YouTube trending video analysis

In [1]:
```
import pandas as pd
import numpy as np
import matplotlib as mpl
from matplotlib import pyplot as plt
import seaborn as sns
import warnings
from collections import Counter
import datetime
import wordcloud
import csv
```

In [2]:
```
df=pd.read_csv("data1.csv")
```

In [3]:
```
df.head()
```

Out[3]:

	video_id	title	publishedAt	channelId	cha
0	ZAfAud_M_mg	Halsey - Without Me	2018-10-29T15:58:23.000Z	UCm3FgJ2Hqm7tb70T-GfwXVA	Ha
1	YyWru2XOiK0	Tyga - Dip (Official Video) ft. Nicki Minaj	2018-10-29T19:00:49.000Z	UChXnu0HBydqedqhnClp0rJg	T
2	mwsJDfiOJdk	Worst Halloween Candy Taste Test (Day 2)	2018-10-30T10:00:10.000Z	UC4PooiX37Pld1T8J5SYT-SQ	
3	0iy3HPxBFQY	James Corden & Ariana Grande Visit an Escape Room	2018-10-31T05:01:11.000Z	UCJ0uqCI0Vqr2Rrt1HseGirg	The S
4	WZwr2a_IFWY	IZ*ONE (아이즈원) - 라비앙로즈 (La Vie en Rose) MV	2018-10-29T09:00:05.000Z	UC_pwIXKXNm5KGhdEVzmY60A	Sto Ente

In [4]:
```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 84 entries, 0 to 83
Data columns (total 16 columns):
 #   Column             Non-Null Count  Dtype 
---  ------             --------------  ----- 
 0   video_id           84 non-null     object
 1   title              84 non-null     object
 2   publishedAt        84 non-null     object
 3   channelId          84 non-null     object
 4   channelTitle       84 non-null     object
 5   categoryId         84 non-null     int64 
 6   trending_date      84 non-null     object
 7   tags               84 non-null     object
 8   view_count         84 non-null     int64 
 9   likes              84 non-null     int64 
 10  dislikes           84 non-null     int64 
 11  comment_count      84 non-null     int64 
 12  thumbnail_link     84 non-null     object
 13  comments_disabled  84 non-null     bool  
 14  ratings_disabled   84 non-null     bool  
 15  description        84 non-null     object
dtypes: bool(2), int64(5), object(9)
memory usage: 9.5+ KB
```

In [5]:
```
df.describe()
```

Out[5]:

	categoryId	view_count	likes	dislikes	comment_count
count	84.000000	8.400000e+01	8.400000e+01	84.000000	84.000000
mean	18.583333	3.630983e+06	1.527229e+05	5534.583333	14161.500000
std	9.076925	4.949098e+06	2.731076e+05	9889.472330	23775.525622
min	1.000000	0.000000e+00	0.000000e+00	0.000000	0.000000
25%	10.000000	8.901528e+05	1.867925e+04	568.750000	1878.250000
50%	23.000000	1.689174e+06	5.086650e+04	1512.000000	4317.500000
75%	24.000000	4.286148e+06	1.545355e+05	5217.000000	15838.750000
max	43.000000	2.287331e+07	1.446774e+06	57885.000000	151600.000000

In [6]:
```
# Hiding warnings for cleaner display
warnings.filterwarnings('ignore')

# Configuring some options
%matplotlib inline
%config InlineBackend.figure_format = 'retina'
# If you want interactive plots, uncomment the next line
#%matplotlib notebook
```

In [7]:
```
PLOT_COLORS = ["#268bd2", "#0052CC", "#FF5722", "#b58900", "#003f5c"]
pd.options.display.float_format = '{:.2f}'.format
sns.set(style="ticks")
plt.rc('figure', figsize=(8, 5), dpi=100)
plt.rc('axes', labelpad=20, facecolor="#ffffff", linewidth=0.4, grid=True
plt.rc('patch', linewidth=0)
plt.rc('xtick.major', width=0.2)
plt.rc('ytick.major', width=0.2)
plt.rc('grid', color='#9E9E9E', linewidth=0.4)
plt.rc('font', family='Arial', weight='400', size=10)
plt.rc('text', color='#282828')
plt.rc('savefig', pad_inches=0.3, dpi=300)
```

