

# GROUP DATABASE PROJECT: ROLLING STONES TOP 500 ALBUMS

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# Finding our data set

- Found from links provided from professor
- Found on GitHub
- We chose this dataset because we thought it would be fun
- <https://github.com/rfordatascience/tidytuesday/blob/master/data/2024/2024-05-07/readme.md>



# Import Data In Our Set

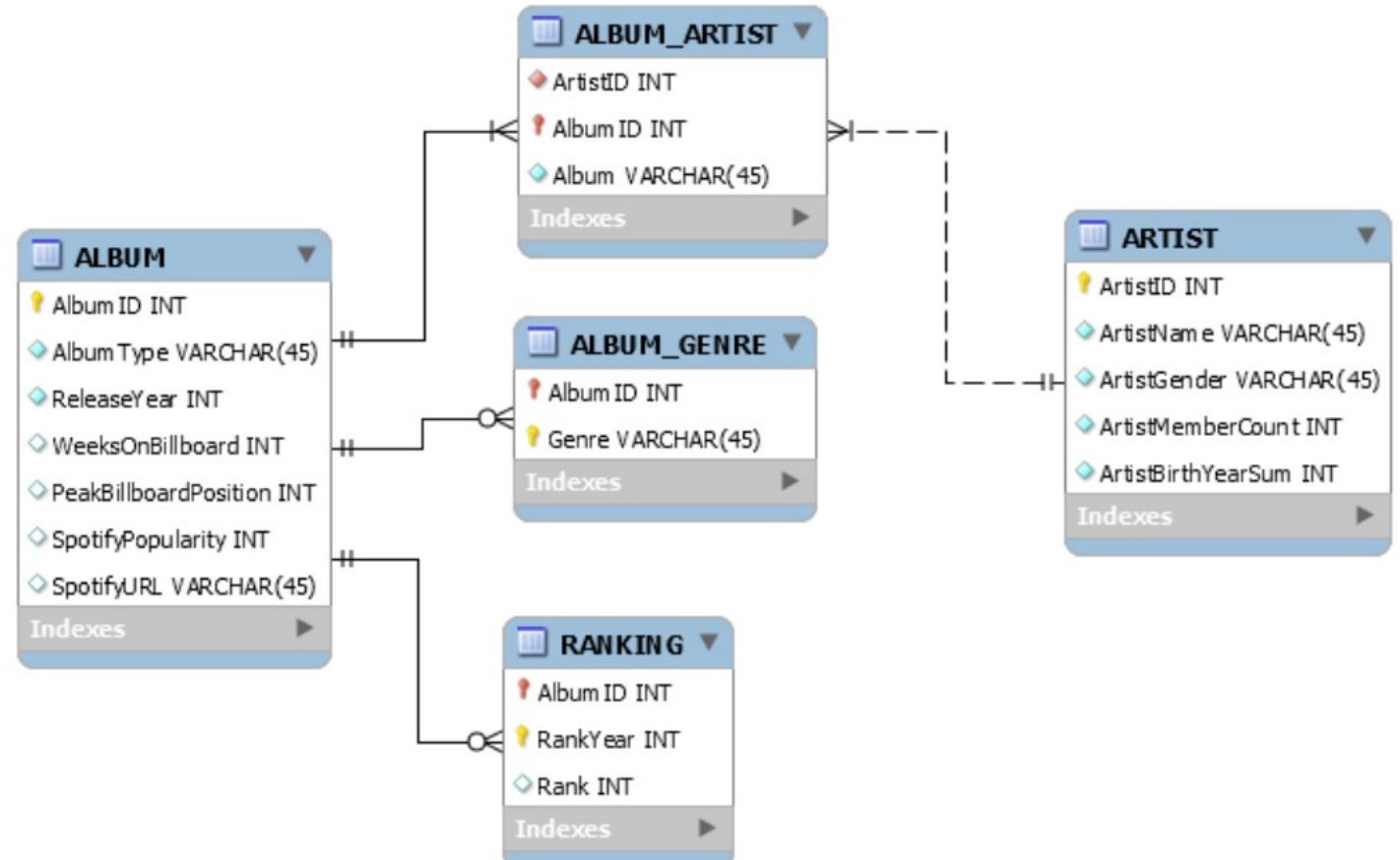
- Album, Artist, Genre
- Release Year
- Ranking
- Weeks On Billboard
- Spotify Information



