```
#Hi This is going to be my first independant project in my journey of Visualization.
#Let's Start
#Visualization is used to display data into graphs making it easy to understand.
#In this tutorial, we will create data visualizations of popular YouTube channels using Python, Pandas, Plotly Express, and Google Colab.
#We will use a histogram to look at subscriber counts, a pie chart to compare video categories, and a box plot to find patterns in the years
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```
import pandas as pd
import io
import kagglehub
from kagglehub import KaggleDatasetAdapter
```

```
#We are going to import our data into our notebook.
#After downloading your dataset, you should return to your handy dandy Google Colab notebook.
#Download Link - https://www.kaggle.com/datasets/surajjha101/top-youtube-channels-data
from google.colab import files
uploaded = files.upload()
```

Choose Files No file chosen Upload widget is only available when the cell has been executed in the current browser session. Please rerun this cell to enable.

```
Saving most_subscribed_youtube_channels.csv to most_subscribed_youtube_channels.csv
```

```
#df variable saves dataframe returned from read_csv
#uploaded is a dictionary with file names
df = pd.read_csv(io.BytesIO(uploaded['most_subscribed_youtube_channels.csv']))
display(df)
```

	rank	Youtuber	subscribers	video views	video count	category	started
0	1	T-Series	222,000,000	198,459,090,822	17,317	Music	2006
1	2	YouTube Movies	154,000,000	0	0	Film & Animation	2015
2	3	Cocomelon - Nursery Rhymes	140,000,000	135,481,339,848	786	Education	2006
3	4	SET India	139,000,000	125,764,252,686	91,271	Shows	2006
4	5	Music	116,000,000	0	0	NaN	2013
...	...	...	...	...	...	...	...
995	996	JP Plays	10,900,000	4,609,300,218	3,528	Gaming	2014
996	997	TrapMusicHDTV	10,900,000	4,070,521,973	690	Music	2013
997	998	Games EduUu	10,900,000	3,093,784,767	1,006	Gaming	2011
998	999	Hueva	10,900,000	3,040,301,750	831	Gaming	2012
999	1000	Dobre Brothers	10,900,000	2,808,411,693	590	People & Blogs	2017

1000 rows × 7 columns

```
# Data Shape
print("Data Shape:", df.shape)

# Descriptive Statistics
print("\nDescriptive Statistics:")
numerical_cols = ['subscribers', 'video views', 'video count']
display(df[numerical_cols].describe())

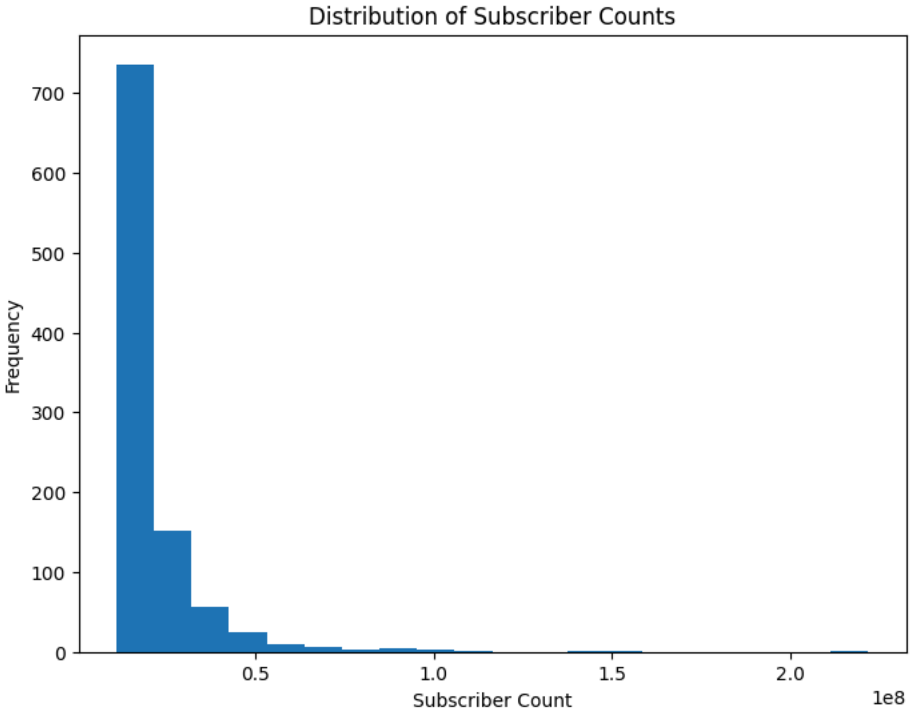
# Data Distribution (Subscriber Count)
import matplotlib.pyplot as plt
plt.figure(figsize=(8, 6))
plt.hist(df['subscribers'].str.replace(',', '').astype(int), bins=20)
plt.xlabel("Subscriber Count")
plt.ylabel("Frequency")
plt.title("Distribution of Subscriber Counts")
plt.show()

# Correlation Analysis
print("\nCorrelation Matrix:")
correlation_matrix = df[['subscribers', 'video views']].apply(lambda x: x.str.replace(',', '').astype(int)).corr()
display(correlation_matrix)

