School\Masters Data␣
 ↪Science\Data Presentation\all-weeks-countries-netflix.xlsx"
file_path_global = r"C:\Users\Joseph\Desktop\School\Masters Data Science\Data␣
 ↪Presentation\all-weeks-global-netflix.xlsx"
file_path_popular = r"C:\Users\Joseph\Desktop\School\Masters Data Science\Data␣
 ↪Presentation\most-popular-netflix.xlsx"
```

[98]:
```
# Reading the Excel files
df_countries = pd.read_excel(file_path_countries)
df_global = pd.read_excel(file_path_global)
df_popular = pd.read_excel(file_path_popular)
```

```
C:\Users\Joseph\anaconda3\Lib\site-packages\openpyxl\styles\stylesheet.py:226:
UserWarning: Workbook contains no default style, apply openpyxl's default
  warn("Workbook contains no default style, apply openpyxl's default")
C:\Users\Joseph\anaconda3\Lib\site-packages\openpyxl\styles\stylesheet.py:226:
UserWarning: Workbook contains no default style, apply openpyxl's default
  warn("Workbook contains no default style, apply openpyxl's default")
C:\Users\Joseph\anaconda3\Lib\site-packages\openpyxl\styles\stylesheet.py:226:
UserWarning: Workbook contains no default style, apply openpyxl's default
  warn("Workbook contains no default style, apply openpyxl's default")
```

[99]:
```
# Displaying the first few rows of each dataset to inspect
print("Countries Dataset:")
print(df_countries.head())
```

```
Countries Dataset:
  country_name country_iso2        week category  weekly_rank  \
0    Argentina           AR  2024-04-14    Films            1
1    Argentina           AR  2024-04-14    Films            2
2    Argentina           AR  2024-04-14    Films            3
3    Argentina           AR  2024-04-14    Films            4
4    Argentina           AR  2024-04-14    Films            5
```

```
                    show_title season_title  cumulative_weeks_in_top_10
0                  The Tearsmith          NaN                           2
1                         Stolen          NaN                           1
2                  Love, Divided          NaN                           1
3  Woody Woodpecker Goes to Camp          NaN                           1
4                  Rest In Peace          NaN                           3
```

[100]:
```
print("\nGlobal Dataset:")
print(df_global.head())
```

```
Global Dataset:
         week         category  weekly_rank                     show_title  \
0  2024-04-14  Films (English)            1              What Jennifer Did
1  2024-04-14  Films (English)            2  Woody Woodpecker Goes to Camp
2  2024-04-14  Films (English)            3                          Scoop
3  2024-04-14  Films (English)            4                          Glass
4  2024-04-14  Films (English)            5                   Megan Leavey

  season_title  weekly_hours_viewed  runtime  weekly_views  \
0          NaN             26100000   1.4500    18000000.0
1          NaN             19600000   1.6667    11800000.0
2          NaN             14600000   1.7167     8500000.0
3          NaN             11000000   2.1500     5100000.0
4          NaN              9700000   1.9333     5000000.0

   cumulative_weeks_in_top_10  is_staggered_launch episode_launch_details
0                           1                False                    NaN
1                           1                False                    NaN
2                           2                False                    NaN
3                           2                False                    NaN
4                           1                False                    NaN
```

[101]:
```
print("\nMost Popular Dataset:")
print(df_popular.head())
```

```
Most Popular Dataset:
          category  rank              show_title season_title  \
0  Films (English)     1             Red Notice          NaN
1  Films (English)     2          Don't Look Up          NaN
2  Films (English)     3       The Adam Project          NaN
3  Films (English)     4              Bird Box          NaN
4  Films (English)     5  Leave the World Behind          NaN

