In [ ]:

```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
from datetime import datetime
import warnings
warnings.filterwarnings("ignore")
```

In [ ]:

```
df = pd.read_csv('USvideos.csv')
```

In [ ]:

```
df.head()
```

Out[ ]:

	video_id	trending_date	title	channel_title	category_id	publish_
0	2kyS6SvSYSE	17.14.11	WE WANT TO TALK ABOUT OUR MARRIAGE	CaseyNeistat	22	2017 13T17:13:01.
1	1ZAPwfrtAFY	17.14.11	The Trump Presidency: Last Week Tonight with J...	LastWeekTonight	24	2017 13T07:30:00.
2	5qpjK5DgCt4	17.14.11	Racist Superman | Rudy Mancuso, King Bach & Le...	Rudy Mancuso	23	2017 12T19:05:24.
3	puqaWrEC7tY	17.14.11	Nickelback Lyrics: Real or Fake?	Good Mythical Morning	24	2017 13T11:00:04.
4	d380meD0W0M	17.14.11	I Dare You: GOING BALD!?	nigahiga	24	2017 12T18:01:41.

In [ ]:

```
df.shape
```

Out[ ]:

```
(40949, 16)
```

In [ ]:

```
df = df.drop_duplicates()
df.shape
```

Out[ ]:

```
(40901, 16)
```

In [ ]:

```
df.describe()
```

Out[ ]:

	category_id	views	likes	dislikes	comment_count
count	40901.000000	4.090100e+04	4.090100e+04	4.090100e+04	4.090100e+04
mean	19.970588	2.360678e+06	7.427173e+04	3.711722e+03	8.448567e+03
std	7.569362	7.397719e+06	2.289999e+05	2.904624e+04	3.745139e+04
min	1.000000	5.490000e+02	0.000000e+00	0.000000e+00	0.000000e+00
25%	17.000000	2.419720e+05	5.416000e+03	2.020000e+02	6.130000e+02
50%	24.000000	6.810640e+05	1.806900e+04	6.300000e+02	1.855000e+03
75%	25.000000	1.821926e+06	5.533800e+04	1.936000e+03	5.752000e+03
max	43.000000	2.252119e+08	5.613827e+06	1.674420e+06	1.361580e+06

In [ ]:

```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
Index: 40901 entries, 0 to 40948
Data columns (total 16 columns):
 #   Column                  Non-Null Count  Dtype 
---  ------                  --------------  ----- 
 0   video_id                40901 non-null  object
 1   trending_date           40901 non-null  object
 2   title                   40901 non-null  object
 3   channel_title           40901 non-null  object
 4   category_id             40901 non-null  int64 
 5   publish_time            40901 non-null  object
 6   tags                    40901 non-null  object
 7   views                   40901 non-null  int64 
 8   likes                   40901 non-null  int64 
 9   dislikes                40901 non-null  int64 
 10  comment_count           40901 non-null  int64 
 11  thumbnail_link          40901 non-null  object
 12  comments_disabled       40901 non-null  bool  
 13  ratings_disabled        40901 non-null  bool  
 14  video_error_or_removed  40901 non-null  bool  
 15  description             40332 non-null  object
dtypes: bool(3), int64(5), object(8)
memory usage: 4.5+ MB
```

In [ ]:

```
columns_to_remove = ['thumbnail_link', 'description']
df = df.drop(columns=columns_to_remove)
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
Index: 40901 entries, 0 to 40948
Data columns (total 14 columns):
 #   Column                  Non-Null Count  Dtype 
---  ------                  --------------  ----- 
 0   video_id                40901 non-null  object
 1   trending_date           40901 non-null  object
 2   title                   40901 non-null  object
 3   channel_title           40901 non-null  object
 4   category_id             40901 non-null  int64 
 5   publish_time            40901 non-null  object
 6   tags                    40901 non-null  object
 7   views                   40901 non-null  int64 
 8   likes                   40901 non-null  int64 
 9   dislikes                40901 non-null  int64 
 10  comment_count           40901 non-null  int64 
 11  comments_disabled       40901 non-null  bool  
 12  ratings_disabled        40901 non-null  bool  
 13  video_error_or_removed  40901 non-null  bool  
dtypes: bool(3), int64(5), object(6)
memory usage: 3.9+ MB
```

