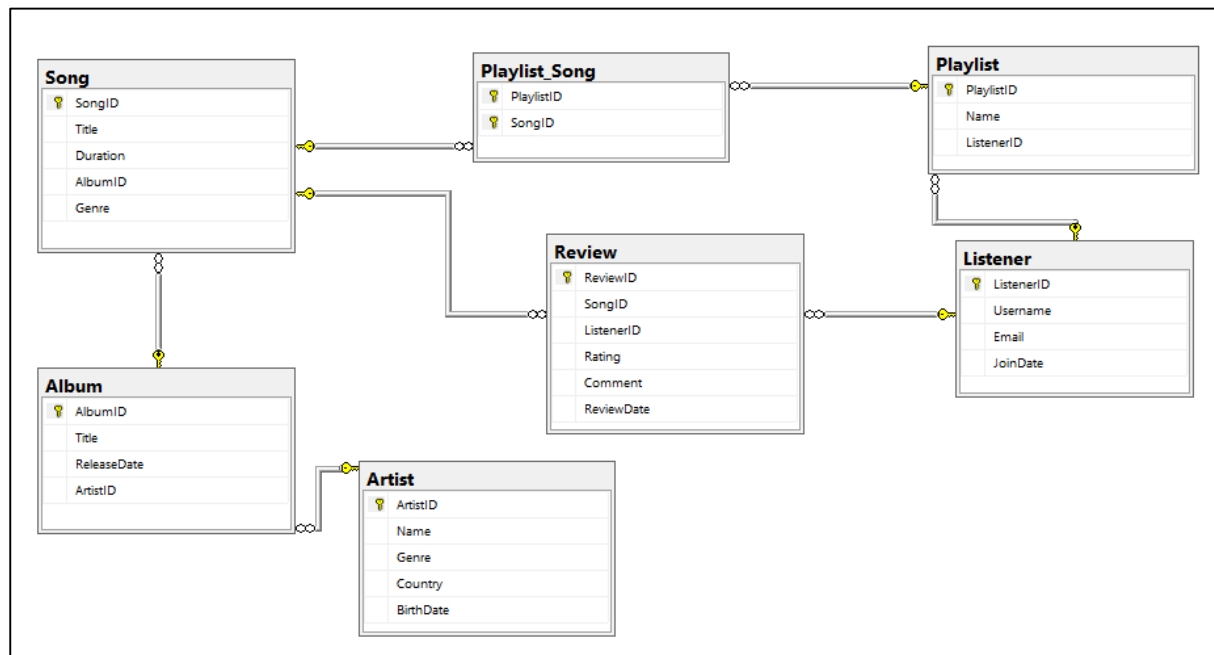# Title

"Music Analysis System: Insights into Artists, Albums, and Listener Interactions"

Objective

The objective of this project is to develop a comprehensive SQL-based music analysis system that enables users to gain insights into various aspects of the music industry. By utilizing a relational database, the project aims to:

- Analyze Artist Profiles
- Explore Albums and Songs
- Understand Listener Behavior
- Perform Aggregated Analysis
- Enhance User Experience

Database Diagram:

Creating Tables

```sql
CREATE TABLE Artist (
    ArtistID INT PRIMARY KEY,
    Name VARCHAR(255) NOT NULL,
    Genre VARCHAR(100),
    Country VARCHAR(100),
    BirthDate DATE);

CREATE TABLE Album (
    AlbumID INT PRIMARY KEY,
    Title VARCHAR(255) NOT NULL,
    ReleaseDate DATE,
    ArtistID INT,
    FOREIGN KEY (ArtistID) REFERENCES Artist(ArtistID));

CREATE TABLE Song (
    SongID INT PRIMARY KEY,
    Title VARCHAR(255) NOT NULL,
    Duration TIME,
    AlbumID INT,
    Genre VARCHAR(100),
    FOREIGN KEY (AlbumID) REFERENCES Album(AlbumID));

CREATE TABLE Listener (
    ListenerID INT PRIMARY KEY,
    Username VARCHAR(100) NOT NULL UNIQUE,
    Email VARCHAR(255) NOT NULL UNIQUE,
    JoinDate DATE);


CREATE TABLE Playlist (
    PlaylistID INT PRIMARY KEY,
    Name VARCHAR(255) NOT NULL,
    ListenerID INT,
    FOREIGN KEY (ListenerID) REFERENCES Listener(ListenerID));

CREATE TABLE Playlist_Song (
    PlaylistID INT,
    SongID INT,
    PRIMARY KEY (PlaylistID, SongID),
    FOREIGN KEY (PlaylistID) REFERENCES Playlist(PlaylistID),
    FOREIGN KEY (SongID) REFERENCES Song(SongID));

CREATE TABLE Review (
    ReviewID INT PRIMARY KEY,
    SongID INT,
    ListenerID INT,
    Rating INT CHECK (Rating BETWEEN 1 AND 5),
    Comment TEXT,
    ReviewDate DATE,
    FOREIGN KEY (SongID) REFERENCES Song(SongID),
    FOREIGN KEY (ListenerID) REFERENCES Listener(ListenerID));
```