   hours_viewed_first_91_days  runtime  views_first_91_days
0                   454200000   1.9667            230900000
1                   408600000   2.3833            171400000
2                   281000000   1.7833            157600000
```

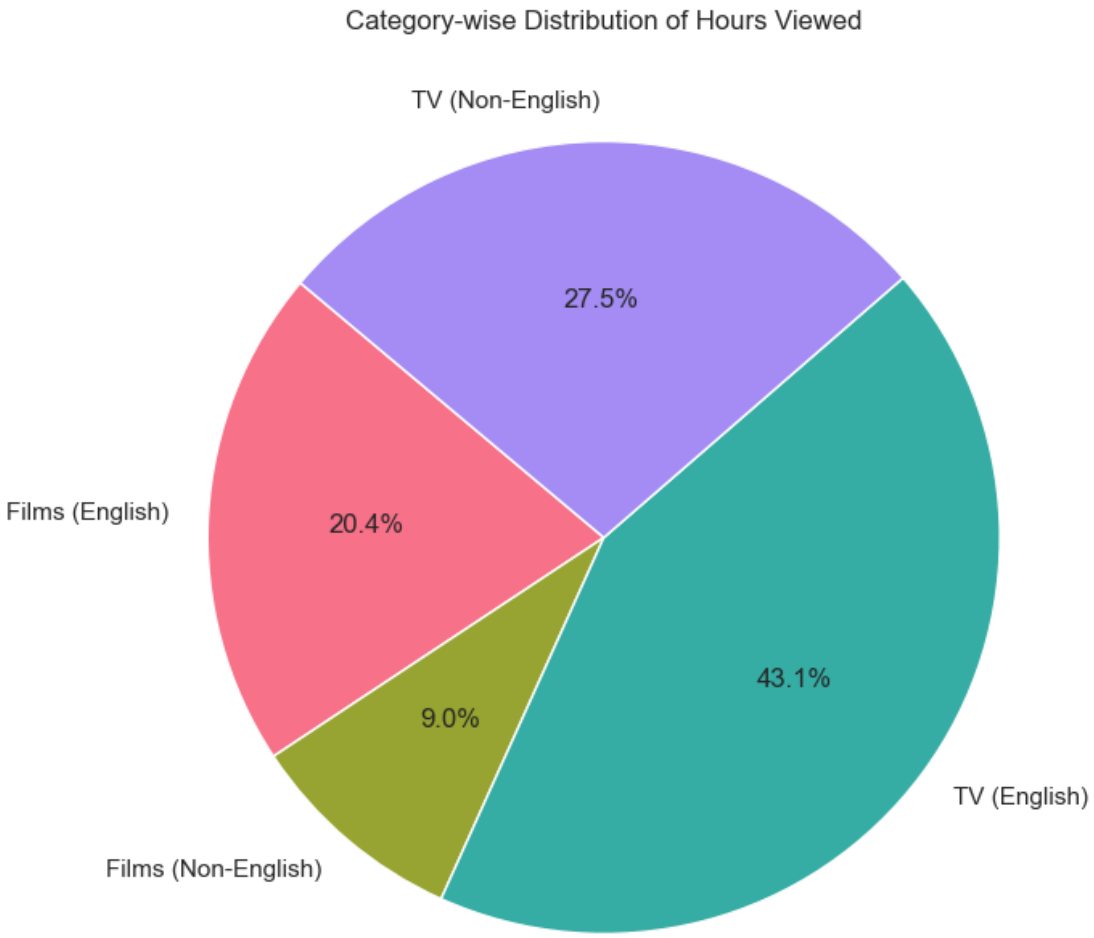
```
3                    325300000    2.0667              157400000
4                    339300000    2.3667              143400000
```

[102]:
```
# Assign the datasets to variables
countries_df = pd.read_excel("C:/Users/Joseph/Desktop/School/Masters Data␣
 ↪Science/Data Presentation/all-weeks-countries-netflix.xlsx")
global_df = pd.read_excel("C:/Users/Joseph/Desktop/School/Masters Data Science/
 ↪Data Presentation/all-weeks-global-netflix.xlsx")
most_popular_df = pd.read_excel("C:/Users/Joseph/Desktop/School/Masters Data␣
 ↪Science/Data Presentation/most-popular-netflix.xlsx")
```

