

SQL PROJECT

음원 사이트 DB 설계

프로젝트 개요

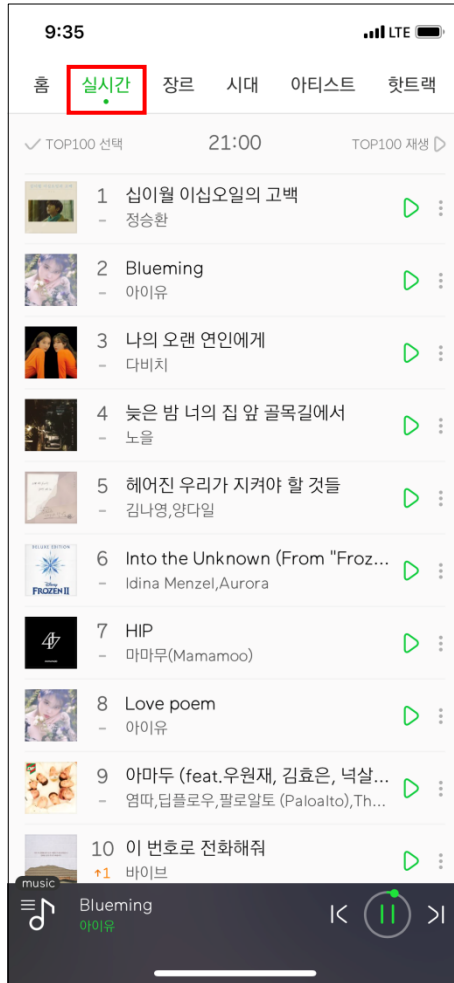
01

02

03

04

(참고 페이지) 멜론 사이트



> 실시간 차트



> 시대별 차트



> 장르별 차트

멜론, 지니 등과 같은
음원사이트의 DB

▶ MUSIC (음악)

	⚡ COLUMN_NAME	⚡ DATA_TYPE	⚡ NULLABLE	DATA_DEFAULT	⚡ COLUMN_ID	⚡ COMMENTS
음악 식별코드	1 M_CODE	VARCHAR2(10 BYTE)	No	(null)	1	(null)
가수 식별코드	2 S_CODE	VARCHAR2(10 BYTE)	No	(null)	2	(null)
앨범 식별코드	3 A_CODE	VARCHAR2(10 BYTE)	No	(null)	3	(null)
음악 제목	4 TITLE	VARCHAR2(70 BYTE)	No	(null)	4	(null)
음악 장르	5 GENRE	VARCHAR2(20 BYTE)	Yes	(null)	5	(null)
국내/해외음악 구분	6 M_TYPE	VARCHAR2(20 BYTE)	Yes	(null)	6	(null)

--MUSIC 테이블 생성

```
CREATE TABLE MUSIC (
  M_CODE  VARCHAR2(10) CONSTRAINT PK_MUSIC PRIMARY KEY,
  S_CODE  VARCHAR2(10) CONSTRAINT NN_MUSIC_S_CODE NOT NULL,
  A_CODE  VARCHAR2(10) CONSTRAINT NN_MUSIC_A_CODE NOT NULL,
  TITLE   VARCHAR2(70) CONSTRAINT NN_MUSIC_TITLE NOT NULL,
  GENRE   VARCHAR2(20) CONSTRAINT CK_MUSIC_GENRE CHECK (
    GENRE IN ('POP', 'RnB/Soul', '댄스', '랩/힙합', '록/메탈', '발라드', '인디음악', '트로트')),
  M_TYPE  VARCHAR2(20) CONSTRAINT CK_MUSIC_M_TYPE CHECK ( M_TYPE IN ('국내', '해외'))
);
```

▶ SINGER (가수)

