```
import pandas as pd
```

```
pd.read_csv("music.csv")
```

	artist	song	link	text
0	ABBA	Ahe's My Kind Of Girl	/a/abba/ahes+my+kind+of+girl_20598417.html	Look at her face, it's a wonderful face \r\nA...
1	ABBA	Andante, Andante	/a/abba/andante+andante_20002708.html	Take it easy with me, please \r\nTouch me gen...
2	ABBA	As Good As New	/a/abba/as+good+as+new_20003033.html	I'll never know why I had to go \r\nWhy I had...
3	ABBA	Bang	/a/abba/bang_20598415.html	Making somebody happy is a question of give an...
4	ABBA	Bang-A-Boomerang	/a/abba/bang+a+boomerang_20002668.html	Making somebody happy is a question of give an...
...	...	...	...	...
7518	Hanson	My Own Sweet Time	/h/hanson/my+own+sweet+time_20579405.html	Hello, goodbye my friend \r\nFeels like the s...
7519	Hanson	Need You Now	/h/hanson/need+you+now_20579404.html	Your deep brown eyes \r\nThey watch me as I s...
7520	Hanson	Never Let Go	/h/hanson/never+let+go_20287064.html	Just lay down \r\nAnd let your worries sleep ...
7521	Hanson	Never Love Again	/h/hanson/never+love+again_20579403.html	Just a simple conversation \r\nBut I've memor...
7522	Hanson	One M	NaN	NaN

7523 rows × 4 columns

```
df = pd.read_csv("music.csv")
```

```
df.head(5)
```

	artist	song	link	text
0	ABBA	Ahe's My Kind Of Girl	/a/abba/ahes+my+kind+of+girl_20598417.html	Look at her face, it's a wonderful face \r\nA...
1	ABBA	Andante, Andante	/a/abba/andante+andante_20002708.html	Take it easy with me, please \r\nTouch me gen...
2	ABBA	As Good As New	/a/abba/as+good+as+new_20003033.html	I'll never know why I had to go \r\nWhy I had

```
df.tail(5)
```

	artist	song	link	text
7518	Hanson	My Own Sweet Time	/h/hanson/my+own+sweet+time_20579405.html	Hello, goodbye my friend \r\nFeels like the s...
7519	Hanson	Need You Now	/h/hanson/need+you+now_20579404.html	Your deep brown eyes \r\nThey watch me as I s...
7520	Hanson	Never	/h/hanson/never+let+go_20287064.html	Just lay down \r\nAnd let your

```
df.shape
```

```
(7523, 4)
```

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

```
artist    0
song      0
link      1
text      1
dtype: int64
```

```
df =df.sample(5000).drop('link', axis=1).reset_index(drop=True)
```

```
df.head(10)
```

	artist	song	text
0	Bing Crosby	Swingin' Down The Lane	Everybody hand in hand \r\nSwingin' down the ...
1	Elvis Presley	Confidence	When everyone thought the world was flat \r\n...
2	Chicago	Come To Me, Do	Come to me, lonely \r\nCome to me, blue \r\n...
3	Fabolous	Special Delivery Freestyle	[Fabolous:] \r\nYeah please believe it \r\nB...
4	Dusty Springfield	No Easy Way Down	With the music of life, my soul is out of tune...
5	Ellie Goulding	Guns And Horses	You're so quiet \r\nBut it doesn't faze me \...
6	Chaka Khan	Miles Blowin	I'm in such a mood \r\nTurned on by the thoug...
7	Bob Seger	Cat	Daughter, daughter, don't do that, don't do th...
8	Elvis Costello	Human Hands	I've been talking to the wall and it's been an...
9	Eric Clapton	Got You On My Mind	I've got you on my mind, I'm feeling kind of s...

```
df['text'][0]
```

```
'Everybody hand in hand  \r\nSwingin' down the lane  \r\nEverybody's feelin' grand
\r\nSwingin' down the lane  \r\n  \r\nThat's the time I miss that bliss  \r\nThat we
might have known  \r\nNights like this when I'm all alone  \r\n  \r\nWhen the moon i
s on the rise  \r\nHoney, I am so blue  \r\nWatchin' lovers makin' eyes  \r\nLike we
used to do  \r\n  \r\nWhen the moon is on the way  \r\nStill I'm waitin' all in vain
```

```
df.shape
```

```
(5000, 3)
```

```
df['text'] = df['text'].str.lower().replace(r'^\w\s', ' ').replace(r'\n', ' ', regex = True)
```

```
import nltk
from nltk.stem.porter import PorterStemmer
stemmer = PorterStemmer()

def tokenization(txt):
    tokens = nltk.word_tokenize(txt)
    stemming = [stemmer.stem(w) for w in tokens]
    return " ".join(stemming)
```

