Final Report

CSC 675-02

4.30.2018

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All work available at: https://github.com/krozet/Music-Application-Database

CREATE STATEMENTS

```
/* create database music_app */

CREATE DATABASE music_app;

/* use database music_app */

USE music_app;

/* entity */

CREATE TABLE artist
    (aname CHAR(20),
     PRIMARY KEY(aname));

CREATE TABLE album
    (abname CHAR(40),
     abtranum INTEGER,
     date DATE,
     PRIMARY KEY (abtranum)
);

CREATE TABLE song
    (stranum INTEGER,
     sname CHAR(20),
     abname CHAR(20),
     aname CHAR(20),
     PRIMARY KEY (stranum),
```

```
        FOREIGN KEY (aname)
          REFERENCES artist(aname)
);

CREATE TABLE featured_artist
     (faname CHAR(20),
      PRIMARY KEY (faname));
```

/* relation */

```
CREATE TABLE composed_of
     (abtranum INTEGER,
      stranum INTEGER,
      PRIMARY KEY (abtranum, stranum),
      FOREIGN KEY (abtranum)
        REFERENCES album (abtranum),
      FOREIGN KEY (stranum)
        REFERENCES song (stranum)
);

CREATE TABLE releases
      (abtranum INTEGER,
       aname CHAR(20),
       PRIMARY KEY (abtranum, aname),
       FOREIGN KEY (abtranum)
         REFERENCES album (abtranum),
       FOREIGN KEY (aname)
         REFERENCES artist (aname)
);

CREATE TABLE feature
      (faname CHAR(20),
       stranum INTEGER,
       abtranum INTEGER,
       PRIMARY KEY (faname, stranum, abtranum),
       FOREIGN KEY (faname)
         REFERENCES featured_artist (faname),
       FOREIGN KEY (stranum)
         REFERENCES song (stranum),
      FOREIGN KEY (abtranum)
        REFERENCES album (abtranum)
);
```

```sql
INSERT INTO artist VALUES ('Jason Aldean');
INSERT INTO artist VALUES ('Pentatonix');
INSERT INTO artist VALUES ('Chris Stapleton');
INSERT INTO artist VALUES ('John Prine');
INSERT INTO artist VALUES ('LEDGER');
INSERT INTO artist VALUES ('Midland');
INSERT INTO artist VALUES ('Hillsong Worship');
INSERT INTO artist VALUES ('Imagine Dragons');
```

```sql
INSERT INTO album (abname, abtranum, date) VALUES ('Rearview Town', '0000001', '2018-04-13');
INSERT INTO album (abname, abtranum, date) VALUES ('They Don't Know', '0000002', '2016-09-9');
INSERT INTO album (abname, abtranum, date) VALUES ('PTX Presents: Top Pop, Vol. I', '0000003', '2018-04-13');
INSERT INTO album (abname, abtranum, date) VALUES ('A Pentatonix Christmas Deluxe', '0000004', '2017-10-20');
INSERT INTO album (abname, abtranum, date) VALUES ('From A Room: Volume 1', '0000005', '2017-05-05');
INSERT INTO album (abname, abtranum, date) VALUES ('From A Room: Volume 2', '0000006', '2017-12-01');
INSERT INTO album (abname, abtranum, date) VALUES ('The Tree of Frogiveness', '0000007', '2018-08-13');
INSERT INTO album (abname, abtranum, date) VALUES ('Fair and Square', '0000008', '2006-05-26');
INSERT INTO album (abname, abtranum, date) VALUES ('Ledger - EP', '0000009', '2018-04-13');
INSERT INTO album (abname, abtranum, date) VALUES ('Lon the Rocks', '0000010', '2017-09-22');
INSERT INTO album (abname, abtranum, date) VALUES ('Che Magnifico Nome - Single', '0000011', '2018-04-06');
INSERT INTO album (abname, abtranum, date) VALUES ('There Is More', '0000012', '2018-04-06');
INSERT INTO album (abname, abtranum, date) VALUES ('Evolve', '0000013', '2017-06-23');
```

```sql
INSERT INTO song VALUES ('123', 'Dirt To Dust', 'Rearview Town', 'Jason Aldean');
```