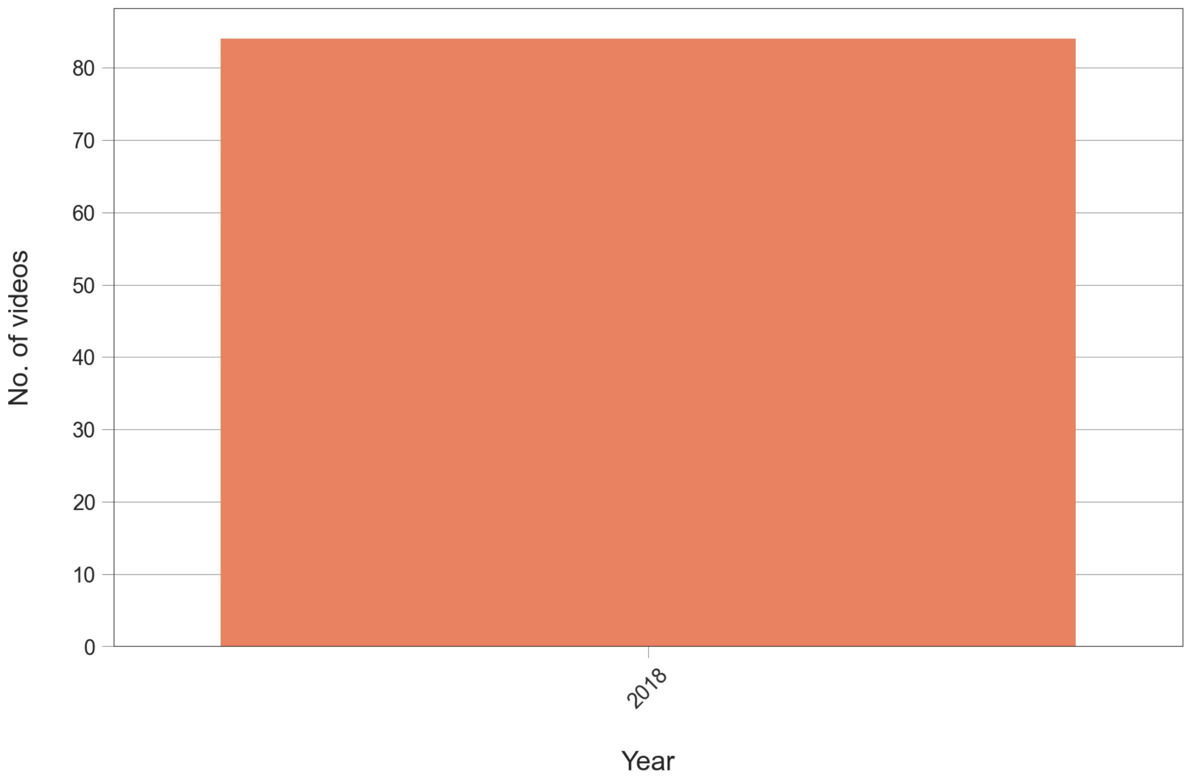
In [8]:
```
df[df["description"].apply(lambda x: pd.isna(x))].head(3)
```

Out[8]:

	video_id	title	publishedAt	channelId	channelTitle	categoryId	trending_date

In [9]:
```
df["description"] = df["description"].fillna(value="")
```

In [10]:
```
cdf = df["trending_date"].apply(lambda x: '20' + x[:2]).value_counts().re
cdf.columns = ["year", "No_of_videos"]

# Create a bar plot using seaborn
fig, ax = plt.subplots(figsize=(10, 6))  # Set the figure size
sns.barplot(x="year", y="No_of_videos", data=cdf,
            palette=sns.color_palette(['#ff764a', '#ffa600'], n_colors=7)

# Set labels for the axes
ax.set(xlabel="Year", ylabel="No. of videos")

# Rotate the x-axis labels for better readability (optional)
plt.xticks(rotation=45)

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



```
In [11]: df["trending_date"].apply(lambda x: '20' + x[:2]).value_counts(normalize=
```

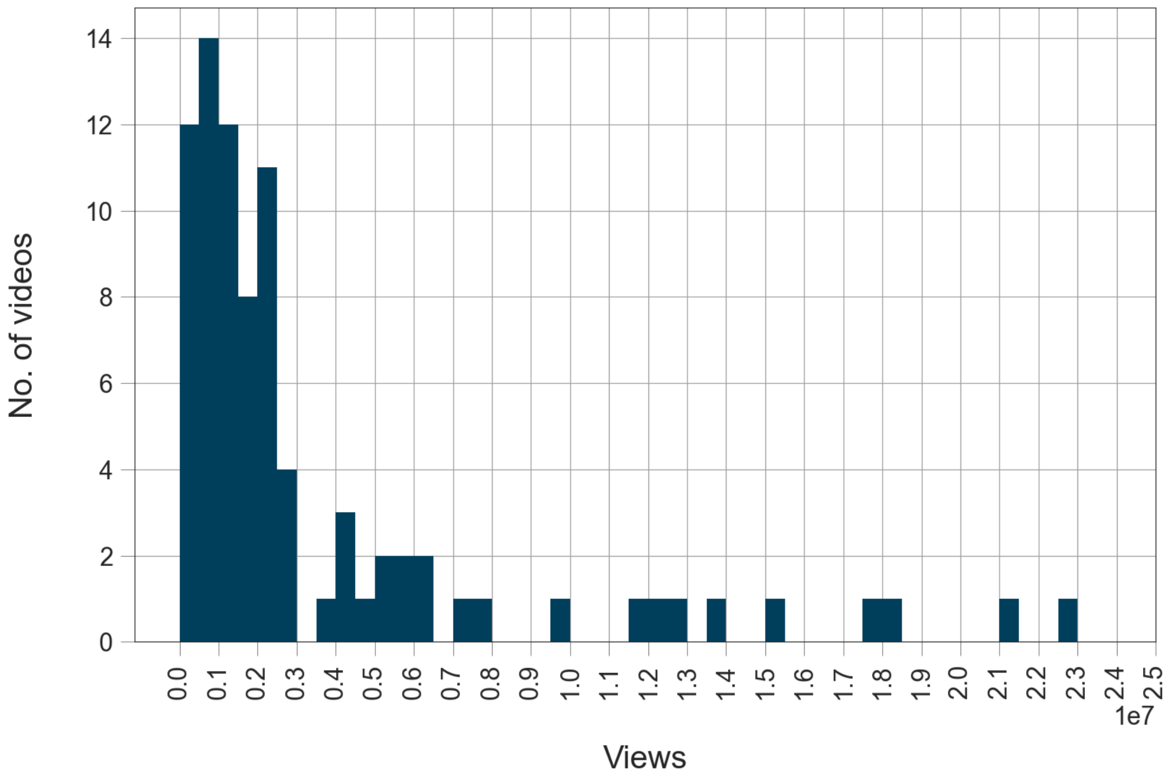
```
Out[11]: trending_date
         2018    1.00
         Name: proportion, dtype: float64
```