# Unique Values (Category)
print("\nUnique Categories:")
print(df['category'].unique())
```

```
Data Shape: (1000, 7)

Descriptive Statistics:
          subscribers  video views  video count
count            1000         1000         1000
unique            286          991          856
top        11,100,000            0            0
freq               21           10           10
```


Distribution of Subscriber Counts

```
Correlation Matrix:
             subscribers  video views
subscribers     1.000000     0.746863
video views     0.746863     1.000000

Unique Categories:
['Music' 'Film & Animation' 'Education' 'Shows' nan 'Gaming'
 'Entertainment' 'People & Blogs' 'Sports' 'Howto & Style'
 'News & Politics' 'Comedy' 'Trailers' 'Nonprofits & Activism'
 'Science & Technology' 'Movies' 'Pets & Animals' 'Autos & Vehicles'
 'Travel & Events']
```

```
# 1. Handle Missing Values
df.dropna(inplace=True)  # Remove rows with missing values

# 2. Convert Data Types
df['subscribers'] = df['subscribers'].str.replace(',', '').astype(int)
df['video views'] = df['video views'].str.replace(',', '').astype(int)
df['video count'] = df['video count'].str.replace(',', '').astype(int)

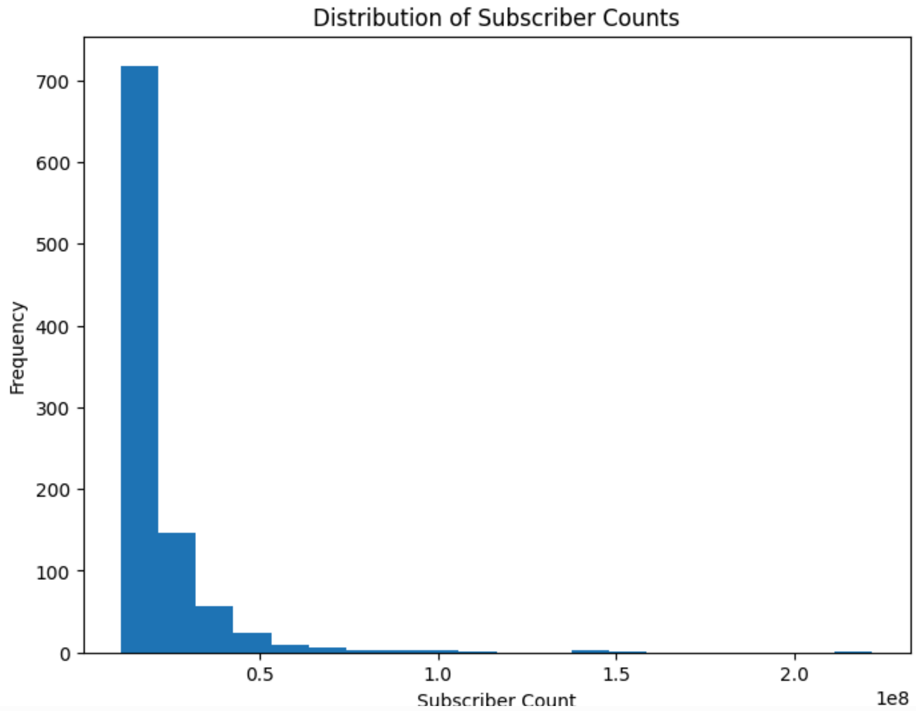
# 3. Select Relevant Columns
relevant_columns = ['rank', 'Youtuber', 'subscribers', 'video views', 'video count', 'category']
df_visualization = df[relevant_columns]

display(df_visualization.head())
