Data Analysis on Spotify tracks on 2022-23

SQL project to analysed and answer interesting questions about Spotify . The data used in this project is provided by Spotify collecting from Kaggle. It contains about 1.47 Lakh records from January 2022 to May 2023.

BUSINESS PROBLEMS

Q1. Give me Top 10 Favourite Song by Daily Ranking

Q2. Give me Top 10 Favourite Artist Name by Daily Ranking

Q3. Return Top 10 Song which I can recommend as Fitness freak

Q4. Return Top 5 Emerging artist of 2022 to current date

Q5. Recommend Top 10 Song for Weekend

Q6. Return every week & respective trending song for that week

Q7. Return Artist Name and 'Count of days' when they have two or more than two songs in top 200 song list.

Q8. Check if there any association between No. of artist per song and Popularity of songs

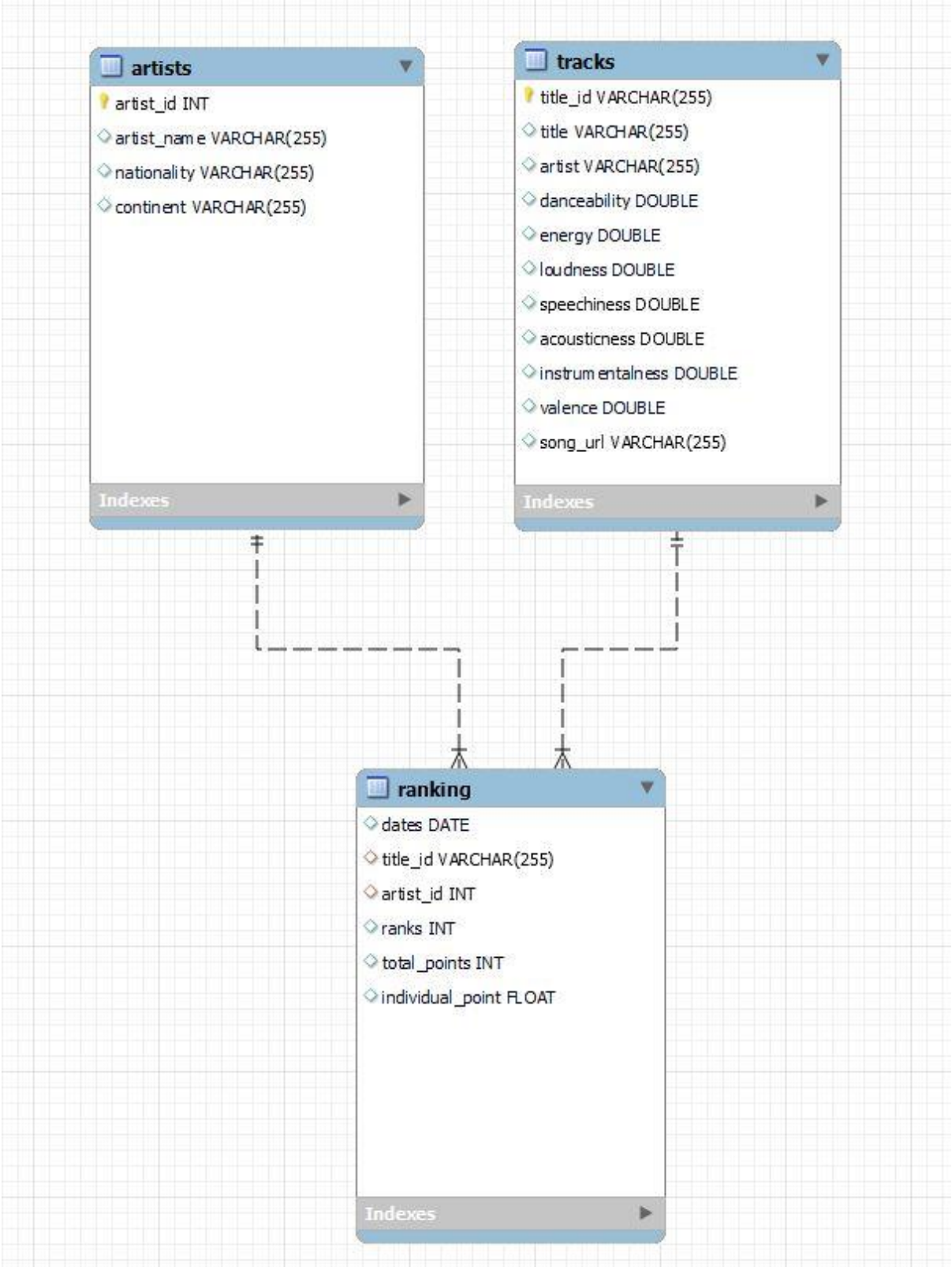
Q9. Provide No. of artist in each continent and respective country

