

IRON MAIDEN
STUDIO ALBUM
DATA BASE PROJECT



- TIM HULAK: IST DB DATA ADMIN CONCEPTS AND DB MGMT

SUMMARY

Upon returning from their latest world tour, English heavy metal band Iron Maiden are planning their next studio album. The band are contemplating retirement after their successful 45 year run and want this new album to show their fans how much they appreciate their support over the decades. However, not every album has been met with undying fan approval so the band want to make a data-driven decision on the direction of the new album, in order to deliver the best possible album for as many fans as possible.

BUSINESS RULES

-  Only studio albums, and their official track list according to the Iron Maiden website (<https://www.ironmaiden.com/discography/studio-albums>) are considered and evaluated for chart scores.
-  Singles released from respective albums are not considered for chart scores
-  An album is recorded by many band members
-  An album is produced by one or more producers
-  An album is recorded at one or more studios
-  A studio is located at one location
-  An album has many songs
-  Songs are written by one or more band members
-  A song can only appear on one album

GLOSSARY



A **band member** is a participant in the group that records music, plays an instrument, writes songs, and/or appears on a studio album.

- Name: The first and last name of the band member
- Instrument: the musical instrument that the band member plays on an album



A **studio album** is a recording that is done in a recording studio and is not recorded at a live concert.

- Title: The name/title of the studio album
- Track Count: How many songs appear on the album
- Minutes: The duration of the studio album in whole minutes, not counting leftover seconds; not rounded to the nearest minute.
- Seconds: The remaining duration of the studio album in seconds
- Release Date: The date the studio album was released, according to the Iron Maiden website.
- UK Peak Chart: The highest numerical position the studio album was ranked in the United Kingdom
- US Peak Chart: The highest numerical position the studio album was ranked in the United States
- UK Certification: The Recording Industry Association of America (RIAA) ranking of the studio album on the United Kingdom charts, which are named after precious materials (gold, platinum, silver, etc.).
- US Certification: The Recording Industry Association of America (RIAA) ranking of the studio album on the United States charts, which are named after precious materials (gold, platinum, silver, etc.).



A **song** is a track that appears on a studio album.

- Title: The name/title of the song that appears on a studio album
- Writer: The band member(s) that contributed the writing of the song
- Minutes: The duration of the song in whole minutes, not counting leftover seconds; not rounded to the nearest minute.
- Seconds: The remaining duration of the song in seconds



A **producer** is the person(s) that records and engineers the songs, and ultimately the studio album itself



A **studio** is the company that facilitated the recording of the studio album and oversees the distribution of the album.



A **recording location** is the physical facility where the studio album is recorded

DATA QUESTIONS

-- List the songs and the album they belong to?

```
SELECT im_song.song_title    AS Song_Title  
      , im_album.album_title AS Album_Title  
FROM im_album  
JOIN im_song ON im_song.album_id = im_album.album_id  
ORDER BY im_album.release_date, Album_Title  
GO
```

-- What Instrument does each band member play?

```
SELECT im_band_member.band_member_name   AS Member_Name  
      ,im_instrument_list.instrument_name AS Instrument  
FROM im_band_member  
JOIN im_instrument_list ON im_instrument_list.instrument_id =  
im_band_member.instrument_id  
ORDER BY Instrument  
GO
```

-- How many songs has Iron Maiden released across their studio albums?

```
SELECT COUNT(song_title) AS Total_Song_Count  
FROM im_song  
GO
```

-- How Many Studio Albums have Iron Maiden released?

```
SELECT COUNT(album_title) AS Total_Album_Count  
FROM im_album  
GO
```

-- How many minutes, hours, and days of music have Iron Maiden released on their studio albums?

```
SELECT ROUND(((SUM(CAST(length_minutes AS  
DECIMAL)*60.0)+SUM(CAST(length_seconds AS DECIMAL)))/60.0,2.0) AS  
Sum_Minutes  
  
,ROUND(((SUM(CAST(length_minutes AS  
DECIMAL)*60.0)+SUM(CAST(length_seconds AS DECIMAL)))/60.0)/60.0,2.0) AS  
Sum_Hours  
  
,ROUND((((SUM(CAST(length_minutes AS  
DECIMAL)*60.0)+SUM(CAST(length_seconds AS DECIMAL)))/60.0)/60.0)/24.0,2.0) AS  
Sum_Days  
  
FROM im_song  
  
GO
```

-- Are the average chart positions for US and UK charting?

```
SELECT AVG(CAST(us_peak_charts AS DECIMAL)) AS US_Charts_AVG  
  
, AVG(CAST(uk_peak_charts AS DECIMAL)) AS UK_Charts_AVG  
  
FROM im_album  
  
GO
```

-- Which is/are the worst charting album(s) in the US?

```
SELECT album_title  
  
, MAX(us_peak_charts) AS US_Lowest  
  
FROM im_album  
  
WHERE us_peak_charts = (SELECT MAX(us_peak_charts) FROM im_album)  
  
GROUP BY album_title  
  
GO
```

-- Which is/are the worst charting album(s) in the UK?

```
SELECT album_title
      , MAX(uk_peak_charts) AS UK_Lowest
FROM im_album
WHERE uk_peak_charts = (SELECT MAX(uk_peak_charts) FROM im_album)
GROUP BY album_title
GO
```

-- Which is/are the best charting album(s) in the US?

```
SELECT album_title
      , MIN(us_peak_charts) AS UK_Highest
FROM im_album
WHERE us_peak_charts = (SELECT MIN(us_peak_charts) FROM im_album)
GROUP BY album_title
GO
```

-- Which is/are the best charting album(s) in the UK?

```
SELECT album_title
      , MIN(uk_peak_charts) AS UK_Highest
FROM im_album
WHERE uk_peak_charts = (SELECT MIN(uk_peak_charts) FROM im_album)
GROUP BY album_title
GO
```

-- Which Producer(s) has/have the highest US Peak and for which albums?