	⚡ COLUMN_NAME	⚡ DATA_TYPE	⚡ NULLABLE	DATA_DEFAULT	⚡ COLUMN_ID	⚡ COMMENTS
가수 식별코드	1 S_CODE	VARCHAR2(10 BYTE)	No	(null)	1	(null)
가수 이름	2 S_NAME	VARCHAR2(50 BYTE)	No	(null)	2	(null)
가수의 소속사	3 LABELS	VARCHAR2(50 BYTE)	Yes	(null)	3	(null)
가수의 데뷔년도	4 DEBUT	VARCHAR2(20 BYTE)	No	(null)	4	(null)
가수의 성별	5 SEX	VARCHAR2(20 BYTE)	Yes	(null)	5	(null)
가수의 멤버 수	6 MEMBER_COUNT	NUMBER(10,0)	No	(null)	6	(null)

--SINGER 테이블 생성

```
CREATE TABLE SINGER (
  S_CODE          VARCHAR2(10) CONSTRAINT PK_SINGER PRIMARY KEY,
  S_NAME          VARCHAR2(50) CONSTRAINT NN_SINGER_S_NAME NOT NULL,
  LABELS          VARCHAR2(50),
  DEBUT           VARCHAR2(20) CONSTRAINT NN_SINGER_DEBUT NOT NULL,
  SEX             VARCHAR2(20) CONSTRAINT CK_SINGER_SEX CHECK ( SEX IN ('F','M','G')),
  MEMBER_COUNT    NUMBER(10) CONSTRAINT NN_SINGER_MEMBER_COUNT NOT NULL
);
```

▶ ALBUM (앨범)

	⚡ COLUMN_NAME	⚡ DATA_TYPE	⚡ NULLABLE	DATA_DEFAULT	⚡ COLUMN_ID	⚡ COMMENTS
앨범 식별코드	1 A_CODE	VARCHAR2(10 BYTE)	No	(null)	1	(null)
앨범 이름	2 A_NAME	VARCHAR2(70 BYTE)	No	(null)	2	(null)
발매된 날짜(연, 월, 일)	3 R_DATE	DATE	No	(null)	3	(null)

--ALBUM 테이블 생성

```
CREATE TABLE ALBUM (  
  A_CODE VARCHAR2(10) CONSTRAINT PK_ALBUM_A_CODE PRIMARY KEY,  
  A_NAME VARCHAR2(70) CONSTRAINT NN_ALBUM_A_NAME NOT NULL,  
  R_DATE DATE CONSTRAINT NN_ALBUM_R_DATE NOT NULL  
);
```

▶ MEMBER (회원)

	⚡ COLUMN_NAME	⚡ DATA_TYPE	⚡ NULLABLE	DATA_DEFAULT	⚡ COLUMN_ID	⚡ COMMENTS
회원 식별코드	1 MEM_CODE	VARCHAR2(20 BYTE)	No	(null)	1	(null)
회원 이름	2 MEM_NAME	VARCHAR2(20 BYTE)	No	(null)	2	(null)
회원 아이디	3 ID	VARCHAR2(20 BYTE)	Yes	(null)	3	(null)
회원 비밀번호	4 PASSWORD	VARCHAR2(20 BYTE)	No	(null)	4	(null)
회원 주민등록번호	5 JUMIN	VARCHAR2(20 BYTE)	No	(null)	5	(null)
회원 이메일	6 EMAIL	VARCHAR2(50 BYTE)	No	(null)	6	(null)

--MEMBER 테이블 생성

```
CREATE TABLE MEMBER (
  MEM_CODE VARCHAR2(20) CONSTRAINT PK_MEMBER PRIMARY KEY,
  MEM_NAME VARCHAR2(20) CONSTRAINT NN_MEMBER_MEM_NAME NOT NULL,
  ID VARCHAR(20) CONSTRAINT U_MEMBER_ID UNIQUE,
  PASSWORD VARCHAR(20) CONSTRAINT NN_MEMBER_PW NOT NULL,
  JUMIN VARCHAR(20) CONSTRAINT NN_MEMBER_JUMIN NOT NULL
    CONSTRAINT U_MEMBER_JUMIN UNIQUE
    CONSTRAINT CK_MEMBER_JUMIN CHECK (LENGTH(JUMIN)=13),
  EMAIL VARCHAR(50) CONSTRAINT NN_MEMBER_EMAIL NOT NULL
);
```