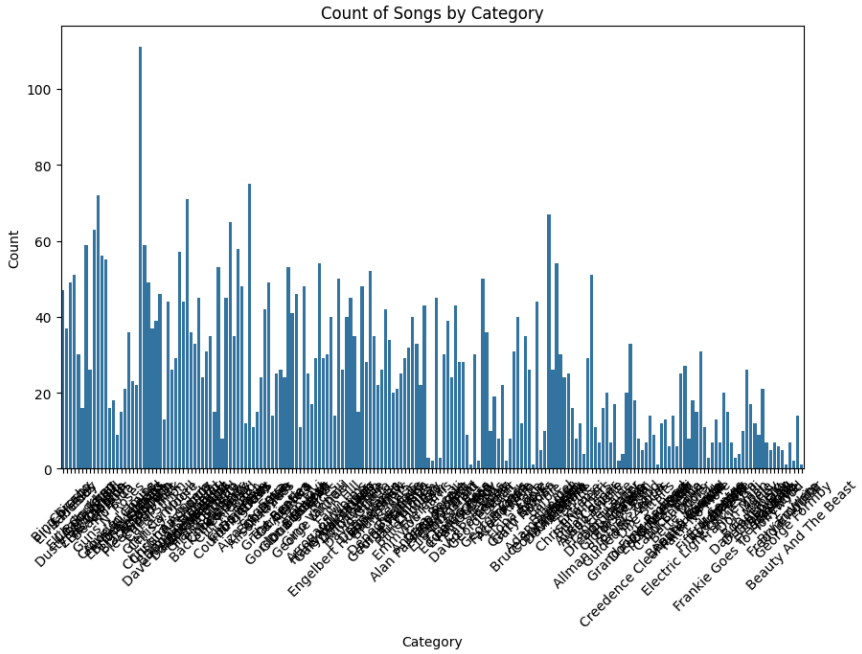
```
from sklearn.feature_extraction.text import TfidfVectorizer
from sklearn.metrics.pairwise import cosine_similarity
```

```
df[df['song'] == 'Crying Over You']
```

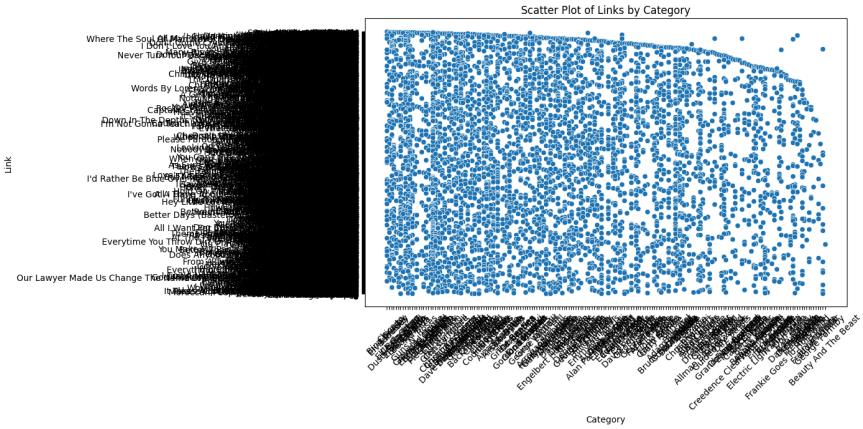
	artist	song	text

```
def recommendation(song_df):
    idx = df[df['song'] == song_df].index[0]
    distances = sorted(list(enumerate(similarity[idx])),reverse=True,key=lambda x:x[1])

    songs = []
    for m_id in distances[1:21]:
        songs.append(df.iloc[m_id[0]].song)

    return songs
```