- Lots of Null Values

- Created Own AlbumID & ArtistID

# Database Design



# Creating Tables (Album)

| AlbumID | Album                      | Album_Type  | Release_Year | Wks_Billboard | Peak_Position | Spotify_Popularity | Spotify_URL                           |
|---------|----------------------------|-------------|--------------|---------------|---------------|--------------------|---------------------------------------|
| 1       | In the Wee Small Hours     | Studio      | 1955         | 14            | 2             | 48                 | spotify:album:3GmwKB1taPZoXeRJZSm9WX  |
| 2       | Bo Diddley / Go Bo Diddley | Studio      | 1955         | NULL          | 201           | 50                 | spotify:album:1cblDEwxCiMhblb49OaNBR  |
| 3       | Elvis Presley              | Studio      | 1956         | 100           | 1             | 58                 | spotify:album:7GXP5OhYvPVLmcVfO9Iain  |
| 4       | Songs for Swinain' Lovers! | Studio      | 1956         | NULL          | 2             | 62                 | spotify:album:4kca7vXd1Wo5GE2DMafvMc  |
| 5       | Here's Little Richard      | Studio      | 1957         | 5             | 13            | 64                 | spotify:album:18tV6PLXYvVisdOVk0S7M8  |
| 6       | Lemonade                   | Studio      | 2016         | 87            | 1             | 73                 | spotify:album:7dK54iZuOxXFarGhXwEXff  |
| 7       | Back to Black              | Studio      | 2006         | 173           | 2             | 67                 | spotify:album:097eYvf9NKiFrv4xA9s2oV  |
| 8       | The "Chirping" Crickets    | Studio      | 1957         | NULL          | 201           | 47                 | spotify:album:1KfXNUbZrdwHMTkAGNBLBa  |
| 9       | Hounds of Love             | Studio      | 1985         | 27            | 30            | 75                 | spotify:album:5G5UwaPsxDKoxJLX4xsvuh  |
| 10      | Kind of Blue               | Studio      | 1959         | NULL          | 201           | 52                 | spotify:album:1weenld61aoidwYuZ1GESA  |
| 11      | Giant Steps                | Studio      | 1959         | NULL          | 201           | 36                 | spotify:album:6NkoPYCMAztIRIKDouJrFo  |
| 12      | Bevonce                    | Studio      | 2013         | 186           | 1             | 75                 | spotify:album:2UJwKSBUz6rtW4OLK74kOu  |
| 13      | The Shape of Jazz to Come  | Studio      | 1959         | NULL          | 201           | 34                 | spotify:album:2iPH3iUmpa9ufIowY76keF  |
| 14      | Baduizm                    | Studio      | 1997         | 58            | 2             | 67                 | spotify:album:3ar4oTBWEU1SVf01i6RAX3  |
| 15      | Supa Dupa Flv              | Studio      | 1997         | 37            | 3             | 53                 | spotify:album:6UkdvvPEIK6JDkverCibI2  |
| 16      | Moanin' in the Moonlight   | Compilation | 1959         | NULL          | 201           | 53                 | spotify:album:76MT4azC1oSVSYnHHIMam   |
| 17      | Red                        | Studio      | 2012         | 185           | 1             | 62                 | spotify:album:1EoDsNmQTLtmwe1BDAXvV5  |
| 18      | When the Pawn...           | Studio      | 1999         | 20            | 13            | 64                 | spotify:album:3o5EnVZNJxtPv8tCoaaiI   |
| 19      | The Genius of Ray Charles  | Studio      | 1959         | NULL          | 17            | 52                 | spotify:album:4GFVWnwli2cVOBo2G1zahV1 |
| 20      | Control                    | Studio      | 1986         | 106           | 1             | 54                 | spotify:album:7GWkceE5McMvfffd1RGL6Y  |



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# Creating Tables (Album Genre)

| AlbumID | Genre         |
|---------|---------------|
| 1       | Bio Band      |
| 1       | Jazz          |
| 2       | Rhvtm & Blues |
| 2       | Rock n' Roll  |
| 3       | Rhvtm & Blues |
| 3       | Rock n' Roll  |
| 4       | Bio Band      |
| 4       | Jazz          |
| 7       | Gospel        |
| 7       | R&B           |
| 7       | Soul          |
| 8       | Rhvtm & Blues |
| 8       | Rock n' Roll  |
| 10      | Bio Band      |
| 10      | Jazz          |
| 11      | Bio Band      |
| 11      | Jazz          |
| 13      | Bio Band      |
| 13      | Jazz          |
| 14      | Gospel        |
| 14      | R&B           |
| 14      | Soul          |
| 15      | Hip-Hop       |
| 15      | Rap           |



# Creating Tables (Artist)

| ArtistID | ArtistName      | Artist_Gender | Member_Count | Artist_Birth_Year_Sum |
|----------|-----------------|---------------|--------------|-----------------------|
| 1        | Frank Sinatra   | Male          | 1            | 1915                  |
| 2        | Bo Diddley      | Male          | 1            | 1928                  |
| 3        | Elvis Presley   | Male          | 1            | 1935                  |
| 4        | Little Richard  | Male          | 1            | 1932                  |
| 5        | Bevonce         | Female        | 1            | 1981                  |
| 6        | Amy Winehouse   | Female        | 1            | 1983                  |
| 7        | Buddy Holly     | Male          | 4            | 7752                  |
| 8        | Kate Bush       | Female        | 1            | 1958                  |
| 9        | Miles Davis     | Male          | 1            | 1926                  |
| 10       | John Coltrane   | Male          | 1            | 1926                  |
| 11       | Ornette Coleman | Male          | 1            | 1930                  |
| 12       | Ervkah Badu     | Female        | 1            | 1971                  |
| 13       | Missy Elliott   | Female        | 1            | 1971                  |
| 14       | Howlin' Wolf    | Male          | 1            | 1910                  |
| 15       | Taylor Swift    | Female        | 1            | 1989                  |
| 16       | Fiona Apple     | Female        | 1            | 1977                  |
| 17       | Rav Charles     | Male          | 1            | 1930                  |
| 18       | Janet Jackson   | Female        | 1            | 1966                  |
| 19       | Etta James      | Female        | 1            | 1938                  |
| 20       | Joni Mitchell   | Female        | 1            | 1943                  |