▶ GRADE (회원 등급)

등급 분류
등급별 최소값
등급별 최대값

	⚡ COLUMN_NAME	⚡ DATA_TYPE	⚡ NULLABLE	DATA_DEFAULT	⚡ COLUMN_ID	⚡ COMMENTS
1	RANK	VARCHAR2(20 BYTE)	Yes	(null)	1	(null)
2	LOAMT	NUMBER(10,0)	No	(null)	2	(null)
3	HIAMT	NUMBER(10,0)	No	(null)	3	(null)

--GRADE 테이블 생성

```
CREATE TABLE GRADE (  
  RANK  VARCHAR2(20) CONSTRAINT CK_GRADE_RANK CHECK (  
    RANK IN ('DIAMOND', 'GOLD', 'SILVER', 'BRONZE')),  
  LOAMT NUMBER(10)  CONSTRAINT NN_GRADE_LOAMT NOT NULL,  
  HIAMT NUMBER(10)  CONSTRAINT NN_GRADE_HIAMT NOT NULL  
);
```

▶ SALES (판매)

회원 식별코드
음악 식별코드
구매한 날짜
가격 및 음질 식별코드

	⚡ COLUMN_NAME	⚡ DATA_TYPE	⚡ NULLABLE	DATA_DEFAULT	⚡ COLUMN_ID	⚡ COMMENTS
1	MEM_CODE	VARCHAR2(10 BYTE)	No	(null)	1	(null)
2	M_CODE	VARCHAR2(10 BYTE)	No	(null)	2	(null)
3	BUY_DATE	DATE	No	(null)	3	(null)
4	P_CODE	VARCHAR2(20 BYTE)	No	(null)	4	(null)

--SALES 테이블 생성

```
CREATE TABLE SALES (
  MEM_CODE VARCHAR2(10) CONSTRAINT NN_SALES NOT NULL,
  M_CODE   VARCHAR2(10) CONSTRAINT NN_SALES_M_CODE NOT NULL,
  BUY_DATE DATE CONSTRAINT NN_BUY_DATE NOT NULL,
  P_CODE   VARCHAR2(20) CONSTRAINT NN_SALES_P_CODE NOT NULL
);
```


▶ SOUND_QUALITY (음질 및 가격)

	⚡ COLUMN_NAME	⚡ DATA_TYPE	⚡ NULLABLE	DATA_DEFAULT	⚡ COLUMN_ID	⚡ COMMENTS
가격 및 음질 식별코드	1 P_CODE	VARCHAR2(10 BYTE)	No	(null)	1	(null)
음질에 따른 가격	2 PRICE	NUMBER(10,0)	No	(null)	2	(null)
음악 음질 분류	3 QUALITY	VARCHAR2(20 BYTE)	No	(null)	3	(null)

--SOUND_QUALITY 테이블 생성

```
CREATE TABLE SOUND_QUALITY (
  P_CODE  VARCHAR2(10) CONSTRAINT PK_SOUND_QUALITY PRIMARY KEY,
  PRICE   NUMBER(10)  CONSTRAINT NN_SQ_PRICE NOT NULL
           CONSTRAINT CK_SQ_PRICE CHECK ( PRICE IN (500,300,200,100)),
  QUALITY VARCHAR2(20) CONSTRAINT NN_SQ_QUALITY NOT NULL
           CONSTRAINT CK_SQ_QUALITY CHECK ( QUALITY IN ('320K','192K','128K', 'AAC+'))
);
```


ERD


01


02


03


04

MUSIC	
	M_CODE varchar2(10 char) (NN)
	S_CODE varchar2(10 char) (NN)
	A_CODE varchar2(10 char) (NN)
	TITLE varchar2(70 char) (NN)
	GENRE varchar2(20 char)
	M_TYPE varchar2(20 char)