```

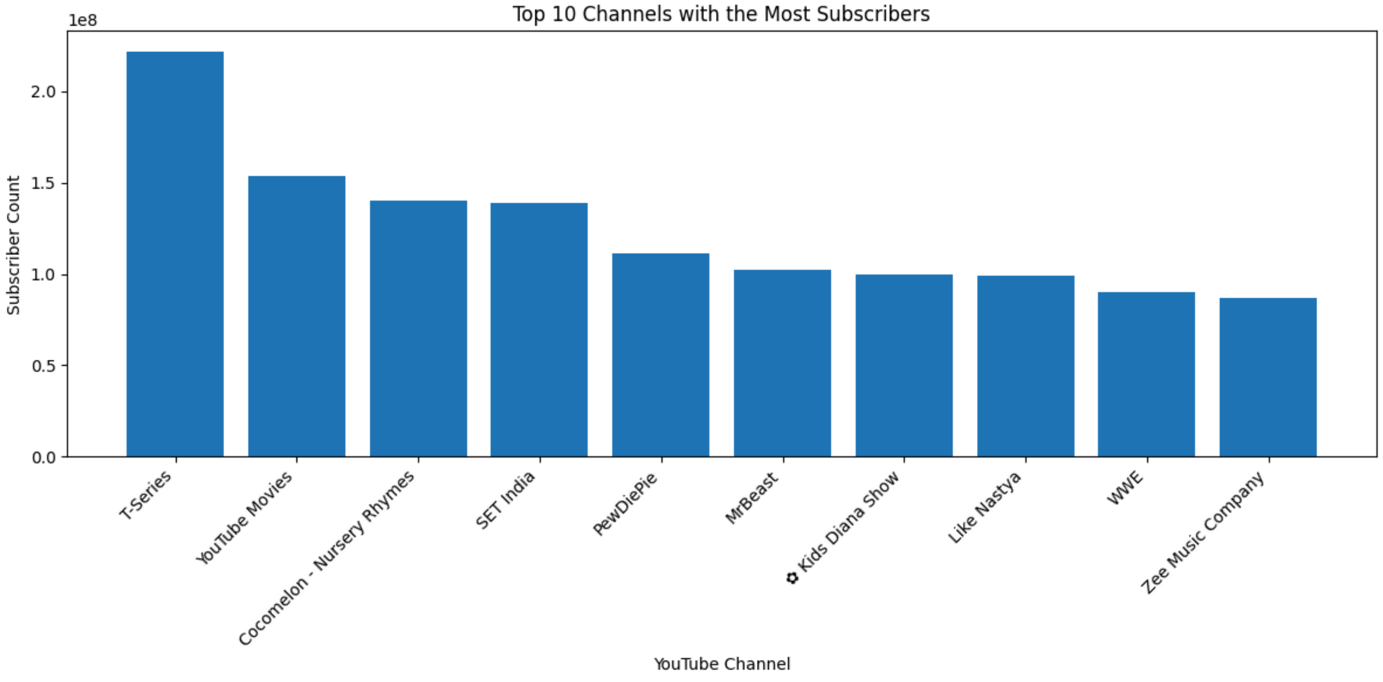
	rank	Youtuber	subscribers	video views	video count	category
0	1	T-Series	222000000	198459090822	17317	Music
1	2	YouTube Movies	154000000	0	0	Film & Animation
2	3	Cocomelon - Nursery Rhymes	140000000	135481339848	786	Education
3	4	SET India	139000000	125764252686	91271	Shows
5	6	PewDiePie	111000000	28469458228	4497	Gaming

```
import matplotlib.pyplot as plt

# 1. Histogram of Subscriber Counts
plt.figure(figsize=(8, 6))
plt.hist(df_visualization['subscribers'], bins=20)
plt.xlabel("Subscriber Count")
plt.ylabel("Frequency")
plt.title("Distribution of Subscriber Counts")
plt.show()
```



```
# 2. Bar Chart of Top 10 Channels
top_10_channels = df_visualization.sort_values('subscribers', ascending=False).head(10)
plt.figure(figsize=(12, 6))
plt.bar(top_10_channels['Youtuber'], top_10_channels['subscribers'])
plt.xlabel("YouTube Channel")
plt.ylabel("Subscriber Count")
plt.title("Top 10 Channels with the Most Subscribers")
plt.xticks(rotation=45, ha='right')
plt.tight_layout()
plt.show()
```



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# 3. Scatter Plot of Subscribers vs. Video Views
plt.figure(figsize=(8, 6))
plt.scatter(df_visualization['subscribers'], df_visualization['video views'])
plt.xlabel("Subscriber Count")
plt.ylabel("Video Views")
plt.title("Subscribers vs. Video Views")
plt.show()
```

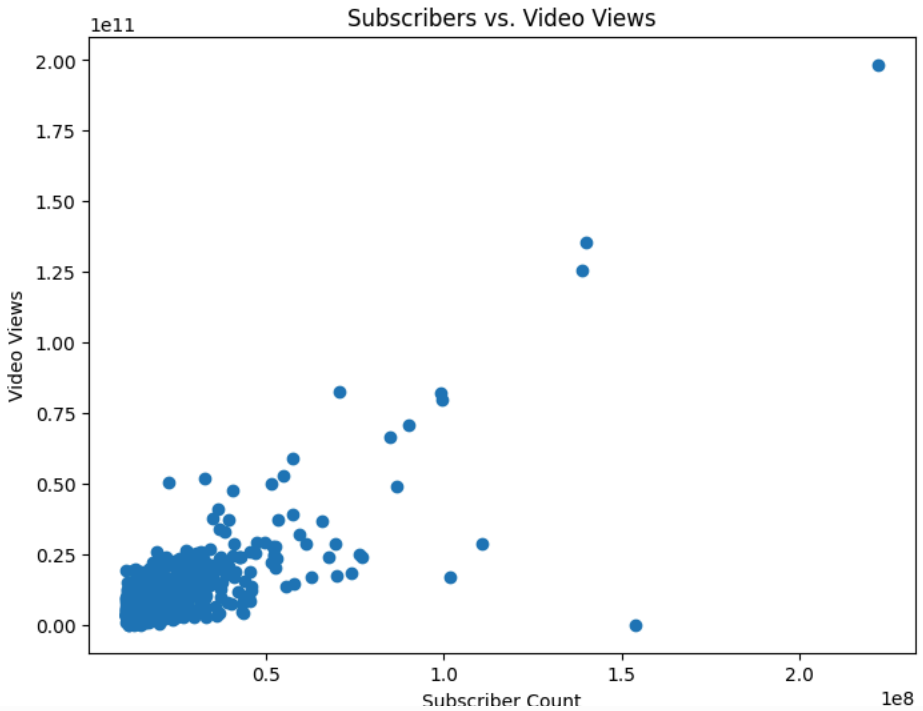