Inserting records into these tables

```sql
INSERT INTO Artist (ArtistID, Name, Genre, Country, BirthDate) VALUES
(1, 'The Beatles', 'Rock', 'UK', '1960-01-01'),
(2, 'Taylor Swift', 'Pop', 'USA', '1989-12-13'),
(3, 'Beyoncé', 'R&B', 'USA', '1981-09-04'),
(4, 'Adele', 'Pop', 'UK', '1988-05-05'),
(5, 'Drake', 'Hip-Hop', 'Canada', '1986-10-24'),
(6, 'Ed Sheeran', 'Pop', 'UK', '1991-02-17'),
(7, 'Kendrick Lamar', 'Hip-Hop', 'USA', '1987-06-17'),
(8, 'Billie Eilish', 'Pop', 'USA', '2001-12-18'),
(9, 'Bruno Mars', 'Pop', 'USA', '1985-10-08'),
(10, 'Coldplay', 'Rock', 'UK', '1996-01-01'),
(11, 'Rihanna', 'Pop', 'Barbados', '1988-02-20'),
(12, 'Eminem', 'Hip-Hop', 'USA', '1972-10-17'),
(13, 'Lady Gaga', 'Pop', 'USA', '1986-03-28'),
(14, 'The Weeknd', 'R&B', 'Canada', '1990-02-16'),
(15, 'Maroon 5', 'Pop', 'USA', '2001-01-01'),
(16, 'Imagine Dragons', 'Rock', 'USA', '2008-01-01'),
(17, 'Justin Bieber', 'Pop', 'Canada', '1994-03-01'),
(18, 'Post Malone', 'Hip-Hop', 'USA', '1995-07-04'),
(19, 'Nicki Minaj', 'Hip-Hop', 'Trinidad and Tobago', '1982-12-08'),
(20, 'Dua Lipa', 'Pop', 'UK', '1995-08-22'),
(21, 'Katy Perry', 'Pop', 'USA', '1984-10-25'),
(22, 'Sia', 'Pop', 'Australia', '1975-12-18'),
(23, 'Lil Nas X', 'Hip-Hop', 'USA', '1999-04-09'),
(24, 'Harry Styles', 'Pop', 'UK', '1994-02-01'),
(25, 'Sam Smith', 'Pop', 'UK', '1992-05-19'),
(26, 'P!nk', 'Pop', 'USA', '1979-09-08'),
(27, 'Shawn Mendes', 'Pop', 'Canada', '1998-08-08'),
(28, 'Tones and I', 'Pop', 'Australia', '2002-11-15'),
(29, 'Halsey', 'Pop', 'USA', '1994-09-29'),
(30, 'Marshmello', 'EDM', 'USA', '1992-05-19'),
(31, 'Calvin Harris', 'EDM', 'UK', '1984-01-17'),
(32, 'David Guetta', 'EDM', 'France', '1967-11-07'),
(33, 'Zedd', 'EDM', 'Germany', '1989-09-02'),
(34, 'Kygo', 'EDM', 'Norway', '1991-09-11'),
(35, 'G-Eazy', 'Hip-Hop', 'USA', '1989-05-24'),
(36, 'Megan Thee Stallion', 'Hip-Hop', 'USA', '1995-02-15'),
(37, '21 Savage', 'Hip-Hop', 'USA', '1992-10-22'),
(38, 'Travis Scott', 'Hip-Hop', 'USA', '1991-04-30'),
(39, 'J Cole', 'Hip-Hop', 'USA', '1985-01-28'),
(40, 'Future', 'Hip-Hop', 'USA', '1983-11-20'),
(41, 'Lil Wayne', 'Hip-Hop', 'USA', '1982-09-27'),
(42, 'Nikki Sixx', 'Rock', 'USA', '1958-12-11'),
(43, 'Jim Morrison', 'Rock', 'USA', '1943-12-08'),
(44, 'Jimi Hendrix', 'Rock', 'USA', '1942-11-27'),
(45, 'Freddie Mercury', 'Rock', 'UK', '1946-09-05'),
(46, 'Michael Jackson', 'Pop', 'USA', '1958-08-29'),
(47, 'Whitney Houston', 'Pop', 'USA', '1963-08-09'),
(48, 'Tina Turner', 'Rock', 'USA', '1939-11-26'),
(49, 'Elton John', 'Rock', 'UK', '1947-03-25'),
(50, 'Cher', 'Pop', 'USA', '1946-05-20'),
(51, 'Celine Dion', 'Pop', 'Canada', '1968-03-30'),
(52, 'Mariah Carey', 'Pop', 'USA', '1969-03-27'),
(53, 'Bob Marley', 'Reggae', 'Jamaica', '1945-02-06'),
(54, 'Alicia Keys', 'R&B', 'USA', '1981-01-25'),
(55, 'Norah Jones', 'Jazz', 'USA', '1979-03-30'),
(56, 'Bill Withers', 'R&B', 'USA', '1938-07-04'),
(57, 'Diana Ross', 'Pop', 'USA', '1944-03-26'),
(58, 'Stevie Wonder', 'R&B', 'USA', '1950-05-13'),
(59, 'Annie Lennox', 'Pop', 'UK', '1954-12-25'),
```

```sql
(60, 'Carly Rae Jepsen', 'Pop', 'Canada', '1985-11-21'),
(61, 'Lana Del Rey', 'Pop', 'USA', '1985-06-21'),
(62, 'Avicii', 'EDM', 'Sweden', '1989-09-08'),
(63, 'Chic', 'Disco', 'USA', '1976-01-01'),
(64, 'Daft Punk', 'EDM', 'France', '1993-01-01'),
(65, 'Björk', 'Pop', 'Iceland', '1965-11-21'),
(66, 'The Cure', 'Rock', 'UK', '1976-01-01'),
(67, 'Gorillaz', 'Alternative', 'UK', '1998-01-01'),
(68, 'Rage Against the Machine', 'Rock', 'USA', '1991-01-01'),
(69, 'Arctic Monkeys', 'Rock', 'UK', '2002-01-01'),
(70, 'Muse', 'Rock', 'UK', '1994-01-01'),
(71, 'Fall Out Boy', 'Rock', 'USA', '2001-01-01'),
(72, 'Linkin Park', 'Rock', 'USA', '1996-01-01'),
(73, 'Paramore', 'Rock', 'USA', '2004-01-01'),
(74, 'Panic! At The Disco', 'Pop', 'USA', '2004-01-01'),
(75, 'Foo Fighters', 'Rock', 'USA', '1994-01-01'),
(76, 'The Killers', 'Rock', 'USA', '2001-01-01'),
(77, 'Kings of Leon', 'Rock', 'USA', '2000-01-01'),
(78, 'Weezer', 'Rock', 'USA', '1992-01-01'),
(79, 'The Black Keys', 'Rock', 'USA', '2001-01-01'),
(80, 'The Lumineers', 'Folk', 'USA', '2005-01-01'),
(81, 'Mumford & Sons', 'Folk', 'UK', '2007-01-01'),
(82, 'Vance Joy', 'Folk', 'Australia', '2013-01-01'),
(83, 'Of Monsters and Men', 'Folk', 'Iceland', '2010-01-01'),
(84, 'Hozier', 'Folk', 'Ireland', '2013-01-01'),
(85, 'Lorde', 'Pop', 'New Zealand', '1996-11-07'),
(86, 'Sheryl Crow', 'Rock', 'USA', '1962-02-11'),
(87, 'John Mayer', 'Rock', 'USA', '1977-10-16')

INSERT INTO Album (AlbumID, Title, ReleaseDate, ArtistID) VALUES
(1, 'Please Please Me', '1963-03-22', 1),
(2, 'Abbey Road', '1969-09-26', 1),
(3, 'Fearless', '2008-11-11', 2),
(4, '1989', '2014-10-27', 2),
(5, 'Lemonade', '2016-04-23', 3),
(6, '21', '2011-02-24', 4),
(7, 'Views', '2016-04-29', 5),
(8, 'Divide', '2017-03-03', 6),
(9, 'DAMN.', '2017-04-14', 7),
(10, 'When We All Fall Asleep, Where Do We Go?', '2019-03-29', 8),
(11, '24K Magic', '2016-11-18', 9),
(12, 'A Head Full of Dreams', '2015-12-04', 10),
(13, 'Anti', '2016-01-27', 11),
(14, 'The Marshall Mathers LP', '2000-05-23', 12),
(15, 'Born This Way', '2011-05-23', 13),
(16, 'Starboy', '2016-11-25', 14),
(17, 'Songs About Jane', '2002-06-25', 15),
(18, 'Smoke + Mirrors', '2015-02-17', 16),
(19, 'Purpose', '2015-11-13', 17),
(20, 'Beerbongs & Bentleys', '2018-04-27', 18),
(21, 'Queen', '2018-08-17', 19),
(22, 'Future Nostalgia', '2020-03-27', 20),
(23, 'Smile', '2020-08-28', 21),
(24, 'This Is Acting', '2016-01-29', 22),
(25, '7', '2020-07-10', 23),
(26, 'Fine Line', '2019-12-13', 24),
(27, 'Invasion of Privacy', '2018-04-06', 25),
(28, 'El Dorado', '2017-01-27', 26),
(29, 'Prism', '2013-10-22', 27),
(30, 'This Is Us', '2010-11-29', 28),
(31, 'The 20/20 Experience', '2013-03-15', 29),
(32, 'The Sound of Silence', '2015-04-24', 30),
```

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(33, 'Man of the Woods', '2018-02-02', 31),
(34, 'The Life of Pablo', '2016-02-14', 32),
(35, 'Born to Die', '2012-01-27', 33),
(36, 'Blonde', '2016-08-20', 34),
(37, 'Hot Fuss', '2004-06-07', 35),
(38, 'The Killers', '2006-10-01', 36),
(39, 'American Idiot', '2004-09-21', 37),
(40, 'Wasting Light', '2011-04-12', 38),
(41, 'The Black Album', '1991-10-30', 39),
(42, 'The Colour and the Shape', '1997-05-20', 40),
(43, 'The Joshua Tree', '1987-03-09', 41),
(44, 'Rumours', '1977-02-04', 42),
(45, 'Back in Black', '1980-07-25', 43),
(46, 'Dark Side of the Moon', '1973-03-01', 44),
(47, 'Abbey Road', '1969-09-26', 1),
(48, 'Rumours', '1977-02-04', 42),
(49, 'Hotel California', '1976-12-08', 45),
(50, 'Appetite for Destruction', '1987-07-21', 46),
(51, 'The Wall', '1979-11-30', 47),
(52, 'Born to Run', '1975-08-25', 48),
(53, 'A Night at the Opera', '1975-11-21', 49)


INSERT INTO Song (SongID, Title, Duration, AlbumID, Genre) VALUES
(1, 'I Want to Hold Your Hand', '00:02:55', 1, 'Rock'),
(2, 'Hey Jude', '00:07:11', 2, 'Rock'),
(3, 'Love Story', '00:03:55', 3, 'Pop'),
(4, 'Rolling in the Deep', '00:03:48', 4, 'Pop'),
(5, 'Gods Plan', '00:03:18', 5, 'Hip-Hop'),
(6, 'Shape of You', '00:03:53', 6, 'Pop'),
(7, 'HUMBLE.', '00:02:57', 7, 'Hip-Hop'),
(8, 'Bad Guy', '00:03:14', 8, 'Pop'),
(9, '24K Magic', '00:03:46', 9, 'R&B'),
(10, 'Adventure of a Lifetime', '00:04:16', 10, 'Rock'),
(11, 'Umbrella', '00:04:36', 11, 'Pop'),
(12, 'Lose Yourself', '00:05:26', 12, 'Hip-Hop'),
(13, 'Born This Way', '00:04:20', 13, 'Pop'),
(14, 'Starboy', '00:03:50', 14, 'R&B'),
(15, 'This Love', '00:03:38', 15, 'Pop'),
(16, 'Demons', '00:02:57', 16, 'Rock'),
(17, 'Treat You Better', '00:03:09', 17, 'Pop'),
(18, 'Circles', '00:03:35', 18, 'Hip-Hop'),
(19, 'Super Bass', '00:03:20', 19, 'Hip-Hop'),
(20, 'Levitating', '00:03:23', 20, 'Pop'),
(21, 'Firework', '00:03:47', 21, 'Pop'),
(22, 'Elastic Heart', '00:04:05', 22, 'Pop'),
(23, 'Panini', '00:02:57', 23, 'Hip-Hop'),
(24, 'Watermelon Sugar', '00:03:07', 24, 'Pop'),
(25, 'Stay', '00:03:38', 25, 'Pop'),
(26, 'Electric Feel', '00:03:49', 26, 'Alternative'),
(27, 'Blinding Lights', '00:03:20', 27, 'Pop'),
(28, 'Stay With Me', '00:02:52', 28, 'Pop'),
(29, 'Wake Me Up', '00:04:07', 29, 'EDM'),
(30, 'Titanium', '00:04:05', 30, 'EDM'),
(31, 'Summer', '00:03:30', 31, 'EDM'),
(32, 'Faded', '00:03:32', 32, 'EDM'),
(33, 'Let Me Love You', '00:03:25', 33, 'EDM'),
(34, 'Closer', '00:04:05', 34, 'EDM'),
(35, 'Wake Up America', '00:03:44', 35, 'Pop'),
(36, 'Counting Stars', '00:04:17', 36, 'Pop'),
(37, 'Bad Romance', '00:04:54', 37, 'Pop'),
(38, 'Take Me to Church', '00:04:01', 38, 'Soul'),
```

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(39, 'Cheap Thrills', '00:03:31', 39, 'Pop'),
(40, 'Aint It Fun', '00:04:00', 40, 'Rock'),
(41, 'Feel Good Inc.', '00:03:41', 41, 'Alternative'),
(42, 'Somebody That I Used to Know', '00:04:05', 42, 'Pop'),
(43, 'Uptown Funk', '00:04:30', 43, 'Funk'),
(44, 'Shake It Off', '00:03:39', 44, 'Pop'),
(45, 'Rolling in the Deep', '00:03:48', 45, 'Pop'),
(46, 'Radioactive', '00:03:06', 46, 'Rock'),
(47, 'Stressed Out', '00:03:22', 47, 'Alternative'),
(48, 'Chasing Cars', '00:04:27', 48, 'Rock'),
(49, 'The A Team', '00:04:20', 49, 'Pop'),
(50, 'Viva La Vida', '00:04:02', 50, 'Rock'),
(51, 'Boulevard of Broken Dreams', '00:04:21', 51, 'Rock'),
(52, 'Take a Bow', '00:03:30', 52, 'Pop'),
(53, 'Nothing Breaks Like a Heart', '00:03:23', 53, 'Pop'),
(54, 'Shallow', '00:03:36', 48, 'Pop'),
(55, 'Back to Black', '00:04:00', 52, 'Soul'),
(56, 'Rolling in the Deep', '00:03:48', 33, 'Soul'),
(57, 'The Night We Met', '00:03:28', 17, 'Alternative'),
(58, 'Good Riddance (Time of Your Life)', '00:02:35', 45, 'Rock'),
(59, 'Somebody to Love', '00:04:55', 50, 'Rock')

INSERT INTO Playlist (PlaylistID, Name, ListenerID) VALUES
(1, 'Chill Vibes', 10),
(2, 'Workout Hits', 11),
(3, 'Classic Rock Anthems', 12),
(4, 'Top 40 Pop', 10),
(5, 'Hip-Hop Favorites', 13),
(6, 'Jazz Essentials', 11),
(7, 'Indie Discoveries', 14),
(8, 'Party Playlist', 10),
(9, 'Feel Good Tunes', 15),
(10, 'Country Classics', 12),
(11, 'R&B Grooves', 13),
(12, 'Throwback Jams', 10),
(13, 'Romantic Ballads', 11),
(14, 'Summer Hits', 12),
(15, 'Guitar Solos', 13),
(16, 'Piano Favorites', 14),
(17, 'Essential Albums', 10),
(18, 'Acoustic Covers', 11),
(19, 'Chill Beats', 15),
(20, 'Epic Soundtracks', 12),
(21, 'Mellow Moods', 10),
(22, 'Dance Party', 13),
(23, 'Gospel Hits', 11),
(24, 'Ska and Reggae', 12),
(25, 'Electronic Essentials', 14),
(26, 'Metal Mayhem', 10),
(27, 'Best of the 80s', 13),
(28, 'Smooth Jazz', 11),
(29, 'Alternative Rock', 12),
(30, 'Hits from the 90s', 10),
(31, 'Chillout Lounge', 13),
(32, 'Classic Soul', 14),
(33, 'Festival Anthems', 10),
(34, 'New Age Relaxation', 12),
(35, 'Pop Punk Party', 11),
(36, 'Indie Folk', 10),
(37, 'Rock Ballads', 13),
(38, 'Live Concerts', 11),
(39, 'Deep House', 12),
```