```
In [12]: df.describe()
```

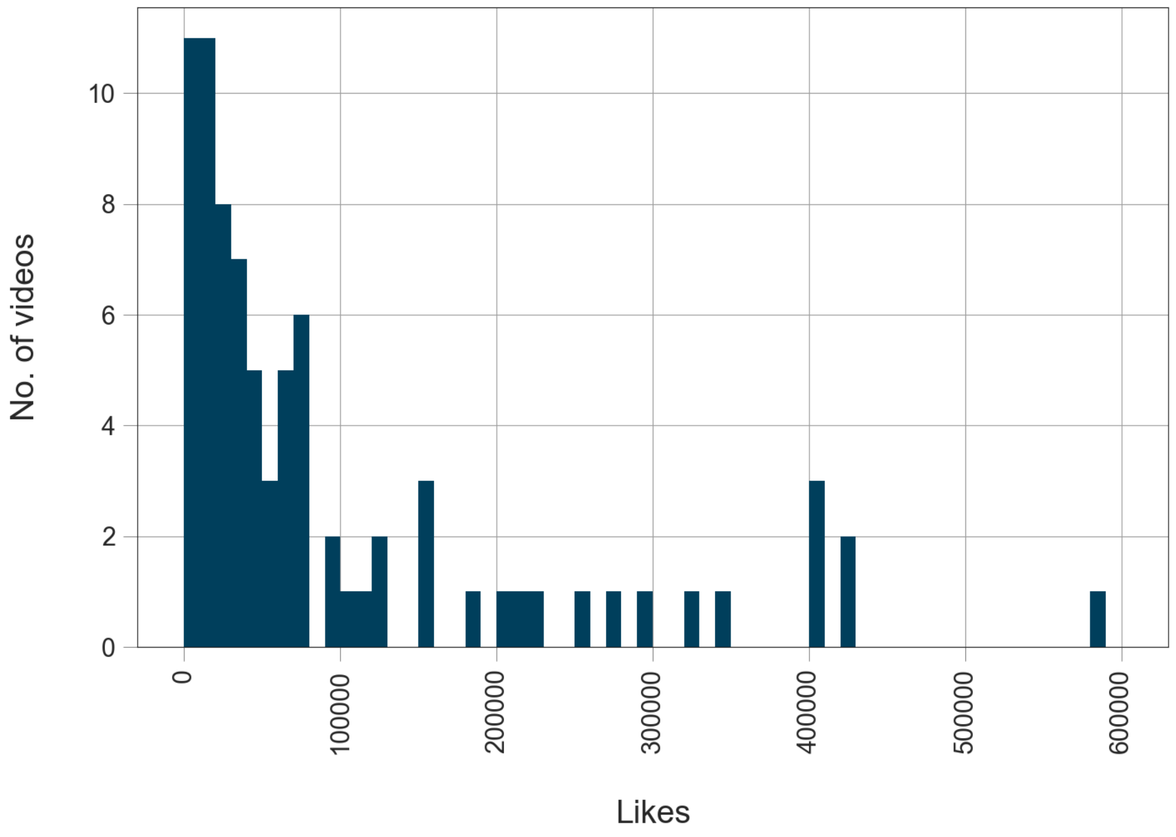
Out[12]:

	categoryId	view_count	likes	dislikes	comment_count
count	84.00	84.00	84.00	84.00	84.00
mean	18.58	3630983.49	152722.93	5534.58	14161.50
std	9.08	4949098.09	273107.55	9889.47	23775.53
min	1.00	0.00	0.00	0.00	0.00
25%	10.00	890152.75	18679.25	568.75	1878.25
50%	23.00	1689174.50	50866.50	1512.00	4317.50
75%	24.00	4286147.75	154535.50	5217.00	15838.75
max	43.00	22873313.00	1446774.00	57885.00	151600.00