# Creating Tables (Album Artist)

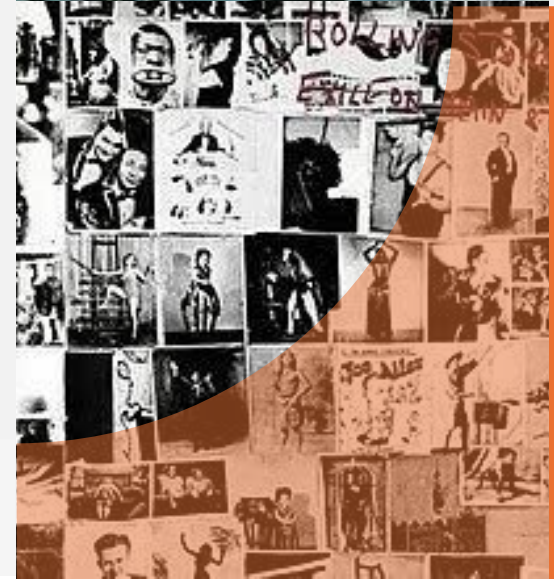
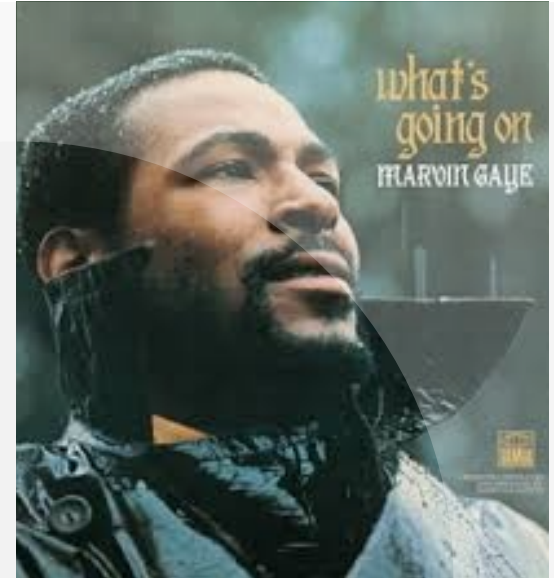
| ArtistID | AlbumID | Album                      |
|----------|---------|----------------------------|
| 1        | 1       | In the Wee Small Hours     |
| 1        | 4       | Songs for Swinain' Lovers! |
| 2        | 2       | Bo Diddlev / Go Bo Diddlev |
| 3        | 3       | Elvis Preslev              |
| 3        | 175     | From Elvis in Memphis      |
| 3        | 377     | The Sun Sessions           |
| 4        | 5       | Here's Little Richard      |
| 5        | 6       | Lemonade                   |
| 5        | 12      | Bevonce                    |
| 6        | 7       | Back to Black              |
| 7        | 8       | The "Chirping" Crickets    |
| 7        | 441     | 20 Golden Greats           |
| 8        | 9       | Hounds of Love             |
| 9        | 10      | Kind of Blue               |
| 9        | 25      | Sketches of Spain          |
| 9        | 192     | Bitches Brew               |
| 10       | 11      | Giant Steps                |
| 10       | 90      | A Love Supreme             |





# Creating Tables (Ranking)

| AlbumID | RankYear | Rank |
|---------|----------|------|
| 1       | 2003     | 100  |
| 1       | 2012     | 101  |
| 1       | 2020     | 282  |
| 2       | 2003     | 214  |
| 2       | 2012     | 216  |
| 2       | 2020     | 455  |
| 3       | 2003     | 55   |
| 3       | 2012     | 56   |
| 3       | 2020     | 332  |
| 4       | 2003     | 306  |
| 4       | 2012     | 308  |
| 5       | 2003     | 50   |
| 5       | 2012     | 50   |
| 5       | 2020     | 227  |
| 6       | 2020     | 32   |
| 7       | 2012     | 451  |
| 7       | 2020     | 33   |
| 8       | 2003     | 421  |



# Entering data into database

```
INSERT INTO Album
```

```
(AlbumID, Album, ReleaseYear, WeeksOnBillboard, PeakBillboardPosition, SpotifyPopularity, SpotifyURL)
```

```
SELECT AlbumID, Album, ReleaseYear, WeeksOnBillboard, PeakBillboardPosition, SpotifyPopularity, SpotifyURL  
FROM DBProject;
```

```
INSERT INTO ALBUM_GENRE (AlbumID, AlbumGenre)
```

```
SELECT a.AlbumID, dp.AlbumGenre
```

```
FROM ALBUM a
```

```
JOIN DBProject dp ON a.AlbumID = dp.AlbumID;
```



# Entering data into database

```
INSERT INTO ARTIST (ArtistID, ArtistName, ArtistGender, ArtistMemberCount, ArtistBirthYearSum)
SELECT DISTINCT dp.ArtistID, dp.ArtistName, dp.ArtistGender, dp.ArtistMemberCount, dp.ArtistBirthYearSum
FROM DBProject dp;
```

```
INSERT INTO ALBUM_ARTIST (ArtistID, AlbumID, Album)
SELECT DISTINCT a.ArtistID, dp.AlbumID, dp.Album
FROM ARTIST a
JOIN DBProject dp ON a.ArtistName = dp.ArtistName;
```





# Query 1

| Release_Year | AVG(ARTIST.Member_Count) |
|--------------|--------------------------|
| 1958         | 1.0000                   |
| 1959         | 1.0000                   |
| 1960         | 1.0000                   |
| 1961         | 1.0000                   |
| 1962         | 1.0000                   |
| 1963         | 2.2000                   |
| 1964         | 2.5000                   |
| 1965         | 3.3846                   |
| 1966         | 3.6429                   |
| 1967         | 3.4286                   |
| 1968         | 3.4762                   |
| 1969         | 4.1364                   |
| 1970         | 3.2143                   |
| 1971         | 3.1739                   |
| 1972         | 2.1538                   |
| 1973         | 3.8261                   |
| 1974         | 2.4375                   |
| 1975         | 3.0476                   |
| 1976         | 2.2308                   |
| 1977         | 3.3333                   |
| 1978         | 3.6875                   |
| 1979         | 3.1333                   |
| 1980         | 3.3000                   |
| 1981         | 4.3333                   |
| 1982         | 1.8571                   |
| 1983         | 3.2857                   |
| 1984         | 3.0000                   |
| 1985         | 3.2000                   |

