Exploratory Data Analysis

```
import pandas as p
import numpy as n
import matplotlib.pyplot as plt
import seaborn as sns
from datetime import datetime
```

```
df=p.read_csv("/content/USvideos.csv")
```

```
df.head()
```

	video_id	trending_date	title	channel_title	category_id	publish_tim
0	2kyS6SvSYSE	17.14.11	WE WANT TO TALK ABOUT OUR MARRIAGE	CaseyNeistat	22	2017-11 13T17:13:01.000
1	1ZAPwfrtAFY	17.14.11	The Trump Presidency: Last Week Tonight with J...	LastWeekTonight	24	2017-11 13T07:30:00.000
2	5qpjK5DgCt4	17.14.11	Racist Superman | Rudy Mancuso, King Bach & Le...	Rudy Mancuso	23	2017-11 12T19:05:24.000
3	puqaWrEC7tY	17.14.11	Nickelback Lyrics: Real or Fake?	Good Mythical Morning	24	2017-11 13T11:00:04.000
4	d380meD0W0M	17.14.11	I Dare You: GOING BALD!?	nigahiga	24	2017-11 12T18:01:41.000

```
df.shape
```

```
(40949, 16)
```

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

```
(40901, 16)
```

```
df.describe()
```

	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

```
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
```

```
df=df.drop(columns=['thumbnail_link','description']) # Use the drop method with axis=1 to specify column removal
```

```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 40949 entries, 0 to 40948
Data columns (total 14 columns):
 #   Column                 Non-Null Count  Dtype
---  ------                 --------------  -----
 0   video_id               40949 non-null  object
 1   trending_date          40949 non-null  object
 2   title                  40949 non-null  object
 3   channel_title          40949 non-null  object
 4   category_id            40949 non-null  int64
 5   publish_time           40949 non-null  object
 6   tags                   40949 non-null  object
 7   views                  40949 non-null  int64
 8   likes                  40949 non-null  int64
 9   dislikes               40949 non-null  int64
 10  comment_count          40949 non-null  int64
 11  comments_disabled      40949 non-null  bool
 12  ratings_disabled       40949 non-null  bool
 13  video_error_or_removed  40949 non-null  bool
dtypes: bool(3), int64(5), object(6)
memory usage: 3.6+ MB
```

```
from datetime import datetime
import datetime
```

```
df['trending_date']=p.to_datetime(df['trending_date'],format='%y.%d.%m')
```

```
df.head()
```

	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	2017-11 13T17:13:01.000
1	1ZAPwfrtAFY	2017-11-14	The Trump Presidency: Last Week Tonight with J...	LastWeekTonight	24	2017-11 13T07:30:00.000
2	5qpjK5DgCt4	2017-11-14	Racist Superman | Rudy Mancuso, King Bach & Le...	Rudy Mancuso	23	2017-11 12T19:05:24.000
3	puqaWrEC7tY	2017-11-14	Nickelback Lyrics: Real or Fake?	Good Mythical Morning	24	2017-11 13T11:00:04.000
4	d380meD0W0M	2017-11-14	I Dare You: GOING BALD!?	nigahiga	24	2017-11 12T18:01:41.000

```
#Converting Publish time into datetime
df['publish_time']=p.to_datetime(df['publish_time'])


#Creating new seperate columns for date,month and year
df['publish_month']=df['publish_time'].dt.month
df['publish_day']=df['publish_time'].dt.day
df['publish_year']=df['publish_time'].dt.year
df.head()
```

	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
2	5qpjK5DgCt4	2017-11-14	Racist Superman | Rudy Mancuso, King Bach & Le...	Rudy Mancuso	23	2017-11-12 19:05:24+00:00
3	puqaWrEC7tY	2017-11-14	Nickelback Lyrics: Real or Fake?	Good Mythical Morning	24	2017-11-13 11:00:04+00:00
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```
sorted(df["category_id"].unique())
```

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