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(40, 'Soundscapes', 10),
(41, 'The Greatest Hits', 13),
(42, 'Instrumental Chill', 11),
(43, 'Broadway Classics', 10),
(44, 'Family Favorites', 12),
(45, 'Songwriter Spotlight', 13),
(46, 'Road Trip Tunes', 11),
(47, 'Golden Oldies', 10),
(48, 'Seasonal Favorites', 14),
(49, 'Motown Magic', 12),
(50, 'Future Classics', 11),
(51, 'Coffeehouse Vibes', 10),
(52, 'Cinematic Scores', 13),
(53, 'Late Night Jazz', 11),
(54, 'Indie Pop', 10),
(55, 'Bangers and Mash', 12),
(56, 'New Music Friday', 11),
(57, 'Acoustic Chill', 10),
(58, 'Best of British', 13),
(59, 'Vocal Harmony', 11),
(60, 'Sing-Along Classics', 10),
(61, 'Epic Rock Anthems', 12),
(62, 'Emotional Soundtracks', 11),
(63, 'Epic Fails', 10),
(64, 'Riff Masters', 13),
(65, 'Under the Radar', 11),
(66, 'Jazz Fusion', 10),
(67, 'Girls Who Rock', 12),
(68, 'All About Love', 11),
(69, 'Music for the Mind', 10),
(70, 'Happy Songs', 13),
(71, 'Melodic Rock', 11),
(72, 'Late Night Listening', 10),
(73, 'Global Beats', 12),
(74, 'Acoustic Rock', 11),
(75, 'Classic Hip-Hop', 10),
(76, 'Modern Classics', 12),
(77, 'Retro Dance', 11),
(78, 'Songs for the Soul', 10),
(79, 'Melody in Motion', 13),
(80, 'Vibes for Days', 11),
(81, 'Inspiring Music', 10),
(82, 'Night Drive', 12),
(83, 'World Music', 11),
(84, 'Mellow Pop', 10),
(85, 'Songs to Relax', 12),
(86, 'Women of Music', 11),
(87, 'Wild Card', 10),
(88, 'Music from Movies', 12),
(89, 'Instrumental Rock', 11),
(90, 'Folk Favorites', 10),
(91, 'Music for Work', 12),
(92, 'Retro Pop', 11),
(93, 'Acoustic Pop', 10),
(94, 'Smooth Grooves', 12),
(95, 'Festival Vibes', 11),
(96, 'Songs for Spring', 10),
(97, 'Songs for Summer', 12),
(98, 'Songs for Autumn', 11),
(99, 'Songs for Winter', 10),
(100, 'Golden Classics', 12);
```

```sql
INSERT INTO Playlist_Song (PlaylistID, SongID) VALUES
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    (34, 11),
    (34, 12),
    (34, 1),
    (34, 2);


INSERT INTO Review (ReviewID, SongID, ListenerID, Rating, Comment, ReviewDate) VALUES
    (1, 1, 1, 5, 'Loved this song!', '2023-01-01'),
    (2, 2, 2, 4, 'Great rhythm.', '2023-01-02'),
    (3, 3, 3, 3, 'It was okay.', '2023-01-03'),
    (4, 4, 1, 5, 'Amazing track!', '2023-01-04'),
    (5, 5, 2, 2, 'Not my favorite.', '2023-01-05'),
    (6, 6, 3, 4, 'Really enjoyed this.', '2023-01-06'),
    (7, 7, 4, 1, 'Did not like it.', '2023-01-07'),
    (8, 8, 5, 5, 'One of the best!', '2023-01-08'),
    (9, 9, 1, 3, 'It's decent.', '2023-01-09'),
    (10, 10, 2, 4, 'Very catchy.', '2023-01-10'),
    (11, 11, 3, 5, 'Incredible sound!', '2023-01-11'),
    (12, 12, 1, 2, 'Too repetitive.', '2023-01-12'),
    (13, 13, 4, 3, 'Good but not great.', '2023-01-13'),
    (14, 14, 5, 5, 'This is my jam!', '2023-01-14'),
    (15, 15, 1, 4, 'Solid performance.', '2023-01-15'),
    (16, 16, 2, 3, 'Nice vibes.', '2023-01-16'),
    (17, 17, 3, 5, 'Will listen again.', '2023-01-17'),
    (18, 18, 4, 2, 'Not my style.', '2023-01-18'),
    (19, 19, 5, 1, 'Didn't enjoy it.', '2023-01-19'),
    (20, 20, 1, 5, 'A masterpiece!', '2023-01-20'),
    (21, 21, 2, 4, 'Good beat.', '2023-01-21'),
    (22, 22, 3, 3, 'Average track.', '2023-01-22'),
    (23, 23, 4, 5, 'So uplifting!', '2023-01-23'),
    (24, 24, 5, 2, 'Too slow for me.', '2023-01-24'),
    (25, 25, 1, 4, 'Enjoyable!', '2023-01-25'),
    (26, 26, 2, 5, 'Fantastic energy!', '2023-01-26'),
    (27, 27, 3, 1, 'Not impressed.', '2023-01-27'),
    (28, 28, 4, 4, 'Really nice.', '2023-01-28'),
    (29, 29, 5, 3, 'Okay song.', '2023-01-29'),
    (30, 30, 1, 5, 'Absolutely love it!', '2023-01-30'),
    (31, 31, 2, 4, 'Great for parties.', '2023-01-31'),
    (32, 32, 3, 2, 'Could be better.', '2023-02-01'),
    (33, 33, 4, 5, 'A new favorite!', '2023-02-02'),
    (34, 34, 5, 3, 'Nice melody.', '2023-02-03'),
    (35, 35, 1, 4, 'Very enjoyable.', '2023-02-04'),
    (36, 36, 2, 1, 'Not my cup of tea.', '2023-02-05'),
    (37, 37, 3, 5, 'Incredible!', '2023-02-06'),
    (38, 38, 4, 2, 'Didn't resonate.', '2023-02-07'),
    (39, 39, 5, 3, 'Pretty good.', '2023-02-08'),
    (40, 40, 1, 5, 'So good!', '2023-02-09'),
    (41, 41, 2, 4, 'Fantastic track.', '2023-02-10'),
    (42, 42, 3, 3, 'Okay overall.', '2023-02-11'),
    (43, 43, 4, 5, 'Loved every bit!', '2023-02-12'),
    (44, 44, 5, 2, 'Not my genre.', '2023-02-13'),
    (45, 45, 1, 4, 'Great vibe.', '2023-02-14'),
```