```
In [13]: fig, ax = plt.subplots()
         _ = sns.distplot(df["view_count"], kde=False, color=PLOT_COLORS[4],
                          hist_kws={'alpha': 1}, bins=np.linspace(0, 2.3e7, 47), a
         _ = ax.set(xlabel="Views", ylabel="No. of videos", xticks=np.arange(0, 2.
         _ = ax.set_xlim(right=2.5e7)
         _ = plt.xticks(rotation=90)
```



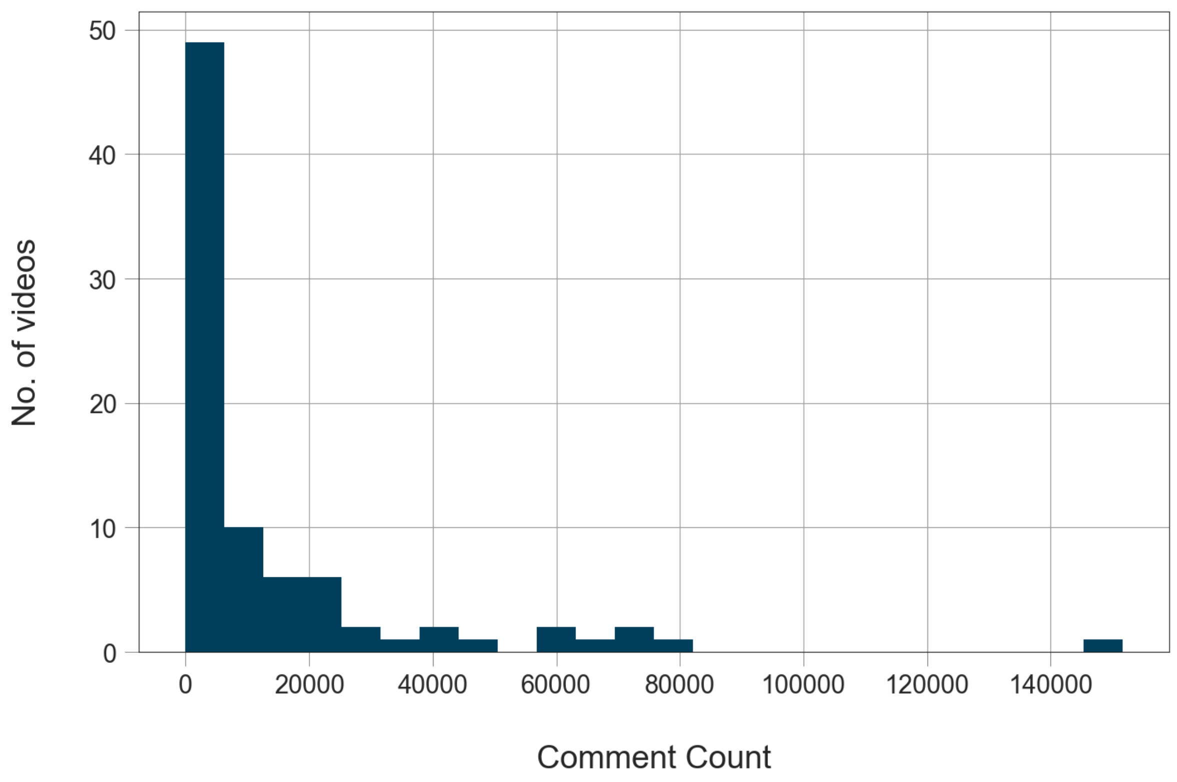
```
In [14]: df[df['view_count'] < 1e7]['view_count'].count() / df['view_count'].count

Out[14]: 89.28571428571429

In [15]: plt.rc('figure.subplot', wspace=0.9)
         fig, ax = plt.subplots()
         _ = sns.distplot(df["likes"], kde=False,
                          color=PLOT_COLORS[4], hist_kws={'alpha': 1},
                          bins=np.linspace(0, 6e5, 61), ax=ax)
         _ = ax.set(xlabel="Likes", ylabel="No. of videos")
         _ = plt.xticks(rotation=90)
```



```
In [16]: df[df['likes'] < 4e4]['likes'].count() / df['likes'].count() * 100
```

```
Out[16]: 44.047619047619044
```

```
In [17]: fig, ax = plt.subplots()
         _ = sns.distplot(df["comment_count"], kde=False, rug=False,
                          color=PLOT_COLORS[4], hist_kws={'alpha': 1}, ax=ax)
         _ = ax.set(xlabel="Comment Count", ylabel="No. of videos")
```



In [18]:
```
df[df['comment_count'] < 4000]['comment_count'].count() / df['comment_cou
```

Out[18]:
```
47.61904761904761
```

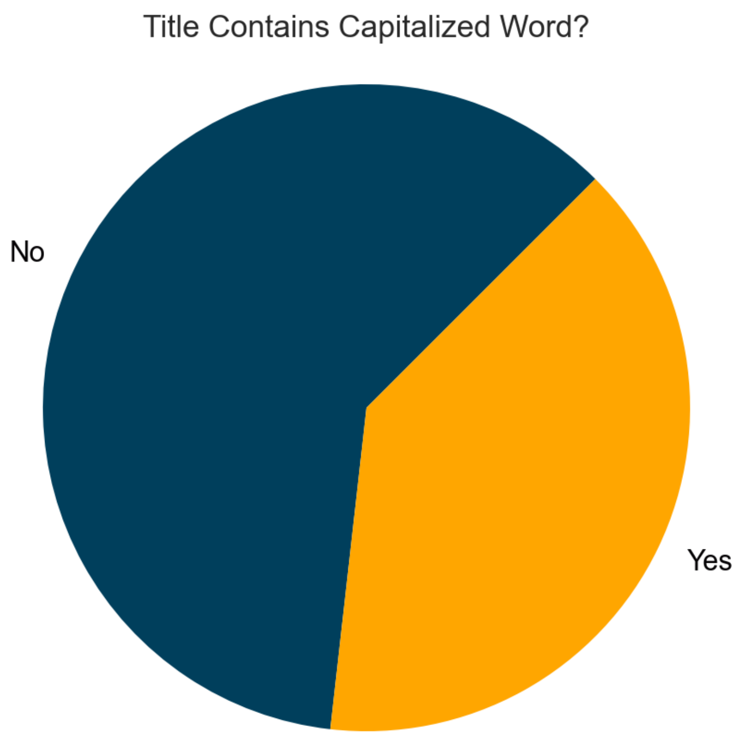
In [19]:
```
df.describe(include = ['O'])
```

Out[19]:

	video_id	title	publishedAt	channelId	channelTi
count	84	84	84	84	
unique	84	84	84	84	
top	ZAfAud_M_mg	Halsey - Without Me	2018-10-29T15:58:23.000Z	UCm3FgJ2Hqm7tb70T-GfwXVA	HalseyVE
freq	1	1	1	1	

In [20]:
```
def contains_capitalized_word(s):
    for w in s.split():
        if w.isupper():
            return True
    return False