```
C:\Users\Joseph\anaconda3\Lib\site-packages\openpyxl\styles\stylesheet.py:226:
UserWarning: Workbook contains no default style, apply openpyxl's default
  warn("Workbook contains no default style, apply openpyxl's default")
C:\Users\Joseph\anaconda3\Lib\site-packages\openpyxl\styles\stylesheet.py:226:
UserWarning: Workbook contains no default style, apply openpyxl's default
  warn("Workbook contains no default style, apply openpyxl's default")
C:\Users\Joseph\anaconda3\Lib\site-packages\openpyxl\styles\stylesheet.py:226:
UserWarning: Workbook contains no default style, apply openpyxl's default
  warn("Workbook contains no default style, apply openpyxl's default")
```

0.1 Hours viewed shows vs. films

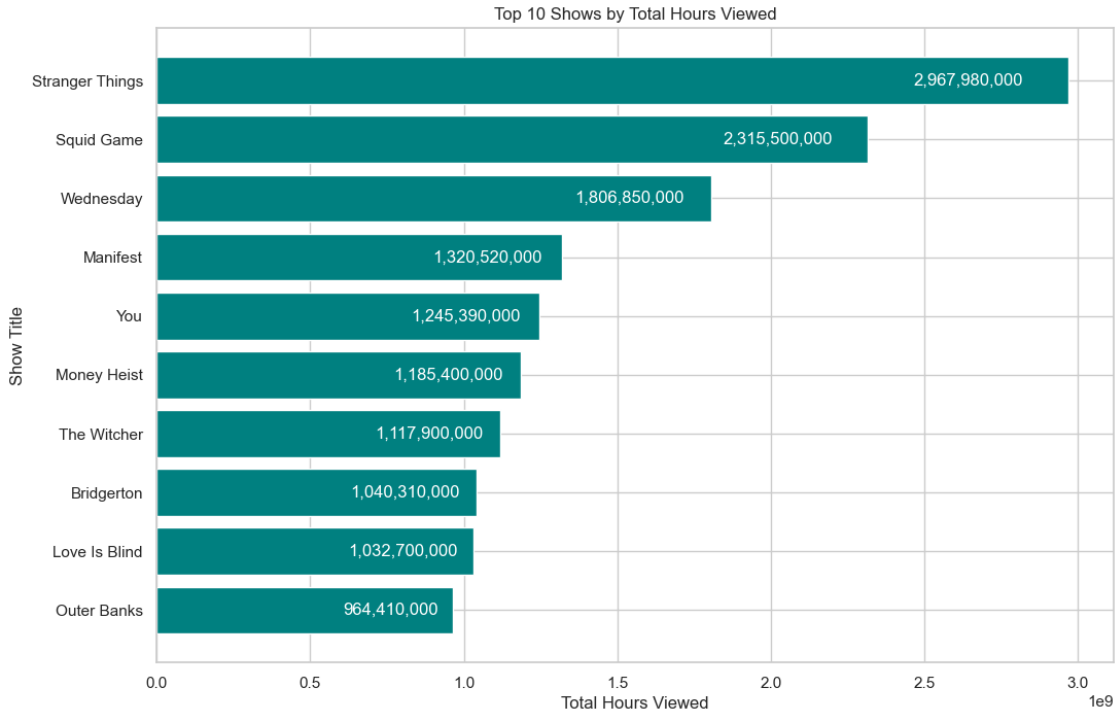
[116]:
```
# Aggregate the total hours viewed by category
category_hours = df_global.groupby('category')['weekly_hours_viewed'].sum().
 ↪reset_index()

# Generate a color palette
palette = sns.color_palette("husl", len(category_hours))

# Plot a pie chart
plt.figure(figsize=(10, 8))
plt.pie(category_hours['weekly_hours_viewed'],
        labels=category_hours['category'],
        autopct='%1.1f%%',
        colors=palette,
        startangle=140)
plt.title('Category-wise Distribution of Hours Viewed')
plt.show()
```



0.2 Top 10 Shows by Hours Viewed

[117]:
```
# Aggregate hours viewed by show title
top_shows = df_global.groupby('show_title')['weekly_hours_viewed'].sum().
 ↪reset_index()
top_shows = top_shows.sort_values('weekly_hours_viewed', ascending=False).
 ↪head(10)