INSERT INTO song VALUES ('223', 'Set it Off', 'Rearview Town', 'Jason Aldean');
INSERT INTO song VALUES ('323', 'Girl Like You', 'Rearview Town', 'Jason Aldean');
INSERT INTO song VALUES ('423', 'You Make It Easy', 'Rearview Town', 'Jason Aldean');
INSERT INTO song VALUES ('523', 'Gettin' Warmed Up', 'Rearview Town', 'Jason Aldean');
INSERT INTO song VALUES ('623', 'Blacktop Gone', 'Rearview Town', 'Jason Aldean');
INSERT INTO song VALUES ('7231', 'Drowns the Whiskey', 'Rearview Town', 'Jason Aldean');
INSERT INTO song VALUES ('823', 'Rearview Town', 'Rearview Town', 'Jason Aldean');
INSERT INTO song VALUES ('923', 'Love Me Or Don't', 'Rearview Town', 'Jason Aldean');
INSERT INTO song VALUES ('1023', 'Like You Were Mine', 'Rearview Town', 'Jason Aldean');
INSERT INTO song VALUES ('1123', 'Better At Being Who I Am', 'Rearview Town', 'Jason Aldean');
INSERT INTO song VALUES ('1223', 'I'll Wait For You', 'Rearview Town', 'Jason Aldean');
INSERT INTO song VALUES ('1323', 'Ride All Night', 'Rearview Town', 'Jason Aldean');
INSERT INTO song VALUES ('1423', 'Up In Smoke', 'Rearview Town', 'Jason Aldean');
INSERT INTO song VALUES ('1523', 'High Noon Neon', 'Rearview Town', 'Jason Aldean');

INSERT INTO song VALUES ('134', 'Lights Come On', 'They Don't Know', 'Jason Aldean');
INSERT INTO song VALUES ('234', 'A Little More Summertime', 'They Don't Know', 'Jason Aldean');
INSERT INTO song VALUES ('334', 'This Plane Don't Go There', 'They Don't Know', 'Jason Aldean');
INSERT INTO song VALUES ('434', 'Comin' In Hot', 'They Don't Know', 'Jason Aldean');
INSERT INTO song VALUES ('5341', 'First Time Again', 'They Don't Know', 'Jason Aldean');
INSERT INTO song VALUES ('634', 'Bad', 'They Don't Know', 'Jason Aldean');
INSERT INTO song VALUES ('734', 'They Don't Know', 'They Don't Know', 'Jason Aldean');
INSERT INTO song VALUES ('834', 'One Way Won't Forget', 'They Don't Know', 'Jason Aldean');
INSERT INTO song VALUES ('934', 'Whiskey'd Up', 'They Don't Know', 'Jason Aldean');
INSERT INTO song VALUES ('1034', 'In Case You Don't Remember', 'They Don't Know', 'Jason Aldean');
INSERT INTO song VALUES ('1134', 'All Out of Beer', 'They Don't Know', 'Jason Aldean');
INSERT INTO song VALUES ('1234', 'Any Ol' Barstool', 'They Don't Know', 'Jason Aldean');
INSERT INTO song VALUES ('1334', 'The Way a Night Should Feel', 'They Don't Know',

'Jason Aldean');

INSERT INTO song VALUES ('1434', 'Reason to Love L.A.', 'They Don't Know', 'Jason Aldean');

INSERT INTO song VALUES ('1534', 'When the Lights Go Out', 'They Don't Know', 'Jason Aldean');

INSERT INTO song VALUES ('145', 'Attention', 'PTX Presents: Top Pop, Vol. I', 'Pentatonix');

INSERT INTO song VALUES ('245', 'Finesse', 'PTX Presents: Top Pop, Vol. I', 'Pentatonix');

INSERT INTO song VALUES ('345', 'New Rules x Are You That Somebody', 'PTX Presents: Top Pop, Vol. I', 'Pentatonix');

INSERT INTO song VALUES ('445', 'Havana', 'PTX Presents: Top Pop, Vol. I', 'Pentatonix');

INSERT INTO song VALUES ('545', 'Perfect', 'PTX Presents: Top Pop, Vol. I', 'Pentatonix');

INSERT INTO song VALUES ('645', 'Stay', 'PTX Presents: Top Pop, Vol. I', 'Pentatonix');

INSERT INTO song VALUES ('745', 'Feel It Still', 'PTX Presents: Top Pop, Vol. I', 'Pentatonix');

INSERT INTO song VALUES ('845', 'Despacito x Shape Of You', 'PTX Presents: Top Pop, Vol. I', 'Pentatonix');