SELECT

 im_album.album_title AS Album
 , im_producer.producer_name AS Producer
 , im_album.us_peak_charts AS US_Peak

FROM

 im_album, im_producer, im_producer_album_list

WHERE im_album.album_id = im_producer_album_list.album_id

AND

 im_producer.producer_id = im_producer_album_list.producer_id

AND

 im_album.us_peak_charts = (SELECT MIN(im_album.us_peak_charts)
FROM im_album)

GROUP BY

 im_producer.producer_name, im_album.album_title, im_album.us_peak_charts

GO

-- Which Producer(s) has/have the highest UK Peak and for which albums?

SELECT

 im_album.album_title AS Album
 , im_producer.producer_name AS Producer
 , im_album.uk_peak_charts AS UK_Peak

FROM

 im_album, im_producer, im_producer_album_list

WHERE im_album.album_id = im_producer_album_list.album_id

AND

 im_producer.producer_id = im_producer_album_list.producer_id

AND

 im_album.uk_peak_charts = (SELECT MIN(im_album.uk_peak_charts)
FROM im_album)

GROUP BY

 im_producer.producer_name, im_album.album_title, im_album.uk_peak_charts

GO

-- How many writing credits do each band member have?

SELECT

 COUNT(im_song.song_title) AS CountTitle
 , im_band_member.band_member_name AS Writer

FROM

 im_member_song

 RIGHT JOIN im_song on im_song.song_id = im_member_song.song_id

 RIGHT JOIN im_band_member ON im_band_member.band_member_id =
 im_member_song.band_member_id

GROUP BY im_band_member.band_member_name

GO

-- Create a Frequency Distribution table for albums released by month

```
SELECT MONTH(release_date) AS Release_Month  
      , COUNT(MONTH(release_date)) AS Freq  
      , COUNT(MONTH(release_date))/16.0 AS PCT
```

FROM im_album

GROUP BY MONTH(release_date)

ORDER BY Freq DESC

GO

-- Which Albums are of interest (Release Date of 9)

```
SELECT album_title, us_peak_charts,uk_peak_charts
```