|      |        |
|------|--------|
| 1986 | 2.1111 |
| 1987 | 3.0769 |
| 1988 | 3.3750 |
| 1989 | 2.0000 |
| 1990 | 3.2500 |
| 1991 | 2.9286 |
| 1992 | 2.1111 |
| 1993 | 3.1667 |
| 1994 | 2.5625 |
| 1995 | 3.8750 |
| 1996 | 1.4000 |
| 1997 | 1.8750 |
| 1998 | 2.0000 |
| 1999 | 2.2222 |
| 2000 | 1.8889 |
| 2001 | 2.8750 |
| 2002 | 1.5000 |
| 2003 | 1.3333 |
| 2004 | 1.0000 |
| 2005 | 1.0000 |
| 2007 | 1.0000 |
| 2010 | 1.0000 |
| 2011 | 1.0000 |
| 2012 | 1.0000 |
| 2014 | 1.0000 |
| 2015 | 1.0000 |
| 2016 | 1.0000 |
| 2017 | 1.0000 |

```
select ALBUM.Release_Year,AVG(ARTIST.Member_Count)
from ALBUM
join ALBUM_ARTIST on ALBUM_ARTIST.AlbumID = ALBUM.AlbumID
join ARTIST on ALBUM_ARTIST.ArtistID = ARTIST.ArtistID
join RANKING on RANKING.AlbumID= ALBUM.AlbumID
where RankYear = 2003
group by ALBUM.Release_Year;
```

This Query shows the average member count of groups in the Rolling Stone's top 500 albums for each year





# Query 2

|  | Spotify_Popularity | Wks_Billboard | Album                                       |
|--|--------------------|---------------|---|
|  | 64                 | 5             | Here's Little Richard                       |
|  | 52                 | 1             | Body Talk                                   |
|  | 72                 | 1             | Please Please Me                            |
|  | 58                 | 9             | Stories From the City. Stories From the Sea |
|  | 74                 | 1             | Amor Prohibido                              |
|  | 66                 | 3             | Axis: Bold as Love                          |
|  | 69                 | 1             | Electric Ladyland                           |
|  | 74                 | 1             | Green River                                 |
|  | 65                 | 2             | Lavla and Other Assorted Love Songs         |
|  | 74                 | 1             | Cosmo's Factory                             |
|  | 54                 | 3             | John Prine                                  |
|  | 62                 | 1             | Either/Or                                   |
|  | 58                 | 8             | The Harder They Come                        |
|  | 52                 | 1             | Wowee Zowee                                 |
|  | 60                 | 4             | Nilsson Schmilsson                          |
|  | 58                 | 6             | Burnin'                                     |
|  | 61                 | 5             | Catch a Fire                                |
|  | 73                 | 1             | Madvillainy                                 |
|  | 54                 | 6             | The Clash                                   |
|  | 55                 | 3             | Sound of Silver                             |
|  | 53                 | 7             | Rain Dogs                                   |
|  | 70                 | 7             | Grace                                       |
|  | 66                 | 7             | Mezzanine                                   |

|  | Spotify_Popularity | Wks_Billboard | Album                               |
|--|--------------------|---------------|-------------------------------------|
|  | 49                 | 334           | Ctrl                                |
|  | 32                 | 297           | Man on the Moon: The End of the Day |

```
select Spotify_Popularity, Wks_Billboard, Album
from ALBUM
where Spotify_Popularity >50 and Wks_Billboard<10;
```

```
select Spotify_Popularity, Wks_Billboard, Album
from ALBUM
where Spotify_Popularity <50 and Wks_Billboard>200;
```

This query shows albums that were top 50 in Spotify popularity as well as having over 200 weeks on the top 100 billboard. It also shows albums that did not have many weeks on the top 100 billboard but were popular on Spotify



# Query 3

```
select ARTIST.ArtistName, count(ALBUM.Album) as AlbumCount
from ALBUM
join ALBUM_ARTIST on ALBUM_ARTIST.AlbumID = ALBUM.AlbumID
join ARTIST on ALBUM_ARTIST.ArtistID = ARTIST.ArtistID
group by ARTIST.ArtistName
order by AlbumCount Desc;
```

This query shows how many albums each artist or group had in Rolling Stone's top 500 a

| ArtistName           | AlbumCount |
|----------------------|------------|
| The Beatles          | 11         |
| Rollina Stones       | 10         |
| Bruce Sprinasteen    | 9          |
| The Who              | 7          |
| David Bowie          | 7          |
| Elton John           | 6          |
| Kanve West           | 6          |
| Neil Young           | 6          |
| Bob Marlev           | 5          |
| James Brown          | 5          |
| Radiohead            | 5          |
| U2                   | 5          |
| Otis Reddina         | 5          |
| The Bvrds            | 5          |
| The Beach Boys       | 5          |
| Led Zeppelin         | 5          |
| Various Artists      | 5          |
| Pink Flovd           | 4          |
| Slv & The Familv ... | 4          |
| The Smiths           | 4          |
| The Velvet Under...  | 4          |
| Prince               | 4          |
| Talking Heads        | 4          |
| Grateful Dead        | 4          |





# Query 4

| Album                      | ArtistName      |
|----------------------------|-----------------|
| In the Wee Small Hours     | Frank Sinatra   |
| Sonos for Swinain' Lovers! | Frank Sinatra   |
| Kind of Blue               | Miles Davis     |
| Sketches of Spain          | Miles Davis     |
| Bitches Brew               | Miles Davis     |
| Giant Steps                | John Coltrane   |
| A Love Supreme             | John Coltrane   |
| The Shape of Jazz to Come  | Ornette Coleman |
| Ladv in Satin              | Billie Holiday  |
| Getz / Gilberto            | Getz & Gilberto |
| Journev in Satchidanada    | Alice Coltrane  |
| Head Hunters               | Herbie Hancock  |
| Stardust                   | Willie Nelson   |
| Minous Ah Um               | Charles Minous  |

```
Select ALBUM.Album, ARTIST.ArtistName
from ALBUM
join ALBUM_ARTIST on ALBUM_ARTIST.AlbumID = ALBUM.AlbumID
join ARTIST on ALBUM_ARTIST.ArtistID = ARTIST.ArtistID
where ALBUM.AlbumID in
(select ALBUM_GENRE.AlbumID
From ALBUM_GENRE
where Genre = 'Jazz');
```



is query shows just jazz albums that  
ere in the Rolling Stone's top 500 album

# Query 5

This query shows just albums that had over 200 weeks on top 100 billboard as well as were ranked top 100. It also shows albums that were on the billboard for over 200 weeks but are not ranked in the top 100 albums.