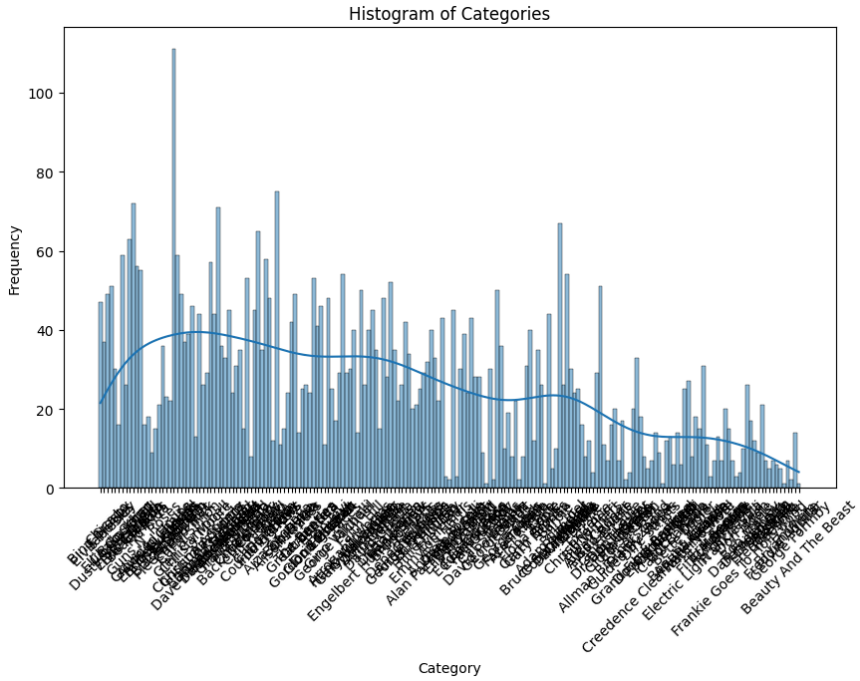
```
import matplotlib.pyplot as plt
import seaborn as sns

# Bar plot
plt.figure(figsize=(10, 6))
sns.countplot(data=df, x='artist')
plt.title('Count of Songs by Category')
plt.xlabel('Category')
plt.ylabel('Count')
plt.xticks(rotation=45)
plt.show()
```



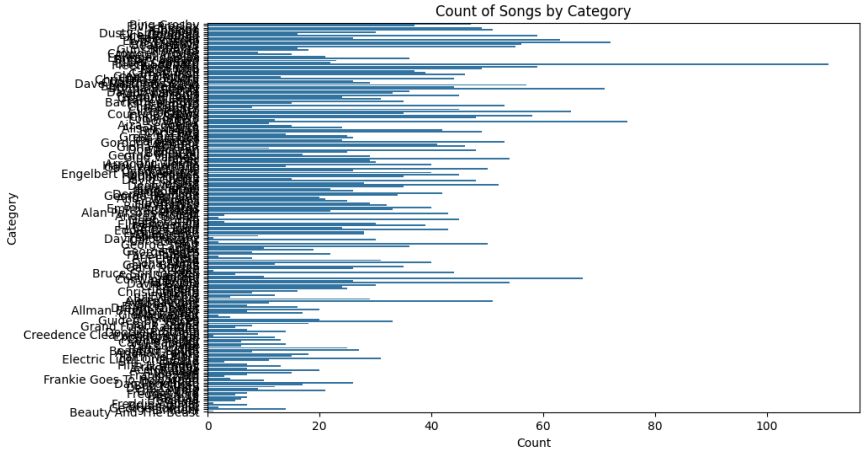

```
import matplotlib.pyplot as plt
import seaborn as sns

# Scatter plot
plt.figure(figsize=(10, 6))
sns.scatterplot(data=df, x='artist', y='song')
plt.title('Scatter Plot of Links by Category')
plt.xlabel('Category')
plt.ylabel('Link')
plt.xticks(rotation=45)
plt.show()
```



