

```
In [1]:
import pandas as pd
```

```
In [2]:
df = pd.read_csv('most_subscribed_youtube_channels.csv')
```

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

Out[3]:

	rank	Youtuber	subscribers	video views	video count	category	started
0	1	T-Series	22,20,00,000	1,98,45,90,90,822	17,317	Music	2006
1	2	YouTube Movies	15,40,00,000	0	0	Film & Animation	2015
2	3	Cocomelon - Nursery Rhymes	14,00,00,000	1,35,48,13,39,848	786	Education	2006
3	4	SET India	13,90,00,000	1,25,76,42,52,686	91,271	Shows	2006
4	5	Music	11,60,00,000	0	0	NaN	2013

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

Out[4]:

	rank	Youtuber	subscribers	video views	video count	category	started
995	996	JP Plays	1,09,00,000	4,60,93,00,218	3,528	Gaming	2014
996	997	TrapMusicHDTV	1,09,00,000	4,07,05,21,973	690	Music	2013
997	998	Games EduUu	1,09,00,000	3,09,37,84,767	1,006	Gaming	2011
998	999	Hueva	1,09,00,000	3,04,03,01,750	831	Gaming	2012
999	1000	Dobre Brothers	1,09,00,000	2,80,84,11,693	590	People & Blogs	2017

```
In [5]:
df.shape
```

Out[5]:

(1000, 7)

In [6]:

```
df.columns
```

Out[6]:

```
Index(['rank', 'Youtuber', 'subscribers', 'video views', 'video count',  
      'category', 'started'],  
      dtype='object')
```

In [7]:

```
df.duplicated().sum()
```

Out[7]:

```
0
```

In [8]:

```
df.isnull().sum()
```

Out[8]:

```
rank          0  
Youtuber      0  
subscribers   0  
video views   0  
video count   0  
category      27  
started       0  
dtype: int64
```

In [9]:

```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>  
RangeIndex: 1000 entries, 0 to 999  
Data columns (total 7 columns):  
#   Column          Non-Null Count  Dtype  
---  ---  
0   rank            1000 non-null   int64  
1   Youtuber         1000 non-null   object  
2   subscribers      1000 non-null   object  
3   video views      1000 non-null   object  
4   video count      1000 non-null   object  
5   category         973 non-null    object  
6   started          1000 non-null   int64  
dtypes: int64(2), object(5)  
memory usage: 54.8+ KB
```

```
In [10]:
df.describe()
```

Out[10]:

	rank	started
count	1000.000000	1000.000000
mean	500.500000	2012.376000
std	288.819436	3.998076
min	1.000000	1970.000000
25%	250.750000	2010.000000
50%	500.500000	2013.000000
75%	750.250000	2015.000000
max	1000.000000	2021.000000

```
In [11]:
df.nunique()
```

Out[11]:

rank	1000
Youtuber	999
subscribers	286
video views	991
video count	856
category	18
started	18
dtype:	int64

```
In [12]:
df['category'].fillna("Unknown", inplace=True)
```

```
In [13]:
df['category'].unique()
```

Out[13]:

array(['Music', 'Film & Animation', 'Education', 'Shows', 'Unknown', 'Gaming', 'Entertainment', 'People & Blogs', 'Sports', 'Howto & Style', 'News & Politics', 'Comedy', 'Trailers', 'Nonprofits & Activism', 'Science & Technology', 'Movies', 'Pets & Animals', 'Autos & Vehicles', 'Travel & Events'], dtype=object)

In [14]:

```
df['category'].value_counts()
```

Out[14]:

Entertainment	241
Music	222
People & Blogs	119
Gaming	102
Comedy	63
Film & Animation	52
Education	46
Howto & Style	45
Unknown	27
News & Politics	27
Science & Technology	18
Shows	14
Sports	10
Pets & Animals	6
Trailers	2
Nonprofits & Activism	2
Movies	2
Autos & Vehicles	1
Travel & Events	1