# Horizontal bar chart
plt.figure(figsize=(12, 8))
bars = plt.barh(top_shows['show_title'], top_shows['weekly_hours_viewed'],␣
 ↪color='teal')

# Add text annotations inside the bars
```

```
for bar in bars:
    width = bar.get_width()
    plt.text(width - width * 0.05,
             bar.get_y() + bar.get_height()/2,
             f'{width:,.0f}',
             va='center',
             ha='right',
             color='white')

plt.xlabel('Total Hours Viewed')
plt.ylabel('Show Title')
plt.title('Top 10 Shows by Total Hours Viewed')
plt.gca().invert_yaxis()
plt.show()
```

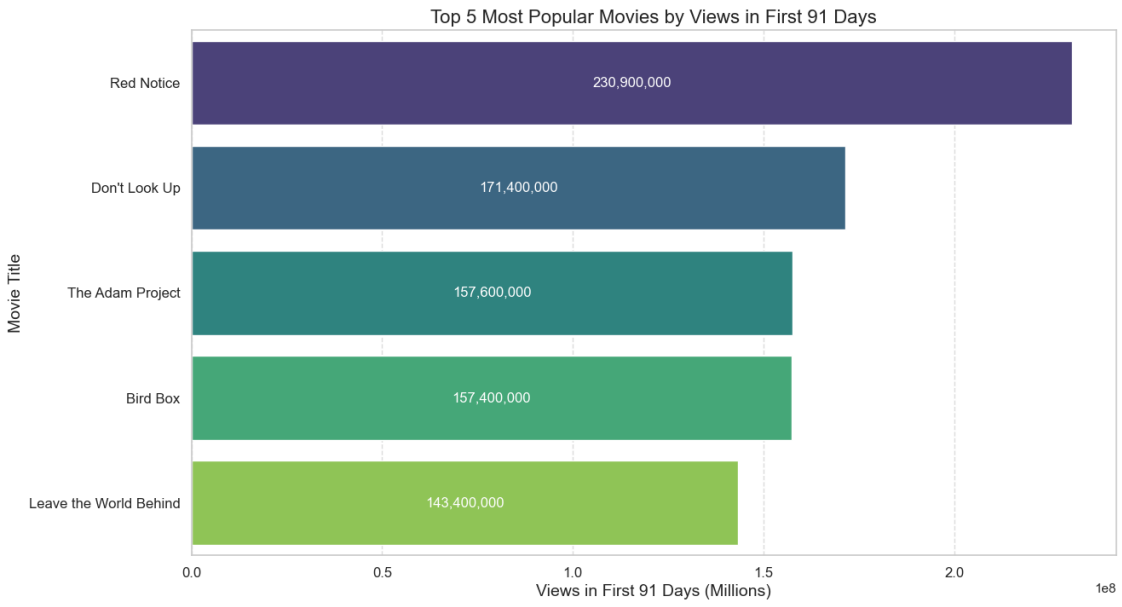


0.3 Most Popular Movies

[118]:
```
# Filter top 5 most popular movies globally by views in the first 91 days
top_popular_movies = most_popular_df[most_popular_df['category'] == 'Films␣
 ↪(English)'].sort_values('views_first_91_days', ascending=False).head(5)