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

# Histogram
plt.figure(figsize=(10, 6))
sns.histplot(data=df, x='artist', bins=10, kde=True)
plt.title('Histogram of Categories')
plt.xlabel('Category')
plt.ylabel('Frequency')
plt.xticks(rotation=45)
plt.show()
```




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

# Example 1: Horizontal bar plot
plt.figure(figsize=(10, 6))
sns.countplot(data=df, y='artist')
plt.title('Count of Songs by Category')
plt.xlabel('Count')
plt.ylabel('Category')
plt.show()

# Example 2: Grouped bar plot
plt.figure(figsize=(10, 6))
sns.countplot(data=df, x='artist', hue='song')
plt.title('Count of Songs by Category with Song Hue')
plt.xlabel('Category')
plt.ylabel('Count')
plt.xticks(rotation=45)
plt.legend(title='Song')
plt.show()
```



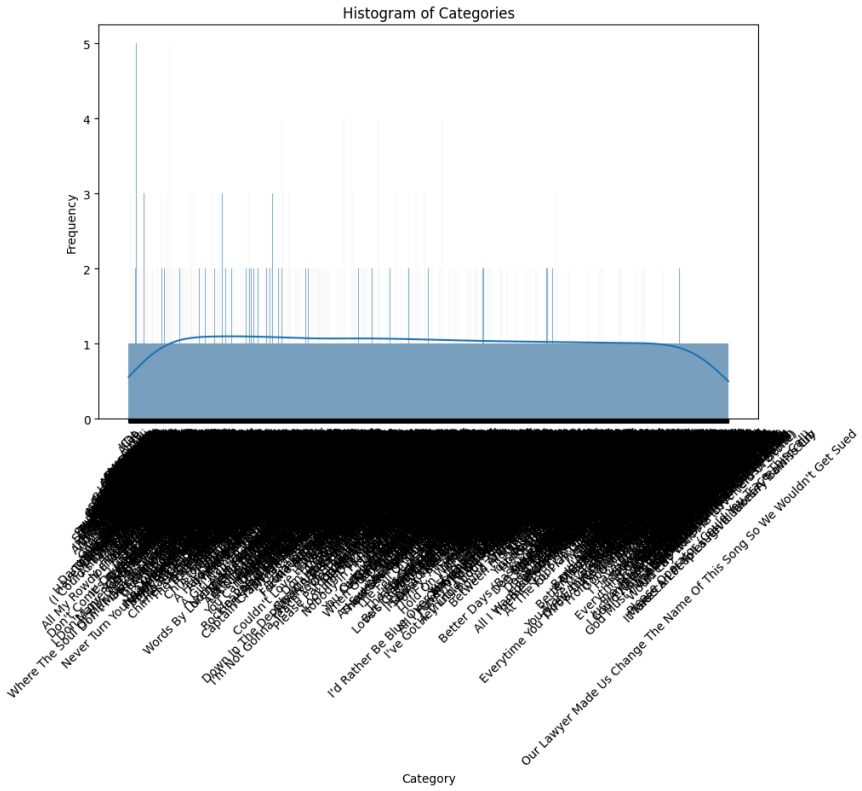

```
/usr/local/lib/python3.10/dist-packages/IPython/core/pylabtools.py:151: UserWarning:
  fig.canvas.print_figure(bytes_io, **kw)
```

```
---------------------------------------------------------------------------
ValueError                                Traceback (most recent call last)
/usr/local/lib/python3.10/dist-packages/IPython/core/formatters.py in __call__(self,
obj)
    339                 pass
    340             else:
--> 341                 return printer(obj)
    342             # Finally look for special method names
    343             method = get_real_method(obj, self.print_method)
```

8 frames

```
/usr/local/lib/python3.10/dist-packages/matplotlib/backends/backend_agg.py in
__init__(self, width, height, dpi)
     82         self.width = width
     83         self.height = height
---> 84         self._renderer = _RendererAgg(int(width), int(height), dpi)
     85         self._filter_renderers = []
     86

ValueError: Image size of 903x99267 pixels is too large. It must be less than 2^16
in each direction.

<Figure size 1000x600 with 1 Axes>
```