Name: category, dtype: int64

In [15]:

```
import matplotlib.pyplot as plt
import seaborn as sns
```

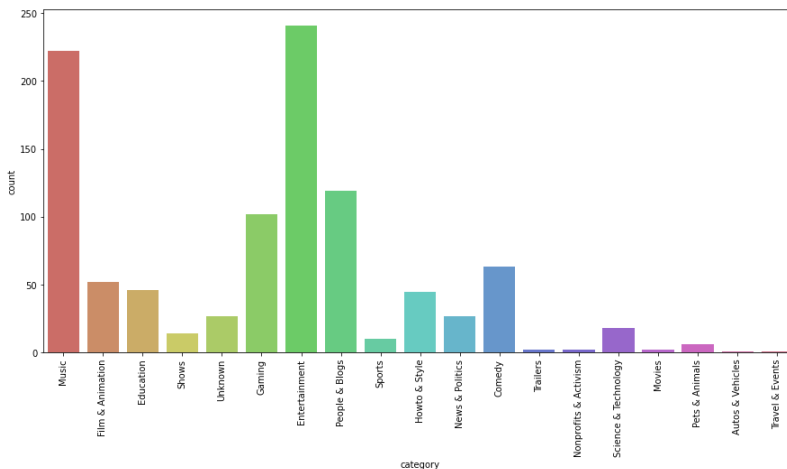
In [16]:

```
import warnings
warnings.filterwarnings('ignore')
```

In [17]:

```
plt.figure(figsize=[15,7],)
print('Countplot for Category')
sns.countplot(df['category'], data = df, palette = 'hls')
plt.xticks(rotation = 90)
plt.show()
```

Countplot for Category



In [18]:

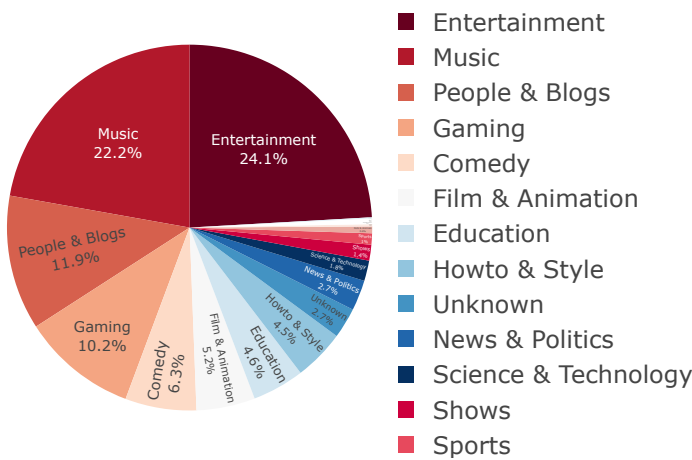
```
df['video views']=df['video views'].str.replace(',','')
df['video count']=df['video count'].str.replace(',','')
df['subscribers']=df['subscribers'].str.replace(',','')
df['video views']=df['video views'].astype('int64')
df['video count']=df['video count'].astype('int64')
df['subscribers']=df['subscribers'].astype('int64')
```

In [19]:

```
import plotly.express as px
```

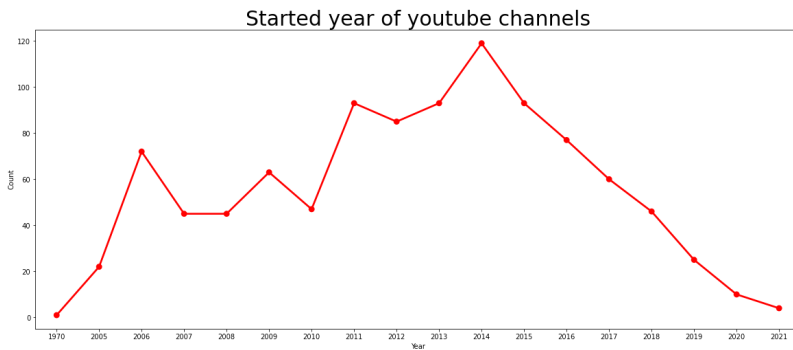
```
In [20]:
categories=df['category'].value_counts()
fig=px.pie(values=categories.values,
           names=categories.index,
           color_discrete_sequence=px.colors.sequential.RdBu,
           title="Categories of Youtube Channels", template='presentation'
           )
fig.update_traces(textposition='inside',
                  textfont_size=11,
                  textinfo='percent+label')
fig.show();
```