SINGER	
	S_CODE varchar2(10 char) (NN)
	S_NAME varchar2(50 char) (NN)
	LABELS varchar2(50 char)
	DEBUT varchar2(20 char) (NN)
	SEX varchar2(20 char)
	MEMBER_COUNT number(10,0) (NN)

ALBUM	
	A_CODE varchar2(10 char) (NN)
	A_NAME varchar2(70 char) (NN)
	R_DATE date (NN)

SOUND_QUALITY	
	P_CODE varchar2(10 char) (NN)
	PRICE number(10,0)
	QUALITY varchar2(20 char)

MEMBER	
	MEM_CODE varchar2(20 char) (NN)
	MEM_NAME varchar2(20 char) (NN)
	ID varchar2(20 char) (U)
	PASSWORD varchar2(20 char) (NN)
	JUMIN varchar2(20 char) (U)
	EMAIL varchar2(50 char) (NN)

SALES	
	MEM_CODE varchar2(10 char) (NN)
	M_CODE varchar2(10 char) (NN)
	BUY_DATE date (NN)
	P_CODE varchar2(20 char) (NN)

GRADE	
	RANK varchar2(20 char)
	LOAMT number(10,0) (NN)
	HIAMT number(10,0) (NN)

1. 실시간 차트(TOP100)
2. 장르별 인기 순위(TOP10)
3. 세대별 인기 노래 순위(TOP10) -정진
4. 세대별 인기가수(TOP5) -정진
5. 걸그룹 노래 순위 TOP30
6. 가장인기있는 앨범 TOP10(앨범에 속해있는 음악 다운로드횟수로 순위지정)
7. 소속사별 가장 인기있는 가수
8. 국내 해외 비교
9. 그룹별 제일 많은 노래가 팔린 그룹의 이름과 판매개수
10. 연도별 매출
11. 월별 매출
12. 회원등급 및 포인트
13. 여성회원 별 다운로드 한 곡 순위
14. 00이가 좋아하는 음악 장르 (다운로드)- 정진
15. 00이가 좋아하는 아티스트의 노래 목록 (다운로드) -정진
16. 등급별 유저들이 가장 많이 구매한 음질순위 -정진

1. 실시간 차트(TOP100)

```
--1.실시간 차트(TOP100)
SELECT SUB1.RANK AS 순위,
CASE
WHEN SUB1.RANK>SUB2.RANK THEN '▽'||TO_CHAR(SUB1.RANK-SUB2.RANK)
WHEN SUB1.RANK<SUB2.RANK THEN '▲'||TO_CHAR(SUB2.RANK-SUB1.RANK)
WHEN SUB1.RANK=SUB2.RANK THEN '-'
ELSE '진입'
END AS 변동,
SUB1.TITLE AS 제목, SUB1.S_NAME AS 가수명, SUB1.A_NAME AS 앨범명, SUB1.GENRE AS 장르
FROM (SELECT ROW_NUMBER() OVER(ORDER BY COUNT(*) DESC) AS RANK,
M.TITLE, S.S_NAME, A.A_NAME, M.GENRE, M.M_CODE
FROM SALES SAL, MUSIC M, SINGER S, ALBUM A
WHERE SAL.M_CODE=M.M_CODE AND
M.S_CODE=S.S_CODE AND
M.A_CODE=A.A_CODE AND
BUY_DATE<=SYSDATE
GROUP BY M.TITLE, S.S_NAME, A.A_NAME, M.GENRE, M.M_CODE) SUB1,
(SELECT ROW_NUMBER() OVER(ORDER BY COUNT(*) DESC) AS RANK,
M.M_CODE
FROM SALES SAL, MUSIC M, SINGER S, ALBUM A
WHERE SAL.M_CODE=M.M_CODE AND
M.S_CODE=S.S_CODE AND
M.A_CODE=A.A_CODE AND
BUY_DATE<=SYSDATE-1
GROUP BY M.M_CODE) SUB2
WHERE SUB1.M_CODE=SUB2.M_CODE AND SUB1.RANK<=100;
```