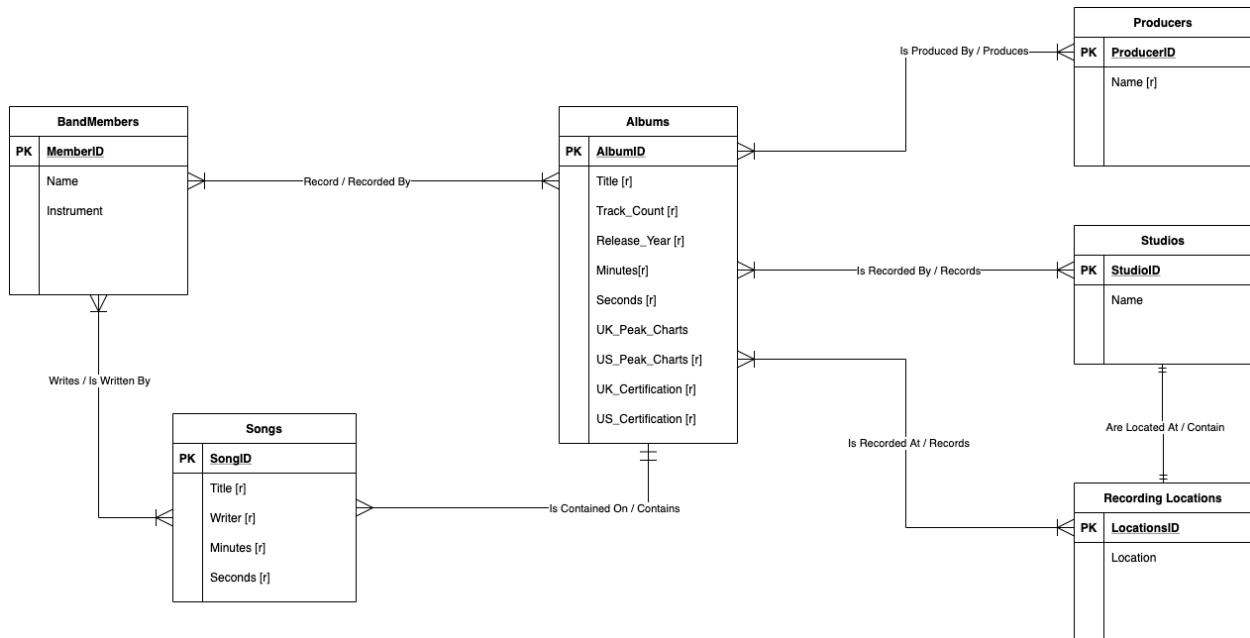
FROM im_album

WHERE MONTH(release_date) = 9

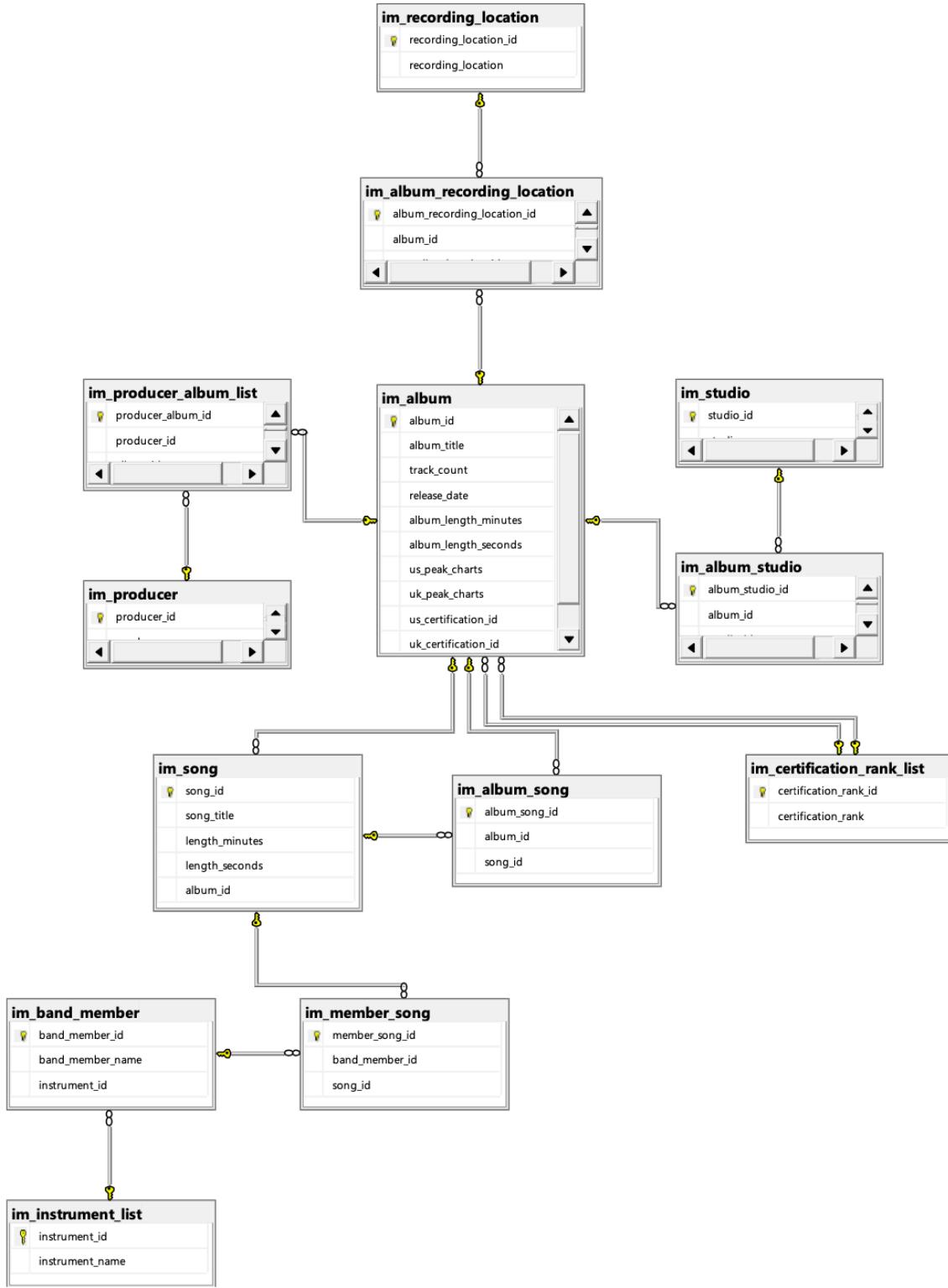
GO

CONCEPTUAL MODEL

Tim Hulak
Iron Maiden Studio Album DB



LOGICAL MODEL



RAW DATA

The raw data was gathered from the Iron Maiden website and recorded using an Excel spreadsheet.

A horizontal banner showing five Iron Maiden studio album covers: 'The Book of Souls', 'The Final Frontier', 'A Matter of Life and Death', 'Dance of Death', and 'Brave New World'. The 'Brave New World' cover is partially visible at the bottom left.

Title	Writer	Minutes	Seconds
Prowler	Harris	3	55
Remember Tomorrow	Harris, Di'Anno	5	27
Running Free	Harris, Di'Anno	3	16
Phantom of the Opera	Harris	7	20
Transylvania (Instrumental)	Harris	4	5
Strange World	Harris	5	45
Charlotte the Harlot	Murray	4	12
Iron Maiden	Harris	3	35
) The Ides of March (Instrumental)	Harris	1	48
l Wrathchild	Harris	2	54
? Murders in the Rue Morgue	Harris	4	14
3 Another Life	Harris	3	22
1 Genghis Khan (Instrumental)	Harris	3	2
5 Innocent Exile	Harris	3	50
7 Killers	Di'Anno, Harris	4	58
Prodigal Son	Harris 5	6	0
Purgatory	Harris	3	18
Drifter	Harris	4	47
Invaders	Harris	3	20
Children of the Damned	Harris	4	34
2 The Prisoner	Smith, Harris	5	34
3 22 Acacia Avenue	Harris, Smith	6	34
) The Number of the Beast	Harris	4	25
Run to the Hills	Harris	3	50
Gangland	Smith, Burr	3	46
Hallowed Be Thy Name	Harris	7	8
Where Eagles Dare	Harris	6	8
Revelations	Dickinson	6	51
Flight of Icarus	Smith, Dickinson	3	49
l Doin' Your Boots On	Smith, Dickinson, Harris	5	22