In [ ]:

```
import datetime
```

In [ ]:

```
df["trending_date"] = df["trending_date"].apply(lambda x: datetime.datetime.strp
df.head(3)
```

Out[ ]:

	video_id	trending_date	title	channel_title	category_id	publish_tim
0	2kyS6SvSYSE	2017-11-14	WE WANT TO TALK ABOUT OUR MARRIAGE	CaseyNeistat	22	2017-1 13T17:13:01.000
1	1ZAPwfrtAFY	2017-11-14	The Trump Presidency: Last Week Tonight with J...	LastWeekTonight	24	2017-1 13T07:30:00.000
2	5qpjK5DgCt4	2017-11-14	Racist Superman | Rudy Mancuso, King Bach & Le...	Rudy Mancuso	23	2017-1 12T19:05:24.000

In [ ]:

```
df["publish_time"] = pd.to_datetime(df["publish_time"])
df.head(2)
```

Out[ ]:

	video_id	trending_date	title	channel_title	category_id	publish_time
0	2kyS6SvSYSE	2017-11-14	WE WANT TO TALK ABOUT OUR MARRIAGE	CaseyNeistat	22	2017-11-13 17:13:01+00:00
1	1ZAPwfrtAFY	2017-11-14	The Trump Presidency: Last Week Tonight with J...	LastWeekTonight	24	2017-11-13 07:30:00+00:00

In [ ]:

```
df['publish_month'] = df['publish_time'].dt.month
df['publish_day'] = df['publish_time'].dt.day
df['publish_hour'] = df['publish_time'].dt.hour
df.head(2)
```

Out[ ]:

	video_id	trending_date	title	channel_title	category_id	publish_time
0	2kyS6SvSYSE	2017-11-14	WE WANT TO TALK ABOUT OUR MARRIAGE	CaseyNeistat	22	2017-11-13 17:13:01+00:00
1	1ZAPwfrtAFY	2017-11-14	The Trump Presidency: Last Week Tonight with J...	LastWeekTonight	24	2017-11-13 07:30:00+00:00

In [ ]:

```
print(sorted(df["category_id"].unique()))
```

```
[1, 2, 10, 15, 17, 19, 20, 22, 23, 24, 25, 26, 27, 28, 29, 43]
```

In [ ]:

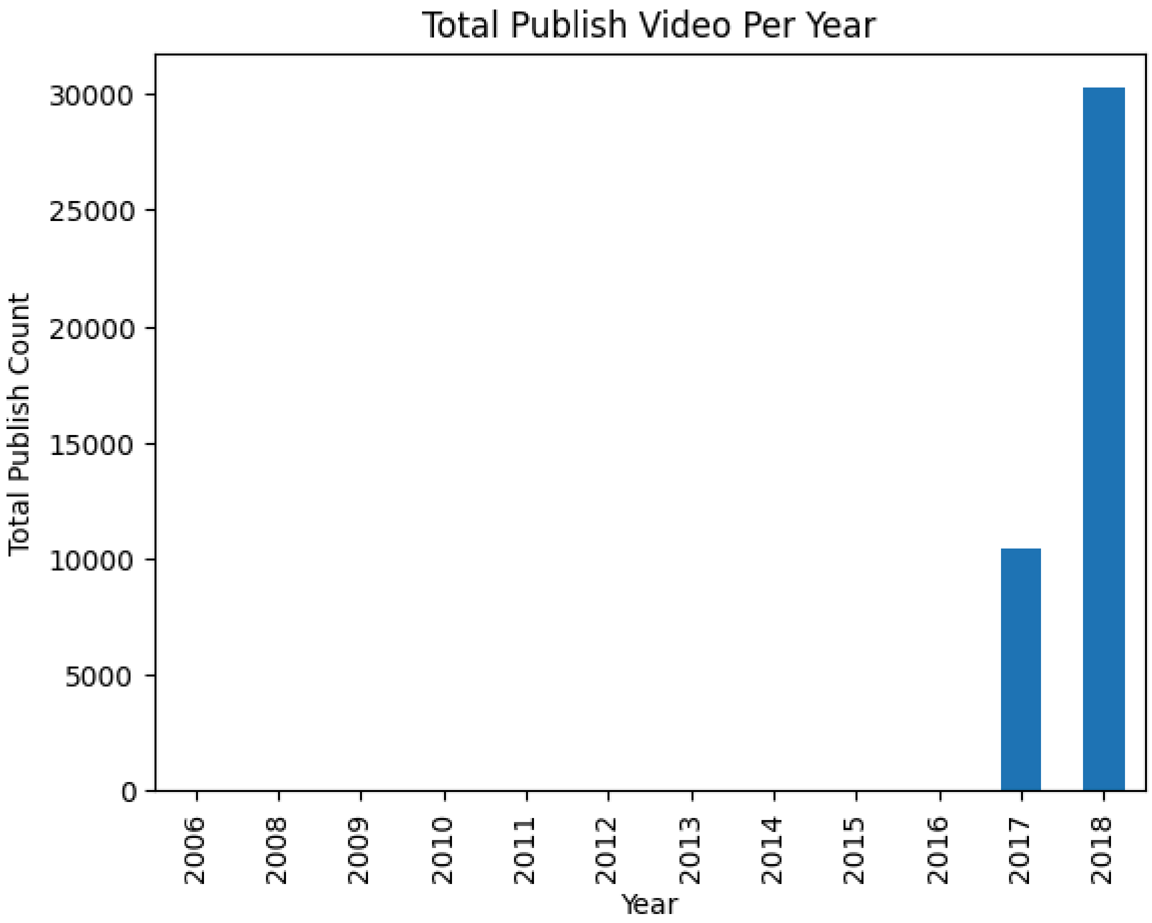
```
df['category_name'] = np.nan

df.loc[df["category_id"] == 1, "category_name"] = 'Film and Animation'
df.loc[df["category_id"] == 2, "category_name"] = 'Autos and Vehicles'
df.loc[df["category_id"] == 10, "category_name"] = 'Music'
df.loc[df["category_id"] == 15, "category_name"] = 'Pets and Animals'
df.loc[df["category_id"] == 17, "category_name"] = 'Sports'
df.loc[df["category_id"] == 19, "category_name"] = 'Travel and Events'
df.loc[df["category_id"] == 20, "category_name"] = 'Gaming'
df.loc[df["category_id"] == 22, "category_name"] = 'People and Blogs'
df.loc[df["category_id"] == 23, "category_name"] = 'Comedy'
df.loc[df["category_id"] == 24, "category_name"] = 'Entertainment'
df.loc[df["category_id"] == 25, "category_name"] = 'News and Politics'
df.loc[df["category_id"] == 26, "category_name"] = 'How to and Style'
df.loc[df["category_id"] == 27, "category_name"] = 'Education'
df.loc[df["category_id"] == 28, "category_name"] = 'Science and Technology'
df.loc[df["category_id"] == 29, "category_name"] = 'Non Profits and Activism'
df.loc[df["category_id"] == 30, "category_name"] = 'Movies'
df.loc[df["category_id"] == 43, "category_name"] = 'Shows'
df.head(2)
```

Out[ ]:

	video_id	trending_date	title	channel_title	category_id	publish_time
0	2kyS6SvSYSE	2017-11-14	WE WANT TO TALK ABOUT OUR MARRIAGE	CaseyNeistat	22	2017-11-13 17:13:01+00:00
1	1ZAPwfrtAFY	2017-11-14	The Trump Presidency: Last Week Tonight with J...	LastWeekTonight	24	2017-11-13 07:30:00+00:00