순위	변동	제목	가수명	앨범명	장르
1 -		분홍신	아이유	Modern Times-Epilo...	댄스
2 -		Gee	소녀시대	The First Mini Albu...	댄스
3 -		금요일에 만나요	아이유	Modern Times-Epilo...	발라드
4 -		삼촌	아이유	Last Fantasy	댄스
5 ▲1		Run Devil Run	소녀시대	GIRLS'GENERATION	댄스
6 ▽1		Mr.TAXI	소녀시대	GIRLS'GENERATION	댄스
7 -		Oh!	소녀시대	Oh' The Second Alb...	댄스
8 ▲2		뽀 & Fun	소녀시대	Oh' The Second Alb...	댄스
9 -		너랑 나	아이유	Last Fantasy	댄스
10 ▽2		GENIE	소녀시대	GIRLS'GENERATION	댄스
11 -		Show! Show! Sho!	소녀시대	Oh' The Second Alb...	댄스
12 -		곤드레 만드레	박현빈	곤드레 만드레	트로트
13 -		I Don't Care	2NE1	2NE1 1st Mini Album	댄스
14 ▲1		Drunk	Ed Sheeran	+ (Deluxe Edition)	POP
15 ▽1		If I Were a Boy	Beyonce	I AM...SASHA FIERCE	POP
16 -		카테일 사랑	마로니에	카테일 사랑	댄스
17 -		Natural	Imagine Dra...	Origins	POP
18 ▲2		널 사랑하지 않아	여반자카파	스틸	RnB/Soul
19 ▽1		아직도 나를 사랑...	여반자카파	스틸	RnB/Soul
20 ▽1		거짓말	BIGBANG	Always	랩/힙합
21 ▲8		빼에로는 우릴 보...	김완선	빼에로는 우릴 보고 ...	댄스
22 ▲2		Like this	원더걸스	Wonder Party	댄스
23 -		I Like Me Better	Lauv	I met you when I wa...	POP
24 ▲2		Breathe	미쓰에이	A Class	댄스
25 ▲3		R.E.A.L	원더걸스	Wonder Party	댄스
26 ▽1		Nobody	원더걸스	The Wonder Years - ...	댄스
27 ▽5		초혼	장윤정	올래	트로트
28 ▽1		아름다운 약속	박현빈	곤드레 만드레	트로트
29 ▽8		아무렇지 않은 척	BIGBANG	Always	랩/힙합
30 ▲6		빠라빠빠	박현빈	곤드레 만드레	트로트
31 ▲3		Dreams Come true	S.E.S	S.E.S 2	댄스
32 ▽2		박수쳐	2NE1	To Anyone	댄스
33 -		줄리엣 (Juliette)	SHINee (샤...	'ROMEO' The Secon...	댄스
34 ▽3		Everglow	Coldplay	A Head Full Of Drea...	POP
35 ▽3		Bad Girl Good Girl	미쓰에이	Bad But Good	댄스

2. 장르별 인기 순위(TOP10)