```
(46, 46, 2, 5, 'Top-notch!', '2023-02-15'),
(47, 47, 3, 1, 'Would not recommend.', '2023-02-16'),
(48, 48, 4, 4, 'Really enjoyed this.', '2023-02-17'),
(49, 49, 5, 3, 'Mediocre.', '2023-02-18'),
(50, 50, 1, 5, 'A gem!', '2023-02-19'),
(51, 51, 2, 4, 'Catchy tune.', '2023-02-20'),
(52, 52, 3, 2, 'Forgettable.', '2023-02-21'),
(53, 53, 4, 5, 'Brilliant!', '2023-02-22'),
(54, 54, 5, 3, 'Okay vibe.', '2023-02-23'),
(55, 55, 1, 4, 'Happy to listen to it.', '2023-02-24'),
(56, 56, 2, 1, 'Not for me.', '2023-02-25'),
(57, 57, 3, 5, 'Excellent track!', '2023-02-26'),
(58, 58, 4, 2, 'Not engaging.', '2023-02-27'),
(59, 1, 5, 3, 'Decent song.', '2023-02-28'),
(60, 2, 1, 5, 'Love this!', '2023-03-01'),
(61, 3, 2, 4, 'Very enjoyable.', '2023-03-02'),
(62, 4, 3, 3, 'Not bad.', '2023-03-03'),
(63, 5, 4, 5, 'Fantastic!', '2023-03-04'),
(64, 6, 5, 1, 'Could be better.', '2023-03-05'),
(65, 7, 1, 4, 'Great tune.', '2023-03-06'),
(66, 8, 2, 5, 'A classic!', '2023-03-07'),
(67, 9, 3, 3, 'Very catchy.', '2023-03-08'),
(68, 10, 4, 4, 'Really good.', '2023-03-09'),
(69, 11, 5, 2, 'Not for me.', '2023-03-10'),
(70, 12, 1, 5, 'Always a favorite!', '2023-03-11'),
(71, 13, 2, 4, 'Very nice.', '2023-03-12'),
(72, 14, 3, 3, 'Enjoyable.', '2023-03-13'),
(73, 15, 4, 5, 'Highly recommend!', '2023-03-14'),
(74, 16, 5, 2, 'Okay track.', '2023-03-15'),
(75, 17, 1, 4, 'Pretty good.', '2023-03-16'),
(76, 18, 2, 1, 'Didn't like it.', '2023-03-17'),
(77, 19, 3, 5, 'Fabulous!', '2023-03-18'),
(78, 20, 4, 2, 'Not my style.', '2023-03-19'),
(79, 21, 5, 3, 'Good song.', '2023-03-20'),
(80, 22, 1, 5, 'Amazing!', '2023-03-21')
```

Queries to display all the tables:

```sql
Select * from Album;
select * from Artist;
select * from Listener;
select * from playlist;
select * from Playlist_Song;
select * from Review;
select * from Song;
```

Questions and Queries

1. Select all the albums released after 2000

    ```sql
    Select title from Album
    where ReleaseDate > '2000-01-01';
    ```

	title
1	Fearless
2	1989
3	Lemonade
4	21
5	Views
6	Divide
7	DAMN.
8	When We All Fall Asleep, Where Do We Go?
9	24K Magic
10	A Head Full of Dreams
11	Anti
12	The Marshall Mathers LP
13	Born This Way
14	Starboy
15	Songs About Jane
16	Smoke + Mirrors
17	Purpose
18	Beerbongs & Bentleys
19	Queen
20	Future Nostalgia
21	Smile
22	This Is Acting
23	7
24	Fine Line

	title
15	Songs About Jane
16	Smoke + Mirrors
17	Purpose
18	Beerbongs & Bentleys
19	Queen
20	Future Nostalgia
21	Smile
22	This Is Acting
23	7
24	Fine Line
25	Invasion of Privacy
26	El Dorado
27	Prism
28	This Is Us
29	The 20/20 Experience
30	The Sound of Silence
31	Man of the Woods
32	The Life of Pablo
33	Born to Die
34	Blonde
35	Hot Fuss
36	The Killers
37	American Idiot
38	Wasting Light

2. Select all songs with a duration longer than 5 minutes.

    ```sql
    select title,Duration from Song where Duration>'00:05:00';
    ```

	title	Duration
1	Hey Jude	00:07:11.0000000
2	Lose Yourself	00:05:26.0000000

3. Select all playlists and their associated listeners.

```sql
select p.Name Playlist_name, count(l.Username) Total_Listner from Listener l
inner join Playlist p
on l.ListenerID=p.ListenerID
group by p.Name
order by count(l.Username);
```

	Playlist_name	Total_Listner
1	Acoustic Chill	1
2	Acoustic Covers	1
3	Acoustic Pop	1
4	Acoustic Rock	1
5	All About Love	1
6	Alternative Rock	1
7	Bangers and Mash	1
8	Best of British	1
9	Best of the 80s	1
10	Broadway Classics	1
11	Chill Beats	1
12	Chill Vibes	1
13	Chillout Lounge	1
14	Cinematic Scores	1
15	Classic Hip-Hop	1
16	Classic Rock Ant...	1
17	Classic Soul	1
18	Coffeehouse Vibes	1
19	Country Classics	1
20	Dance Party	1
21	Deep House	1
22	Electronic Essent...	1
23	Emotional Sound...	1
24	Epic Fails	1

	Playlist_name	Total_Listner
24	Epic Fails	1
25	Epic Rock Anthe...	1
26	Epic Soundtracks	1
27	Essential Albums	1
28	Family Favorites	1
29	Feel Good Tunes	1
30	Festival Anthems	1
31	Festival Vibes	1
32	Folk Favorites	1
33	Future Classics	1
34	Girls Who Rock	1
35	Global Beats	1
36	Golden Classics	1
37	Golden Oldies	1
38	Gospel Hits	1
39	Guitar Solos	1
40	Happy Songs	1
41	Hip-Hop Favorites	1
42	Hits from the 90s	1
43	Indie Discoveries	1
44	Indie Folk	1
45	Indie Pop	1
46	Inspiring Music	1
47	Instrumental Chill	1

	Playlist_name	Total_Listner
48	Instrumental Rock	1
49	Jazz Essentials	1
50	Jazz Fusion	1
51	Late Night Jazz	1
52	Late Night Listeni...	1
53	Live Concerts	1
54	Mellow Moods	1
55	Mellow Pop	1
56	Melodic Rock	1
57	Melody in Motion	1
58	Metal Mayhem	1
59	Modern Classics	1
60	Motown Magic	1
61	Music for the Mind	1
62	Music for Work	1
63	Music from Movies	1
64	New Age Relaxa...	1
65	New Music Friday	1
66	Night Drive	1
67	Party Playlist	1
68	Piano Favorites	1
69	Pop Punk Party	1
70	R&B Grooves	1
71	Retro Dance	1

4. Get all songs and their corresponding albums.

```sql
select s.Title as songs, A.Title as Albums from Album A
inner join Song s
on s.AlbumID=A.AlbumID;
```

	songs	Albums
1	I Want to Hold Your Hand	Please Please Me
2	Hey Jude	Abbey Road
3	Love Story	Fearless
4	Rolling in the Deep	1989
5	Gods Plan	Lemonade
6	Shape of You	21
7	HUMBLE.	Views
8	Bad Guy	Divide
9	24K Magic	DAMN.
10	Adventure of a Lifetime	When We All F...
11	Umbrella	24K Magic
12	Lose Yourself	A Head Full of ...
13	Born This Way	Anti
14	Starboy	The Marshall M...
15	This Love	Born This Way
16	Demons	Starboy
17	Treat You Better	Songs About Ja...
18	Circles	Smoke + Mirrors
19	Super Bass	Purpose
20	Levitating	Beerbongs & Be...
21	Firework	Queen
22	Elastic Heart	Future Nostalgia
23	Panini	Smile
24	Watermelon Sugar	This Is Acting

	songs	Albums
24	Watermelon Sugar	This Is Acting
25	Stay	7
26	Electric Feel	Fine Line
27	Blinding Lights	Invasion of Priv...
28	Stay With Me	El Dorado
29	Wake Me Up	Prism
30	Titanium	This Is Us
31	Summer	The 20/20 Exp...
32	Faded	The Sound of Si...
33	Let Me Love You	Man of the Woo...
34	Closer	The Life of Pablo
35	Wake Up America	Born to Die
36	Counting Stars	Blonde
37	Bad Romance	Hot Fuss
38	Take Me to Church	The Killers
39	Cheap Thrills	American Idiot
40	Aint It Fun	Wasting Light
41	Feel Good Inc.	The Black Album
42	Somebody That I Used t...	The Colour and ...
43	Uptown Funk	The Joshua Tree
44	Shake It Off	Rumours
45	Rolling in the Deep	Back in Black
46	Radioactive	Dark Side of the...
47	Stressed Out	Abbey Road

	songs	Albums
36	Counting Stars	Blonde
37	Bad Romance	Hot Fuss
38	Take Me to Church	The Killers
39	Cheap Thrills	American Idiot
40	Aint It Fun	Wasting Light
41	Feel Good Inc.	The Black Album
42	Somebody That I Used t...	The Colour and ...
43	Uptown Funk	The Joshua Tree
44	Shake It Off	Rumours
45	Rolling in the Deep	Back in Black
46	Radioactive	Dark Side of the...
47	Stressed Out	Abbey Road
48	Chasing Cars	Rumours
49	The A Team	Hotel California
50	Viva La Vida	Appetite for Des...
51	Boulevard of Broken Dr...	The Wall
52	Take a Bow	Born to Run
53	Nothing Breaks Like a H...	A Night at the O...
54	Shallow	Rumours
55	Back to Black	Born to Run
56	Rolling in the Deep	Man of the Woo...
57	The Night We Met	Songs About Ja...
58	Good Riddance (Time of...	Back in Black
59	Somebody to Love	Appetite for Des...

5. List all songs with their artists' names.

