Objectives and Project Plan

- **Objective:** Visualize Top Earning/Perfoming Artists per music Genre

Project Plan

1. Import Inportant Libraries(pyodbc, pandas, matplotlib, seaborn)
2. Connection to SQL Server Database
3. Run Query and Read Artists Data into Data Frame
4. Inspection of Data
5. Visualization of Trends (Top Earners/Performers)
6. Locating Image of Visuals

1. Import Important Libraries

In [6]:

```
pip install pyodbc
```

```
Requirement already satisfied: pyodbc in c:\users\user\appdata\local\programs\python\python312\lib\site-packages (5.
2.0)
Note: you may need to restart the kernel to use updated packages.
```

In [17]:

```
pip install --upgrade pip
```

```
Requirement already satisfied: pip in c:\users\user\appdata\local\programs\python\python312\lib\site-packages (25.2)
Collecting pip
  Downloading pip-25.3-py3-none-any.whl.metadata (4.7 kB)
Downloading pip-25.3-py3-none-any.whl (1.8 MB)
   ---------------------------------------- 0.0/1.8 MB ? eta -:--:--
   ---------------------------------------- 0.0/1.8 MB ? eta -:--:--
   ----- ---------------------------------- 0.3/1.8 MB ? eta -:--:--
   ----------- ---------------------------- 0.5/1.8 MB 1.3 MB/s eta 0:00:01
   ----------------------------- ---------- 1.3/1.8 MB 2.6 MB/s eta 0:00:01
   ---------------------------------------- 1.8/1.8 MB 2.9 MB/s  0:00:00
Installing collected packages: pip
  Attempting uninstall: pip
    Found existing installation: pip 25.2
    Uninstalling pip-25.2:
      Successfully uninstalled pip-25.2
Successfully installed pip-25.3
Note: you may need to restart the kernel to use updated packages.
```

In [4]:

```python
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
import pyodbc
```

2. Connect to SQL Server DB

In [12]:

```python
#Define Connection Parameter
server = 'DESKTOP-U507UFU'
database = 'PRACTICE'

#Create a Connection string (Trusted Windows Authentication)
conn_str = (
    "Driver={SQL Server};"
    f"Server={server};"
    f"Database={database};"
    "Trusted_Connection=yes;"
)
#Establish the Connection
conn = pyodbc.connect(conn_str)
```

3. Run Query and Read Artists Data Into Data Frame

In [14]:

```
query = """

WITH ranked_concerts_cte AS (
    SELECT
    artist_name,
    concert_revenue,
    genre,
    number_of_members,
    CAST(concert_revenue/ number_of_members AS FLOAT) AS revenue_per_member,
    RANK()OVER(
           PARTITION BY genre
           ORDER BY (concert_revenue/ number_of_members) DESC)
           AS ranked_artists
   FROM concerts
    )


SELECT
    artist_name,
    genre,
    number_of_members,
    revenue_per_member
FROM ranked_concerts_cte
WHERE ranked_artists = 1
ORDER BY revenue_per_member DESC;

"""
df = pd.read_sql(query, conn)
conn.close()
```

```
C:\Users\User\AppData\Local\Temp\ipykernel_1908\2417789971.py:28: UserWarning: pandas only supports SQLAlchemy connec
table (engine/connection) or database string URI or sqlite3 DBAPI2 connection. Other DBAPI2 objects are not tested. P
lease consider using SQLAlchemy.
  df = pd.read_sql(query, conn)
```

4. Inspection of Our Data

In [15]:

```
df.head()
```

Out[15]:

	artist_name	genre	number_of_members	revenue_per_member
0	The Weeknd	R&B/Pop	1	890812.8100
1	Ariana Grande	Pop	1	881544.5400
2	Eminem	Hip-Hop	1	654919.0100
3	Beyonce	R&B	1	638938.1200
4	Blackpink	K-Pop	4	221804.9325

In [16]:

```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 5 entries, 0 to 4
Data columns (total 4 columns):
 #   Column              Non-Null Count  Dtype  
---  ------              --------------  -----  
 0   artist_name         5 non-null      object 
 1   genre               5 non-null      object 
 2   number_of_members   5 non-null      object 
 3   revenue_per_member  5 non-null      float64
dtypes: float64(1), object(3)
memory usage: 292.0+ bytes
```

In [17]:

```
df.shape
```

Out[17]:

```
(5, 4)
```

In [18]:

```
df.describe()
```

Out[18]:

	revenue_per_member
count	5.000000
mean	657603.882500
std	271483.040906
min	221804.932500
25%	638938.120000
50%	654919.010000
75%	881544.540000
max	890812.810000

In [19]:

```
df.head()
```

Out[19]:

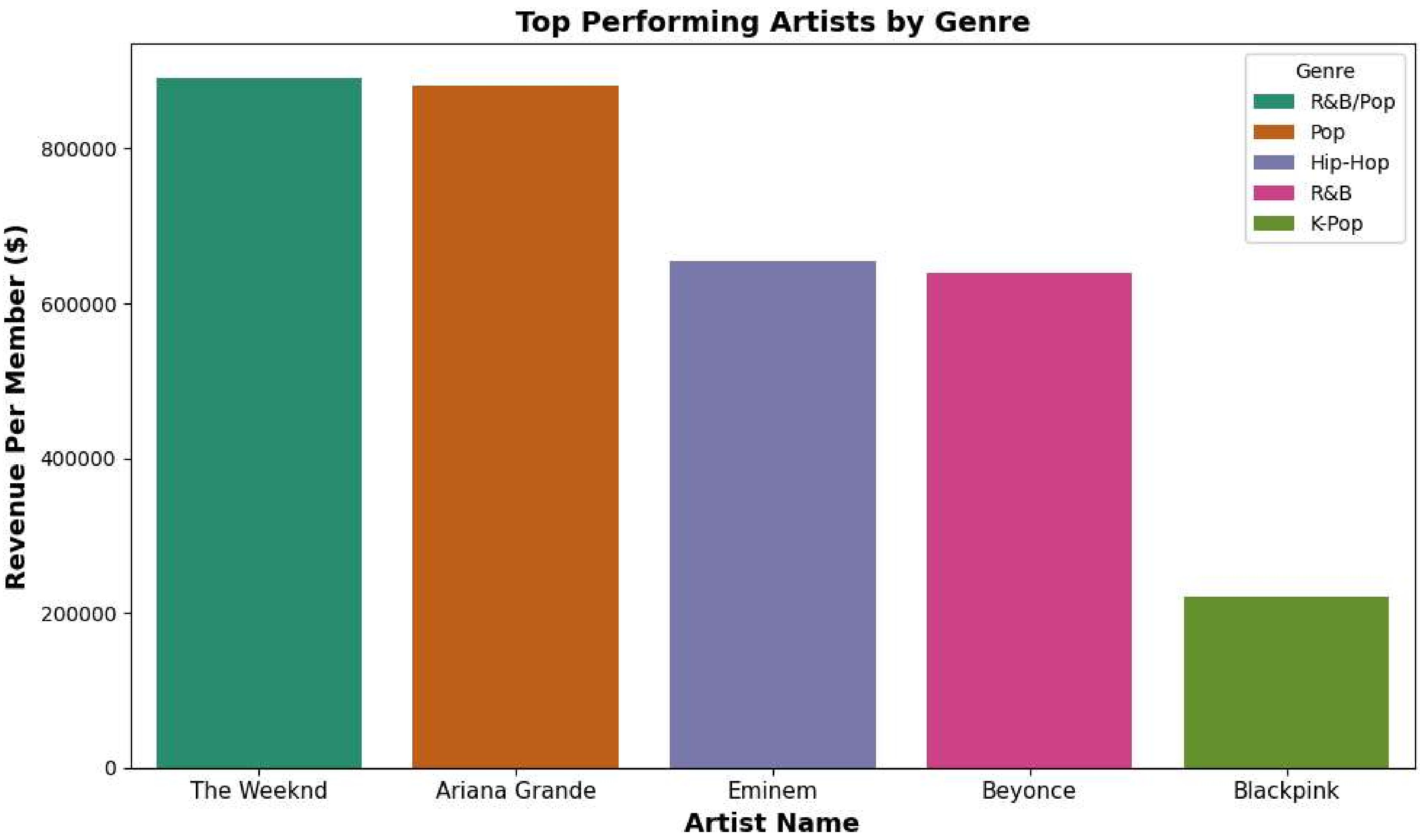
	artist_name	genre	number_of_members	revenue_per_member
0	The Weeknd	R&B/Pop	1	890812.8100
1	Ariana Grande	Pop	1	881544.5400
2	Eminem	Hip-Hop	1	654919.0100
3	Beyonce	R&B	1	638938.1200
4	Blackpink	K-Pop	4	221804.9325

5. Visualization of Trends (Top Perfomers per Genre)

In [86]:

```
# Step 1: Strip whitespace from column names
df.columns = df.columns.str.strip()

# Step 2: Sort by revenue per member
Top_perfomers = df.sort_values(by='revenue_per_member', ascending=False)

# Step 3: Create bar chart with genre as hue
```

```python
plt.figure(figsize=(10,6))
sns.barplot(
    data=Top_perfomers,
    x='artist_name',
    y='revenue_per_member',
    hue='genre',  # For  genre-based color coding
    dodge=False,  # Keeps bars stacked by artist
    palette='Dark2'
)

# Step 4: Customize the plot
plt.title("Top Performing Artists by Genre", fontsize=14, fontweight='bold')
plt.xlabel("Artist Name", fontsize =13, fontweight = 'bold')
plt.ylabel("Revenue Per Member ($)", fontsize = 13, fontweight='bold')
plt.xticks(fontsize=11)
plt.legend(title='Genre')
plt.tight_layout()
plt.savefig("Top_Perfoming_Artist.png", dpi=300, bbox_inches = 'tight')
plt.show()
```