INSERT INTO song VALUES ('945', 'Issues', 'PTX Presents: Top Pop, Vol. I', 'Pentatonix');

INSERT INTO song VALUES ('1045', 'Praying', 'PTX Presents: Top Pop, Vol. I', 'Pentatonix');

INSERT INTO song VALUES ('1145', 'Sorry Not Sorry', 'PTX Presents: Top Pop, Vol. I', 'Pentatonix');

INSERT INTO song VALUES ('156', 'O Come, All Ye Faithful', 'A Pentatonix Christmas Deluxe', 'Pentatonix');

INSERT INTO song VALUES ('256', 'God Rest Ye Merry gentlemen', 'A Pentatonix Christmas Deluxe', 'Pentatonix');

INSERT INTO song VALUES ('356', 'White Christmas', 'A Pentatonix Christmas Deluxe', 'Pentatonix');

INSERT INTO song VALUES ('456', 'I'll Be Home For Christmas', 'A Pentatonix Christmas Deluxe', 'Pentatonix');

INSERT INTO song VALUES ('556', 'Up On the Housetop', 'A Pentatonix Christmas Deluxe', 'Pentatonix');

INSERT INTO song VALUES ('656', 'The Christmas Song-Along', 'A Pentatonix Christmas Deluxe', 'Pentatonix');

INSERT INTO song VALUES ('756', 'Coventry Carol', 'A Pentatonix Christmas Deluxe', 'Pentatonix');

INSERT INTO song VALUES ('856', 'Hallelujah', 'A Pentatonix Christmas Deluxe', 'Pentatonix');

INSERT INTO song VALUES ('956', 'Coldest Winter', 'A Pentatonix Christmas Deluxe', 'Pentatonix');
INSERT INTO song VALUES ('1056', 'Good To Be Bad', 'A Pentatonix Christmas Deluxe', 'Pentatonix');
INSERT INTO song VALUES ('1156', 'Merry Christmas, Happy Holidays', 'A Pentatonix Christmas Deluxe', 'Pentatonix');
INSERT INTO song VALUES ('1256', 'Deck the Halls', 'A Pentatonix Christmas Deluxe', 'Pentatonix');
INSERT INTO song VALUES ('1356', 'How Great Thou Art', 'A Pentatonix Christmas Deluxe', 'Pentatonix');
INSERT INTO song VALUES ('1456', 'Away in a Manger', 'A Pentatonix Christmas Deluxe', 'Pentatonix');
INSERT INTO song VALUES ('1556', 'Let it Snow! Let It Snow! Let It Snow!', 'A Pentatonix Christmas Deluxe', 'Pentatonix');
INSERT INTO song VALUES ('1656', 'Hallelujah', 'A Pentatonix Christmas Deluxe', 'Pentatonix');

INSERT INTO song VALUES ('167', 'Broken Halos', 'From A Room: Volume 1', 'Chris Stapleton');
INSERT INTO song VALUES ('267', 'Last Thing I Needed, First Thing This Morning', 'From A Room: Volume 1', 'Chris Stapleton');
INSERT INTO song VALUES ('367', 'Second One to Know', 'From A Room: Volume 1', 'Chris Stapleton');
INSERT INTO song VALUES ('467', 'Up to No Good Livin'', 'From A Room: Volume 1', 'Chris Stapleton');
INSERT INTO song VALUES ('567', 'Either Way', 'From A Room: Volume 1', 'Chris Stapleton');
INSERT INTO song VALUES ('667', 'I Was Wrong', 'From A Room: Volume 1', 'Chris Stapleton');
INSERT INTO song VALUES ('767', 'Without Your Love', 'From A Room: Volume 1', 'Chris Stapleton');
INSERT INTO song VALUES ('867', 'Them Stems', 'From A Room: Volume 1', 'Chris Stapleton');
INSERT INTO song VALUES ('967', 'Death Row', 'From A Room: Volume 1', 'Chris Stapleton');

INSERT INTO song VALUES ('178', 'Millionaire', 'From A Room: Volume 2', 'Chris Stapleton');
INSERT INTO song VALUES ('278', 'Hard Livin'', 'From A Room: Volume 2', 'Chris Stapleton');
INSERT INTO song VALUES ('378', 'Scarecrow in the Garden', 'From A Room: Volume 2', 'Chris Stapleton');
INSERT INTO song VALUES ('478', 'Nobody's Lonely Tonight', 'From A Room: Volume 2', 'Chris Stapleton');