--2.장르별 인기 순위(TOP10)

```
SELECT P.TITLE AS "POP", D.TITLE AS "댄스", B.TITLE AS "발라드", M.TITLE AS "록/메탈", R.TITLE AS "랩/힙합",
       T.TITLE AS "트로트", S.TITLE AS "RnB/Soul", I.TITLE AS "인디음악"
FROM (SELECT TITLE, RANK
      FROM (SELECT ROW_NUMBER() OVER (ORDER BY COUNT(*) DESC) AS RANK, M.TITLE AS TITLE
            FROM MUSIC M, SALES S
            WHERE M.M_CODE=S.M_CODE AND M.GENRE='POP'
            GROUP BY M.TITLE
            ORDER BY ROW_NUMBER() OVER (ORDER BY COUNT(*) DESC)
          )
      WHERE RANK<=10) P,
(SELECT TITLE, RANK
 FROM (SELECT ROW_NUMBER() OVER (ORDER BY COUNT(*) DESC) AS RANK, M.TITLE AS TITLE
       FROM MUSIC M, SALES S
       WHERE M.M_CODE=S.M_CODE AND M.GENRE='트로트'
       GROUP BY M.TITLE
       ORDER BY ROW_NUMBER() OVER (ORDER BY COUNT(*) DESC)
     )
 WHERE RANK<=10) T,
(SELECT TITLE, RANK
 FROM (SELECT ROW_NUMBER() OVER (ORDER BY COUNT(*) DESC) AS RANK, M.TITLE AS TITLE
       FROM MUSIC M, SALES S
       WHERE M.M_CODE=S.M_CODE AND M.GENRE='랩/힙합'
       GROUP BY M.TITLE
       ORDER BY ROW_NUMBER() OVER (ORDER BY COUNT(*) DESC)
     )
 WHERE RANK<=10) R,
(SELECT TITLE, RANK
 FROM (SELECT ROW_NUMBER() OVER (ORDER BY COUNT(*) DESC) AS RANK, M.TITLE AS TITLE
       FROM MUSIC M, SALES S
       WHERE M.M_CODE=S.M_CODE AND M.GENRE='록/메탈'
       GROUP BY M.TITLE
       ORDER BY ROW_NUMBER() OVER (ORDER BY COUNT(*) DESC)
     )
 WHERE RANK<=10) M,
```

```
(SELECT TITLE, RANK
 FROM (SELECT ROW_NUMBER() OVER (ORDER BY COUNT(*) DESC) AS RANK, M.TITLE AS TITLE
       FROM MUSIC M, SALES S
       WHERE M.M_CODE=S.M_CODE AND M.GENRE='댄스'
       GROUP BY M.TITLE
       ORDER BY ROW_NUMBER() OVER (ORDER BY COUNT(*) DESC)
     )
 WHERE RANK<=10) D,
(SELECT TITLE, RANK
 FROM (SELECT ROW_NUMBER() OVER (ORDER BY COUNT(*) DESC) AS RANK, M.TITLE AS TITLE
       FROM MUSIC M, SALES S
       WHERE M.M_CODE=S.M_CODE AND M.GENRE='발라드'
       GROUP BY M.TITLE
       ORDER BY ROW_NUMBER() OVER (ORDER BY COUNT(*) DESC)
     )
 WHERE RANK<=10) B,
(SELECT TITLE, RANK
 FROM (SELECT ROW_NUMBER() OVER (ORDER BY COUNT(*) DESC) AS RANK, M.TITLE AS TITLE
       FROM MUSIC M, SALES S
       WHERE M.M_CODE=S.M_CODE AND M.GENRE='인디음악'
       GROUP BY M.TITLE
       ORDER BY ROW_NUMBER() OVER (ORDER BY COUNT(*) DESC)
     )
 WHERE RANK<=10) I,
(SELECT TITLE, RANK
 FROM (SELECT ROW_NUMBER() OVER (ORDER BY COUNT(*) DESC) AS RANK, M.TITLE AS TITLE
       FROM MUSIC M, SALES S
       WHERE M.M_CODE=S.M_CODE AND M.GENRE='RnB/Soul'
       GROUP BY M.TITLE
       ORDER BY ROW_NUMBER() OVER (ORDER BY COUNT(*) DESC)
     )
 WHERE RANK<=10) S
WHERE P.RANK=D.RANK(+) AND
      D.RANK=B.RANK(+) AND
      B.RANK=M.RANK(+) AND
      M.RANK=R.RANK(+) AND
      R.RANK=T.RANK(+) AND
      T.RANK=S.RANK(+) AND
      S.RANK=I.RANK(+);
```