DB CREATION CODE

```
-- #####
```

```
-- ##### Drop Tables #####
```

```
-- #####
```

```
IF EXISTS (SELECT *
FROM INFORMATION_SCHEMA.TABLES
WHERE TABLE_NAME = 'im_album_recording_location')
BEGIN
    DROP TABLE im_album_recording_location
END
GO
```

```
IF EXISTS (SELECT *
FROM INFORMATION_SCHEMA.TABLES
WHERE TABLE_NAME = 'im_album_studio')
BEGIN
    DROP TABLE im_album_studio
END
GO
```

```
IF EXISTS (SELECT *
FROM INFORMATION_SCHEMA.TABLES
WHERE TABLE_NAME = 'im_producer_album_list')
BEGIN
    DROP TABLE im_producer_album_list
END
GO
```

```
IF EXISTS (SELECT *
FROM INFORMATION_SCHEMA.TABLES
WHERE TABLE_NAME = 'im_producer')
BEGIN
    DROP TABLE im_producer
END
GO
```

```
IF EXISTS (SELECT *
FROM INFORMATION_SCHEMA.TABLES
WHERE TABLE_NAME = 'im_album_song')
BEGIN
    DROP TABLE im_album_song
END
GO
```

```
IF EXISTS (SELECT *
FROM INFORMATION_SCHEMA.TABLES
WHERE TABLE_NAME = 'im_member_song')
BEGIN
    DROP TABLE im_member_song
END
GO
```

```
IF EXISTS (SELECT *
FROM INFORMATION_SCHEMA.TABLES
WHERE TABLE_NAME = 'im_song')
BEGIN
    DROP TABLE im_song
END
GO
```

```
-- Start
IF EXISTS (SELECT *
FROM INFORMATION_SCHEMA.TABLES
WHERE TABLE_NAME = 'im_album')
BEGIN
    DROP TABLE im_album
END
GO
```

```
IF EXISTS (SELECT *
FROM INFORMATION_SCHEMA.TABLES
WHERE TABLE_NAME = 'im_recording_location')
BEGIN
    DROP TABLE im_recording_location
END
GO
-- End
```

```
IF EXISTS (SELECT *
FROM INFORMATION_SCHEMA.TABLES
WHERE TABLE_NAME = 'im_studio')
BEGIN
    DROP TABLE im_studio
END
GO
```

```
-- Start
IF EXISTS (SELECT *
FROM INFORMATION_SCHEMA.TABLES
WHERE TABLE_NAME = 'im_certification_rank_list')
BEGIN
    DROP TABLE im_certification_rank_list
END
GO
-- End
```

```
IF EXISTS (SELECT *
FROM INFORMATION_SCHEMA.TABLES
WHERE TABLE_NAME = 'im_band_member')
BEGIN
    DROP TABLE im_band_member
END
GO
```

```
IF EXISTS (SELECT *
FROM INFORMATION_SCHEMA.TABLES
WHERE TABLE_NAME = 'im_instrument_list')
BEGIN
    DROP TABLE im_instrument_list
END
GO
```

```
-- ##### Create Tables #####
-- ##### Create Tables #####
-- ##### Create Tables #####
```

```
CREATE TABLE im_instrument_list(
    instrument_id INT IDENTITY PRIMARY KEY
    , instrument_name CHAR(12) NOT NULL
)
```

```
CREATE TABLE im_band_member(
    band_member_id INT IDENTITY PRIMARY KEY
    , band_member_name VARCHAR(30) NOT NULL
    , instrument_id INT FOREIGN KEY REFERENCES
im_instrument_list(instrument_id) NOT NULL
)
```

```
CREATE TABLE im_certification_rank_list (
    certification_rank_id INT IDENTITY PRIMARY KEY
    , certification_rank CHAR(10) NOT NULL
)
```

```
CREATE TABLE im_studio (
    studio_id INT IDENTITY PRIMARY KEY
    , studio_name VARCHAR(30) NOT NULL
)
```

```
CREATE TABLE im_recording_location (
    recording_location_id INT IDENTITY PRIMARY KEY
    , recording_location VARCHAR(30) NOT NULL
)
```

```
CREATE TABLE im_album (
    album_id INT IDENTITY PRIMARY KEY
    , album_title VARCHAR(40) NOT NULL
    , track_count INT NOT NULL
    , release_date DATE NOT NULL
    , album_length_minutes INT
    , album_length_seconds INT
    , us_peak_charts INT
    , uk_peak_charts INT
    , us_certification_id INT FOREIGN KEY REFERENCES
im_certification_rank_list(certification_rank_id)
    , uk_certification_id INT FOREIGN KEY REFERENCES
im_certification_rank_list(certification_rank_id)
    --, studio_id INT FOREIGN KEY REFERENCES im_studio(studio_id)
    --, recording_location_id INT FOREIGN KEY REFERENCES
im_recording_location(recording_location_id)
    --, band_member_id INT FOREIGN KEY REFERENCES
im_band_member(band_member_id)
    --, song_id INT FOREIGN KEY REFERENCES im_song(song_id)
)
```

```
CREATE TABLE im_song(
    song_id INT IDENTITY PRIMARY KEY
    , song_title VARCHAR(50) NOT NULL
    , length_minutes INT NOT NULL
    , length_seconds INT NOT NULL
    , album_id INT FOREIGN KEY REFERENCES im_album(album_id) NOT NULL
    --, song_writer VARCHAR(30) NOT NULL
)
```

```
CREATE TABLE im_member_song(
    member_song_id INT IDENTITY PRIMARY KEY
    , band_member_id INT FOREIGN KEY REFERENCES
im_band_member(band_member_id) NOT NULL
    , song_id INT FOREIGN KEY REFERENCES im_song(song_id) NOT NULL
)
```

```
CREATE TABLE im_album_song(
    album_song_id INT IDENTITY PRIMARY KEY
    , album_id INT FOREIGN KEY REFERENCES im_album(album_id) NOT NULL
    , song_id INT FOREIGN KEY REFERENCES im_song(song_id) NOT NULL
)
```

```
CREATE TABLE im_producer (
    producer_id INT IDENTITY PRIMARY KEY
    , producer_name VARCHAR(40)
)
```

```
CREATE TABLE im_producer_album_list (
    producer_album_id INT IDENTITY PRIMARY KEY
    , producer_id INT FOREIGN KEY REFERENCES im_producer(producer_id) NOT
NULL
    , album_id INT FOREIGN KEY REFERENCES im_album(album_id)
)
```

```
CREATE TABLE im_album_studio (
    album_studio_id INT IDENTITY PRIMARY KEY
    , album_id INT FOREIGN KEY REFERENCES im_album(album_id)
    , studio_id INT FOREIGN KEY REFERENCES im_studio(studio_id)
)
```

```
CREATE TABLE im_album_recording_location (
    album_recording_location_id INT IDENTITY PRIMARY KEY
    , album_id INT FOREIGN KEY REFERENCES im_album(album_id)
    , recording_location_id INT FOREIGN KEY REFERENCES
im_recording_location(recording_location_id)
)
```

```
-- #####
```

```
-- ##### Insert Data #####
```

```
-- #####
```

```
-- List of instruments played by band members
```

```
INSERT INTO im_instrument_list
```

```
    (instrument_name)
```

```
VALUES ('Guitar'),('Drums'),('Vocals'),('Bass')
```