INSERT INTO song VALUES ('578', 'Tryin' to Untangle My Mind', 'From A Room: Volume 2', 'Chris Stapleton');
INSERT INTO song VALUES ('678', 'A Simple Song', 'From A Room: Volume 2', 'Chris Stapleton');
INSERT INTO song VALUES ('778', 'Midnight Train to Memphis', 'From A Room: Volume 2', 'Chris Stapleton');
INSERT INTO song VALUES ('878', 'Drunkard's Prayer', 'From A Room: Volume 2', 'Chris Stapleton');
INSERT INTO song VALUES ('978', 'Friendship', 'From A Room: Volume 2', 'Chris Stapleton');

INSERT INTO song VALUES ('189', 'Knockin' on Your Screen Door', 'The Tree of Forgiveness', 'John Prine');
INSERT INTO song VALUES ('289', 'I Have Mey My Love Today', 'The Tree of Forgiveness', 'John Prine');
INSERT INTO song VALUES ('389', 'Egg & Daughter Nite', 'The Tree of Forgiveness', 'John Prine');
INSERT INTO song VALUES ('489', 'Summer's End', 'The Tree of Forgiveness', 'John Prine');
INSERT INTO song VALUES ('589', 'Caravan of Fools', 'The Tree of Forgiveness', 'John Prine');
INSERT INTO song VALUES ('689', 'Lonesome Friends of Science', 'The Tree of Forgiveness', 'John Prine');
INSERT INTO song VALUES ('789', 'No Ordinary Blue', 'The Tree of Forgiveness', 'John Prine');
INSERT INTO song VALUES ('889', 'Boundless Love', 'The Tree of Forgiveness', 'John Prine');
INSERT INTO song VALUES ('989', 'God Only Knows', 'The Tree of Forgiveness', 'John Prine');
INSERT INTO song VALUES ('1089', 'When I Get to Heaven', 'The Tree of Forgiveness', 'John Prine');

INSERT INTO song VALUES ('113', 'Glory of True Love', 'Fair and Square', 'John Prine');
INSERT INTO song VALUES ('213', 'Crazy as a Loon', 'Fair and Square', 'John Prine');
INSERT INTO song VALUES ('313', 'Long Monday', 'Fair and Square', 'John Prine');
INSERT INTO song VALUES ('413', 'Taking a Walk', 'Fair and Square', 'John Prine');
INSERT INTO song VALUES ('513', 'Some Humans Ain't Human', 'Fair and Square', 'John Prine');
INSERT INTO song VALUES ('613', 'My Darlin' Hometown', 'Fair and Square', 'John Prine');
INSERT INTO song VALUES ('713', 'Morning Train', 'Fair and Square', 'John Prine');
INSERT INTO song VALUES ('813', 'The Moon Is Down', 'Fair and Square', 'John Prine');
INSERT INTO song VALUES ('913', 'Clay Pigeons', 'Fair and Square', 'John Prine');

INSERT INTO song VALUES ('1013', 'She Is My Everything', 'Fair and Square', 'John Prine');
INSERT INTO song VALUES ('1113', 'I Hate It When That Happens to Me', 'Fair and Square', 'John Prine');
INSERT INTO song VALUES ('1213', 'Bear Creek Blues', 'Fair and Square', 'John Prine');
INSERT INTO song VALUES ('1313', 'Other Side of Town (Live)', 'Fair and Square', 'John Prine');
INSERT INTO song VALUES ('1413', 'Safety Joe', 'Fair and Square', 'John Prine');

INSERT INTO song VALUES ('114', 'Not Dead Yet', 'Ledger – EP', 'LEDGER');
INSERT INTO song VALUES ('214', 'Warrior', 'Ledger – EP', 'LEDGER');
INSERT INTO song VALUES ('314', 'Bold', 'Ledger – EP', 'LEDGER');
INSERT INTO song VALUES ('414', 'Foreigner', 'Ledger – EP', 'LEDGER');
INSERT INTO song VALUES ('514', 'Ruins', 'Ledger – EP', 'LEDGER');
INSERT INTO song VALUES ('614', 'Iconic', 'Ledger – EP', 'LEDGER');