```
df['category_name']=n.nan
df.loc[(df['category_id']==1),'category_name']='Film & Animation'
df.loc[(df['category_id']==2),'category_name']='Autos & Vehicles'
df.loc[(df['category_id']==10),'category_name']='Music'
df.loc[(df['category_id']==15),'category_name']='Pets & Animals'
df.loc[(df['category_id']==17),'category_name']='Sports'
df.loc[(df['category_id']==19),'category_name']='Travel & Events'
df.loc[(df['category_id']==20),'category_name']='Gaming'
df.loc[(df['category_id']==22),'category_name']='People & 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 & Politics'
df.loc[(df['category_id']==26),'category_name']='Howto & Style'
df.loc[(df['category_id']==27),'category_name']='Education'
df.loc[(df['category_id']==28),'category_name']='Science & Technology'
df.loc[(df['category_id']==29),'category_name']='Nonprofits & Activism'
df.loc[(df['category_id']==30),'category_name']='Movies'
df.loc[(df['category_id']==43),'category_name']='Shows'
df.head()
```

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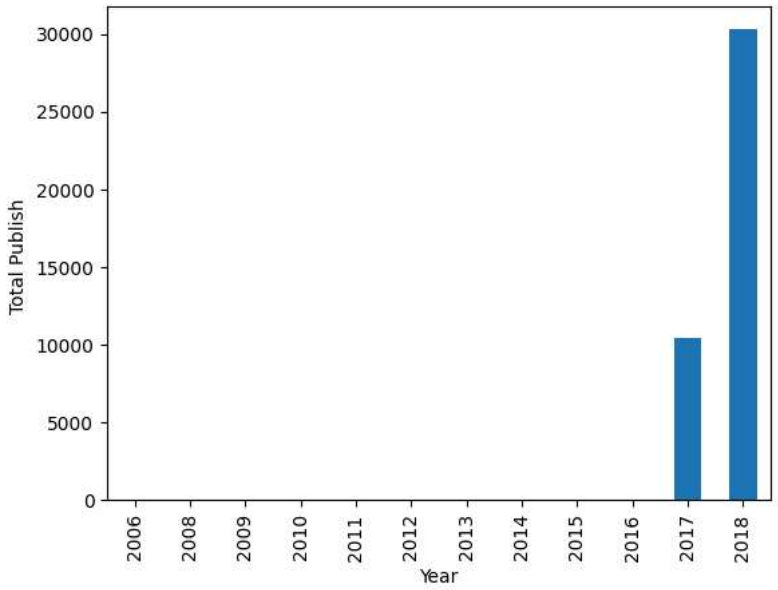
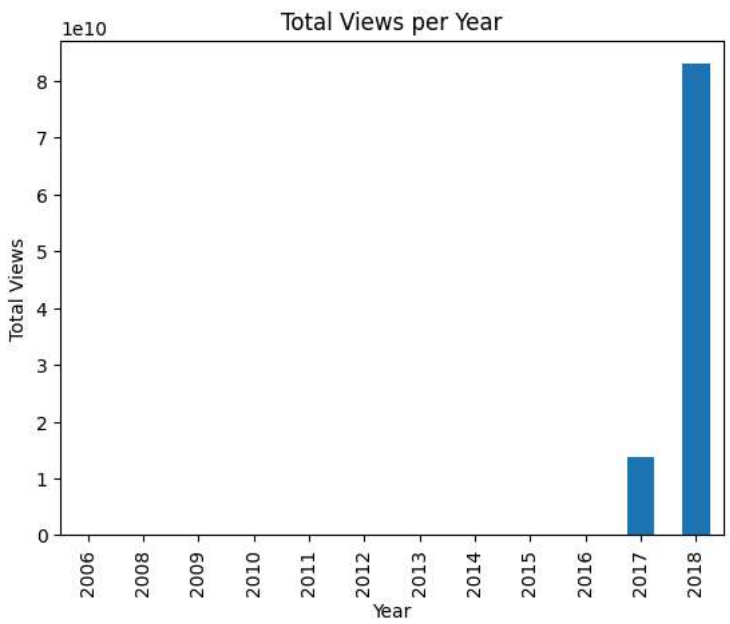
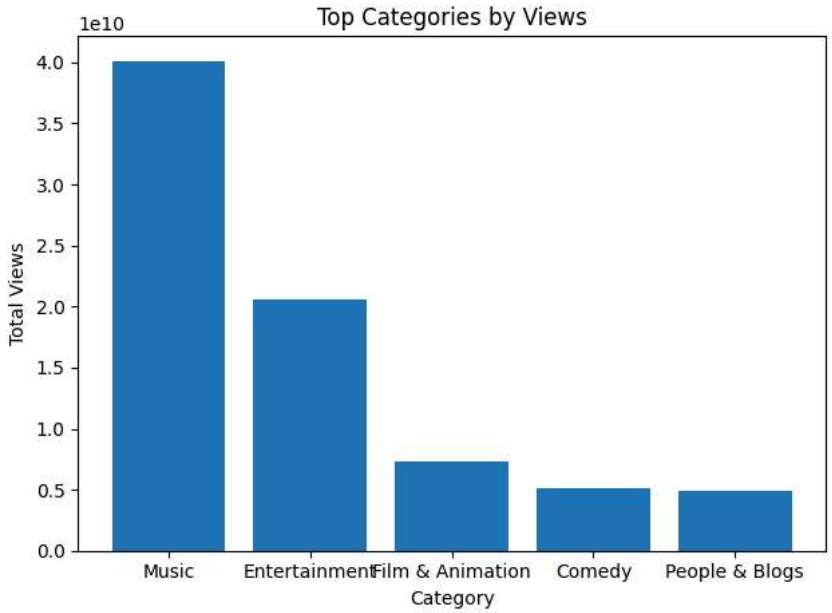
```
df['year']=df['publish_time'].dt.year
yearly_counts=df.groupby('year')['video_id'].count()
yearly_counts.plot(kind='bar',xlabel='Year',ylabel='Total Publish ')
plt.show()
```