-- Members of the band

```
INSERT INTO im_band_member  
    (band_member_name, instrument_id)
```

```
VALUES ('Steve Harris', 4),('Dave Murray', 1),('Adrian Smith', 1),('Bruce Dickinson', 3)  
      ,('Nicko McBrain', 2),('Janick Gers', 1),('Doug Sampson', 2),('Paul  
Di'Anno', 3)  
      ,('Dennis Stratton', 1),('Clive Burr', 2),('Blaze Bayley', 3)
```

-- List of album certifications based on precious metals

```
INSERT INTO im_certification_rank_list (certification_rank)  
VALUES ('Silver'),('Gold'),('Platinum')
```

-- Studio albums

```
INSERT INTO im_album (album_title,track_count,album_length_minutes  
                      ,album_length_seconds,release_date,us_peak  
_charts,uk_peak_charts  
                      ,us_certification_id,uk_certification_id)
```

```
VALUES ('Iron Maiden', 8, 37, 35, '4/14/1980', 4, NULL, 3, NULL)  
      ,('Killers', 10, 38, 13, '2/2/1981', 12, 78, 2, 2)  
      , ('The Number of the Beast', 8, 39, 11, '3/22/1982', 1, 33, 3, 3)  
      , ('Piece of Mind', 9, 45, 18, '5/16/1983', 3, 14, 3, 3)  
      , ('Powerslave', 8, 51, 12, '9/3/1984', 2, 21, 2, 3)  
      , ('Somewhere In Time', 8, 51, 18, '9/29/1986', 3, 11, 2, 3)  
      , ('Seventh Son of a Seventh Son', 8, 43, 51, '4/11/1988', 1, 12, 2, 2)  
      , ('No Prayer for the Dying', 10, 43, 42, '10/1/1990', 2, 12, 2, 2)  
      , ('Fear of the Dark', 12, 57, 58, '5/11/1992', 1, 12, 2, NULL)  
      , ('The X Factor', 11, 71, 7, '10/2/1995', 8, 147, 1, NULL)  
      , ('Virtual XI', 8, 53, 22, '3/23/1998', 16, 124, 1, NULL)  
      , ('Brave New World', 10, 66, 57, '5/29/2000', 7, 39, 2, NULL)  
      , ('Dance of Death', 11, 67, 57, '9/8/2003', 2, 18, 2, NULL)
```

, ('A Matter of Life and Death', 10, 71, 53, '8/28/2006', 4, 9, 2, NULL)
, ('The Final Frontier', 10, 76, 34, '8/16/2010', 1, 4, 2, NULL)
, ('The Book of Souls', 11, 96, 46, '9/4/2015', 1, 4, 2, NULL)

-- How can I link writers from associative table?

-- Songs

```
INSERT INTO im_song (song_title, length_minutes, length_seconds, album_id)
VALUES ('Prowler', 3, 55, 1)
```

,('Remember Tomorrow', 5, 27, 1)
,('Running Free', 3, 16, 1)
,('Phantom of the Opera', 7, 20, 1)
,('Transylvania (Instrumental)', 4, 5, 1)
,('Strange World', 5, 45, 1)
,('Charlotte the Harlot', 4, 12, 1)
,('Iron Maiden', 3, 35, 1)
,('The Ides of March (Instrumental)', 1, 48, 2)
,('Wrathchild', 2, 54, 2)
,('Murders in the Rue Morgue', 4, 14, 2)
,('Another Life', 3, 22, 2)
,('Genghis Khan (Instrumental)', 3, 2, 2)
,('Innocent Exile', 3, 50, 2)
,('Killers', 4, 58, 2)
,('Prodigal Son', 6, 0, 2)
,('Purgatory', 3, 18, 2)
,('Drifter', 4, 47, 2)
,('Invaders', 3, 20, 3)
,('Children of the Damned', 4, 34, 3)
,('The Prisoner', 5, 34, 3)

,('22 Acacia Avenue', 6, 34, 3)
,('The Number of the Beast', 4, 25, 3)
,('Run to the Hills', 3, 50, 3)
,('Gangland', 3, 46, 3)
,('Hallowed Be Thy Name', 7, 8, 3)
,('Where Eagles Dare', 6, 8, 4)
,('Revelations', 6, 51, 4)
,('Flight of Icarus', 3, 49, 4)
,('Die with Your Boots On', 5, 22, 4)
,('The Trooper', 4, 10, 4)
,('Still Life', 4, 27, 4)
,('Quest for Fire', 3, 40, 4)
,('Sun and Steel', 3, 25, 4)
,('To Tame a Land', 7, 26, 4)
,('Aces High', 4, 31, 5)
,('2 Minutes to Midnight', 6, 4, 5)
,('Losfer Words (Big ''Orra) (Instrumental)', 4, 15, 5)
,('Flash of the Blade', 4, 5, 5)
,('The Duellists', 6, 18, 5)
,('Back in the Village', 5, 2, 5)
,('Powerslave', 7, 12, 5)
,('Rime of the Ancient Mariner', 1, 45, 5)
,('Caught Somewhere in Time', 7, 22, 6)
,('Wasted Years', 5, 6, 6)
,('Sea of Madness', 5, 42, 6)
,('Heaven Can Wait', 7, 24, 6)
,('The Loneliness of the Long Distance Runner', 6, 31, 6)
,('Stranger in a Strange Land', 5, 43, 6)
,('Deja-Vu', 4, 55, 6)