Q.10. Provide no. of songs belongs to each continent and country produced by individual singers

Raw Data – Link

Clean Data – Link

SPOTIFY STAR SCHEMA



NORMALIZED DATA IN TABLES FORMS

CREATING Song TABLE

```
CREATE TABLE tracks (
    title_id VARCHAR(255) PRIMARY KEY,
    title VARCHAR(255),
    artist VARCHAR(255),
    danceability FLOAT(25),
    energy FLOAT(25),
    loudness FLOAT(25),
    speechiness FLOAT(25),
    acousticness FLOAT(25),
    instrumentalness FLOAT(25),
    valence FLOAT(25),
    song_url VARCHAR(255)
);
```

CREATING artist TABLE

```
CREATE TABLE artists(
artist_id int PRIMARY KEY,
artist_name VARCHAR(255),
nationality VARCHAR(255),
continent VARCHAR(255)
);
```

CREATING ranking TABLE

```
CREATE TABLE ranking(
 dates DATE,
 title_id VARCHAR(255),
 artist_id INT,
 ranks INT,
 total_points INT,
 individual_point FLOAT,
 FOREIGN key (title_id) REFERENCES tracks(title_id),
 FOREIGN key (artist_id) REFERENCES artists(artist_id)
);
```

Q1. Give me Top 10 Favourite Song by Daily Ranking

```
WITH cte AS (
    SELECT
        t.title,
        COUNT(DISTINCT r.dates) AS song_of_the_day
    FROM
        ranking r
        JOIN tracks t ON r.title_id = t.title_id
    WHERE
        r.ranks = 1
    GROUP BY
        1
    ORDER BY
        2 desc
    LIMIT
        10
)
SELECT
    title
FROM
    cte;
```

Q2. Give me Top 10 Favourite Artist Name by Daily Ranking

```
WITH cte AS (
    SELECT
        a.artist_name,
        COUNT(DISTINCT r.dates) -- COUNT(DISTINCT r.dates) AS
song_of_the_day
    FROM
        ranking r
            JOIN artists a ON a.artist_id = r.artist_id
        WHERE
            r.ranks = 1
        GROUP BY
            1
        ORDER BY
            2 desc
        LIMIT
            10
    )
    SELECT
        artist_name
    FROM
        cte;
```

Q3. Return Top 10 Song which I can recommend as Fitness freak

```
SELECT
    t.title,
    COUNT(DISTINCT r.dates),
    MIN(r.ranks)
FROM
    ranking r
    JOIN tracks t ON r.title_id = t.title_id
WHERE
    energy > 0.8
    AND loudness > -500
GROUP BY
    1
ORDER BY
    2 desc,
    3
LIMIT
    10;
```

Q4. Return Top 5 Emerging artist of 2022 to current date

```
CREATE TEMPORARY TABLE monthly_artists_points
SELECT
   DATE_FORMAT(r.dates, '%Y-%m') AS yearmonth,
   r.artist_id,
   SUM(r.individual_point) AS points
FROM
   ranking r
GROUP BY  1, 2
ORDER BY 1 ASC,  3 DESC;
        SELECT
           sub.yearmonth,
           sub.artist_id,
           a.artist_name
        FROM(
            SELECT
               yearmonth,
               artist_id,
               points,
               RANK() OVER(
                 PARTITION BY yearmonth ORDER BY points desc
               ) AS rnk
            FROM
               monthly_artists_points
         ) sub
         JOIN artists a ON sub.artist_id = a.artist_id
        WHERE
           rnk = 1;
```

Q5. Recommend Top 10 Song for Weekend

```
SELECT t.title
    FROM (
        SELECT
            title_id,
            COUNT(title_id) AS counts,
            SUM(total_points) AS all_points
        FROM(
            SELECT
                CASE  WHEN date_format(dates, '%W') IN
('Saturday', 'Sunday') THEN "Yes"
                    ELSE "No"
                END AS weekend,
                title_id,
                total_points
            FROM ranking
            WHERE
                CASE
                    WHEN date_format(dates, '%W') IN
('Saturday', 'Sunday') THEN "Yes"
                    ELSE "No"
                END = "Yes"
            ) sub
        GROUP BY 1
        ORDER BY  3 desc
        LIMIT 10
    ) sub2
    JOIN tracks t ON sub2.title_id = t.title_id;
```

