Music Player Application

Milestone: Application (Python)

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- ETIKALA SAI MAHITHA

In [2]:

```
pip install mysql-connector-python
```

```
 Requirement already satisfied: mysql-connector-python in /Users/mahitha/opt/anaconda3/lib/python3.9/site-packages (8.2.0)
     Requirement already satisfied: protobuf<=4.21.12,>=4.21.1 in /Users/mahitha/opt/anaconda3/lib/python3.9/site-packages (from mysql-connector-python) (4.21.12)
Note: you may need to restart the kernel to use updated packages.
```

In [136]:

```
import mysql.connector

# Replace these placeholders with your actual database connection details
db_config = {
    'host': 'localhost',
    'user': 'root',
    'password': 'qwertyuiop',
    'database': 'Music_player',
}

connection = mysql.connector.connect(**db_config)
```

In [137]:

```
cursor = connection.cursor()
```

In [148]:

```
cursor.execute("""
    SELECT
        PersonTable.PID, PersonTable.Name, PersonTable.Gender, PersonTable.Age, PersonTable.Phone, PersonTable.Address,
        ArtistTable.Artist_ID, ArtistTable.Followers
    FROM PersonTable
    INNER JOIN ArtistTable ON PersonTable.PID = ArtistTable.PID
    ORDER BY Followers DESC
    LIMIT 10;
""")
```

In [149]:

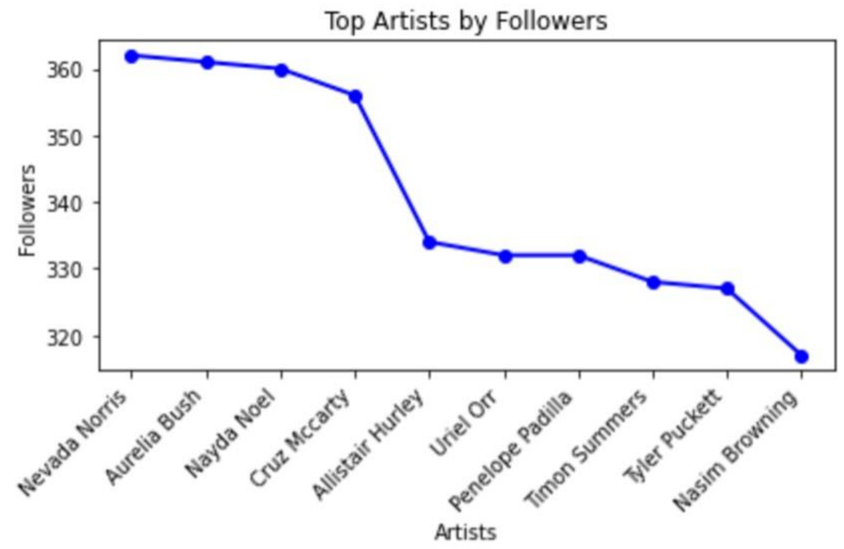
```
rows = cursor.fetchall()

# Display the result in a tabular form
print("{:<5} {:<20} {:<10} {:<5} {:<15} {:<20} {:<10} {:<10}".format(
    "PID", "Name", "Gender", "Age", "Phone", "Address", "Artist_ID", "Followers"
))
print("="*115)  # Separator line

for row in rows:
    print("{:<5} {:<20} {:<10} {:<5} {:<15} {:<20} {:<10} {:<10}".format(*row))
```

```
PID Name                 Gender     Age Phone            Address              Artist_ID Followers
===================================================================================================================
464 Nevada Norris        Male       68 1-357-726-3184 703-1631 Ultrices. St. 14           362
497 Aurelia Bush Male 38 1-483-883-7294 684-3139 Metus Avenue 47 361  480 Nayda Noel Male 15 1-157-873-
4933 Ap #124-7237 Tempus Avenue 30  360
452 Cruz Mccarty         Male        64 1-151-565-6611 P.O. Box 465, 5111 Ridiculus Street 2           356
495 Allistair Hurley     Female     50 1-645-768-4812 438-374 Adipiscing Avenue 45           334
489 Uriel Orr            Male       46 1-715-343-3369 Ap #472-9189 Natoque Rd. 39           332
479 Penelope Padilla     Female     58 1-682-250-7778 672-123 Id, Av.       29         332
476 Timon Summers        Male       65 1-838-548-3232 802-6583 A Road       26         328
490 Tyler Puckett        Female     39 1-347-507-3573 4810 Nunc Street      40         327
468 Nasim Browning       Male       19 1-233-636-6419 4877 Mauris Rd.       18         317
```