Categories of Youtube Channels



In [21]:

```
year=df['started'].value_counts()
plt.figure(figsize=(20,8))
sns.pointplot(x=year.index,y=year.values, color='red')
plt.xlabel('Year')
plt.ylabel('Count')
plt.title('Started year of youtube channels',size=30, color='black');
```



```
In [22]:
year_mean=df.groupby('started').mean().reset_index()
year_mean
```

Out[22]:

	started	rank	subscribers	video views	video count
0	1970	100.000000	3.330000e+07	2.725287e+09	540.000000
1	2005	423.590909	2.197273e+07	1.044777e+10	15480.409091
2	2006	426.625000	2.767361e+07	1.676924e+10	16612.625000
3	2007	466.866667	2.365111e+07	1.396931e+10	24476.800000
4	2008	452.533333	2.118222e+07	1.140225e+10	14807.333333
5	2009	468.460317	2.001111e+07	1.023113e+10	10564.380952
6	2010	532.127660	1.935957e+07	8.997569e+09	9957.319149
7	2011	485.204301	1.981720e+07	8.804918e+09	5772.118280
8	2012	487.752941	2.116588e+07	8.844339e+09	7142.811765
9	2013	463.483871	2.200108e+07	7.183893e+09	7368.139785
10	2014	532.226891	1.904790e+07	8.453754e+09	8370.806723
11	2015	542.978495	1.974086e+07	7.481183e+09	4237.698925
12	2016	508.883117	2.041558e+07	8.136676e+09	2594.441558
13	2017	536.533333	1.746833e+07	5.230756e+09	5168.783333
14	2018	557.195652	1.791304e+07	8.470628e+09	6515.543478
15	2019	616.480000	1.488400e+07	6.609422e+09	2673.560000
16	2020	573.800000	1.585000e+07	7.795733e+09	1385.000000
17	2021	698.000000	1.415000e+07	8.552476e+09	696.750000

```
In [23]:
def pltplot(data, xcol, ycol, color, ax, title):
    sns.pointplot(data=data, x=xcol, y=ycol, color=color, ax=ax).set_title(title, size=10)
```


In [24]:

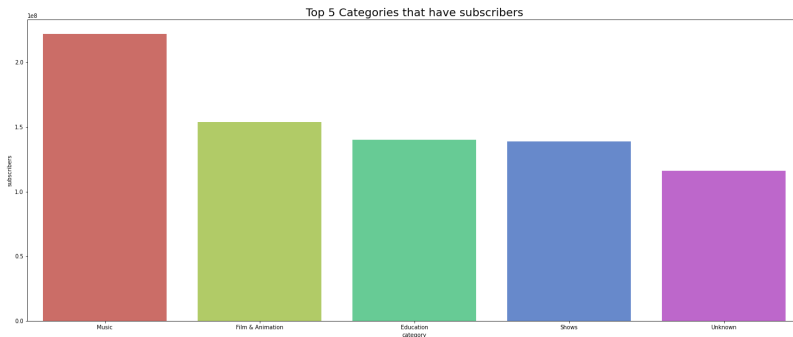
```
fig, ((ax1),(ax2),(ax3))=plt.subplots(ncols=1, nrows=3)
fig.set_size_inches(20,10)
fig.tight_layout(pad=3.0)

pltplot(year_mean,'started','subscribers','lightcoral', ax1,'Subscribers per Year (mean)')
pltplot(year_mean,'started','video views','green', ax2,'Video views per Year (mean)')
pltplot(year_mean,'started','video count','gold', ax3,'Video count per Year (mean)')
```