```
yearly_views=df.groupby('year')['views'].sum()
yearly_views.plot(kind='bar',xlabel='Year',ylabel='Total Views',title='Total Views per Year')
plt.xticks(rotation=90)
plt.show()
```




```
category_views=df.groupby('category_name')['views'].sum().reset_index()
top_categories=category_views.sort_values(by='views',ascending=False).head()
plt.bar(top_categories['category_name'],top_categories['views'])
plt.xlabel('Category')
plt.ylabel('Total Views')
plt.title('Top Categories by Views')
plt.tight_layout()
plt.show()
```

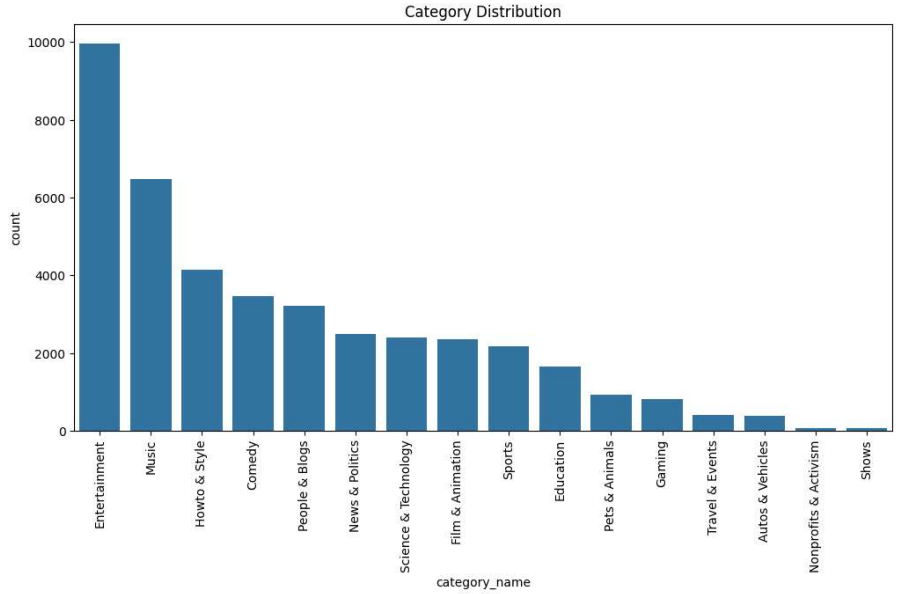