,('Alexander the Great', 8, 35, 6)
,('Moonchild', 5, 38, 7)
,('Infinite Dreams', 6, 8, 7)
,('Can I Play with Madness', 3, 30, 7)
,('The Evil That Men Do', 4, 33, 7)
,('Seventh Son of a Seventh Son', 9, 52, 7)
,('The Prophecy', 5, 4, 7)
,('The Clairvoyant', 4, 26, 7)
,('Only the Good Die Young', 4, 40, 7)
,('Tailgunner', 4, 13, 8)
,('Holy Smoke', 3, 47, 8)
,('No Prayer for the Dying', 4, 22, 8)
,('Public Enema Number One', 4, 3, 8)
,('Fates Warning', 4, 9, 8)
,('The Assassin', 4, 16, 8)
,('Run Silent Run Deep', 4, 4, 8)
,('Hooks in You', 4, 6, 8)
,('Bring Your Daughter... to the Slaughter', 4, 42, 8)
,('Mother Russia', 5, 30, 8)
,('Be Quick or Be Dead', 3, 21, 9)
,('From Here to Eternity', 3, 35, 9)
,('Afraid to Shoot Strangers', 6, 52, 9)
,('Fear Is the Key', 5, 30, 9)
,('Childhood''s End', 4, 37, 9)
,('Wasting Love', 5, 46, 9)
,('The Fugitive', 4, 52, 9)
,('Chains of Misery', 3, 33, 9)
,('The Apparition', 3, 53, 9)
,('Judas Be My Guide', 3, 6, 9)

,('Weekend Warrior', 5, 37, 9)
,('Fear of the Dark', 7, 16, 9)
,('Sign of the Cross', 11, 18, 10)
,('Lord of the Flies', 5, 4, 10)
,('Man on the Edge', 4, 13, 10)
,('Fortunes of War', 7, 24, 10)
,('Look for the Truth', 5, 10, 10)
,('The Aftermath', 6, 21, 10)
,('Judgement of Heaven', 5, 12, 10)
,('Blood on the World''s Hands', 5, 58, 10)
,('The Edge of Darkness', 6, 39, 10)
,('2 A.M.', 5, 38, 10)
,('The Unbeliever', 8, 10, 10)
,('Futureal', 3, 0, 11)
,('The Angel and the Gambler', 9, 51, 11)
,('Lightning Strikes Twice', 4, 49, 11)
,('The Clansman', 9, 6, 11)
,('When Two Worlds Collide', 6, 13, 11)
,('The Educated Fool', 6, 46, 11)
,('Don''t Look to the Eyes of a Stranger', 8, 11, 11)
,('Como Estais Amigos', 5, 26, 11)
,('The Wicker Man', 4, 35, 12)
,('Ghost of the Navigator', 6, 50, 12)
,('Brave New World', 6, 18, 12)
,('Blood Brothers', 7, 14, 12)
,('The Mercenary', 4, 42, 12)
,('Dream of Mirrors', 9, 21, 12)
,('The Fallen Angel', 4, 0, 12)
,('The Nomad', 9, 6, 12)

,('Out of the Silent Planet',6, 25, 12)
,('The Thin Line Between Love and Hate',8, 26, 12)
,('Wildest Dreams',3, 52, 13)
,('Rainmaker',3, 48, 13)
,('No More Lies',7, 21, 13)
,('Montsegur',5, 50, 13)
,('Dance of Death',8, 36, 13)
,('Gates of Tomorrow',5, 12, 13)
,('New Frontier',5, 4, 13)
,('Paschendale',8, 27, 13)
,('Face in the Sand',6, 31, 13)
,('Age of Innocence',6, 10, 13)
,('Journeyman',7, 6, 13)
,('Different World',4, 17, 14)
,('These Colours Don''t Run',6, 52, 14)
,('Brighter Than a Thousand Suns',8, 44, 14)
,('The Pilgrim',5, 7, 14)
,('The Longest Day',7, 48, 14)
,('Out of the Shadows',5, 36, 14)
,('The Reincarnation of Benjamin Breeg',7, 21, 14)
,('For the Greater Good of God',9, 23, 14)
,('Lord of Light',7, 25, 14)
,('The Legacy',9, 20, 14)
,('Satellite 15... The Final Frontier',8, 40, 15)
,('El Dorado',6, 49, 15)
,('Mother of Mercy',5, 20, 15)
,('Coming Home',5, 52, 15)
,('The Alchemist',4, 29, 15)
,('Isle of Avalon',9, 6, 15)

,('Starblind',7, 48, 15)
,('The Talisman',9, 3, 15)
,('The Man Who Would Be King',8, 28, 15)
,('When the Wild Wind Blows',10, 59, 15)
,('If Eternity Should Fail',8, 28, 16)
,('Speed Of Light',5, 1, 16)
,('The Great Unknown',6, 37, 16)
,('The Red And The Black',13, 33, 16)
,('When The River Runs Deep',10, 27, 16)
,('The Book Of Souls',10, 27, 16)
,('Death Or Glory',5, 13, 16)
,('Shadows Of The Valley',7, 32, 16)
,('Tears Of A Clown',4, 59, 16)
,('The Man Of Sorrows',6, 28, 16)
,('Empire Of The Clouds',18, 1, 16)