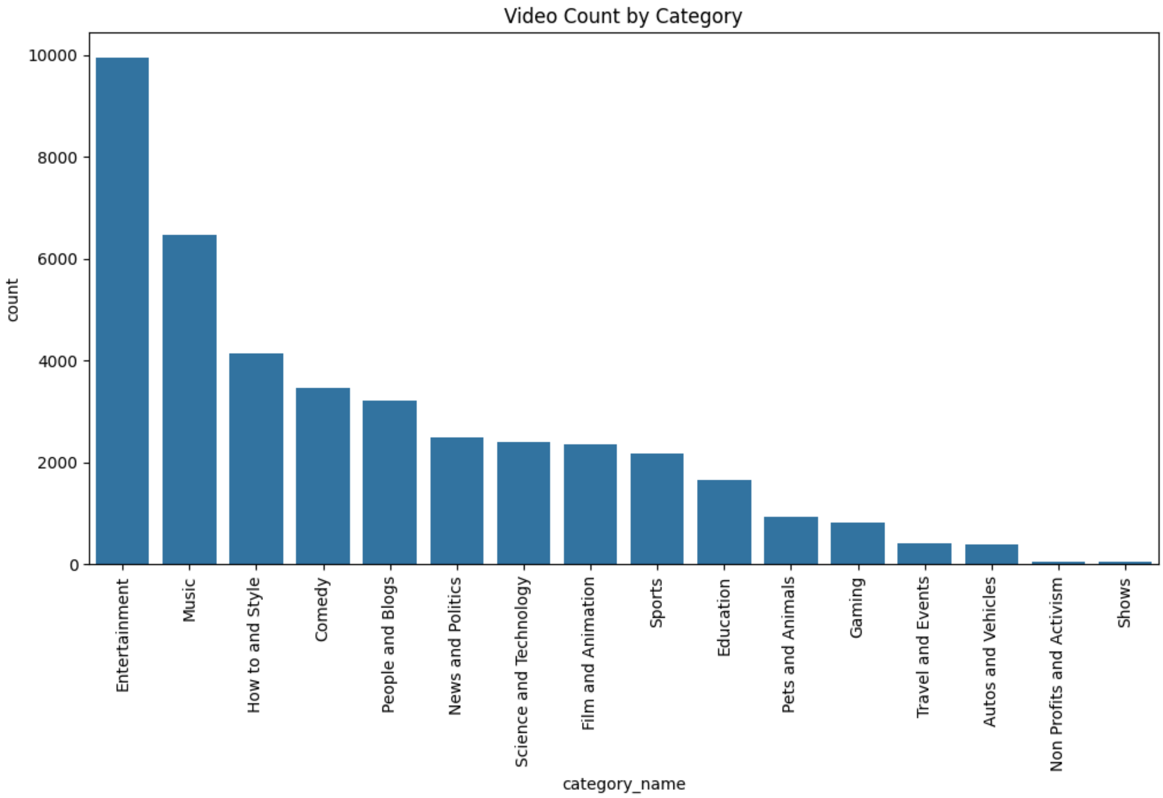
In [ ]:

```
df['year'] = df['publish_time'].dt.year
yearly_counts = df.groupby('year')['video_id'].count()

# Create a bar chart
yearly_counts.plot(kind='bar', xlabel='Year', ylabel='Total Publish Count', titl

# Show the chart
plt.show()
```