```sql
select s.title Songs, Ar.Name Artist from Song s
join Album a
on s.AlbumID=a.AlbumID
join Artist Ar
on a.ArtistID=Ar.ArtistID
```

Results | Messages

	Songs	Artist		Songs	Artist
1	I Want to Hold Your Hand	The Beatles	24	Watermelon Sugar	Sia
2	Hey Jude	The Beatles	25	Stay	Lil Nas X
3	Love Story	Taylor Swift	26	Electric Feel	Harry Styles
4	Rolling in the Deep	Taylor Swift	27	Blinding Lights	Sam Smith
5	Gods Plan	Beyoncé	28	Stay With Me	P!nk
6	Shape of You	Adele	29	Wake Me Up	Shawn M...
7	HUMBLE.	Drake	30	Titanium	Tones and I
8	Bad Guy	Ed Sheeran	31	Summer	Halsey
9	24K Magic	Kendrick ...	32	Faded	Marshmello
10	Adventure of a Lifetime	Billie Eilish	33	Let Me Love You	Calvin Har...
11	Umbrella	Bruno Mars	34	Closer	David Gu...
12	Lose Yourself	Coldplay	35	Wake Up America	Zedd
13	Born This Way	Rihanna	36	Counting Stars	Kygo
14	Starboy	Eminem	37	Bad Romance	G-Eazy
15	This Love	Lady Gaga	38	Take Me to Church	Megan Th...
16	Demons	The Wee...	39	Cheap Thrills	21 Savage
17	Treat You Better	Maroon 5	40	Aint It Fun	Travis Scott
18	Circles	Imagine D...	41	Feel Good Inc.	J Cole
19	Super Bass	Justin Bie...	42	Somebody That I Used t...	Future
20	Levitating	Post Malo...	43	Uptown Funk	Lil Wayne
21	Firework	Nicki Minaj	44	Shake It Off	Nikki Sixx
22	Elastic Heart	Dua Lipa	45	Rolling in the Deep	Jim Morrison
23	Panini	Katy Perry	46	Radioactive	Jimi Hendrix
24	Watermelon Sugar	Sia	47	Stressed Out	The Beatles

6. List all listeners and their playlists.

```sql
select l.Username, p.Name playlist from Listener l
Left join Playlist p
on p.ListenerID=l.ListenerID
where p.Name is not null;
```

	Username	playlist		Username	playlist		Username	playlist
1	electroniclover10	Chill Vibes	25	mbaddict14	Electronic Essentials	46	soulfulsinger11	Road Trip Tunes
2	soulfulsinger11	Workout Hits	26	electroniclover10	Metal Mayhem	47	electroniclover10	Golden Oldies
3	countryfan12	Classic Rock Anthems	27	reggaelover13	Best of the 80s	48	mbaddict14	Seasonal Favorites
4	electroniclover10	Top 40 Pop	28	soulfulsinger11	Smooth Jazz	49	countryfan12	Motown Magic
5	reggaelover13	Hip-Hop Favorites	29	countryfan12	Alternative Rock	50	soulfulsinger11	Future Classics
6	soulfulsinger11	Jazz Essentials	30	electroniclover10	Hits from the 90s	51	electroniclover10	Coffeehouse Vibes
7	mbaddict14	Indie Discoveries	31	reggaelover13	Chillout Lounge	52	reggaelover13	Cinematic Scores
8	electroniclover10	Party Playlist	32	mbaddict14	Classic Soul	53	soulfulsinger11	Late Night Jazz
9	latinlover15	Feel Good Tunes	33	electroniclover10	Festival Anthems	54	electroniclover10	Indie Pop
10	countryfan12	Country Classics	34	countryfan12	New Age Relaxation	55	countryfan12	Bangers and Mash
11	reggaelover13	R&B Grooves	35	soulfulsinger11	Pop Punk Party	56	soulfulsinger11	New Music Friday
12	electroniclover10	Throwback Jams	36	electroniclover10	Indie Folk	57	electroniclover10	Acoustic Chill
13	soulfulsinger11	Romantic Ballads	37	reggaelover13	Rock Ballads	58	reggaelover13	Best of British
14	countryfan12	Summer Hits	38	soulfulsinger11	Live Concerts	59	soulfulsinger11	Vocal Harmony
15	reggaelover13	Guitar Solos	39	countryfan12	Deep House	60	electroniclover10	Sing-Along Classics
16	mbaddict14	Piano Favorites	40	electroniclover10	Soundscapes	61	countryfan12	Epic Rock Anthems
17	electroniclover10	Essential Albums	41	reggaelover13	The Greatest Hits	62	soulfulsinger11	Emotional Soundtrac...
18	soulfulsinger11	Acoustic Covers	42	soulfulsinger11	Instrumental Chill	63	electroniclover10	Epic Fails
19	latinlover15	Chill Beats	43	electroniclover10	Broadway Classics	64	reggaelover13	Riff Masters
20	countryfan12	Epic Soundtracks	44	countryfan12	Family Favorites	65	soulfulsinger11	Under the Radar
21	electroniclover10	Mellow Moods	45	reggaelover13	Songwriter Spotlight	66	electroniclover10	Jazz Fusion
22	reggaelover13	Dance Party	46	soulfulsinger11	Road Trip Tunes	67	countryfan12	Girls Who Rock
23	soulfulsinger11	Gospel Hits	47	electroniclover10	Golden Oldies	68	soulfulsinger11	All About Love
24	countryfan12	Ska and Reggae	48	mbaddict14	Seasonal Favorites	69	electroniclover10	Music for the Mind

7. Get a list of songs with their rating and sort them according to ratings

```sql
select s.Title, r.Rating from Song s
inner join Review r
on s.SongID=r.SongID
order by r.Rating desc;
```

	Title	Rating		Title	Rating		Title	Rating
1	I Want to Hold Your Hand	5	25	Elastic Heart	5	57	Rolling in the Deep	3
2	Rolling in the Deep	5	26	HUMBLE.	4	58	24K Magic	3
3	Click to select the whole row		27	Treat You Better	4	59	Starboy	3
4	Umbrella	5	28	Born This Way	4	60	Firework	3
5	Starboy	5	29	Adventure of a Lifetime	4	61	Levitating	2
6	Treat You Better	5	30	Love Story	4	62	Demons	2
7	Levitating	5	31	Rolling in the Deep	4	63	Umbrella	2
8	Panini	5	32	Back to Black	4	64	Good Riddance (Time of...	2
9	Electric Feel	5	33	Boulevard of Broken Dr...	4	65	Take a Bow	2
10	Titanium	5	34	Chasing Cars	4	66	Shake It Off	2
11	Let Me Love You	5	35	Feel Good Inc.	4	67	Faded	2
12	Bad Romance	5	36	Stay	4	68	Take Me to Church	2
13	Aint It Fun	5	37	Wake Up America	4	69	Watermelon Sugar	2
14	Uptown Funk	5	38	Summer	4	70	Circles	2
15	Radioactive	5	39	Stay With Me	4	71	Lose Yourself	2
16	Viva La Vida	5	40	Firework	4	72	Gods Plan	2
17	Nothing Breaks Like a H...	5	41	This Love	4	73	HUMBLE.	1
18	The Night We Met	5	42	Adventure of a Lifetime	4	74	Super Bass	1
19	Hey Jude	5	43	Shape of You	4	75	Blinding Lights	1
20	Gods Plan	5	44	Hey Jude	4	76	Counting Stars	1
21	Bad Guy	5	45	Love Story	3	77	Stressed Out	1
22	Lose Yourself	5	46	24K Magic	3	78	Rolling in the Deep	1
23	This Love	5	47	Born This Way	3	79	Shape of You	1
24	Super Bass	5	48	Demons	3	80	Circles	1

8. List all songs with ratings higher than 4 and belong to a specific genre and order by Genre.

```sql
select title songs, Genre from Song
where SongID in (select SongID from Review where Rating>=4)
order by Genre
```

	songs	Genre
1	Electric Feel	Alternative
2	Feel Good Inc.	Alternative
3	The Night We Met	Alternative
4	Titanium	EDM
5	Summer	EDM
6	Let Me Love You	EDM
7	Uptown Funk	Funk
8	Gods Plan	Hip-Hop
9	HUMBLE.	Hip-Hop
10	Lose Yourself	Hip-Hop
11	Super Bass	Hip-Hop
12	Panini	Hip-Hop
13	Love Story	Pop
14	Rolling in the Deep	Pop
15	Shape of You	Pop
16	Bad Guy	Pop
17	Umbrella	Pop
18	Born This Way	Pop
19	This Love	Pop
20	Treat You Better	Pop

21	Levitating	Pop
22	Firework	Pop
23	Elastic Heart	Pop
24	Stay	Pop
25	Stay With Me	Pop
26	Wake Up America	Pop
27	Bad Romance	Pop
28	Rolling in the Deep	Pop
29	Nothing Breaks ...	Pop
30	Starboy	R&B
31	I Want to Hold Y...	Rock
32	Hey Jude	Rock
33	Adventure of a Li...	Rock
34	Aint It Fun	Rock
35	Radioactive	Rock
36	Chasing Cars	Rock
37	Viva La Vida	Rock
38	Boulevard of Bro...	Rock
39	Back to Black	Soul

9. Count the total number of songs in each genre.

```sql
SELECT Genre, COUNT(*) AS TotalSongs
FROM Song
GROUP BY Genre
order by TotalSongs desc;
```

Results | Messages

	Genre	TotalSongs
1	Pop	26
2	Rock	11
3	EDM	6
4	Hip-Hop	6
5	Alternative	4
6	Soul	3
7	R&B	2
8	Funk	1

10. Get the latest album for each artist.