```
plt.figure(figsize=(12, 6))
sns.countplot(x='category_name', data=df, order=df['category_name'].value_counts().index)
plt.xticks(rotation=90)
plt.title('Category Distribution')
plt.show
```

```
matplotlib.pyplot.show
def show(*args, **kwargs)
```

```
**Auto-show in jupyter notebooks**

The jupyter backends (activated via ``%matplotlib inline``,
``%matplotlib notebook``, or ``%matplotlib widget``), call ``show()`` at
the end of every cell by default. Thus, you usually don't have to call it
explicitly there.
```

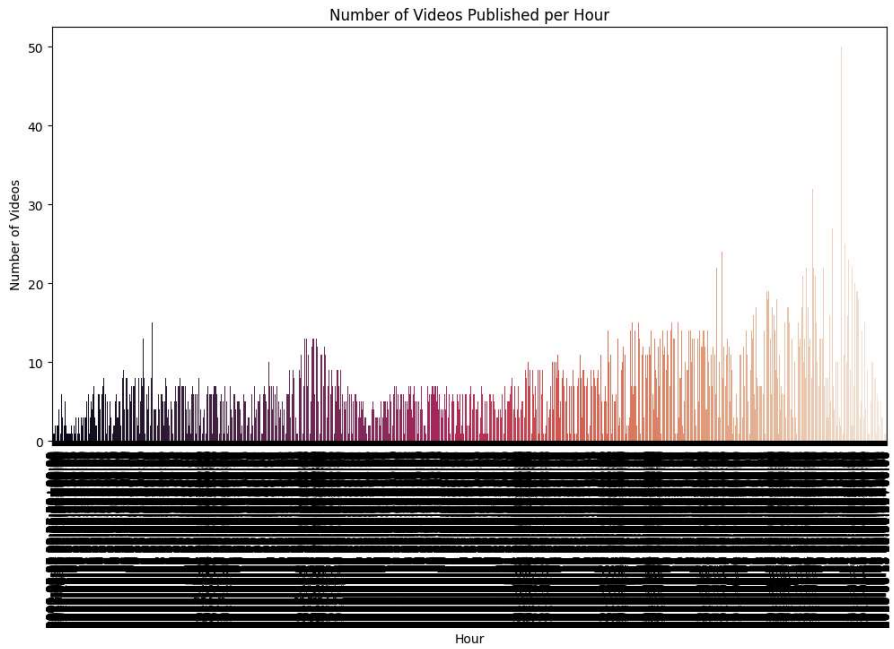



```
plt.figure(figsize=(12, 6))
sns.barplot(x=videos_per_hour.index,y=videos_per_hour.values,palette="rocket")
plt.xlabel('Hour')
plt.ylabel('Number of Videos')
plt.title('Number of Videos Published per Hour')
plt.xticks(rotation=90)
plt.show()
```

```
<ipython-input-108-0a9b03fa251b>:2: FutureWarning:

Passing `palette` without assigning `hue` is deprecated and will be removed in v0.14.0.

  sns.barplot(x=videos_per_hour.index,y=videos_per_hour.values,palette="rocket")
```




```
df['publish_time']=p.to_datetime(df['publish_time'])
df['publish_date']=df['publish_time'].dt.date
video_count_by_date=df.groupby('publish_date').size()
plt.figure(figsize=(12, 6))
sns.lineplot(data=video_count_by_date)
plt.xlabel('Date')
plt.ylabel('Number of Videos')
plt.title('Number of Videos Published per Date')
plt.xticks(rotation=90)
```

```
(array([12418., 13149., 13879., 14610., 15340., 16071., 16801., 17532.,
```