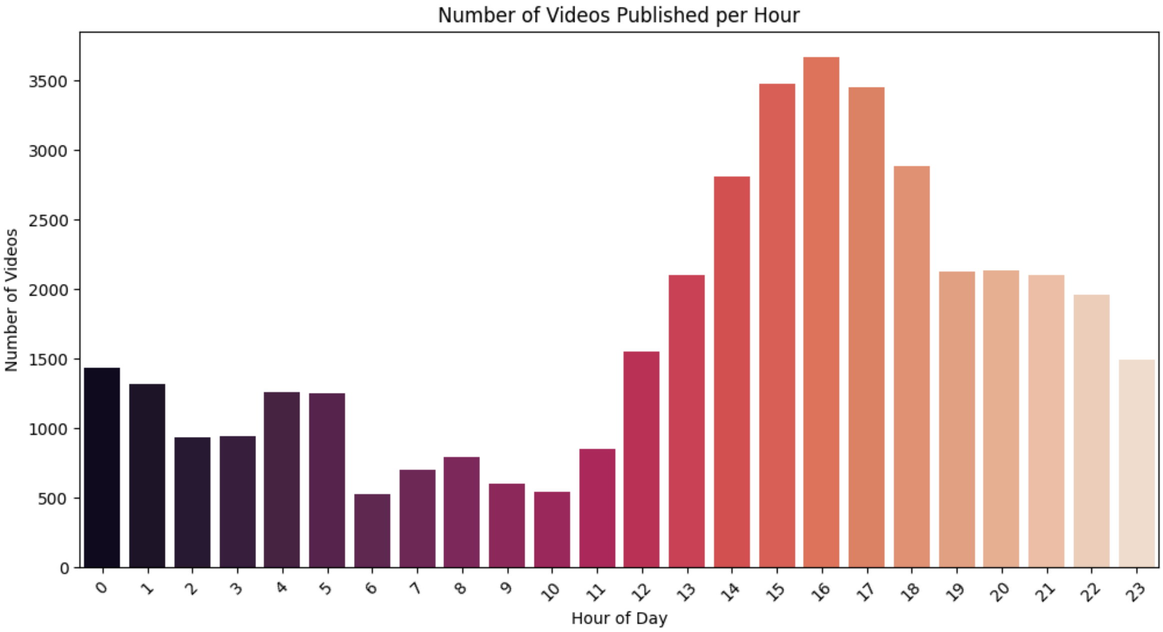
In [ ]:

```
plt.figure(figsize=(12, 6))
sns.countplot(x='category_name', data=df, order=df['category_name'].value_counts
plt.xticks(rotation=90)
plt.title('Video Count by Category')
plt.show()
```



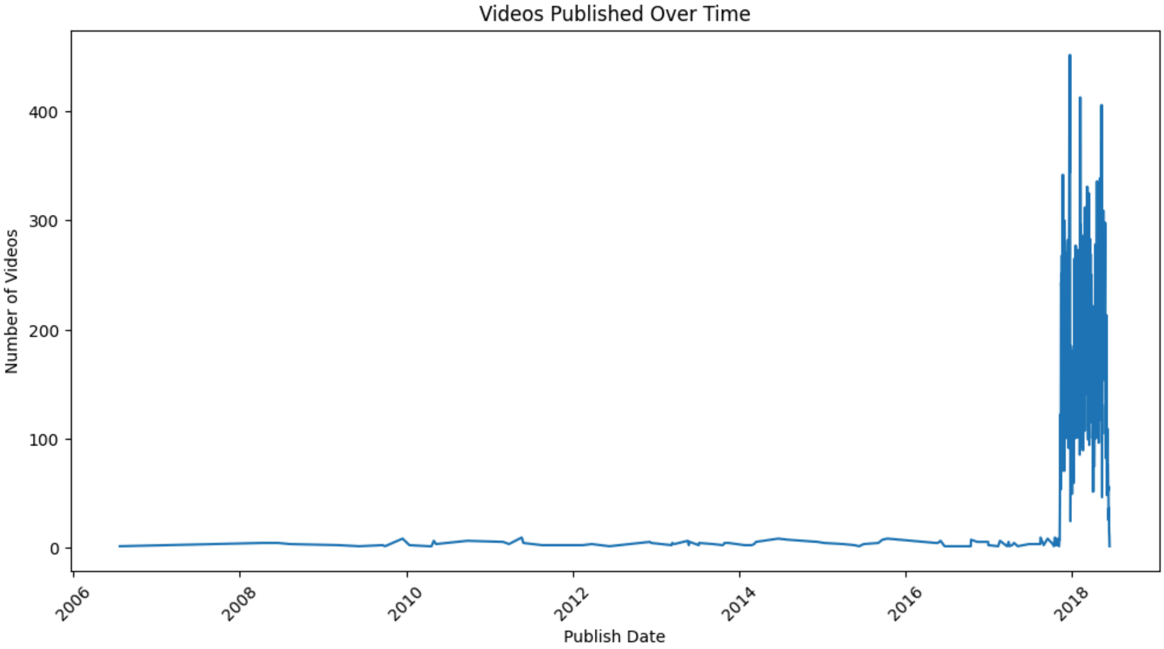
In [ ]:

```
# Count the number of videos published per hour
videos_per_hour = df["publish_hour"].value_counts().sort_index()

# Create a bar plot
plt.figure(figsize=(12, 6))
sns.barplot(x=videos_per_hour.index, y=videos_per_hour.values, palette='rocket')
plt.title('Number of Videos Published per Hour')
plt.xlabel('Hour of Day')
plt.ylabel('Number of Videos')
plt.xticks(rotation=45)
plt.show()
```