INSERT INTO song VALUES ('115', 'Lonely for You Only', 'On the Rocks', 'Midland');
INSERT INTO song VALUES ('215', 'Make a Little', 'On the Rocks', 'Midland');
INSERT INTO song VALUES ('315', 'Drinkin' Problem', 'On the Rocks', 'Midland');
INSERT INTO song VALUES ('415', 'At Least you Cried', 'On the Rocks', 'Midland');
INSERT INTO song VALUES ('515', 'Burn Out', 'On the Rocks', 'Midland');
INSERT INTO song VALUES ('615', 'Out of Sight', 'On the Rocks', 'Midland');
INSERT INTO song VALUES ('715', 'More Than a Fever', 'On the Rocks', 'Midland');
INSERT INTO song VALUES ('815', 'Check Cashin' Country', 'On the Rocks', 'Midland');
INSERT INTO song VALUES ('915', 'Nothin' New Under the Neon', 'On the Rocks', 'Midland');
INSERT INTO song VALUES ('1015', 'This Old Heart', 'On the Rocks', 'Midland');
INSERT INTO song VALUES ('1115', 'Attitude Adjustment', 'On the Rocks', 'Midland');
INSERT INTO song VALUES ('1215', 'Electric Rodeo', 'On the Rocks', 'Midland');
INSERT INTO song VALUES ('1315', 'Somewhere on the Wind', 'On the Rocks', 'Midland');

INSERT INTO song VALUES ('1251', 'Che Magnifico Nome', 'Che Magnifico Nome - Single', 'Hillsong Worship');

INSERT INTO song VALUES ('125', 'Who You Say I Am', 'There Is More', 'Hillsong Worship');
INSERT INTO song VALUES ('225', 'You Are Life', 'There Is More', 'Hillsong Worship');
INSERT INTO song VALUES ('325', 'The Passion', 'There Is More', 'Hillsong Worship');
INSERT INTO song VALUES ('425', 'God So Loved', 'There Is More', 'Hillsong Worship');
INSERT INTO song VALUES ('525', 'Be Still', 'There Is More', 'Hillsong Worship');
INSERT INTO song VALUES ('625', 'Remembrance', 'There Is More', 'Hillsong Worship');

INSERT INTO song VALUES ('725', 'Valentine', 'There Is More', 'Hillsong Worship');
INSERT INTO song VALUES ('825', 'Touch of Heaven', 'There Is More', 'Hillsong Worship');
INSERT INTO song VALUES ('925', 'Lettered Love', 'There Is More', 'Hillsong Worship');
INSERT INTO song VALUES ('1025', 'The Lord's Prayer', 'There Is More', 'Hillsong Worship');
INSERT INTO song VALUES ('1125', 'New Wine', 'There Is More', 'Hillsong Worship');
INSERT INTO song VALUES ('1225', 'So Will I', 'There Is More', 'Hillsong Worship');
INSERT INTO song VALUES ('1325', 'Seasons', 'There Is More', 'Hillsong Worship');
INSERT INTO song VALUES ('1425', 'Who You Say I Am', 'There Is More', 'Hillsong Worship');
INSERT INTO song VALUES ('1525', 'Remembrance', 'There Is More', 'Hillsong Worship');
INSERT INTO song VALUES ('1625', 'Touch of Heaven', 'There Is More', 'Hillsong Worship');
INSERT INTO song VALUES ('1725', 'The Passion', 'There Is More', 'Hillsong Worship');

INSERT INTO song VALUES ('135', 'Next To Me', 'Evolve', 'Imagine Dragons');
INSERT INTO song VALUES ('235', 'I Don't Know Why', 'Evolve', 'Imagine Dragons');
INSERT INTO song VALUES ('335', 'Whatever It Takes', 'Evolve', 'Imagine Dragons');
INSERT INTO song VALUES ('435', 'Believer', 'Evolve', 'Imagine Dragons');
INSERT INTO song VALUES ('535', 'Walking the Wire', 'Evolve', 'Imagine Dragons');
INSERT INTO song VALUES ('635', 'Rise Up', 'Evolve', 'Imagine Dragons');
INSERT INTO song VALUES ('735', 'I'll Make It Up To You', 'Evolve', 'Imagine Dragons');
INSERT INTO song VALUES ('835', 'Yesterday', 'Evolve', 'Imagine Dragons');
INSERT INTO song VALUES ('935', 'Mouth of the River', 'Evolve', 'Imagine Dragons');
INSERT INTO song VALUES ('1035', 'Thunder', 'Evolve', 'Imagine Dragons');
INSERT INTO song VALUES ('1135', 'Start Over', 'Evolve', 'Imagine Dragons');
INSERT INTO song VALUES ('1235', 'Dancing in the Dark', 'Evolve', 'Imagine Dragons');