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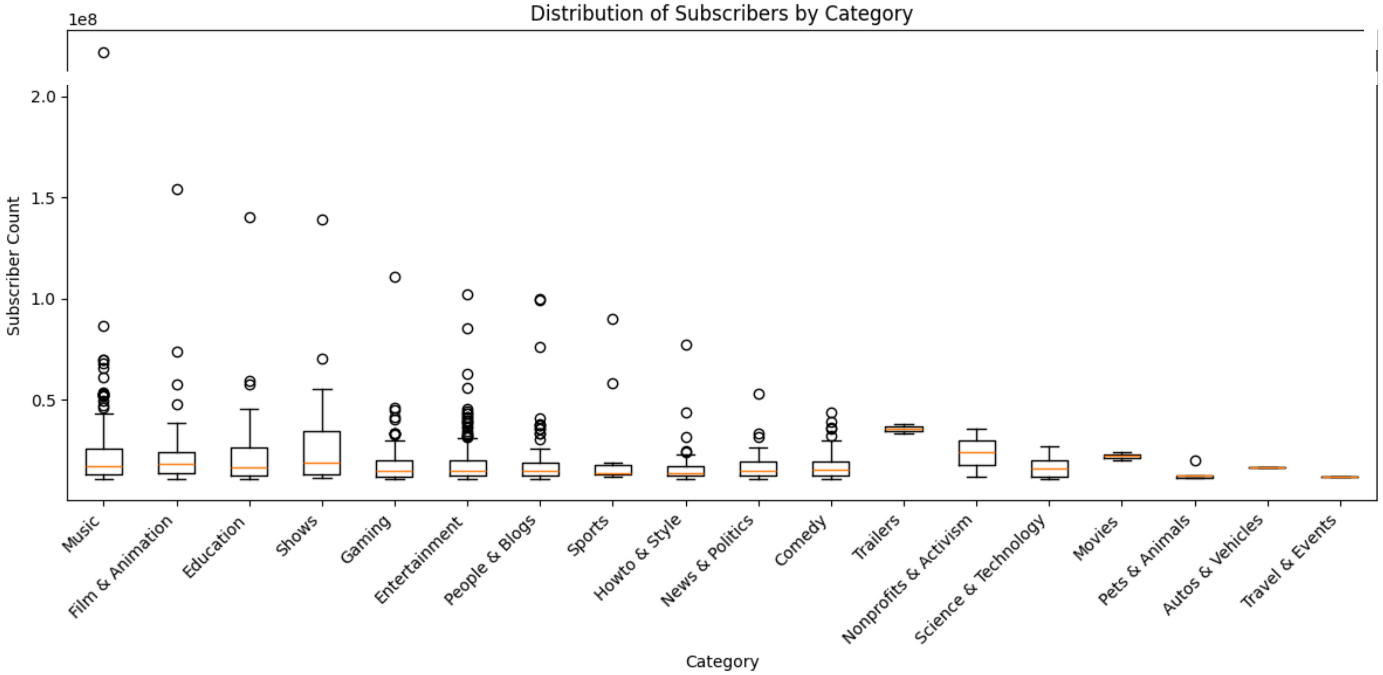
# 4. Box Plot of Subscribers by Category
plt.figure(figsize=(12, 6))
plt.boxplot([df_visualization[df_visualization['category'] == category]['subscribers'] for category in df_visualization['category'].unique(
            labels=df_visualization['category'].unique())
plt.xlabel("Category")
plt.ylabel("Subscriber Count")
plt.title("Distribution of Subscribers by Category")
plt.xticks(rotation=45, ha='right')
plt.tight_layout()
```

```
<ipython-input-10-d5383e5ba2bc>:3: MatplotlibDeprecationWarning: The 'labels' parameter of boxplot() has been renamed 'tick_labels' sinc
  plt.boxplot([df_visualization[df_visualization['category'] == category]['subscribers'] for category in df_visualization['category'].un
```



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plt.figure(figsize=(10, 5))
i
import plotly.express as px

# Assuming your DataFrame is named 'df' and has columns 'category' and 'subscribers'
fig = px.pie(df, values='subscribers', names='category', title='Subscriber Distribution by Category',
             color_discrete_sequence=px.colors.qualitative.Set3)  # Use a color palette for unique colors
fig.show()
```

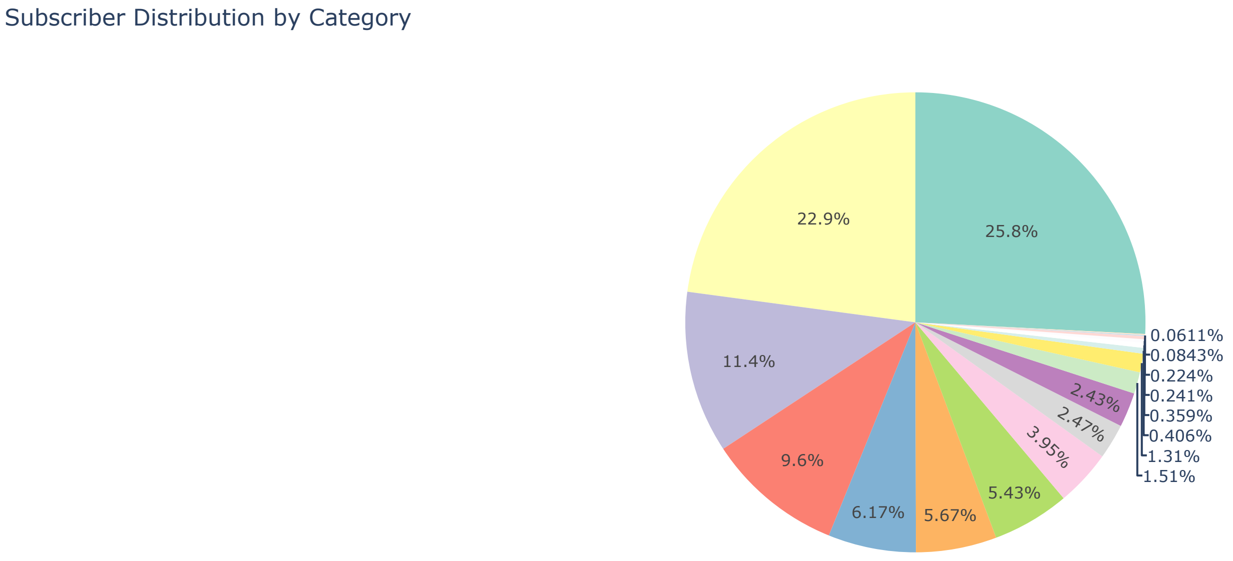

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Figure size 1000x500 with 0 Axes
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