2. 장르별 인기 순위(TOP10)

	POP	댄스	발라드	록/메탈	랩/힙합	트로트	RnB/Soul	인디음악
1	Drunk	분홍신	금요일에 만나요	사랑 빛	거짓말	곤드레 만드레	아직도 나를 사랑한다면	차우차우
2	If I Were a Boy	Gee	Tell me (Sampling From `Two Of Hearts`)	달팽이	아무렇지 않은 척	초혼	널 사랑하지 않아	(null)
3	Natural	삼촌	사랑 사랑아	사랑알이	없는 번호	아름다운 약속	Nearness is to love	(null)
4	I Like Me Better	Mr.TAXI	처음 느낌 그대로	행복합니다	Intro (우린 빅뱅)	빠라빠빠	궁금해	(null)
5	Everglow	Run Devil Run	애모	바래	뱅뱅뱅 (BANG BANG BANG)	올래	그때의 나, 그때의 우리	(null)
6	Girls Like You	Oh!	안녕이라고 말하지마	한사람만	BAE BAE	단념	다 좋아	(null)
7	The A Team	뽀 & Fun	Timeless	빙빙빙	LOSER	아차차	(null)	(null)
8	Paris In The Rain	너랑 나	마법의 성	사랑할수록	WE LIKE 2 PARTY	불나비	(null)	(null)
9	Halo	GENIE	거짓말	천둥	팔라	(null)	(null)	(null)
10	Believer	Show! Show! Sho!	내곁에서 떠나가지 말아요	외톨이야	(null)	(null)	(null)	(null)