```sql
select ar.Name Artist, a.title latest_album from Artist ar
left join Album a
on a.ArtistID=ar.ArtistID
where ReleaseDate in (select MAX(ReleaseDate) from Album group by ArtistID)
```

	Artist	latest_album
1	The Beatles	Abbey Road
2	Taylor Swift	1989
3	Beyoncé	Lemonade
4	Adele	21
5	Drake	Views
6	Ed Sheeran	Divide
7	Kendrick Lamar	DAMN.
8	Billie Eilish	When We All Fall Asleep, Where Do We Go?
9	Bruno Mars	24K Magic
10	Coldplay	A Head Full of Dreams
11	Rihanna	Anti
12	Eminem	The Marshall Mathers LP
13	Lady Gaga	Born This Way
14	The Weeknd	Starboy
15	Maroon 5	Songs About Jane
16	Imagine Drag...	Smoke + Mirrors
17	Justin Bieber	Purpose
18	Post Malone	Beerbongs & Bentleys
19	Nicki Minaj	Queen
20	Dua Lipa	Future Nostalgia
21	Katy Perry	Smile
22	Sia	This Is Acting
23	Lil Nas X	7
24	Harry Styles	Fine Line

	Artist	latest_album
28	Tones and I	This Is Us
29	Halsey	The 20/20 Experience
30	Marshmello	The Sound of Silence
31	Calvin Harris	Man of the Woods
32	David Guetta	The Life of Pablo
33	Zedd	Born to Die
34	Kygo	Blonde
35	G-Eazy	Hot Fuss
36	Megan Thee ...	The Killers
37	21 Savage	American Idiot
38	Travis Scott	Wasting Light
39	J Cole	The Black Album
40	Future	The Colour and the Shape
41	Lil Wayne	The Joshua Tree
42	Nikki Sixx	Rumours
43	Jim Morrison	Back in Black
44	Jimi Hendrix	Dark Side of the Moon
45	The Beatles	Abbey Road
46	Nikki Sixx	Rumours
47	Freddie Mercury	Hotel California
48	Michael Jack...	Appetite for Destruction
49	Whitney Hous...	The Wall
50	Tina Turner	Born to Run
51	Elton John	A Night at the Opera

11. List all songs that contain the word "love" in their title.

```sql
SELECT * FROM Song WHERE Title LIKE '%love%';
```

	SongID	Title	Duration	AlbumID	Genre
1	3	Love Story	00:03:55.0000000	3	Pop
2	15	This Love	00:03:38.0000000	15	Pop
3	33	Let Me Love You	00:03:25.0000000	33	EDM
4	59	Somebody to Love	00:04:55.0000000	50	Rock

12. Get the top 3 songs by average rating.

```sql
SELECT top(3) s.Title song, AVG(r.Rating) AS AverageRating
FROM Song s
JOIN Review r ON s.SongID = r.SongID
GROUP BY s.Title
ORDER BY AverageRating DESC;
```

	song	AverageRating
1	Aint It Fun	5
2	Bad Guy	5
3	Bad Romance	5

13. Get all albums released by artists from countries that start with 'U'.

```sql
SELECT a.Title,ar.Country
FROM Album a
JOIN Artist ar ON a.ArtistID = ar.ArtistID
WHERE ar.Country LIKE 'U%'
order by ar.Country;
```

	Title	Country
1	Please Please Me	UK
2	Abbey Road	UK
3	21	UK
4	Divide	UK
5	A Head Full of Dreams	UK
6	Fine Line	UK
7	Invasion of Privacy	UK
8	Man of the Woods	UK
9	Future Nostalgia	UK
10	Abbey Road	UK
11	Hotel California	UK
12	A Night at the Opera	UK
13	Appetite for Destructi...	USA
14	The Wall	USA
15	Born to Run	USA
16	Rumours	USA
17	Smile	USA
18	7	USA
19	Hot Fuss	USA
20	The Killers	USA
21	American Idiot	USA
22	Wasting Light	USA
23	The Black Album	USA
24	The Colour and the ...	USA

	Title	Country
19	Hot Fuss	USA
20	The Killers	USA
21	American Idiot	USA
22	Wasting Light	USA
23	The Black Album	USA
24	The Colour and the ...	USA
25	The Joshua Tree	USA
26	Rumours	USA
27	Back in Black	USA
28	Dark Side of the Moon	USA
29	El Dorado	USA
30	The 20/20 Experience	USA
31	The Sound of Silence	USA
32	The Marshall Mather...	USA
33	Born This Way	USA
34	Songs About Jane	USA
35	Smoke + Mirrors	USA
36	Beerbongs & Bentleys	USA
37	DAMN.	USA
38	When We All Fall Asl...	USA
39	24K Magic	USA
40	Fearless	USA
41	1989	USA
42	Lemonade	USA

14. Find the top 5 highest-rated songs.

```sql
SELECT top(5) s.Title, AVG(r.Rating) AS AverageRating
FROM Song s
JOIN Review r ON s.SongID = r.SongID
GROUP BY s.Title
ORDER BY AverageRating DESC;
```

	Title	AverageRating
1	Aint It Fun	5
2	Bad Romance	5
3	Bad Guy	5
4	Electric Feel	5
5	Let Me Love You	5

15. Find the artist with the most albums.

```sql
select top(1) ar.name Artist, count(a.AlbumID) number_of_albums from Artist ar
left join Album a
on a.ArtistID=ar.ArtistID
group by ar.Name
order by number_of_albums desc;
```

Artist	number_of_albums
The Beatles	3

16. Find all songs with no reviews.

```sql
SELECT s.Title
FROM Song s
LEFT JOIN Review r ON s.SongID = r.SongID
WHERE r.SongID IS NULL;
```

Title
Somebody to Love

17. Get the oldest artist in the database.

```sql
SELECT top(1) * FROM Artist
ORDER BY BirthDate ASC;
```

ArtistID	Name	Genre	Country	BirthDate
56	Bill Withers	R&B	USA	1938-07-04

18. List all songs along with their average rating

```sql
SELECT s.Title, AVG(r.Rating) AS AverageRating
FROM Song s
LEFT JOIN Review r ON s.SongID = r.SongID
GROUP BY s.Title;
```

#	Title	AverageRating
1	24K Magic	3
2	Adventure of a Lifetime	4
3	Aint It Fun	5
4	Back to Black	4
5	Bad Guy	5
6	Bad Romance	5
7	Blinding Lights	1
8	Born This Way	3
9	Boulevard of Broken Dreams	4
10	Chasing Cars	4
11	Cheap Thrills	3
12	Circles	1
13	Closer	3
14	Counting Stars	1
15	Demons	2
16	Elastic Heart	4
17	Electric Feel	5
18	Faded	2
19	Feel Good Inc.	4
20	Firework	3
21	Gods Plan	3
22	Good Riddance (Time of Y...	2
23	Hey Jude	4
24	HUMBLE.	2

#	Title	AverageRating
34	Shake It Off	2
35	Shallow	3
36	Shape of You	2
37	Somebody That I Used to ...	3
38	Somebody to Love	NULL
39	Starboy	4
40	Stay	4
41	Stay With Me	4
42	Stressed Out	1
43	Summer	4
44	Super Bass	3
45	Take a Bow	2
46	Take Me to Church	2
47	The A Team	3
48	The Night We Met	5
49	This Love	4
50	Titanium	5
51	Treat You Better	4
52	Umbrella	3
53	Uptown Funk	5
54	Viva La Vida	5
55	Wake Me Up	3
56	Wake Up America	4
57	Watermelon Sugar	2

19. Count the number of reviews per song and sort by the song title.

```sql
SELECT s.Title, COUNT(r.ReviewID) AS ReviewCount
FROM Song s
LEFT JOIN Review r ON s.SongID = r.SongID
GROUP BY s.Title
ORDER BY s.Title;
```

	Title	ReviewCount			Title	ReviewCount
1	24K Magic	2		34	Shake It Off	1
2	Adventure of a Lifetime	2		35	Shallow	1
3	Aint It Fun	1		36	Shape of You	2
4	Back to Black	1		37	Somebody That I Us...	1
5	Bad Guy	2		38	Somebody to Love	0
6	Bad Romance	1		39	Starboy	2
7	Blinding Lights	1		40	Stay	1
8	Born This Way	2		41	Stay With Me	1
9	Boulevard of Broken ...	1		42	Stressed Out	1
10	Chasing Cars	1		43	Summer	1
11	Cheap Thrills	1		44	Super Bass	2
12	Circles	2		45	Take a Bow	1
13	Closer	1		46	Take Me to Church	1
14	Counting Stars	1		47	The A Team	1
15	Demons	2		48	The Night We Met	1
16	Elastic Heart	2		49	This Love	2
17	Electric Feel	1		50	Titanium	1
18	Faded	1		51	Treat You Better	2
19	Feel Good Inc.	1		52	Umbrella	2
20	Firework	2		53	Uptown Funk	1
21	Gods Plan	2		54	Viva La Vida	1
22	Good Riddance (Tim...	1		55	Wake Me Up	1
23	Hey Jude	2		56	Wake Up America	1
24	HUMBLE.	2		57	Watermelon Sugar	1

20. Get a summary of each artist's total albums and songs where the total is not 0.

```sql
SELECT ar.Name AS ArtistName, COUNT(DISTINCT a.AlbumID) AS TotalAlbums,
COUNT(s.SongID) AS TotalSongs
FROM Artist ar
LEFT JOIN Album a ON ar.ArtistID = a.ArtistID
LEFT JOIN Song s ON a.AlbumID = s.AlbumID
GROUP BY ar.Name
having COUNT(DISTINCT a.AlbumID) !=0 and COUNT(s.SongID)!=0;
```

	ArtistName	TotalAlbums	TotalSongs		ArtistName	TotalAlbums	TotalSongs
1	21 Savage	1	1	26	Kygo	1	1
2	Adele	1	1	27	Lady Gaga	1	1
3	Beyoncé	1	1	28	Lil Nas X	1	1
4	Billie Eilish	1	1	29	Lil Wayne	1	1
5	Bruno Mars	1	1	30	Maroon 5	1	2
6	Calvin Harris	1	2	31	Marshmello	1	1
7	Coldplay	1	1	32	Megan Th...	1	1
8	David Gue...	1	1	33	Michael Ja...	1	2
9	Drake	1	1	34	Nicki Minaj	1	1
10	Dua Lipa	1	1	35	Nikki Sixx	2	3
11	Ed Sheeran	1	1	36	P!nk	1	1
12	Elton John	1	1	37	Post Malone	1	1
13	Eminem	1	1	38	Rihanna	1	1
14	Freddie M...	1	1	39	Sam Smith	1	1
15	Future	1	1	40	Shawn Me...	1	1
16	G-Eazy	1	1	41	Sia	1	1
17	Halsey	1	1	42	Taylor Swift	2	2
18	Harry Styles	1	1	43	The Beatles	3	3
19	Imagine Dr...	1	1	44	The Week...	1	1
20	J Cole	1	1	45	Tina Turner	1	2
21	Jim Morrison	1	2	46	Tones and I	1	1
22	Jimi Hendrix	1	1	47	Travis Scott	1	1
23	Justin Bieber	1	1	48	Whitney H...	1	1
24	Katy Perry	1	1	49	Zedd	1	1

21. Find the song with the longest duration.