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

# Selecting the first 2000 songs
df_subset = df.head(2000)

# Histogram
plt.figure(figsize=(10, 6))
sns.histplot(data=df, x='song', bins=10, kde=True)
plt.title('Histogram of Categories')
plt.xlabel('Category')
plt.ylabel('Frequency')
plt.xticks(rotation=45)
plt.show()
```

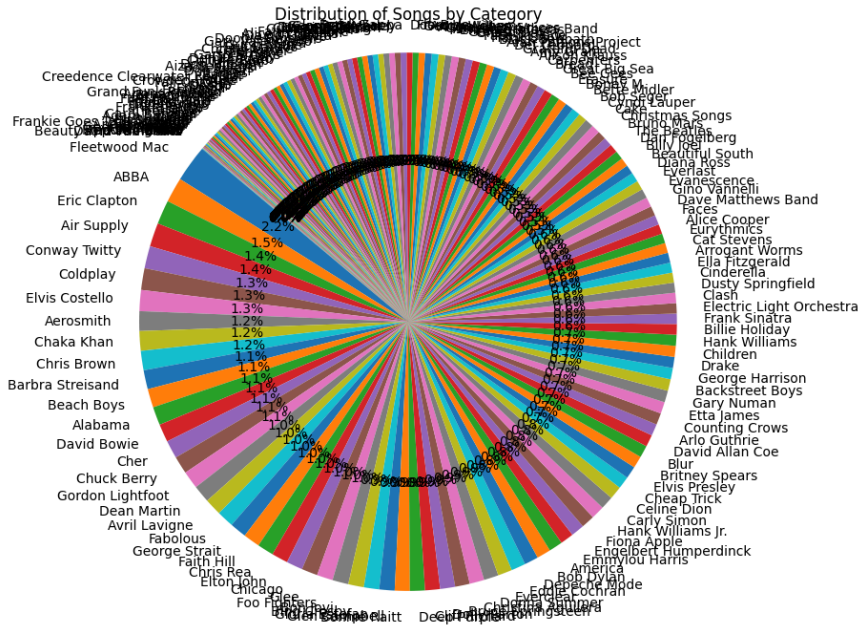



```
import matplotlib.pyplot as plt
import seaborn as sns

# Example 1: Scatter plot with different markers for each category
plt.figure(figsize=(10, 6))
sns.scatterplot(data=df, x='artist', y='link', style='text', markers=['o', 's', '^'])
plt.title('Scatter Plot of Links by Category with Text Style')
plt.xlabel('Category')
plt.ylabel('Link')
plt.xticks(rotation=45)
plt.legend(title='Text')
plt.show()

# Example 2: Scatter plot with regression line
plt.figure(figsize=(10, 6))
sns.regplot(data=df, x='artist', y='link', scatter_kws={'s': 100, 'alpha': 0.5})
plt.title('Scatter Plot of Links by Category with Regression Line')
plt.xlabel('Category')
plt.ylabel('Link')
plt.xticks(rotation=45)
plt.show()
```

Double-click (or enter) to edit

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

# Selecting the first 2000 songs
df_subset = df.head(2000)

# Scatter plot
plt.figure(figsize=(10, 6))
sns.scatterplot(data=df, x='artist', y='text', palette='Set2')
plt.title('Scatter Plot of Text by Category')
plt.xlabel('Category')
plt.ylabel('Text')
plt.xticks(rotation=45)
plt.show()
```

```
import matplotlib.pyplot as plt

# Count the number of songs in each category
category_counts = df['artist'].value_counts()

# Create a pie chart
plt.figure(figsize=(8, 8))
plt.pie(category_counts, labels=category_counts.index, autopct='%1.1f%%', startangle=140)
plt.title('Distribution of Songs by Category')
plt.axis('equal')  # Equal aspect ratio ensures that pie is drawn as a circle.
plt.show()
```



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

# Selecting the first 2000 songs
df_subset = df.head(2000)

# Bar plot
plt.figure(figsize=(10, 6))
sns.countplot(data=df_subset, x='song')
plt.title('Count of Songs by Category (First 2000 Songs)')
```