| Album                     | Wks_Billboard | Rank | RankYear |
|---------------------------|---------------|------|----------|
| Tapestry                  | 302           | 36   | 2003     |
| Led Zeppelin IV           | 218           | 66   | 2003     |
| The Dark Side of the Moon | 741           | 43   | 2003     |
| Nevermind                 | 252           | 17   | 2003     |

| Album                                   | Wks_Billboard | Rank | RankYear |
|---|---------------|------|----------|
| 21                                      | 588           | 226  | 2003     |
| 1989                                    | 464           | 388  | 2003     |
| When We All Fall Asleep Where Do We Go? | 240           | 396  | 2003     |
| Ctrl                                    | 334           | 449  | 2003     |
| My Beautiful Dark Twisted Fantasy       | 243           | 520  | 2003     |
| Sat. Pepper's Lonely Hearts Club Band   | 233           | 573  | 2003     |
| Blonde                                  | 354           | 705  | 2003     |
| Take Care                               | 557           | 743  | 2003     |
| good kid, m.A.A.d city                  | 575           | 792  | 2003     |
| Ten                                     | 250           | 207  | 2003     |
| Metallica                               | 281           | 252  | 2003     |



```
select ALBUM.Album, ALBUM.Wks_Billboard, RANKING.Rank, RANKING.RankYear
from ALBUM join RANKING on RANKING.AlbumID= ALBUM.AlbumID
where Wks_Billboard > 200 and Rank<100 and RankYear = 2003;
```

```
select ALBUM.Album, ALBUM.Wks_Billboard, RANKING.Rank, RANKING.RankYear
from ALBUM join RANKING on RANKING.AlbumID= ALBUM.AlbumID
where Wks_Billboard > 200 and Rank>100 and RankYear = 2003;
```



# Views

#ALBUM\_ARTIST table - showcase all albums in top 500 associated with each artist

```
CREATE OR REPLACE VIEW View_Album_Artist_Top500 AS
```

```
SELECT
```

```
  AA.ArtistID,  
  ART.ArtistName,  
  AA.AlbumID,  
  AA.Album
```

```
FROM ALBUM_ARTIST AA
```

```
JOIN ARTIST ART ON AA.ArtistID = ART.ArtistID
```

```
WHERE
```

```
  EXISTS (
```

```
    SELECT 1
```

```
    FROM RANKING R
```

```
    WHERE R.AlbumID = AA.AlbumID AND R.Rank <= 500
```

```
  );
```

#RANKING table - showcase all ranks in top 500 associated with each album

```
CREATE OR REPLACE VIEW View_Album_Rankings_Top500 AS
```

```
SELECT
```

```
  R.AlbumID,  
  AA.Album,  
  R.RankYear,  
  R.Rank
```

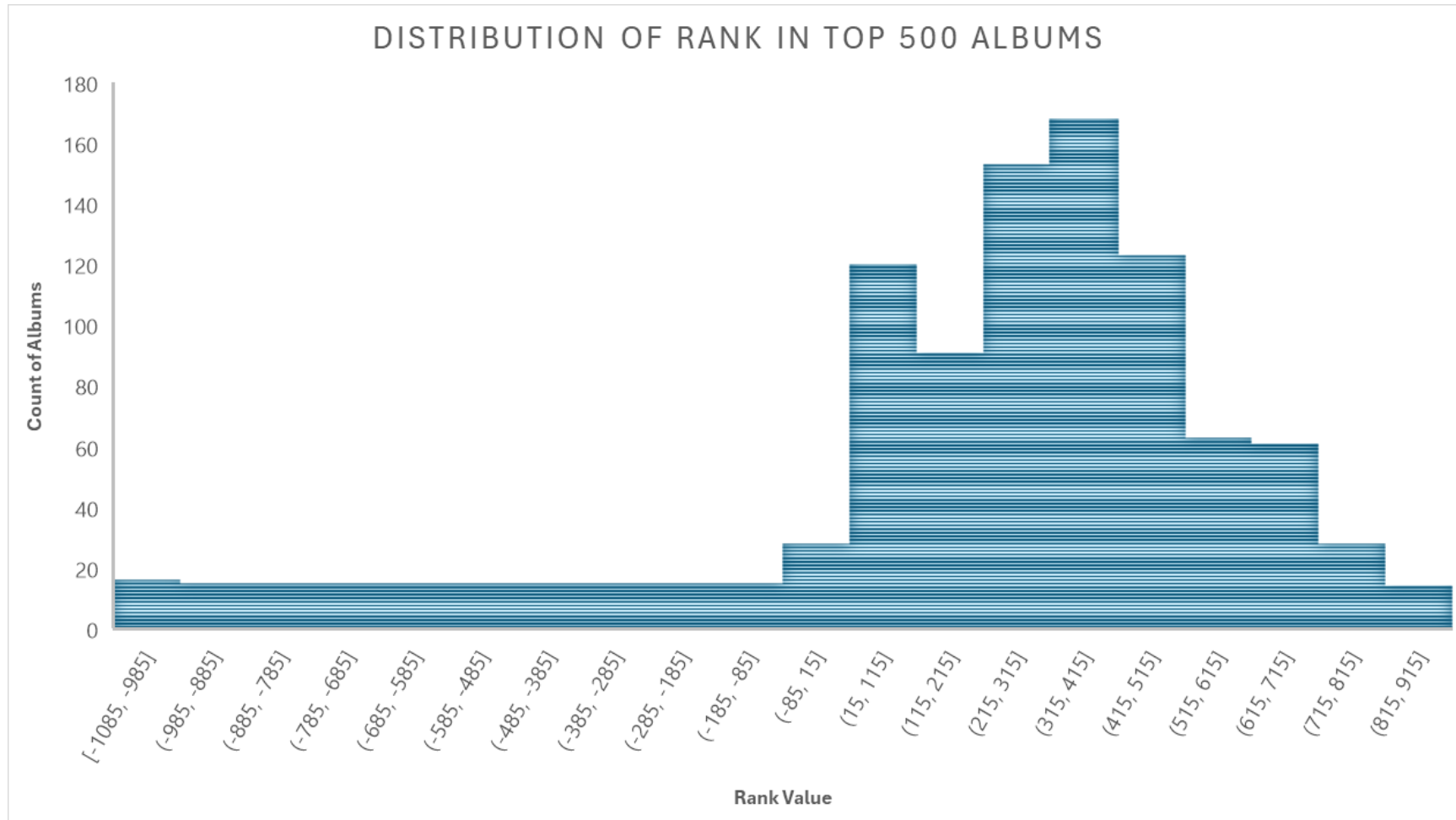
```
FROM RANKING R
```

```
JOIN ALBUM_ARTIST AA ON R.AlbumID = AA.AlbumID
```