df["contains_capitalized"] = df["title"].apply(contains_capitalized_word)
```

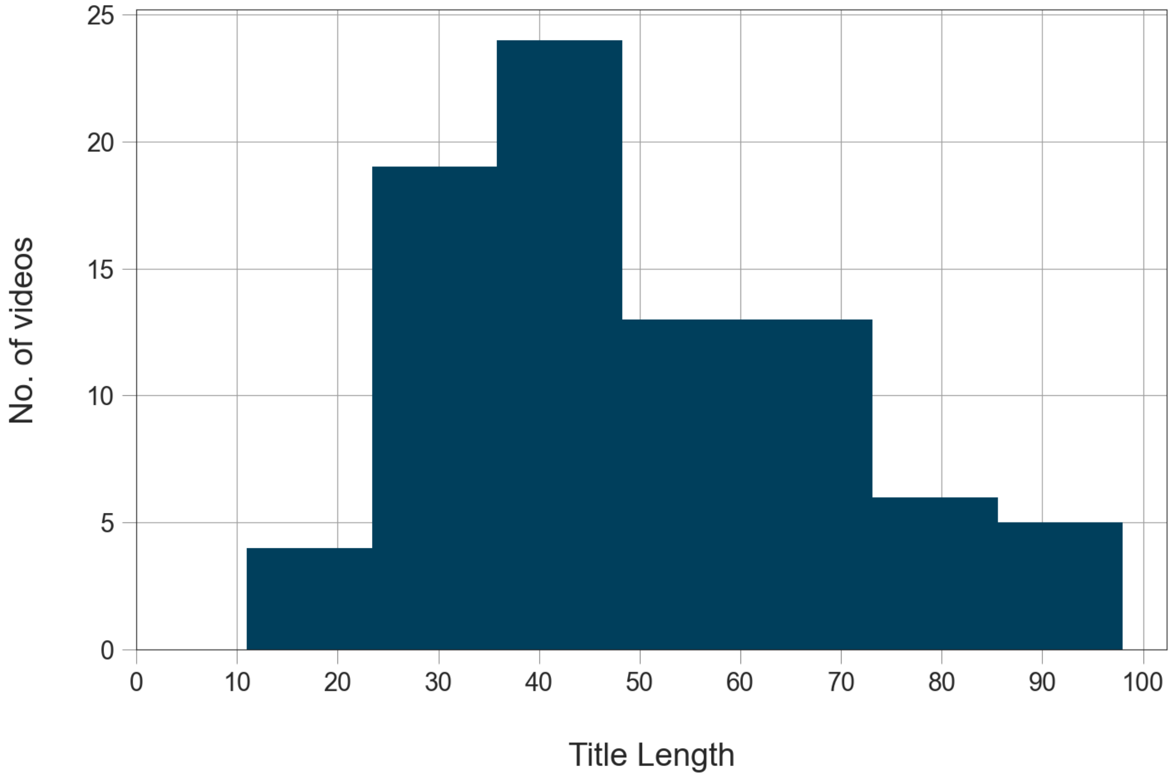
```
value_counts = df["contains_capitalized"].value_counts().to_dict()
fig, ax = plt.subplots()
_ = ax.pie([value_counts[False], value_counts[True]], labels=['No', 'Yes'
           colors=['#003f5c', '#ffa600'], textprops={'color': '#040204'},
_ = ax.axis('equal')
_ = ax.set_title('Title Contains Capitalized Word?')
```



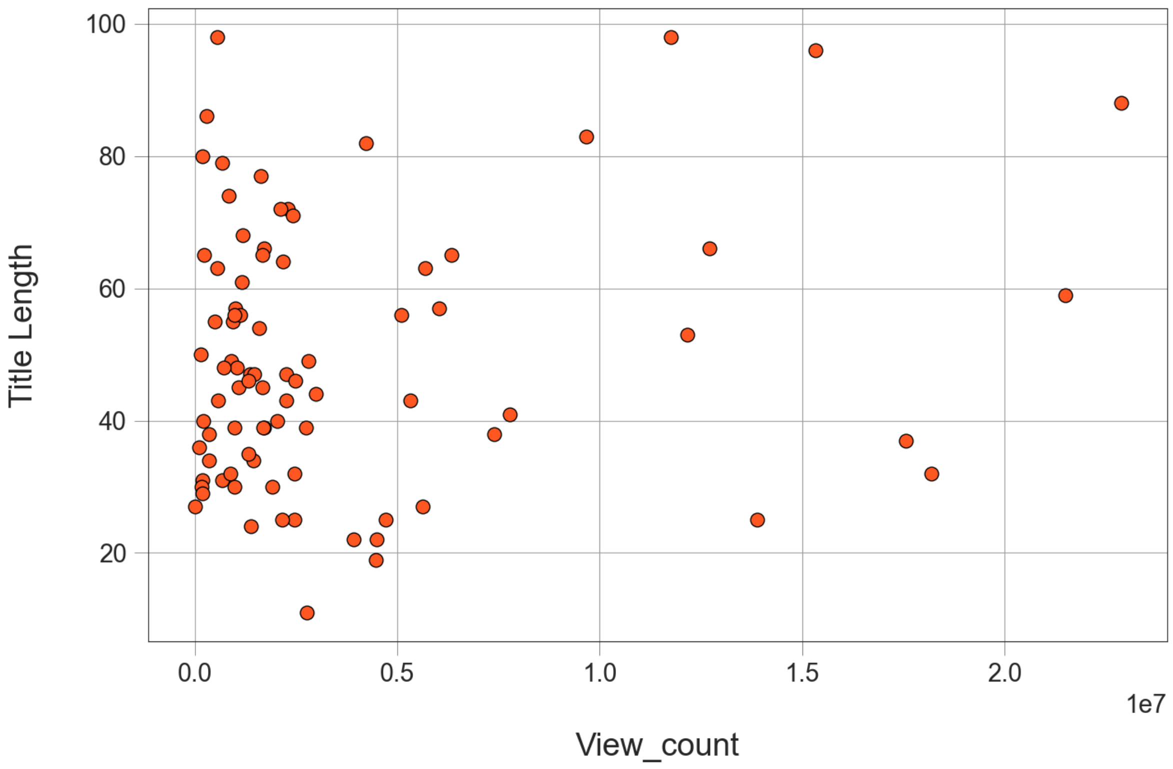
In [21]:
```
df["contains_capitalized"].value_counts(normalize=True)
```

Out[21]:
```
contains_capitalized
False    0.61
True     0.39
Name: proportion, dtype: float64
```

In [22]:
```
df["title_length"] = df["title"].apply(lambda x: len(x))