-- Associative table for albums and songs

INSERT INTO im_album_song (album_id,song_id)

-- Iron Maiden

VALUES (1,1),(1,2),(1,3),(1,4),(1,5),(1,6),(1,7),(1,8)

-- Killers

,(2,9),(2,10),(2,11),(2,12),(2,13),(2,14),(2,15),(2,16),(2,17),(2,18)

-- The Number of the Beast

,(3,19),(3,20),(3,21),(3,22),(3,23),(3,24),(3,25),(3,26)

-- Piece of Mind

,(4,27),(4,28),(4,29),(4,30),(4,31),(4,32),(4,33),(4,34),(4,35)

-- Powerslave

,(5,36),(5,37),(5,38),(5,39),(5,40),(5,41),(5,42),(5,43)

-- Somewhere in Time

,(6,44),(6,45),(6,46),(6,47),(6,48),(6,49),(6,50),(6,51)

-- Seventh Son of a Seventh Son

,(7,52),(7,53),(7,54),(7,55),(7,56),(7,57),(7,58),(7,59)

-- No Prayer for the Dying

,(8,60),(8,61),(8,62),(8,63),(8,64),(8,65),(8,66),(8,67),(8,68),(8,69)

-- Fear of the Dark

,(9,70),(9,71),(9,72),(9,73),(9,74),(9,75),(9,76),(9,77),(9,78),(9,79),(9,80),(9,81)

-- The X-Factor

,(10,82),(10,83),(10,84),(10,85),(10,86),(10,87),(10,88),(10,89),(10,90),
(10,91),(10,92)

-- Virtual XI

,(11,93),(11,94),(11,95),(11,96),(11,97),(11,98),(11,99),(11,100)

-- Brave New World

,(12,101),(12,102),(12,103),(12,104),(12,105),(12,106),(12,107),(12,108),
(12,109),(12,110)

-- Dance of Death

,(13,111),(13,112),(13,113),(13,114),(13,115),(13,116),(13,117),(13,118),
(13,119),(13,120),(13,121)

-- A Matter of Life and Death

,(14,122),(14,123),(14,124),(14,125),(14,126),(14,127),(14,128),(14,129),
(14,130),(14,131)

-- The Final Frontier

,(15,132),(15,133),(15,134),(15,135),(15,136),(15,137),(15,138),(15,139),
(15,140),(15,141)

-- The Book of Souls

,(16,142),(16,143),(16,144),(16,145),(16,146),(16,147),(16,148),(16,149),
(16,150),(16,151),(16,152)

-- Producers of albums

INSERT INTO im_producer (producer_name)

VALUES ('Will Malone'),('Martin Birch'),('Steve Harris'),('Nigel Green'),('Kevin Shirley')

-- Recording locations of albums

INSERT INTO im_recording_location (recording_location)

VALUES ('Kingsway Studios'),('Battery Studis'),('Compass Point Studios'),('Wisseloord Studios')

,('Musicland Studios'),('Barnyard Studios'),('Gullaume Tell Studios'),('Sarm West Studios')

,('The Cave Studios')

-- Studios that distributed the albums

INSERT INTO im_studio (studio_name)

VALUES ('EMI (Europe)'),('EMI'),('EMI (EMC 3400)'),('Harvest (North America)'),('Capitol (North America)')

,('Capitol (US)'),('Epic (US)'),('CMC (North America)'),('BMG (US)'),('CMC (US)'),('Portrait (US)')

,('Columbia (US)'),('Sanctuary (US)'),('EMI UME'),('Sony (US)'),
('Parlophone'),('Sanctuary Copyrights (US)')

-- Associative table for albums and studios

INSERT INTO im_album_studio (album_id,studio_id)

VALUES (1,1), (1,4), (2,2), (2,4), (2,5), (3,3), (3,4), (4,2), (4,5)

, (5,2), (5,5), (6,2), (6,5), (7,2), (7,6), (8,2), (8,7)

, (9,2), (9,7), (10,2), (10,8), (11,2), (11,10), (11,9), (12,2), (12,11), (12,12)

, (13,2), (13,12), (14,2), (14,13), (15,14), (15,15), (16,16), (16,17), (16,9)

-- Associative table for albums and producers

INSERT INTO im_producer_album_list (album_id,producer_id)

VALUES (1,1), (2,2), (3,2), (4,2)

, (5,2), (6,2), (7,2), (8,2)

, (9,2), (9,3), (10,3), (10,4), (11,3), (11,4), (12,5), (12,3)

, (13,5), (13,3), (14,5), (14,3), (15,5), (15,3), (16,5), (16,3)

-- Associative Table for albums and recording locations

INSERT INTO im_album_recording_location (album_id,recording_location_id)

VALUES (1,1), (2,2), (3,2), (4,3)

, (5,3), (6,3), (6,4), (7,5), (8,6)

, (9,6), (10,6), (11,6), (12,7)

, (13,8), (14,8), (15,3), (15,9), (16,7)

-- Associative table for songs and the band members who contributed to writing them

INSERT INTO im_member_song (song_id,band_member_id)

--Iron Maiden

VALUES (1,1), (2,1), (2,8), (3,1), (3,8), (4,1), (5,1), (6,1), (7,2), (8,1)

-- Killers

, (9,1), (10,1), (11,1), (12,1), (13,1), (14,1), (15,1), (15,8), (16,1), (17,1), (18,1)