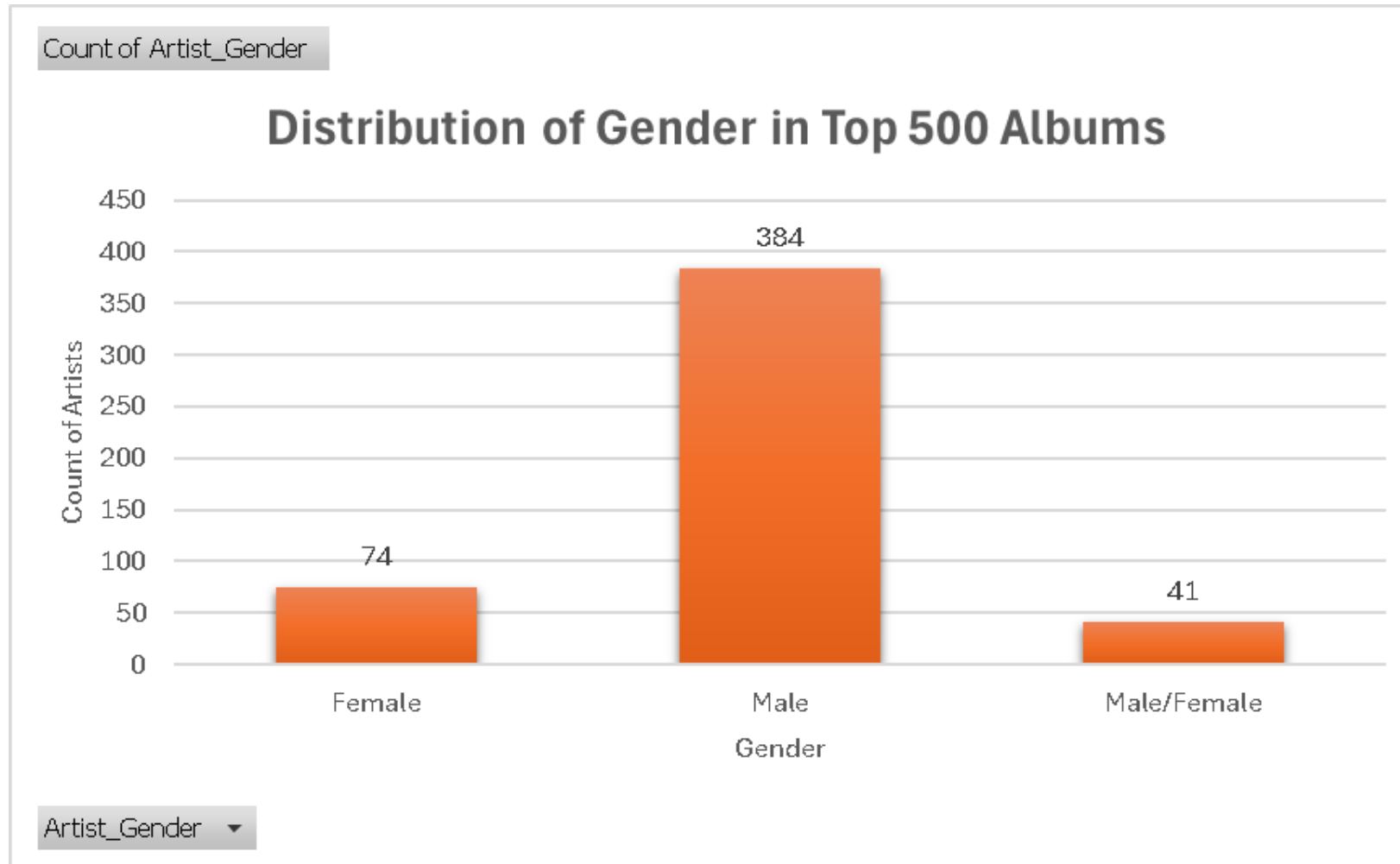
```
WHERE R.Rank <= 500
```

```
ORDER BY R.Rank ASC;
```