# Horizontal bar chart for most popular movies globally
plt.figure(figsize=(14, 8))
```

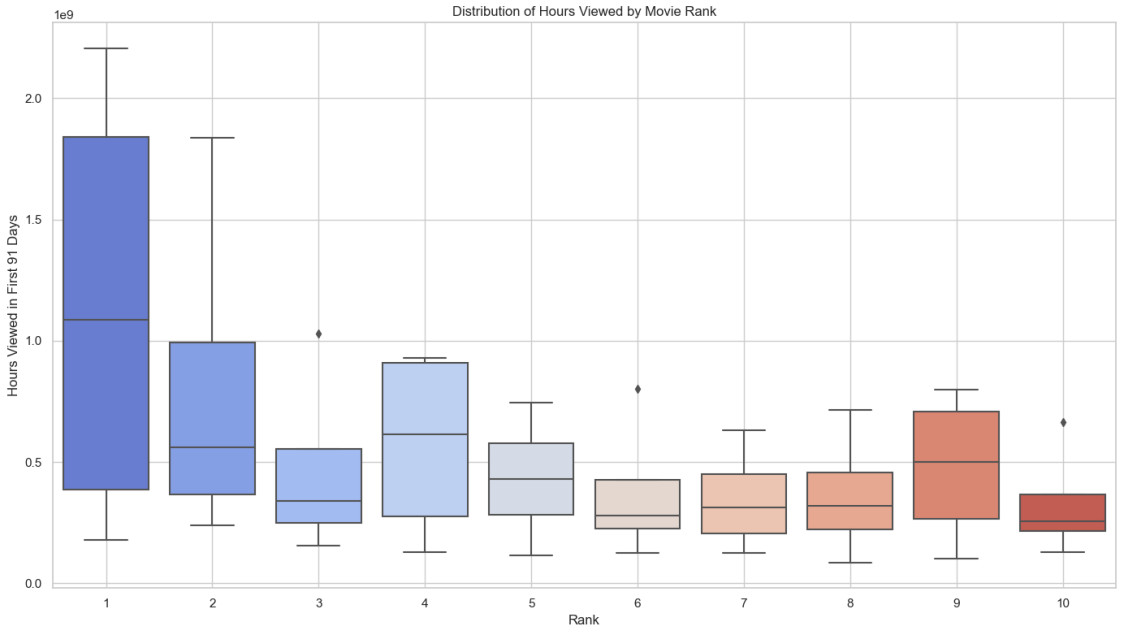
```
bars = sns.barplot(x='views_first_91_days', y='show_title',␣
 ↪data=top_popular_movies, palette='viridis', ci=None)

# Add data labels inside the bars
for bar in bars.patches:
    width = bar.get_width()
    plt.text(width * 0.5,
             bar.get_y() + bar.get_height()/2,
             f'{width:,.0f}',
             va='center',
             ha='center',
             color='white',
             fontsize=12)

# Add grid lines and style
plt.grid(axis='x', linestyle='--', alpha=0.7)
plt.title('Top 5 Most Popular Movies by Views in First 91 Days', fontsize=16)
plt.xlabel('Views in First 91 Days (Millions)', fontsize=14)
plt.ylabel('Movie Title', fontsize=14)
plt.xticks(fontsize=12)
plt.yticks(fontsize=12)
plt.show()
```

```
C:\Users\Joseph\AppData\Local\Temp\ipykernel_18024\383498399.py:6:
FutureWarning:

The `ci` parameter is deprecated. Use `errorbar=None` for the same effect.