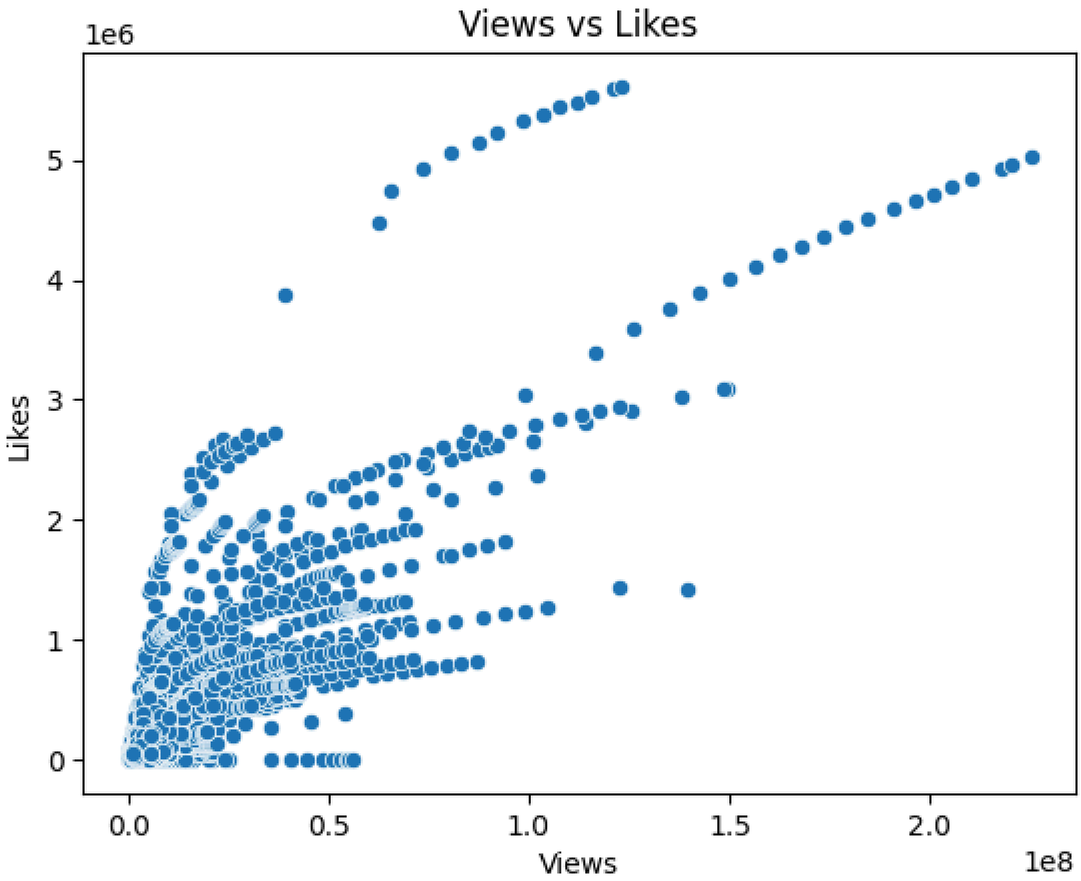
In [ ]:

```
# Convert the 'publish_time' column to datetime format
df['publish_time'] = pd.to_datetime(df['publish_time'])

# Extract the date from the 'publish_time' column
df['publish_date'] = df['publish_time'].dt.date

# Group by 'publish_date' and count the number of videos published each day
video_count_by_date = df.groupby('publish_date').size()

# Plotting
plt.figure(figsize=(12, 6))
sns.lineplot(data=video_count_by_date)
plt.title("Videos Published Over Time")
plt.xlabel("Publish Date")
plt.ylabel("Number of Videos")
plt.xticks(rotation=45)
plt.show()
```