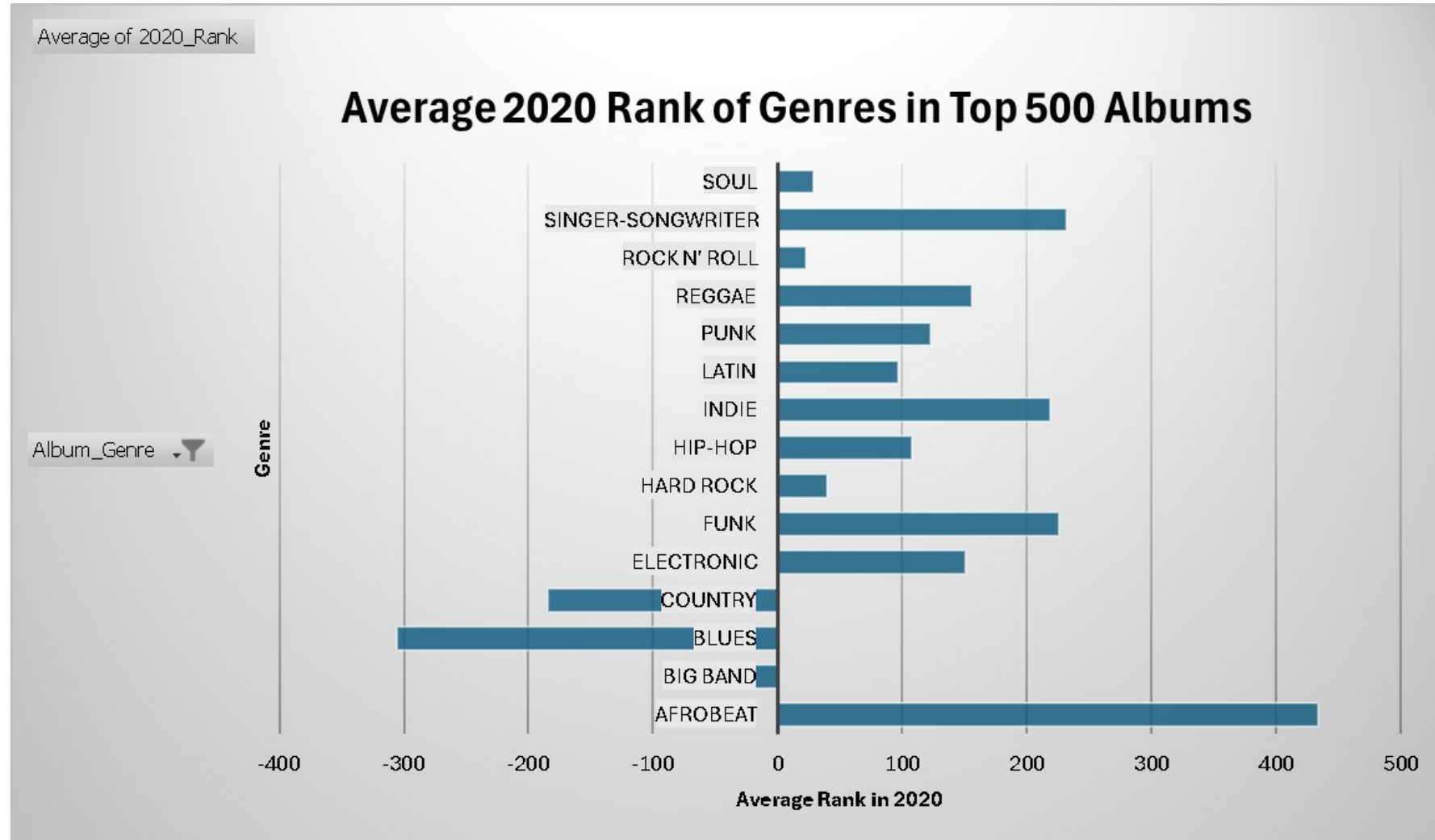
# Visualization



# Visualization

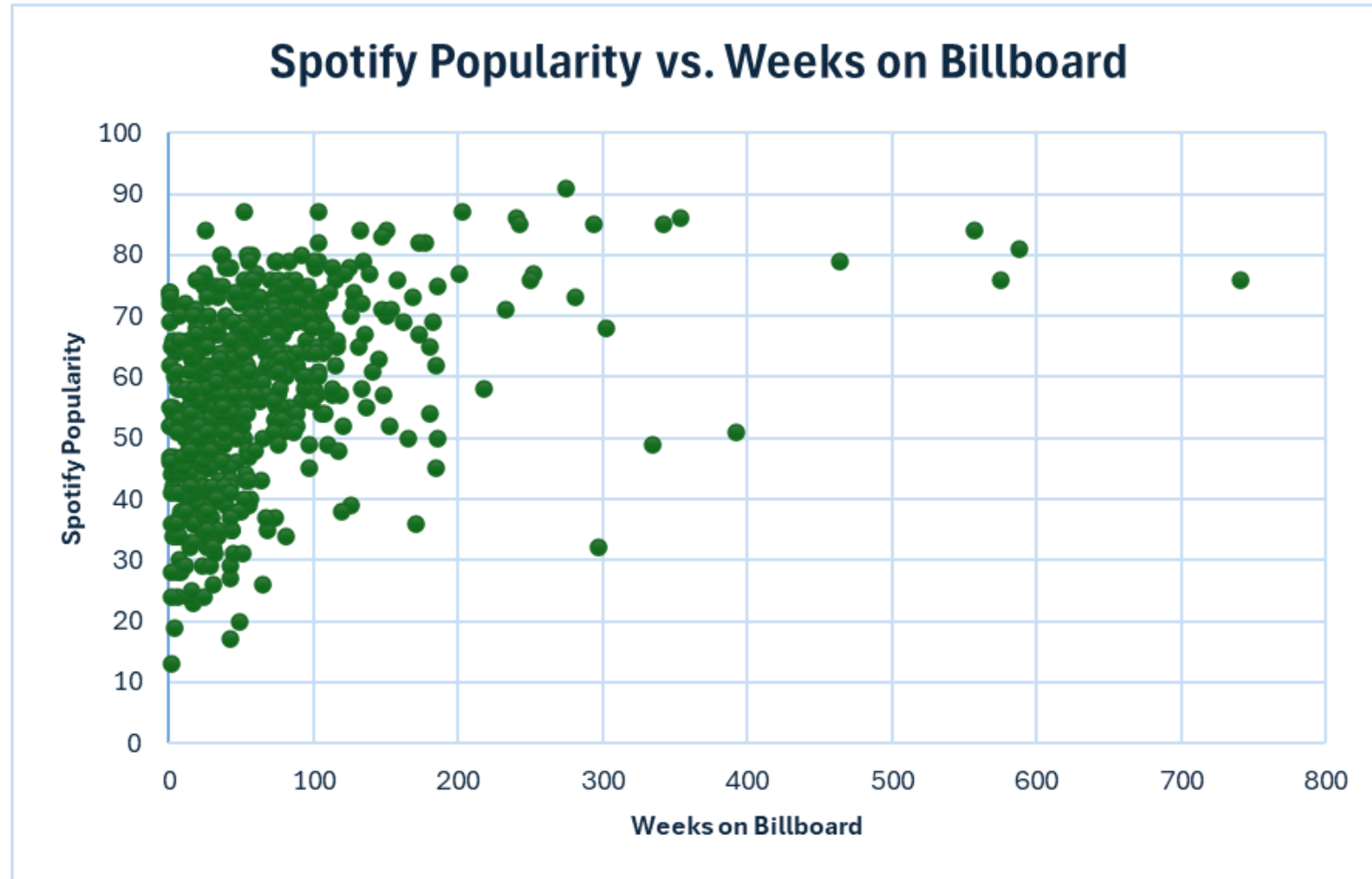


# Visualization



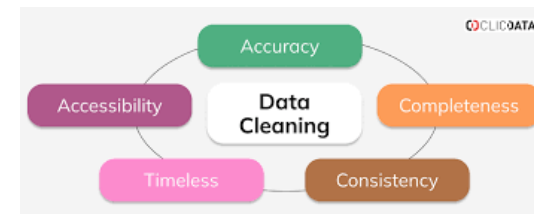
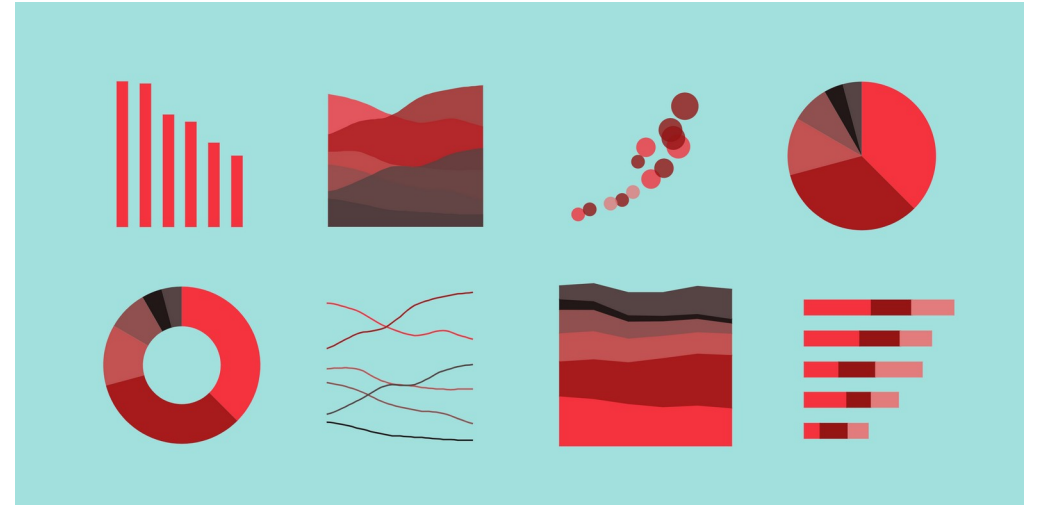


# Visualization



# Challenges and Things Learned

- Null Datatypes
- Data cleaning
- Data visualization



| Results     |                |             | Messages |
|-------------|----------------|-------------|----------|
| First Name  | Last Name      | Middle Name |          |
| 1 Roberto   | Temburello     | NULL        |          |
| 2 Rob       | Walters        | NULL        |          |
| 3 Michael   | Raheem         | NULL        |          |
| 4 Bryan     | Baker          | NULL        |          |
| 5 Russell   | Hunter         | NULL        |          |
| 6 Nuan      | Yu             | NULL        |          |
| 7 Eric      | Gubbels        | NULL        |          |
| 8 Krishna   | Sunkanemurali  | NULL        |          |
| 9 Jian Shuo | Wang           | NULL        |          |
| 10 Sandra   | Redregui Alayo | NULL        |          |
| 11 A Scott  | Wight          | NULL        |          |
| 12 Jillian  | Carson         | NULL        |          |
| 13 Gustavo  | Achong         | NULL        |          |
| 14 Ken      | Abersomble     | NULL        |          |
| 15 Humberto | Azevedo        | NULL        |          |
| 16 Pilar    | Ackerman       | NULL        |          |
| 17 Jay      | Adams          | NULL        |          |
| 18 Francois | Fenier         | NULL        |          |
| 19 Kim      | Alers          | NULL        |          |