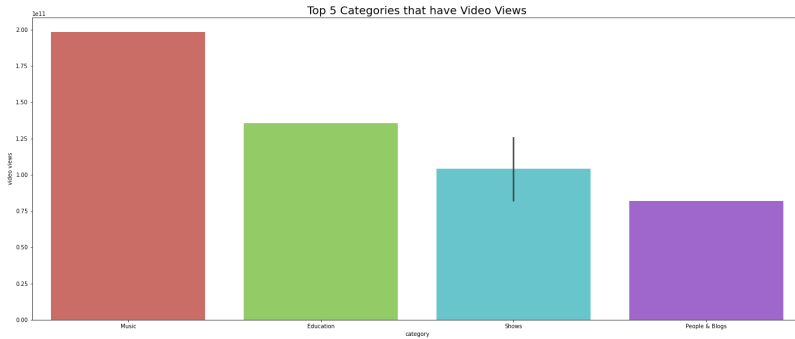
In [25]:

```
subscribers=df.sort_values('subscribers',ascending=False)
plt.figure(figsize=(25,10))
subscribers=subscribers[:5]
sns.barplot(x="category",
            y="subscribers",
            data=subscribers,
            palette="hls")
plt.title('Top 5 Categories that have subscribers',size=20);
```



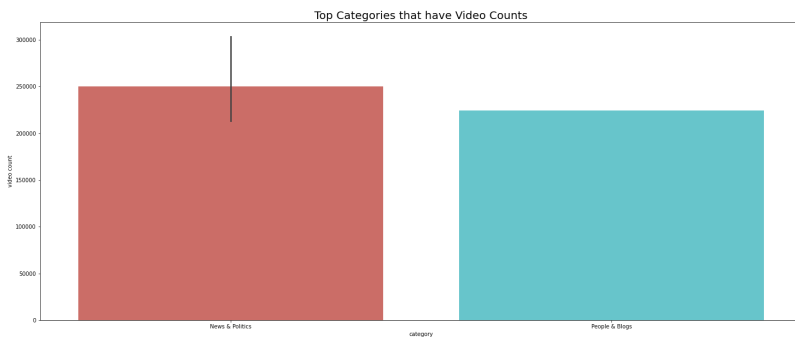
In [26]:

```
videoviews=df.sort_values('video views',ascending=False)
plt.figure(figsize=(25,10))
videoviews=videoviews[:5]
sns.barplot(x="category",
            y="video views",
            data=videoviews,
            palette="hls")
plt.title('Top 5 Categories that have Video Views',size=20);
```



In [27]:

```
videocount=df.sort_values('video count',ascending=False)
plt.figure(figsize=(25,10))
videocount=videocount[:5]
sns.barplot(x="category",
            y="video count",
            data=videocount,
            palette="hls")
plt.title('Top Categories that have Video Counts',size=20);
```



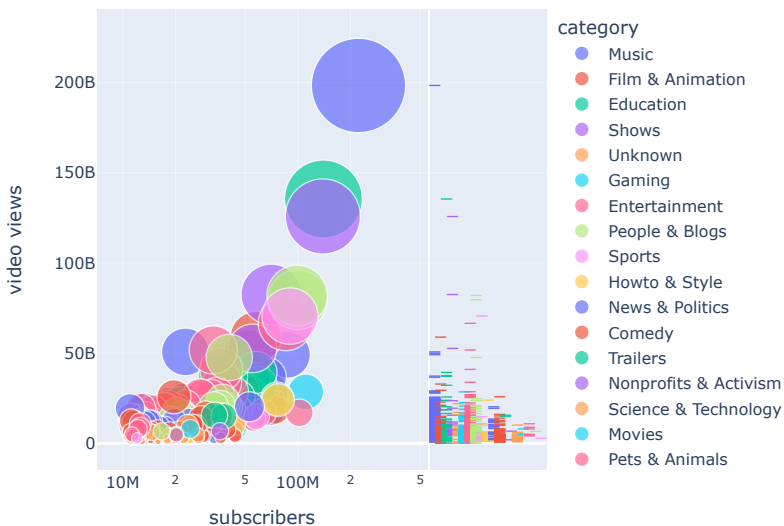
In [28]:

```
def plot(data, xcol, ycol, size, color,title):
    px.scatter(data, x=xcol,y=ycol,
               size=size, color=color,
               log_x=True, size_max=50).set_title(title,fontsize=20)
    axs.legend(bbox_to_anchor=(1.05, 1), loc=2, borderaxespad=0.)
title1 = 'categories with video views and subscribers'
title2 = 'categories with video views and video counts'
```

In [29]:

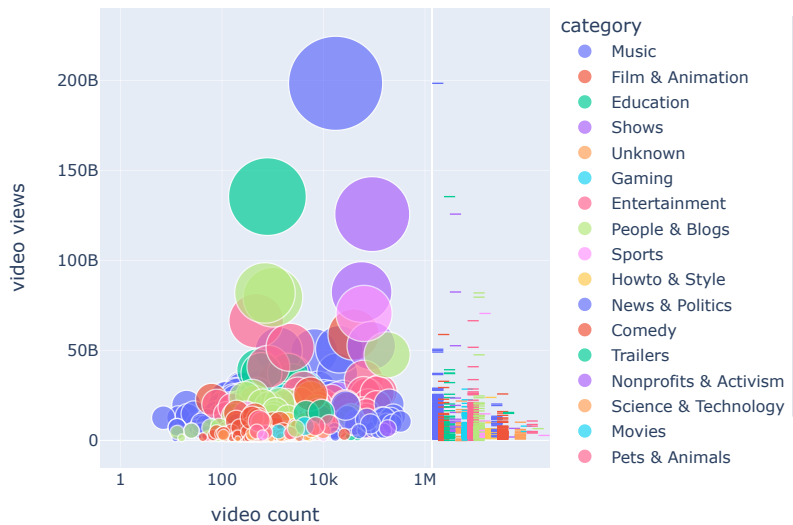
```
fig = px.scatter(df, x="subscribers", y="video views",
                 size="video views", color="category",
                 log_x=True, size_max=50,
                 title="Categories with Video views and Subscribers",
                 marginal_y='rug')
fig.show()
```

Categories with Video views and Subscribers

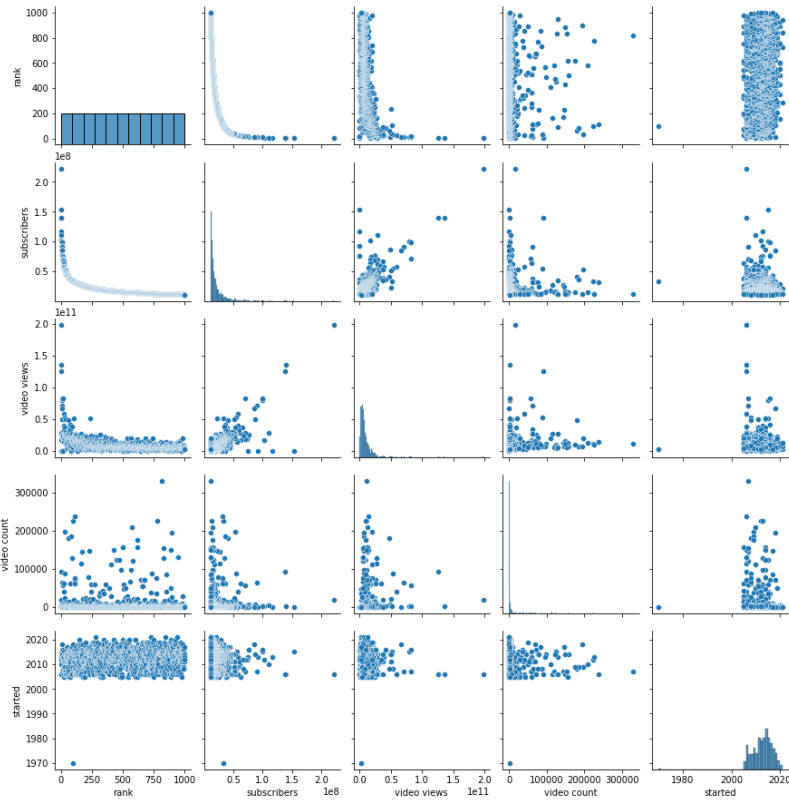


```
In [30]:  
  
fig = px.scatter(df, x="video count", y="video views",  
                size="video views", color="category",  
                log_x=True, size_max=50,  
                title="Categories with Video views and Video count",  
                marginal_y='rug')  
  
fig.show()
```

Categories with Video views and Video count



```
In [31]:  
sns.pairplot(df)  
plt.show();
```



```
In [32]:  
plt.figure(figsize=(20,8))  
sns.heatmap(df.corr(), annot=True, center=True, cmap = 'coolwarm',  
            , cbar = False);  
plt.show()
```