In [142]:

```
import matplotlib.pyplot as plt

# Result data
result_data = rows
# Extract artist names and followers artists =
[data[1] for data in result_data] followers =
[data[-1] for data in result_data]
print(followers)

# Plot the line graph
plt.plot(artists, followers, marker='o', color='blue', linestyle='-', linewidth=2)
plt.xlabel('Artists')
plt.ylabel('Followers')
plt.title('Top Artists by Followers')
plt.xticks(rotation=45, ha='right')  # Rotate artist names for better visibility
plt.tight_layout()  # Adjust layout to prevent clipping of axis labels
plt.show()
```

```
[362, 361, 360, 356, 334, 332, 332, 328, 327, 317]
```



In [76]:

```
cursor.execute("""SELECT SongID, COUNT(*) as count
FROM LikesTable
GROUP BY SongID
ORDER BY count DESC
LIMIT 5;""")
```

In [77]:

```
rows = cursor.fetchall()

for row in rows:
    print(row)
```

```
(238, 3)
(87, 2)
(56, 2)
(96, 2)
(45, 2)
```

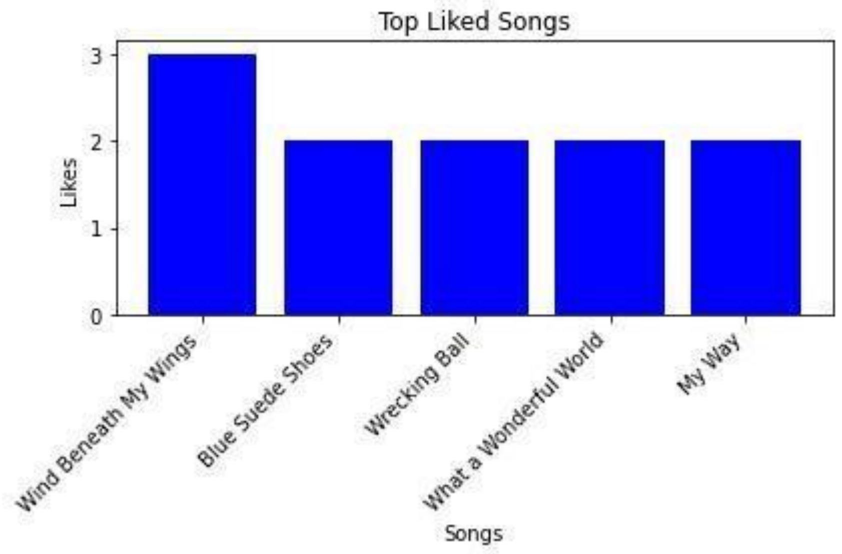
In [153]:

```
cursor.execute("""
    SELECT
        Result.SongID,
        Result.count,
        Result.Title,
        ArtistTable.Artist_ID,
        ArtistTable.Followers
    FROM
        (SELECT
            LikesTable.SongID,
            COUNT(*) as count,
            SongsTable.Title,
            SongsTable.Artist_ID
        FROM
            LikesTable
        INNER JOIN SongsTable ON LikesTable.SongID = SongsTable.ID
        GROUP BY
            LikesTable.SongID
        ORDER BY
            count DESC
        LIMIT 5) AS Result
    INNER JOIN
        ArtistTable ON Result.Artist_ID = ArtistTable.Artist_ID;
""")

rows = cursor.fetchall()

# Display the result in a tabular form
print("{:<10} {:<10} {:<20} {:<10} {:<10}".format(
    "SongID", "Count", "Title", "Artist_ID", "Followers"
))
print("="*70)  # Separator line

for row in rows:
    print("{:<10} {:<10} {:<20} {:<10} {:<10}".format(*row))
```