```sql
SELECT top(1) Title
FROM Song
ORDER BY Duration DESC ;
```

	Title
1	Hey Jude

22. Find all artists who have no albums.

```sql
SELECT a.Name
FROM Artist a
WHERE a.ArtistID NOT IN (
    SELECT ArtistID FROM Album);
```

	Name
1	Cher
2	Celine Dion
3	Mariah Carey
4	Bob Marley
5	Alicia Keys
6	Norah Jones
7	Bill Withers
8	Diana Ross
9	Stevie Wo...
10	Annie Lenn...
11	Carly Rae J...
12	Lana Del R...
13	Avicii
14	Chic
15	Daft Punk
16	Björk
17	The Cure
18	Gorillaz
19	Rage Agai...

19	Rage Agai...
20	Arctic Mon...
21	Muse
22	Fall Out Boy
23	Linkin Park
24	Paramore
25	Panic! At T...
26	Foo Fighters
27	The Killers
28	Kings of Le...
29	Weezer
30	The Black ...
31	The Lumin...
32	Mumford & ...
33	Vance Joy
34	Of Monster...
35	Hozier
36	Lorde
37	Sheryl Crow
38	John Mayer

23. Calculate the cumulative number of reviews for each song.

```sql
SELECT r.SongID, s.title song,
    COUNT(r.ReviewID) OVER (PARTITION BY r.SongID ORDER BY r.ReviewDate)
AS CumulativeReviews
FROM Review r
join song s
on s.SongID=r.SongID;
```

	SongID	song	CumulativeReviews
1	1	I Want to Hold Your Hand	1
2	1	I Want to Hold Your Hand	2
3	2	Hey Jude	1
4	2	Hey Jude	2
5	3	Love Story	1
6	3	Love Story	2
7	4	Rolling in the Deep	1
8	4	Rolling in the Deep	2
9	5	Gods Plan	1
10	5	Gods Plan	2
11	6	Shape of You	1
12	6	Shape of You	2
13	7	HUMBLE.	1
14	7	HUMBLE.	2
15	8	Bad Guy	1
16	8	Bad Guy	2
17	9	24K Magic	1
18	9	24K Magic	2
19	10	Adventure of a Lifetime	1
20	10	Adventure of a Lifetime	2
21	11	Umbrella	1
22	11	Umbrella	2
23	12	Lose Yourself	1
24	12	Lose Yourself	2

	SongID	song	CumulativeReviews
25	13	Born This Way	1
26	13	Born This Way	2
27	14	Starboy	1
28	14	Starboy	2
29	15	This Love	1
30	15	This Love	2
31	16	Demons	1
32	16	Demons	2
33	17	Treat You Better	1
34	17	Treat You Better	2
35	18	Circles	1
36	18	Circles	2
37	19	Super Bass	1
38	19	Super Bass	2
39	20	Levitating	1
40	20	Levitating	2
41	21	Firework	1
42	21	Firework	2
43	22	Elastic Heart	1
44	22	Elastic Heart	2
45	23	Panini	1
46	24	Watermelon Sugar	1
47	25	Stay	1
48	26	Electric Feel	1

	SongID	song	CumulativeReviews
49	27	Blinding Lights	1
50	28	Stay With Me	1
51	29	Wake Me Up	1
52	30	Titanium	1
53	31	Summer	1
54	32	Faded	1
55	33	Let Me Love You	1
56	34	Closer	1
57	35	Wake Up America	1
58	36	Counting Stars	1
59	37	Bad Romance	1
60	38	Take Me to Church	1
61	39	Cheap Thrills	1
62	40	Aint It Fun	1
63	41	Feel Good Inc.	1
64	42	Somebody That I Used t...	1
65	43	Uptown Funk	1
66	44	Shake It Off	1
67	45	Rolling in the Deep	1
68	46	Radioactive	1
69	47	Stressed Out	1
70	48	Chasing Cars	1
71	49	The A Team	1
72	50	Viva La Vida	1

24. Find the number of songs released each year.

```
SELECT YEAR(ReleaseDate) AS ReleaseYear,
       COUNT(SongID) AS NumberOfSongs
FROM Album a
JOIN Song s ON a.AlbumID = s.AlbumID
GROUP BY YEAR(ReleaseDate);
```

Results / Messages

	ReleaseYear	NumberOfSongs
1	1963	1
2	1969	2
3	1973	1
4	1975	3
5	1976	1
6	1977	3
7	1979	1
8	1980	2
9	1987	3
10	1991	1
11	1997	1
12	2000	1
13	2002	2
14	2004	2
15	2006	1
16	2008	1
17	2010	1
18	2011	3
19	2012	1
20	2013	2
21	2014	1
22	2015	4
23	2016	8
24	2017	3
25	2018	5
26	2019	2
27	2020	3

25. Find the listener who has written the most reviews.

```
SELECT Top(1) l.Username,
       COUNT(r.ReviewID) AS ReviewCount
FROM Listener l
JOIN Review r ON l.ListenerID = r.ListenerID
GROUP BY l.Username
ORDER BY ReviewCount DESC;
```

	Username	ReviewCount
1	musiclover01	18

26. List songs with their release year and average ratings, ordered by release year.

```sql
SELECT s.Title,
       YEAR(a.ReleaseDate) AS ReleaseYear,
       AVG(r.Rating) AS AverageRating
FROM Song s
JOIN Album a ON s.AlbumID = a.AlbumID
LEFT JOIN Review r ON s.SongID = r.SongID
GROUP BY s.Title, a.ReleaseDate
ORDER BY ReleaseYear;
```

	Title	Release Year	Average Rating
1	I Want to Hold Your Hand	1963	4
2	Hey Jude	1969	4
3	Stressed Out	1969	1
4	Radioactive	1973	5
5	Back to Black	1975	4
6	Take a Bow	1975	2
7	Nothing Breaks Like a Heart	1975	5
8	The A Team	1976	3
9	Chasing Cars	1977	4
10	Shake It Off	1977	2
11	Shallow	1977	3
12	Boulevard of Broken Dreams	1979	4
13	Good Riddance (Time of Y...	1980	2
14	Rolling in the Deep	1980	4
15	Uptown Funk	1987	5
16	Somebody to Love	1987	NULL
17	Viva La Vida	1987	5
18	Feel Good Inc.	1991	4
19	Somebody That I Used to ...	1997	3
20	Starboy	2000	4
21	The Night We Met	2002	5
22	Treat You Better	2002	4
23	Bad Romance	2004	5
24	Cheap Thrills	2004	3

	Title	Release Year	Average Rating
24	Cheap Thrills	2004	3
25	Take Me to Church	2006	2
26	Love Story	2008	3
27	Titanium	2010	5
28	Shape of You	2011	2
29	Aint It Fun	2011	5
30	This Love	2011	4
31	Wake Up America	2012	4
32	Summer	2013	4
33	Wake Me Up	2013	3
34	Rolling in the Deep	2014	4
35	Circles	2015	1
36	Faded	2015	2
37	Super Bass	2015	3
38	Lose Yourself	2015	3
39	Born This Way	2016	3
40	Watermelon Sugar	2016	2
41	Closer	2016	3
42	Gods Plan	2016	3
43	HUMBLE.	2016	2
44	Counting Stars	2016	1
45	Umbrella	2016	3
46	Demons	2016	2
47	Stay With Me	2017	4

27. Get the average rating for each genre.

```sql
SELECT s.Genre,
       AVG(r.Rating) AS AverageRating
FROM Song s
JOIN Review r ON s.SongID = r.SongID
GROUP BY s.Genre;
```

Results | Messages

	Genre	Average Rating
1	Alternative	3
2	EDM	3
3	Funk	5
4	Hip-Hop	3
5	Pop	3
6	R&B	3
7	Rock	3
8	Soul	2

28. Determine the rank of each song based on its average rating and number of reviews.