/* insert data into featured_artist table */

INSERT INTO featured_artist VALUES ('Miranda Lambert');
INSERT INTO featured_artist VALUES ('Kelsea Ballerini');
INSERT INTO featured_artist VALUES ('The Manhattan Transfer');
INSERT INTO featured_artist VALUES ('Jennifer Hudson');
INSERT INTO featured_artist VALUES ('The String Mob');
INSERT INTO featured_artist VALUES ('John Cooper');

/* insert data into feature table */

INSERT INTO feature (faname, stranum, abtranum) VALUES ('Miranda Lambert', '7231', '0000001');
INSERT INTO feature (faname, stranum, abtranum) VALUES ('Kelsea Ballerini', '5341', '0000002');
INSERT INTO feature (faname, stranum, abtranum) VALUES ('The Manhattan Transfer', '356', '0000004');
INSERT INTO feature (faname, stranum, abtranum) VALUES ('Jennifer Hudson', '1356', '0000004');
INSERT INTO feature (faname, stranum, abtranum) VALUES ('The String Mob', '1656', '0000004');
INSERT INTO feature (faname, stranum, abtranum) VALUES ('John Cooper', '213', '0000009');

/* insert data into release table */

INSERT INTO releases (abtranum, aname) VALUES ('0000001', 'Jason Aldean');
INSERT INTO releases (abtranum, aname) VALUES ('0000002', 'Jason Aldean');
INSERT INTO releases (abtranum, aname) VALUES ('0000003', 'Pentatonix');
INSERT INTO releases (abtranum, aname) VALUES ('0000004', 'Pentatonix');
INSERT INTO releases (abtranum, aname) VALUES ('0000005', 'Chris Stapleton');
INSERT INTO releases (abtranum, aname) VALUES ('0000006', 'Chris Stapleton');
INSERT INTO releases (abtranum, aname) VALUES ('0000007', 'John Prine');
INSERT INTO releases (abtranum, aname) VALUES ('0000008', 'John Prine');
INSERT INTO releases (abtranum, aname) VALUES ('0000009', 'LEDGER');
INSERT INTO releases (abtranum, aname) VALUES ('0000010', 'Midland');
INSERT INTO releases (abtranum, aname) VALUES ('0000011', 'Hillsong Worship');
INSERT INTO releases (abtranum, aname) VALUES ('0000012', 'Hillsong Worship');
INSERT INTO releases (abtranum, aname) VALUES ('0000013', 'Imagine Dragons');

/* insert data into composed_of table */

INSERT INTO composed_of (abtranum, stranum)
SELECT album.abtranum, song.stranum
FROM album, song, releases
WHERE releases.aname = song.aname AND
        releases.abtranum = album.abtranum AND
        song.abname = album.abname;
/* CREATE INDEX */
CREATE INDEX IX_firstChar ON artist (aname(1));
CREATE INDEX IX_song_name ON song (sname);

/* CREATE VIEW */
/*List all songs with artists and albums from song table */

```
CREATE VIEW V_Songs
AS SELECT sname, abname, aname
FROM song;

/* List all features artists from feature table */
CREATE VIEW V_FeaturedArtists
AS SELECT faname
FROM feature;
```

SQL QUERIES

```
/* Find the name of song that is composed of album 'From A Room: Volume 1'. */
SELECT S.sname
FROM song S
WHERE S.abname IN (SELECT A.abname
        FROM album A
        WHERE A.abname= 'From A Room: Volume 1');
```

sname
Broken Halos
Last Thing I Needed. First Thing This Morning
Second One to Know
Up to No Good Livin'
Either Way
I Was Wrong
Without Your Love
Them Stems
Death Row

```
/* Find how many albums were released on 2018-04-13 */
SELECT A.date, COUNT(*)
FROM album A
GROUP BY A.date
HAVING A.date= '2018-04-13';
```

date	COUNT(*)
2018-04-13	3

/* Find the names of all songs that were written by the artist "Pentatonix" */
SELECT S.sname
FROM song S
WHERE S.aname IN (SELECT A.aname
         FROM artist A
         WHERE A.aname= 'Pentatonix');