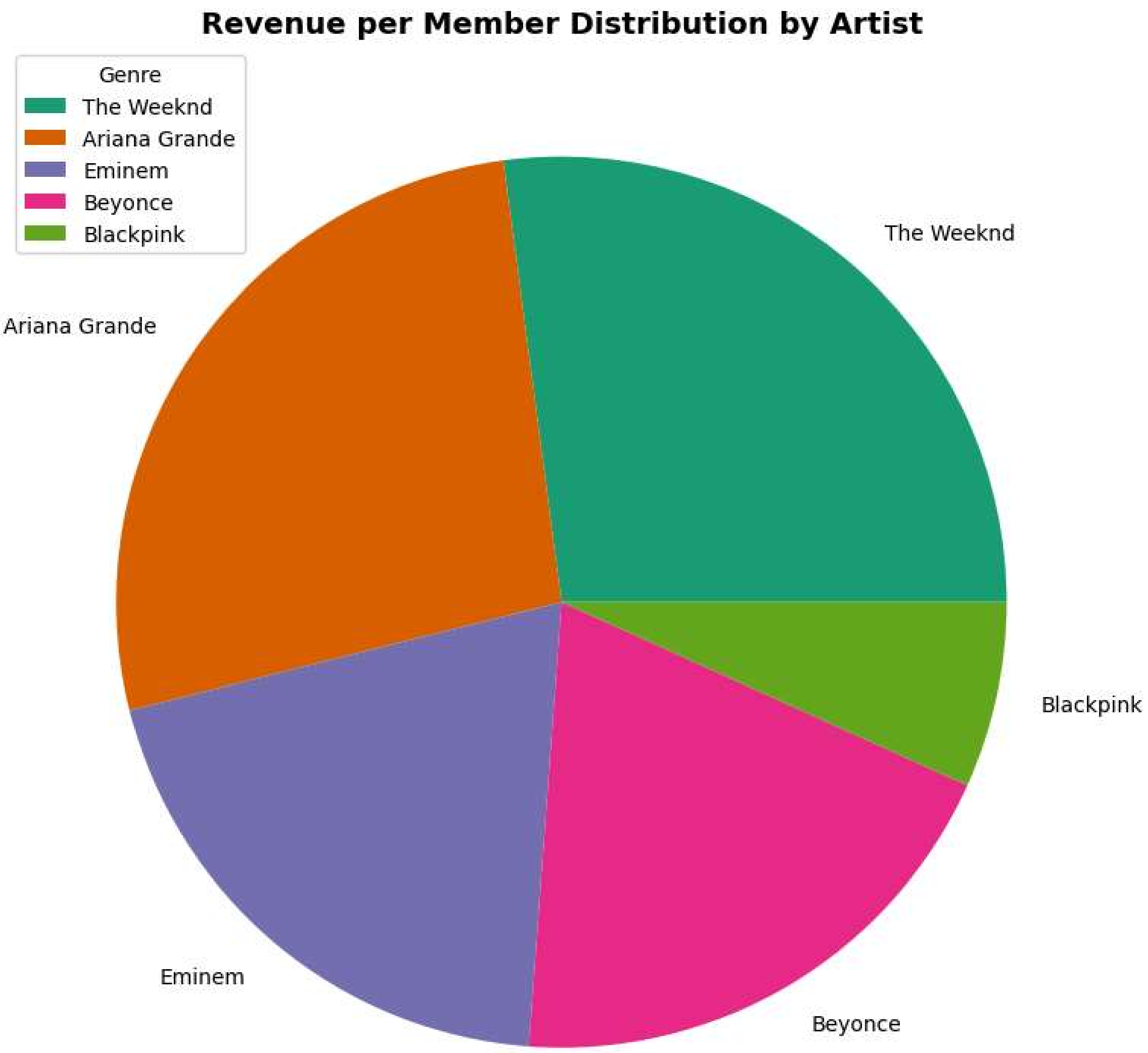


Method 2:(Using Piechart)

In [93]:

```
#Step 1: Strip White spaces from column names
df.coumns = df.columns.str.strip()

#Step 2: Sort by revenue per member
Top_Perfomers =df.sort_values(by='revenue_per_member', ascending = False)

#Step 3: Prepare Data for pie chart
```

```
labels = Top_perfomers['artist_name']
sizes = Top_perfomers['revenue_per_member']
colors = sns.color_palette('Dark2', len(labels))

#Step 4: Create pie chart
plt.figure(figsize=(8,8))
plt.pie(
    sizes,
    labels=labels,
    colors=colors
)

#Step 5 :Customize the Plot
plt.title("Revenue per Member Distribution by Artist", fontsize=14, fontweight='bold')
plt.legend(title='Genre')
plt.tight_layout()
plt.savefig("Revenue_per_Member.png", dpi = 300, bbox_inches='tight')
plt.show()
```


Revenue per Member Distribution by Artist
Genre
The Weeknd
Ariana Grande
Eminem
Beyonce
Blackpink
The Weeknd
Ariana Grande
Eminem
Beyonce
Blackpink

5. Locating the Visuals

In [73]:

```python
import os
print(os.getcwd())
```

```
D:\SQL  PRACTICE\music_concert\top performing Artists
```

In [ ]:

```
```