  bars = sns.barplot(x='views_first_91_days', y='show_title',
data=top_popular_movies, palette='viridis', ci=None)
```



0.4 Hours by Movie Rank

[111]:
```
# Box plot to show distribution of hours viewed by rank
plt.figure(figsize=(14, 8))
sns.boxplot(x='rank', y='hours_viewed_first_91_days', data=df_popular,␣
 ↪palette='coolwarm')
plt.title('Distribution of Hours Viewed by Movie Rank')
plt.xlabel('Rank')
plt.ylabel('Hours Viewed in First 91 Days')
plt.grid(True)
plt.tight_layout()
plt.show()
```

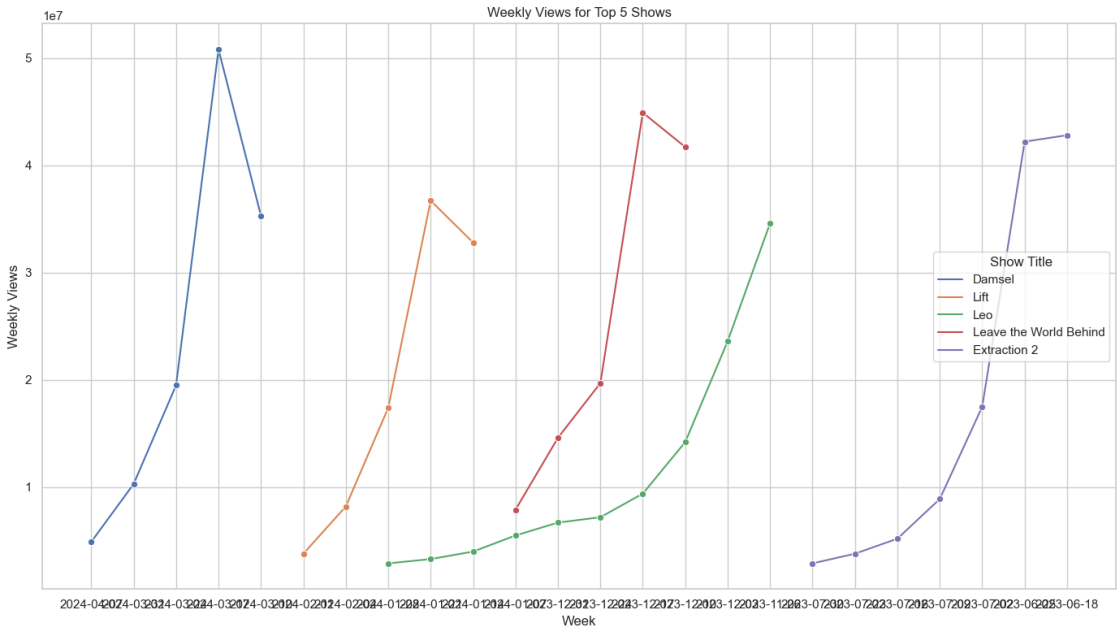


0.5 Line Chart of Weekly Views for Top 5 Shows

[113]:
```
# Identify the top 5 shows by total weekly views
top_shows = df_global.groupby('show_title')['weekly_views'].sum().reset_index()
top_shows = top_shows.sort_values('weekly_views', ascending=False).head(5)

# Filter the global dataset for these top 5 shows
top_shows_data = df_global[df_global['show_title'].
 ↪isin(top_shows['show_title'])]
```