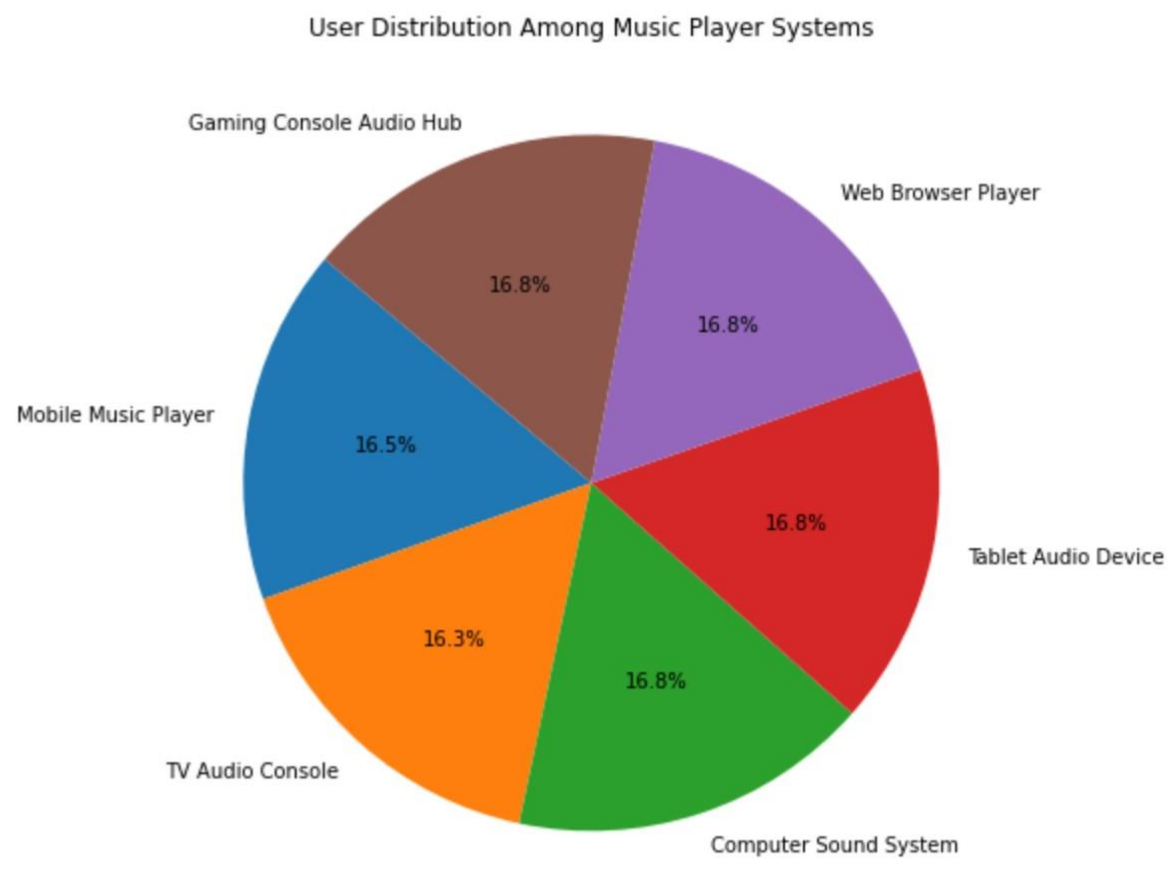
```
SongID     Count      Title                Artist_ID Followers
======================================================================
238        3          Wind Beneath My Wings 38         272
87         2          Blue Suede Shoes     26         328
56         2          Wrecking Ball        8          283
96         2          What a Wonderful World 15         141
45         2          My Way               37         102
```

In [154]:

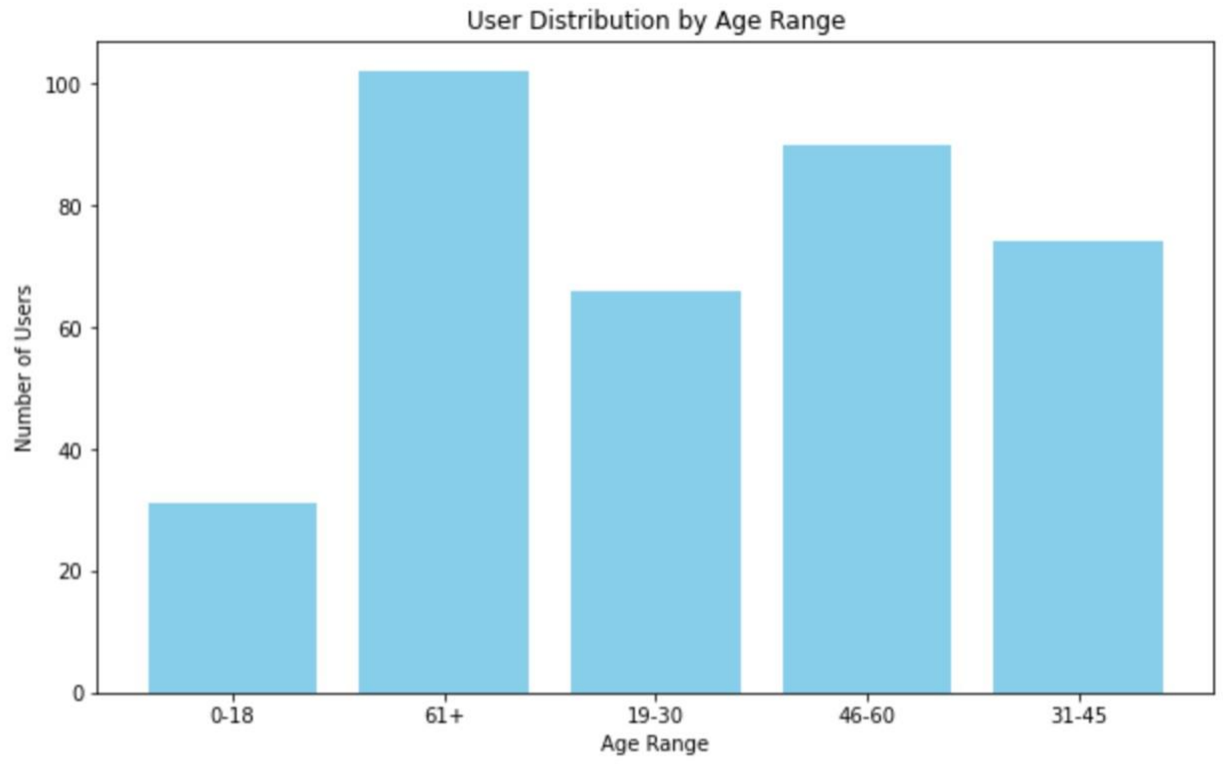
```
result_data = rows
# Extract song names and number of likes
Songs = [data[2] for data in result_data]
likes = [data[1] for data in result_data]


# Plot the bar graph
plt.bar(Songs, likes, color='blue', linewidth=2)
plt.xlabel('Songs')
plt.ylabel('Likes')
plt.title('Top Liked Songs')
plt.xticks(rotation=45, ha='right')  # Rotate artist names for better visibility
plt.tight_layout()  # Adjust layout to prevent clipping of axis labels
plt.show()
```



```
In [113]: query = """
SELECT MusicPlayerSystem.ProductName, COUNT(userID) AS user_count
FROM UserPlayer
JOIN MusicPlayerSystem ON UserPlayer.MPSID = MusicPlayerSystem.ID
GROUP BY MusicPlayerSystem.ID;
"""
cursor.execute(query)

# Fetching data
system_usage_data = cursor.fetchall()

# Closing the database connection
connection.close()

# Unpacking data
system_names = [item[0] for item in system_usage_data]
user_counts = [item[1] for item in system_usage_data]

# Plotting the pie chart
plt.figure(figsize=(8, 8))
plt.pie(user_counts, labels=system_names, autopct='%1.1f%%', startangle=140)
plt.title('User Distribution Among Music Player Systems')

# Display the plot
plt.show()
```



```
In [119]: query = """
SELECT
    CASE
        WHEN age BETWEEN 0 AND 18 THEN '0-18'
        WHEN age BETWEEN 19 AND 30 THEN '19-30'
        WHEN age BETWEEN 31 AND 45 THEN '31-45'
        WHEN age BETWEEN 46 AND 60 THEN '46-60'
        ELSE '61+'
    END AS age_range,
    COUNT(*) AS user_count
FROM UserTable
INNER JOIN PersonTable ON UserTable.PID = PersonTable.PID
GROUP BY age_range;
"""
cursor.execute(query)

# Fetching the data
age_data = cursor.fetchall()

# Closing the database connection
connection.close()

# Unpacking the data
age_ranges = [item[0] for item in age_data]
user_counts = [item[1] for item in age_data]

# Plotting the bar graph plt.figure(figsize=(10,
6)) plt.bar(age_ranges, user_counts,
color='skyblue')

# Adding titles and labels
plt.title('User Distribution by Age Range')
plt.xlabel('Age Range')
plt.ylabel('Number of Users')

# Show the plot
plt.show()
```


User Distribution by Age Range
Number of Users
Age Range