```sql
SELECT s.Title,
       AVG(r.Rating) AS AverageRating,
       COUNT(r.ReviewID) AS ReviewCount,
       DENSE_RANK() OVER (ORDER BY AVG(r.Rating) DESC, COUNT(r.ReviewID) DESC)
AS Rank
FROM Song s
LEFT JOIN Review r ON s.SongID = r.SongID
GROUP BY s.Title;
```

	Title	AverageRating	ReviewCount	Rank
1	Bad Guy	5	2	1
2	Bad Romance	5	1	2
3	Electric Feel	5	1	2
4	Aint It Fun	5	1	2
5	Let Me Love You	5	1	2
6	Nothing Breaks Like a Heart	5	1	2
7	Panini	5	1	2
8	Radioactive	5	1	2
9	The Night We Met	5	1	2
10	Titanium	5	1	2
11	Uptown Funk	5	1	2
12	Viva La Vida	5	1	2
13	Treat You Better	4	2	3
14	This Love	4	2	3
15	Starboy	4	2	3
16	Hey Jude	4	2	3
17	Elastic Heart	4	2	3
18	I Want to Hold Your Hand	4	2	3
19	Adventure of a Lifetime	4	2	3
20	Back to Black	4	1	4
21	Boulevard of Broken Dreams	4	1	4
22	Chasing Cars	4	1	4
23	Feel Good Inc.	4	1	4
24	Stay	4	1	4
25	Stay With Me	4	1	4
26	Summer	4	1	4
27	Wake Up America	4	1	4
28	Rolling in the Deep	3	4	5
29	Levitating	3	2	6
30	Lose Yourself	3	2	6
31	Love Story	3	2	6
32	Firework	3	2	6
33	Gods Plan	3	2	6
34	24K Magic	3	2	6
35	Born This Way	3	2	6
36	Super Bass	3	2	6
37	Umbrella	3	2	6
38	Shallow	3	1	7
39	Somebody That I Used to ...	3	1	7
40	Wake Me Up	3	1	7
41	The A Team	3	1	7
42	Closer	3	1	7
43	Cheap Thrills	3	1	7
44	Demons	2	2	8
45	HUMBLE.	2	2	8
46	Shape of You	2	2	8
47	Take a Bow	2	1	9
48	Take Me to Church	2	1	9

49	Watermelon Sugar	2	1	9
50	Good Riddance (Time of Y...	2	1	9
51	Shake It Off	2	1	9
52	Faded	2	1	9
53	Circles	1	2	10
54	Counting Stars	1	1	11
55	Blinding Lights	1	1	11
56	Stressed Out	1	1	11
57	Somebody to Love	NULL	0	12

29. Count the total number of reviews for each listener and show only those with more than 5 reviews.

```
SELECT l.Username,
       COUNT(r.ReviewID) AS TotalReviews
FROM Listener l
LEFT JOIN Review r ON l.ListenerID = r.ListenerID
GROUP BY l.Username
HAVING COUNT(r.ReviewID) > 5;
```

Results | Messages

	Username	TotalReviews
1	musiclover01	18
2	rockfan02	16
3	popenthusiast03	16
4	hiphophead04	15
5	classicalchord05	15

30. Find the longest song for each album.

```
SELECT a.Title AS AlbumTitle,
       s.Title AS SongTitle,
       MAX(s.Duration) AS LongestDuration
FROM Album a
JOIN Song s ON a.AlbumID = s.AlbumID
GROUP BY a.Title,s.Title;
```

	Album Title	Song Title	Longest Duration
1	DAMN.	24K Magic	00:03:46.0000000
2	When We All Fall Asleep, Where Do We Go?	Adventure of a Lifetime	00:04:16.0000000
3	Wasting Light	Aint It Fun	00:04:00.0000000
4	Born to Run	Back to Black	00:04:00.0000000
5	Divide	Bad Guy	00:03:14.0000000
6	Hot Fuss	Bad Romance	00:04:54.0000000
7	Invasion of Privacy	Blinding Lights	00:03:20.0000000
8	Anti	Born This Way	00:04:20.0000000
9	The Wall	Boulevard of Broken Dreams	00:04:21.0000000
10	Rumours	Chasing Cars	00:04:27.0000000
11	American Idiot	Cheap Thrills	00:03:31.0000000
12	Smoke + Mirrors	Circles	00:03:35.0000000
13	The Life of Pablo	Closer	00:04:05.0000000
14	Blonde	Counting Stars	00:04:17.0000000
15	Starboy	Demons	00:02:57.0000000
16	Future Nostalgia	Elastic Heart	00:04:05.0000000
17	Fine Line	Electric Feel	00:03:49.0000000
18	The Sound of Silence	Faded	00:03:32.0000000
19	The Black Album	Feel Good Inc.	00:03:41.0000000
20	Queen	Firework	00:03:47.0000000
21	Lemonade	Gods Plan	00:03:18.0000000
22	Back in Black	Good Riddance (Time of Y...	00:02:35.0000000
23	Abbey Road	Hey Jude	00:07:11.0000000
24	Views	HUMBLE.	00:02:57.0000000

25	Please Please Me	I Want to Hold Your Hand	00:02:55.0000000
26	Man of the Woods	Let Me Love You	00:03:25.0000000
27	Beerbongs & Bentleys	Levitating	00:03:23.0000000
28	A Head Full of Dreams	Lose Yourself	00:05:26.0000000
29	Fearless	Love Story	00:03:55.0000000
30	A Night at the Opera	Nothing Breaks Like a Heart	00:03:23.0000000
31	Smile	Panini	00:02:57.0000000
32	Dark Side of the Moon	Radioactive	00:03:06.0000000
33	1989	Rolling in the Deep	00:03:48.0000000
34	Back in Black	Rolling in the Deep	00:03:48.0000000
35	Man of the Woods	Rolling in the Deep	00:03:48.0000000
36	Rumours	Shake It Off	00:03:39.0000000
37	Rumours	Shallow	00:03:36.0000000
38	21	Shape of You	00:03:53.0000000
39	The Colour and the Shape	Somebody That I Used to ...	00:04:05.0000000
40	Appetite for Destruction	Somebody to Love	00:04:55.0000000
41	The Marshall Mathers LP	Starboy	00:03:50.0000000
42	7	Stay	00:03:38.0000000
43	El Dorado	Stay With Me	00:02:52.0000000
44	Abbey Road	Stressed Out	00:03:22.0000000
45	The 20/20 Experience	Summer	00:03:30.0000000
46	Purpose	Super Bass	00:03:20.0000000
47	Born to Run	Take a Bow	00:03:30.0000000
48	The Killers	Take Me to Church	00:04:01.0000000
49	Hotel California	The A Team	00:04:20.0000000
50	Songs About Jane	The Night We Met	00:03:28.0000000
51	Born This Way	This Love	00:03:38.0000000
52	This Is Us	Titanium	00:04:05.0000000
53	Songs About Jane	Treat You Better	00:03:09.0000000
54	24K Magic	Umbrella	00:04:36.0000000
55	The Joshua Tree	Uptown Funk	00:04:30.0000000
56	Appetite for Destruction	Viva La Vida	00:04:02.0000000
57	Prism	Wake Me Up	00:04:07.0000000
58	Born to Die	Wake Up America	00:03:44.0000000
59	This Is Acting	Watermelon Sugar	00:03:07.0000000

31. Rating Classification: For songs, categorize ratings into 'Poor', 'Average', 'Good', and 'Excellent'.

```sql
SELECT SongID, AVG(Rating) AS AverageRating,
    CASE
        WHEN AVG(Rating) BETWEEN 1 AND 2 THEN 'Poor'
        WHEN AVG(Rating) = 3 THEN 'Average'
        WHEN AVG(Rating) BETWEEN 4 AND 5 THEN 'Good'
    END AS RatingClassification
FROM Review
GROUP BY SongID;
```

	SongID	AverageRating	RatingClassification
1	1	4	Good
2	2	4	Good
3	3	3	Average
4	4	4	Good
5	5	3	Average
6	6	2	Poor
7	7	2	Poor
8	8	5	Good
9	9	3	Average
10	10	4	Good
11	11	3	Average
12	12	3	Average
13	13	3	Average
14	14	4	Good
15	15	4	Good
16	16	2	Poor
17	17	4	Good
18	18	1	Poor
19	19	3	Average
20	20	3	Average
21	21	3	Average
22	22	4	Good
23	23	5	Good
24	24	2	Poor

	SongID	AverageRating	RatingClassification
35	35	4	Good
36	36	1	Poor
37	37	5	Good
38	38	2	Poor
39	39	3	Average
40	40	5	Good
41	41	4	Good
42	42	3	Average
43	43	5	Good
44	44	2	Poor
45	45	4	Good
46	46	5	Good
47	47	1	Poor
48	48	4	Good
49	49	3	Average
50	50	5	Good
51	51	4	Good
52	52	2	Poor
53	53	5	Good
54	54	3	Average
55	55	4	Good
56	56	1	Poor
57	57	5	Good
58	58	2	Poor

32. Albums Released Before a Certain Year: List albums released before 2000 and classify them as 'Old' or 'New'.

```sql
SELECT Title,
    CASE
        WHEN ReleaseDate < '2000-01-01' THEN 'Old'
        ELSE 'New'
    END AS AgeClassification
FROM Album;
```

	Title	AgeClassification
1	Please Please Me	Old
2	Abbey Road	Old
3	Fearless	New
4	1989	New
5	Lemonade	New
6	21	New
7	Views	New
8	Divide	New
9	DAMN.	New
10	When We All Fa...	New
11	24K Magic	New
12	A Head Full of D...	New
13	Anti	New
14	The Marshall M...	New
15	Born This Way	New
16	Starboy	New
17	Songs About Jane	New
18	Smoke + Mirrors	New
19	Purpose	New
20	Beerbongs & Be...	New
21	Queen	New
22	Future Nostalgia	New
23	Smile	New
24	This Is Acting	New

	Title	AgeClassification
24	This Is Acting	New
25	7	New
26	Fine Line	New
27	Invasion of Priv...	New
28	El Dorado	New
29	Prism	New
30	This Is Us	New
31	The 20/20 Expe...	New
32	The Sound of Si...	New
33	Man of the Woo...	New
34	The Life of Pablo	New
35	Born to Die	New
36	Blonde	New
37	Hot Fuss	New
38	The Killers	New
39	American Idiot	New
40	Wasting Light	New
41	The Black Album	Old
42	The Colour and ...	Old
43	The Joshua Tree	Old
44	Rumours	Old
45	Back in Black	Old
46	Dark Side of the...	Old
47	Abbey Road	Old