```
# Plot line chart
plt.figure(figsize=(14, 8))
sns.lineplot(data=top_shows_data, x='week', y='weekly_views', hue='show_title',␣
 ↪marker='o')
plt.title('Weekly Views for Top 5 Shows')
plt.xlabel('Week')
plt.ylabel('Weekly Views')
plt.legend(title='Show Title')
plt.grid(True)
plt.tight_layout()
plt.show()
```

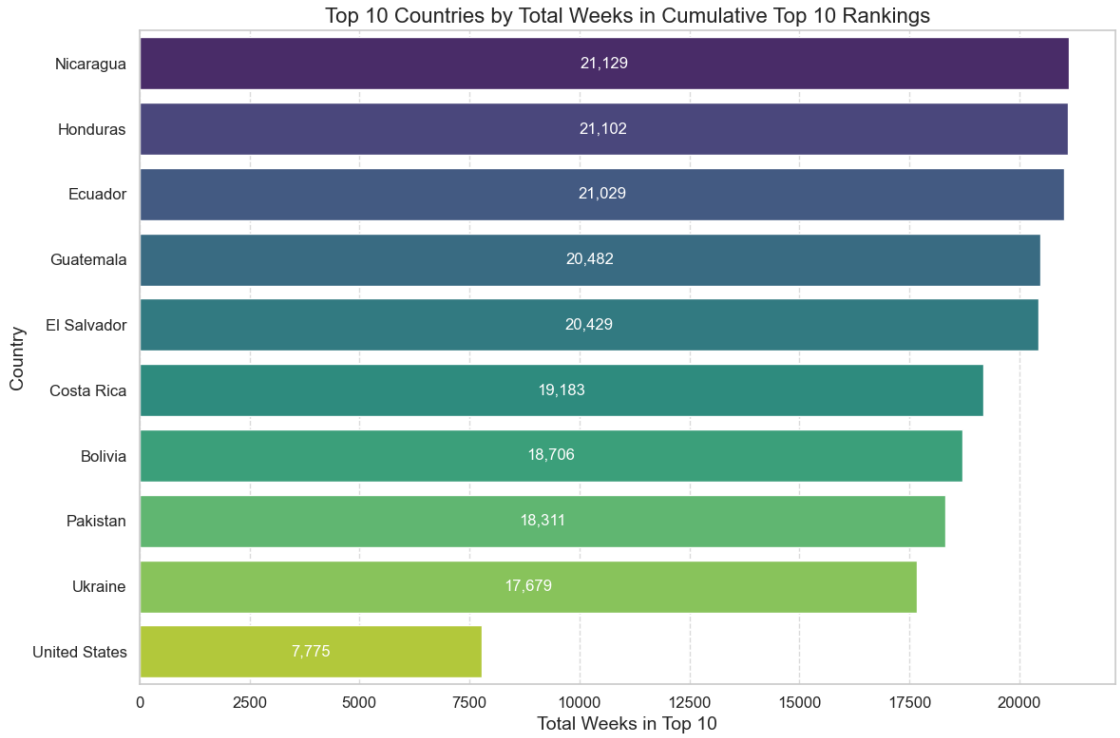
```
C:\Users\Joseph\anaconda3\Lib\site-packages\seaborn\_oldcore.py:1119:
FutureWarning: use_inf_as_na option is deprecated and will be removed in a
future version. Convert inf values to NaN before operating instead.
  with pd.option_context('mode.use_inf_as_na', True):
C:\Users\Joseph\anaconda3\Lib\site-packages\seaborn\_oldcore.py:1119:
FutureWarning: use_inf_as_na option is deprecated and will be removed in a
future version. Convert inf values to NaN before operating instead.
  with pd.option_context('mode.use_inf_as_na', True):
```



0.6 Cumulative top 10 rankings

[119]:
```
# Aggregate total weeks in top 10 by country
country_top10_weeks = df_countries.
 ↪groupby('country_name')['cumulative_weeks_in_top_10'].sum().reset_index()
```

```
# Sort and get the top 9 countries
top_9_countries = country_top10_weeks.sort_values('cumulative_weeks_in_top_10',␣
 ↪ascending=False).head(9)

# Check if USA is in the top 9
if 'USA' not in top_9_countries['country_name'].values:
    # Add USA if not in the top 9
    usa_data = country_top10_weeks[country_top10_weeks['country_name'] ==␣
 ↪'United States']
    top_9_countries = pd.concat([top_9_countries, usa_data]).
 ↪sort_values('cumulative_weeks_in_top_10', ascending=False).head(10)

# Create the bar chart
plt.figure(figsize=(12, 8))
bars = sns.barplot(x='cumulative_weeks_in_top_10', y='country_name',␣
 ↪data=top_9_countries, palette='viridis')

# Add data labels inside the bars
for bar in bars.patches:
    width = bar.get_width()
    plt.text(width * 0.5,
             bar.get_y() + bar.get_height()/2,
             f'{width:,.0f}',
             va='center',
             ha='center',
             color='white',
             fontsize=12)

# Add grid lines and style
plt.grid(axis='x', linestyle='--', alpha=0.7)
plt.title('Top 10 Countries by Total Weeks in Cumulative Top 10 Rankings',␣
 ↪fontsize=16)
plt.xlabel('Total Weeks in Top 10', fontsize=14)
plt.ylabel('Country', fontsize=14)
plt.xticks(fontsize=12)
plt.yticks(fontsize=12)
plt.tight_layout()
plt.show()
```


Top 10 Countries by Total Weeks in Cumulative Top 10 Rankings
Nicaragua
Honduras
Ecuador
Guatemala
El Salvador
Costa Rica
Bolivia
Pakistan
Ukraine
United States
21,129
21,102
21,029
20,482
20,429
19,183
18,706
18,311
17,679
7,775
Country
0
2500
5000
7500
10000
12500
15000
17500
20000
Total Weeks in Top 10