Q6. Return every week & respective trending song for that week

```
SELECT
    start_of_week,
    t.title
FROM
    (
        SELECT
            *
        FROM
            (
                SELECT
                    *,
                    RANK() OVER(
                        PARTITION BY yearweek
                        ORDER BY
                            total_points desc
                    ) AS rnk
                FROM
                    (
                        SELECT
                            yearweek,
                            title_id,
                            MIN(dates) start_of_week,
                            AVG(all_points) AS total_points
                        FROM
                            (
                                SELECT
                                    *,
```

```
                SUM(total_points) OVER(
                    PARTITION BY yearweek,
                    title_id
                    ORDER BY
                        yearweek
                ) AS all_points
            FROM
                (
                    SELECT
                        *,
                        concat(
                            YEAR(dates),
                            '-',
                            CASE
                                WHEN week(dates) < 10 THEN
concat('0', week(dates))
                                ELSE week(dates)
                            END
                        ) AS yearweek
                    FROM
                        (
                            SELECT
                                DISTINCT dates,
                                title_id,
                                ranks,
                                total_points
                            FROM
                                ranking
```

```
                                    WHERE
                                        dates > '2022-01-01'
                                        AND dates <= '2023-05-27'
                                    ORDER BY
                                        1,
                                        3
                                ) sub
                            ) sub2
                        ) sub3
                    GROUP BY
                        yearweek,
                        title_id
                    ORDER BY
                        1,
                        2,
                        4 desc
                ) sub4
            ) sub5
        WHERE
            rnk = 1
    ) sub6
    JOIN tracks t ON sub6.title_id = t.title_id
ORDER BY
    1;
```

Q7. Return Artist Name and 'Count of days' when they have two or more than two songs in top 200 song list.

```
SELECT
    a.artist_name,
    COUNT(sub.dates) AS days
FROM
    (
        SELECT
            dates,
            artist_id,
            COUNT(title_id) AS cnt
        FROM
            ranking
        GROUP BY
            1,
            2
        ORDER BY
            1,
            2
    ) sub
    JOIN artists a ON sub.artist_id = a.artist_id
WHERE
    sub.cnt >= 2
GROUP BY
    1
ORDER BY
    2 desc;
```

Q8. Check if there any association between No. of artist per song and Popularity of songs

```
SELECT
  SUM(
    CASE
      WHEN cnt = 1 THEN 1
      ELSE 0
    END
  ) AS '#of_artists1',
  SUM(
    CASE
      WHEN cnt = 2 THEN 1
      ELSE 0
    END
  ) AS '#of_artists2',
  SUM(
    CASE
      WHEN cnt = 3 THEN 1
      ELSE 0
    END
  ) AS '#of_artists3',
  SUM(
    CASE
      WHEN cnt = 4 THEN 1
      ELSE 0
    END
  ) AS '#of_artists4',
  SUM(
```

```
        CASE
            WHEN cnt = 5 THEN 1
            ELSE 0
        END
    ) AS '#of_artists5',
    SUM(
        CASE
            WHEN cnt = 6 THEN 1
            ELSE 0
        END
    ) AS '#of_artists6'
FROM
    (
        SELECT
            dates,
            title_id,
            COUNT(artist_id) AS cnt
        FROM
            ranking
        WHERE
            ranks <= 10 -- 5% of
        GROUP BY
            1,
            2
        HAVING
            COUNT(artist_id)
        ORDER BY 1
    ) sub;
```

Q9. Provide No. of artist in each continent and respective country

```
SELECT
    continent,
    nationality,
    COUNT(artist_id) AS no_of_artists
FROM
    artists
WHERE
    continent <> 'Unknown'
GROUP BY
    1,
    2
ORDER BY
    1 asc,
    2 asc;
```

Q.10. Provide no. of songs belongs to each continent and country produced by individual singers

```
SELECT
    continent,
    nationality,
    COUNT(t.title_id) AS no_of_songs
FROM
    tracks t
    LEFT JOIN ranking r ON t.title_id = r.title_id
    LEFT JOIN artists a ON r.artist_id = a.artist_id
WHERE
    a.continent IS NOT NULL
    AND a.nationality IS NOT NULL
    AND a.continent <> 'Unknown'
    AND a.nationality <> 'Unknown'
GROUP BY
    1,
    2
ORDER BY
    1,
    3 desc;
```