fig, ax = plt.subplots()
_ = sns.distplot(df["title_length"], kde=False, rug=False,
                 color=PLOT_COLORS[4], hist_kws={'alpha': 1}, ax=ax)
_ = ax.set(xlabel="Title Length", ylabel="No. of videos", xticks=range(0,
```



In [23]:
```
fig, ax = plt.subplots()
_ = ax.scatter(x=df['view_count'], y=df['title_length'], color=PLOT_COLOR
_ = ax.set(xlabel="View_count", ylabel="Title Length")
```

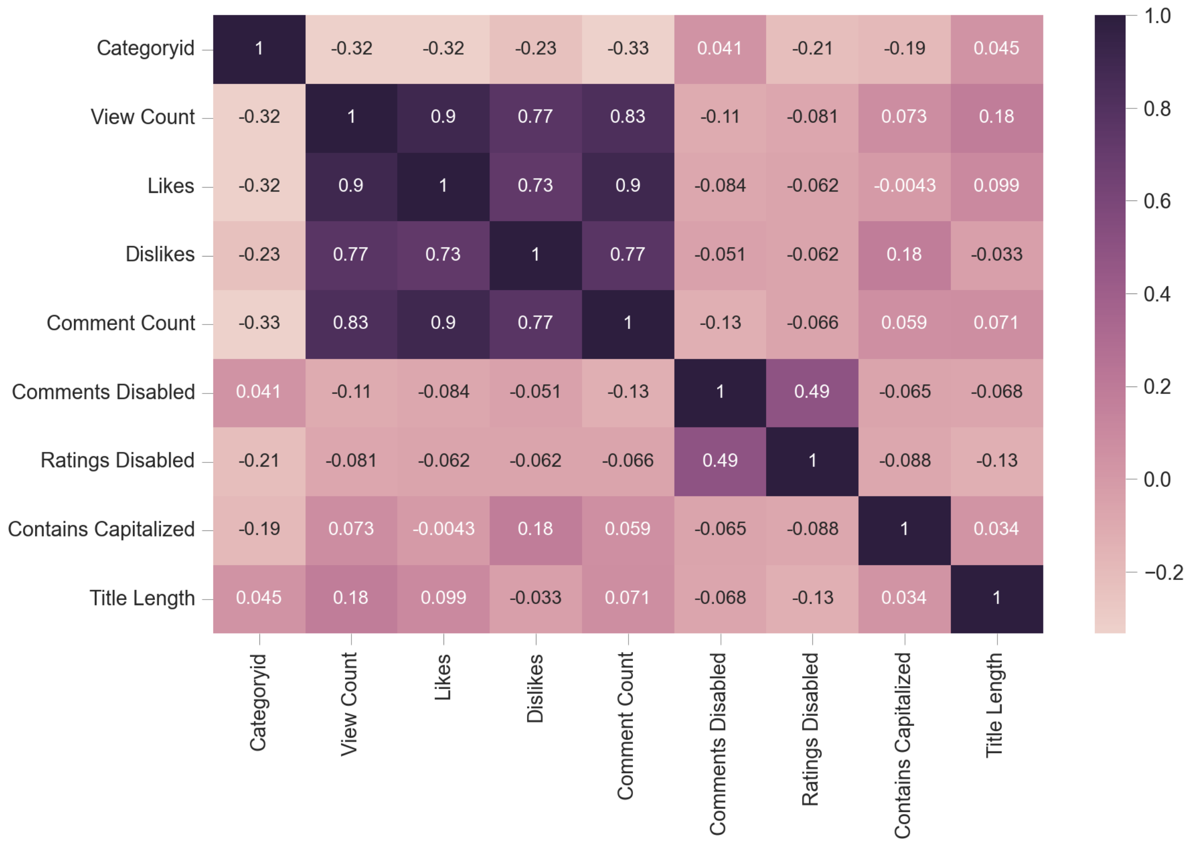


In [24]:
```
my_df = df.select_dtypes(exclude=[object])
my_df.corr()
```

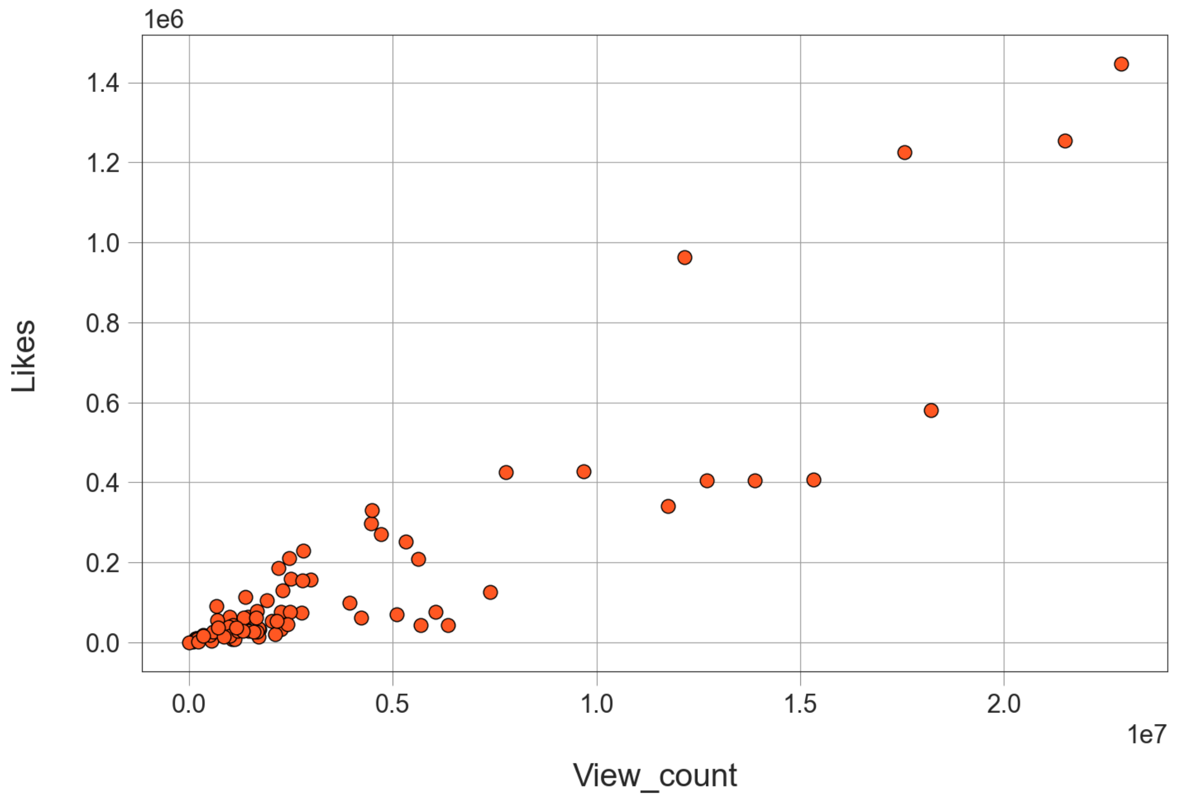
Out[24]:

	categoryId	view_count	likes	dislikes	comment_count	com
categoryId	1.00	-0.32	-0.32	-0.23	-0.33	
view_count	-0.32	1.00	0.90	0.77	0.83	
likes	-0.32	0.90	1.00	0.73	0.90	
dislikes	-0.23	0.77	0.73	1.00	0.77	
comment_count	-0.33	0.83	0.90	0.77	1.00	
comments_disabled	0.04	-0.11	-0.08	-0.05	-0.13	
ratings_disabled	-0.21	-0.08	-0.06	-0.06	-0.07	
contains_capitalized	-0.19	0.07	-0.00	0.18	0.06	
title_length	0.05	0.18	0.10	-0.03	0.07	

In [25]:
```
h_labels = [x.replace('_', ' ').title() for x in