-- The Number of the Beast

, (19,1), (20,1), (21,1), (21,3), (22,1), (22,3), (23,1), (24,1), (25,3), (25,10),
(26,1)

-- Piece of Mind

, (27,1), (28,4), (29,3), (29,4), (30,1), (30,3), (30,4), (31,1), (32,1), (32,2),
(33,1), (34,4), (34,3), (35,1)

-- Powerslave

, (36,1), (37,3), (37,4), (38,1), (39,4), (40,1), (41,3), (41,4), (42,4), (43,1)

-- Somewhere in Time

, (44,1), (45,3), (46,3), (47,1), (48,1), (49,3), (50,2), (50,1), (51,1)

-- Seventh Son of a Seventh Son

, (52,3), (52,4), (53,1), (54,3), (54,4), (54,1), (55,3), (55,4), (55,1), (56,1),
(57,2), (57,1), (58,1), (59,1), (59,4)

--No Prayer for the Dying

, (60,1), (60,4), (61,1), (61,4), (62,1), (63,2), (63,4), (64,2), (64,1), (65,1),
(66,1), (66,4), (67,4), (67,3), (68,4), (69,1)

-- Fear of the Dark

, (70,4), (70,6), (71,1), (72,1), (73,4), (73,6), (74,1), (75,4), (75,6), (76,1),
(77,4), (77,2), (78,1), (78,6), (79,4), (79,2), (80,1), (80,6), (81,1)

-- The X-Factor

, (82,1), (83,1), (83,6), (84,11), (84,6), (85,1), (86,11), (86,6), (86,1), (87,1),
(87,11), (87,6), (88,1), (89,1), (90,1), (90,11), (90,6), (91,11), (91,6), (91,1), (92,1), (92,6)

-- Virtual XI

, (93,1), (93,11), (94,1), (95,2), (95,1), (96,1), (97,2), (97,11), (97,1), (98,1),
(99,1), (100,6), (100,11)

-- Brave New World

, (101,3), (101,1), (101,4), (102,6), (102,4), (102,1), (103,2), (103,1), (103,4),
(104,1), (105,6), (105,1), (106,6), (106,1), (107,3), (107,1), (108,2), (108,1), (109,1),
(109,4), (109,1), (110,2), (110,1)

-- Dance of Death

, (111,3), (111,1), (112,1), (112,2), (112,4), (113,1), (114,6), (114,1), (114,4),
(115,6), (115,1), (116,6), (116,1), (116,4), (117,5), (117,3), (117,4), (118,3), (118,1),
(119,3), (119,1), (119,4), (120,2), (120,1), (121,4), (121,1), (121,3)

-- A Matter of Life and Death

, (122,3), (122,1), (123,3), (123,1), (123,4), (124,3), (124,1), (124,4), (125,6),
(125,1), (126,3), (126,1), (126,4), (127,4), (127,1), (128,2), (128,1), (129,1), (130,3),
(130,1), (130,4), (131,1), (131,6)

-- The Final Frontier

, (132,3), (132,1), (133,3), (133,1), (133,4), (134,3), (134,1), (135,3), (135,1),
(135,4), (136,6), (136,1), (136,4), (137,3), (137,1), (138,3), (138,1), (138,4), (139,6),
(139,1), (140,2), (140,1), (141,1)

-- The Book of Souls

, (142,4), (143,3), (143,4), (144,3), (144,1), (145,1), (146,3), (146,1), (147,6),
(147,1), (148,3), (148,4), (149,6), (149,1), (150,3), (150,1), (151,2), (151,1), (152,4)

UI APPLICATION SAMPLE

The image shows a mobile application interface with the following components:

- Top Bar:** Displays signal strength, carrier name, battery level (98%), and time (11:55PM).
- Search Bar:** A grey search bar with a magnifying glass icon and the word "Search".
- Album Section:** A dropdown menu labeled "Album" containing the following items:
 - Iron Maiden
 - Killers
 - The Number of the Beast
 - Piece of Mind
 - Powerslave
 - Somewhere in TimeA vertical scroll bar is visible on the right side of the list.
- Report Section:** A dropdown menu labeled "Report" containing the following items:
 - Duration Report
 - Personnel
 - Track Listing
 - UK Performace
 - US Performance
 - Writing CreditA vertical scroll bar is visible on the right side of the list.
- Results Section:** A blue header bar with the text "Results" on the left and "Download Report" on the right.
- Data Table:** A green-bordered table with three columns and four rows, labeled "Title 1", "Title 2", and "Title 3".

Title 1	Title 2	Title 3
Value 1	Value 2	Value 3
Value 4	Value 5	Value 6
Value 7	Value 8	Value 9
Value 10	Value 11	Value 12
- Bar Chart:** A chart showing five bars of different colors (blue, orange, red, teal, dark blue) with varying heights.

KREFLECTION

- What assumptions did you have at the start of your project that changed by the end? Think in terms of both your own problem domain as well as your knowledge of the process.
 - I had assumed that there would only be a few tables and connectivity would be easy. In other words, I figured that having the same value(s) in my tables would not matter because I would have everything I needed on one table. It wasn't until I learned about, and implemented, the associate tables (not to mention 0NF, 1NF, 2NF, and 3NF), that I realized the error in my assumption and built a better functioning database.
- The next time you do this, what will be different?
 - I will likely map out my associative tables first. In addition, I would likely create a script to collect my data and insert it in to my database, instead of writing many INSERT statements.
- Regardless of whether you go through these steps again, how do you think it will inform your approach to data as an information professional?
 - Perhaps the most important takeaways were learning about 0NF, 1NF, 2NF, and 3NF as well as consistent naming conventions for tables and columns. The database at work lacks heavily in both of these areas and thanks to this class, I recognize it and may be able to take steps to help improve it.