sname
Attention
O Come. All Ye Faithful
Finesse
God Rest Ye Merry gentlemen
New Rules x Are You That Somebody
White Christmas
Havana
I'll Be Home For Christmas
Perfect
Up On the Housetop
Stay
The Christmas Song-Along
Feel It Still
Coventry Carol
Despacito x Shape Of You
Hallelujah
Issues
Coldest Winter
Praying
Good To Be Bad
Sorry Not Sorry
Merry Christmas. Happy Holidays
Deck the Halls
How Great Thou Art
Away in a Manger
Let it Snow! Let It Snow! Let It Snow!
Hallelujah

/* Find the total number of songs that are wriiten by artist ' Pentatonix'*/
SELECT COUNT(DISTINCT S.stranum)
FROM song S
WHERE EXISTS (SELECT *
     FROM artist A
     WHERE S.aname=A.aname AND A.aname= 'Pentatonix');

COUNT(DISTINCT S.stranum)
27

/* Find the total number of songs that are composed of the album "From A Room: Volume 1' */
SELECT COUNT(DISTINCT S.stranum)
FROM song S
WHERE EXISTS (SELECT *

FROM album A
　　WHERE S.abname=A.abname AND S.abname= 'From A Room: Volume 1');

	COUNT(DISTINCT S.stranum)
	9

/* Find name of artist with the maximum songs */
SELECT S.aname, COUNT(S.aname)
FROM song S
GROUP BY S.aname
ORDER BY COUNT(S.aname) DESC
LIMIT 1;

	aname	COUNT(S.aname)
	Jason Aldean	30

/* Find artists who have more songs than one artist called "Chris Stapleton". */
SELECT S.aname, COUNT(S.aname)
FROM song S
GROUP BY S.aname
HAVING COUNT(S.aname) > (SELECT COUNT(S2.aname)
　　　　　　　　　　FROM song S2
　　　　　WHERE S2.aname = 'Chris Stapleton')
ORDER BY COUNT(S.aname) DESC;

	aname	COUNT(S.aname)
	Jason Aldean	30
	Pentatonix	27
	John Prine	24

/* List names of featured artist if ANY use album "A Pentatonix Christmas Deluxe' */
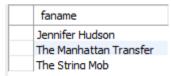SELECT F.faname
FROM feature F
WHERE F.abtranum = ANY (SELECT A.abtranum
　　　　　　　　FROM album A
　　　　　　　WHERE A.abname='A Pentatonix Christmas Deluxe');

	faname
	Jennifer Hudson
	The Manhattan Transfer
	The String Mob

/* List names of albums if ANY are released by the artist 'Hillsong Worship' */
SELECT abname
FROM album

```
WHERE abtranum = ANY (SELECT abtranum
                      FROM releases
                      WHERE aname = 'Hillsong Worship');
```

```
+----------------------------+
| abname                     |
+----------------------------+
| Che Magnifico Nome - Single |
| There Is More              |
+----------------------------+
```

/* Find albums that have more than ten songs */
SELECT A.abname, COUNT(C.stranum) AS song_number
FROM album A, song S, composed_of C
WHERE A.abtranum = C.abtranum AND
        C.stranum = S.stranum
GROUP BY A.abname
HAVING COUNT(C.stranum)>10;

```
+-------------------+-------------+
| abname            | song_number |
+-------------------+-------------+
| Evolve            |          12 |
| Fair and Square   |          14 |
| Rearview Town     |          15 |
| There Is More     |          17 |
| They Don't Know   |          15 |
+-------------------+-------------+
```

/ *List names of artists if ALL use album 'A Pentatonix Christmas Deluxe'*/
SELECT R.aname
FROM releases R
WHERE R.abtranum = ALL (SELECT A.abtranum
                       FROM album A
                       WHERE A.abname='A Pentatonix Christmas Deluxe');

```
+------------+
| aname      |
+------------+
| Pentatonix |
+------------+
```

/* List names of songs if ALL are featured by the featured artist 'Miranda Lambert'

```
*/
SELECT S.sname
FROM song S
WHERE S.stranum = ALL (SELECT  F.stranum
                FROM feature F
                WHERE F.faname='Miranda Lambert');


+--------------------+
|  sname             |
+--------------------+
|  Drowns the Whiskey |
+--------------------+
```