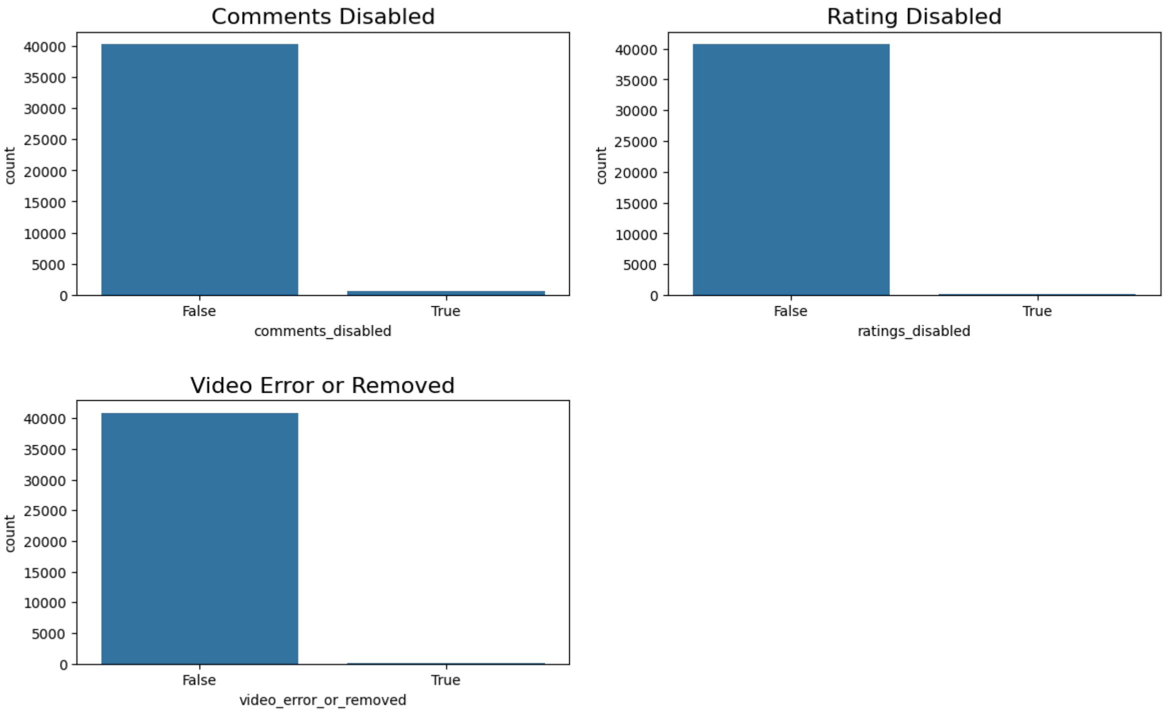
In [ ]:

```
# Scatter plot between 'views' and 'likes'
sns.scatterplot(data=df, x='views', y='likes')
plt.title('Views vs Likes')
plt.xlabel('Views')
plt.ylabel('Likes')
plt.show()
```



In [ ]:

```
# Set up the figure and adjust subplots
plt.figure(figsize=(14, 8))
plt.subplots_adjust(wspace=0.2, hspace=0.4, top=0.9)

# First subplot: Comments Disabled
plt.subplot(2, 2, 1)
sns.countplot(x='comments_disabled', data=df)
plt.title('Comments Disabled', fontsize=16)

# Second subplot: Ratings Disabled
plt.subplot(2, 2, 2)
sns.countplot(x='ratings_disabled', data=df)
plt.title('Rating Disabled', fontsize=16)

# Third subplot: Video Error or Removed
plt.subplot(2, 2, 3)
sns.countplot(x='video_error_or_removed', data=df)
plt.title('Video Error or Removed', fontsize=16)

# Show the plot
plt.show()
```



Comments Disabled

Rating Disabled

Video Error or Removed

```
In [ ]: corr_matrix = df['views'].corr(df["likes"])
        corr_matrix
```

```
Out[ ]: 0.8491785476230503
```

```
In [ ]:
```