            list(df.select_dtypes(include=['number', 'bool']).columns.val
my_df = df.select_dtypes(exclude=[object])
fig, ax = plt.subplots(figsize=(10,6))
_ = sns.heatmap(my_df.corr(), annot=True, xticklabels=h_labels, yticklabe
```



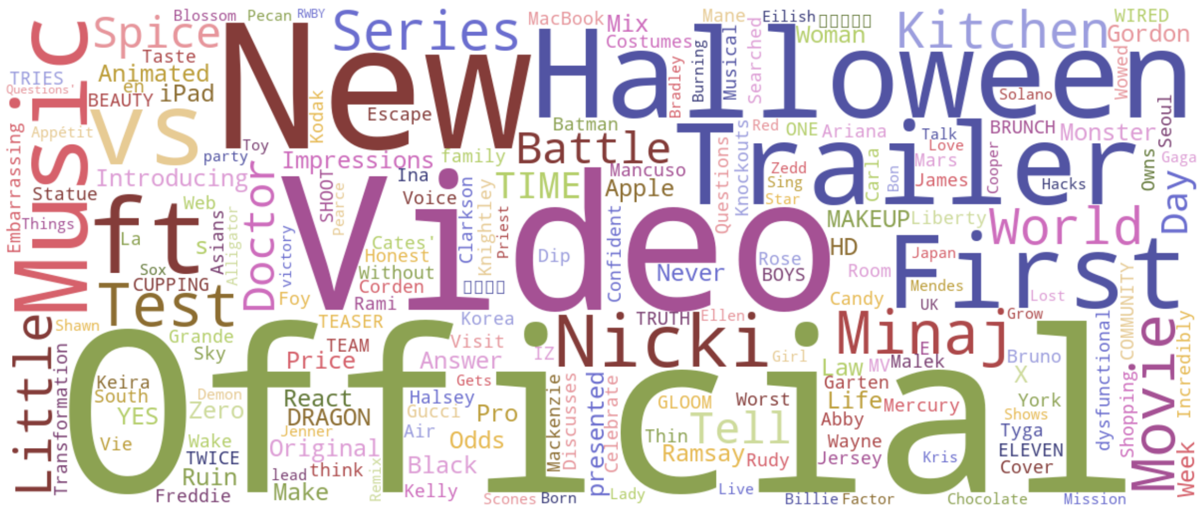
In [26]:
```
fig, ax = plt.subplots()
_ = plt.scatter(x=df['view_count'], y=df['likes'], color=PLOT_COLORS[2],
_ = ax.set(xlabel="View_count", ylabel="Likes")
```



In [27]:
```
title_words = list(df["title"].apply(lambda x: x.split()))
title_words = [x for y in title_words for x in y]
Counter(title_words).most_common(25)
```

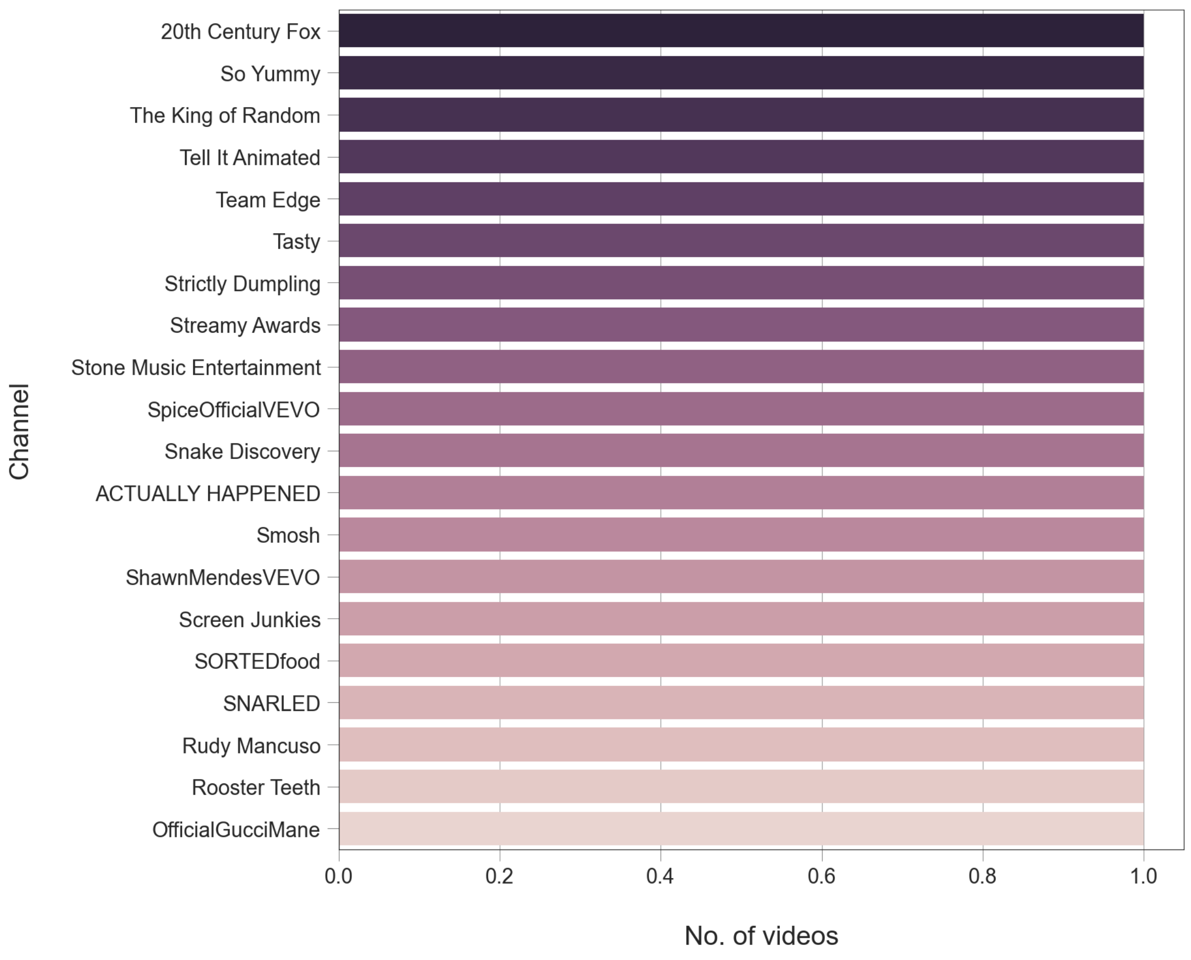
```
Out[27]: [('|', 26),
          ('–', 21),
          ('the', 14),
          ('The', 13),
          ('(Official', 6),
          ('Halloween', 6),
          ('&', 6),
          ('THE', 6),
          ('of', 6),
          ('Me', 5),
          ('2018', 5),
          ('To', 5),
          ('Video)', 4),
          ('ft.', 4),
          ('by', 4),
          ('You', 4),
          ('to', 4),
          ('Nicki', 3),
          ('Minaj', 3),
          ('Test', 3),
          ('New', 3),
          ('in', 3),
          ('Music', 3),
          ('at', 3),
          ('Series', 3)]
```

```
In [28]: # wc = wordcloud.WordCloud(width=1200, height=600, collocations=False, st
         wc = wordcloud.WordCloud(width=1200, height=500,
                                  collocations=False, background_color="white",
                                  colormap="tab20b").generate(" ".join(title_words
         plt.figure(figsize=(15,10))
         plt.imshow(wc, interpolation='bilinear')
         _ = plt.axis("off")
```



```
In [29]: cdf = df.groupby("channelTitle").size().reset_index(name="video_count") \
             .sort_values("video_count", ascending=False).head(20)
```

```
fig, ax = plt.subplots(figsize=(8,8))
_ = sns.barplot(x="video_count", y="channelTitle", data=cdf,
                palette=sns.cubehelix_palette(n_colors=20, reverse=True),
_ = ax.set(xlabel="No. of videos", ylabel="Channel")
```



```
In [ ]:
```