3. 세대별 인기 노래 순위(TOP10) -정진

```
--3.세대별 인기 노래 순위(TOP10)
SELECT SUB10.TITLE AS "10대", SUB20.TITLE AS "20대", SUB30.TITLE AS "30대", SUB40.TITLE AS "40대", SUB50.TITLE AS "50대"
FROM (SELECT TITLE, RANK
      FROM (SELECT MS.M_CODE, MS.TITLE||'('||SG.S_NAME||')' AS TITLE, ROW_NUMBER() OVER(ORDER BY COUNT(*) DESC) AS RANK
            FROM SALES S, MUSIC MS, MEMBER M, SINGER SG
            WHERE M.MEM_CODE IN(SELECT MEM_CODE FROM SALES WHERE MEM_CODE IN (SELECT MEM_CODE FROM MEMBER WHERE TRUNC(SYSDATE-TO_DATE(SUBSTR(JUMIN,1,6),'RR/MM/DD'))/365<20))
            AND S.MEM_CODE = M.MEM_CODE
            AND MS.M_CODE = S.M_CODE
            AND MS.S_CODE=SG.S_CODE
            GROUP BY MS.TITLE||'('||SG.S_NAME||')', MS.M_CODE)
      WHERE RANK<=10) SUB10,
(SELECT TITLE, RANK
      FROM (SELECT MS.M_CODE, MS.M_CODE, MS.TITLE||'('||SG.S_NAME||')' AS TITLE, ROW_NUMBER() OVER(ORDER BY COUNT(*) DESC) AS RANK
            FROM SALES S, MUSIC MS, MEMBER M, SINGER SG
            WHERE M.MEM_CODE IN(SELECT MEM_CODE FROM SALES WHERE MEM_CODE IN (SELECT MEM_CODE FROM MEMBER WHERE TRUNC(SYSDATE-TO_DATE(SUBSTR(JUMIN,1,6),'RR/MM/DD'))/365 BETWEEN 20 AND 29))
            AND S.MEM_CODE = M.MEM_CODE
            AND MS.M_CODE = S.M_CODE
            AND MS.S_CODE=SG.S_CODE
            GROUP BY MS.TITLE||'('||SG.S_NAME||')', MS.M_CODE)
      WHERE RANK<=10) SUB20,
(SELECT TITLE, RANK
      FROM (SELECT MS.M_CODE, MS.M_CODE, MS.TITLE||'('||SG.S_NAME||')' AS TITLE, ROW_NUMBER() OVER(ORDER BY COUNT(*) DESC) AS RANK
            FROM SALES S, MUSIC MS, MEMBER M, SINGER SG
            WHERE M.MEM_CODE IN(SELECT MEM_CODE FROM SALES WHERE MEM_CODE IN (SELECT MEM_CODE FROM MEMBER WHERE TRUNC(SYSDATE-TO_DATE(SUBSTR(JUMIN,1,6),'RR/MM/DD'))/365 BETWEEN 30 AND 39))
            AND S.MEM_CODE = M.MEM_CODE
            AND MS.M_CODE = S.M_CODE
            AND MS.S_CODE=SG.S_CODE
            GROUP BY MS.TITLE||'('||SG.S_NAME||')', MS.M_CODE)
      WHERE RANK<=10) SUB30,
(SELECT TITLE, RANK
      FROM (SELECT MS.M_CODE, MS.M_CODE, MS.TITLE||'('||SG.S_NAME||')' AS TITLE, ROW_NUMBER() OVER(ORDER BY COUNT(*) DESC) AS RANK
            FROM SALES S, MUSIC MS, MEMBER M, SINGER SG
            WHERE M.MEM_CODE IN(SELECT MEM_CODE FROM SALES WHERE MEM_CODE IN (SELECT MEM_CODE FROM MEMBER WHERE TRUNC(SYSDATE-TO_DATE(SUBSTR(JUMIN,1,6),'RR/MM/DD'))/365 BETWEEN 40 AND 49))
            AND S.MEM_CODE = M.MEM_CODE
            AND MS.M_CODE = S.M_CODE
            AND MS.S_CODE=SG.S_CODE
            GROUP BY MS.TITLE||'('||SG.S_NAME||')', MS.M_CODE)
      WHERE RANK<=10) SUB40,
(SELECT TITLE, RANK
      FROM (SELECT MS.M_CODE, MS.M_CODE, MS.TITLE||'('||SG.S_NAME||')' AS TITLE, ROW_NUMBER() OVER(ORDER BY COUNT(*) DESC) AS RANK
            FROM SALES S, MUSIC MS, MEMBER M, SINGER SG
            WHERE M.MEM_CODE IN(SELECT MEM_CODE FROM SALES WHERE MEM_CODE IN (SELECT MEM_CODE FROM MEMBER WHERE TRUNC(SYSDATE-TO_DATE(SUBSTR(JUMIN,1,6),'RR/MM/DD'))/365>49))
            AND S.MEM_CODE = M.MEM_CODE
            AND MS.M_CODE = S.M_CODE
            AND MS.S_CODE=SG.S_CODE
            GROUP BY MS.TITLE||'('||SG.S_NAME||')', MS.M_CODE)
      WHERE RANK<=10) SUB50
WHERE SUB10.RANK=SUB20.RANK AND SUB20.RANK=SUB30.RANK AND SUB30.RANK=SUB40.RANK AND SUB40.RANK=SUB50.RANK;
```


3. 세대별 인기 노래 순위(TOP10) -정진

10대	20대	30대	40대	50대
1 Oh!(소녀시대)	분홍신(아이유)	거리에서(성시경)	곤드레 만드레(박현빈)	아름다운 약속(박현빈)
2 Mr.TAXI(소녀시대)	삼촌(아이유)	칠테일 사랑(마로니에)	빠라빠빠(박현빈)	아차차(장윤정)
3 뽀 & Fun(소녀시대)	금요일에 만나요(아이유)	거짓말(BIGBANG)	아름다운 약속(박현빈)	단념(장윤정)
4 Gee(소녀시대)	너랑 나(아이유)	나의 노래(김광석)	초혼(장윤정)	빠라빠빠(박현빈)
5 Run Devil Run(소녀시대)	Drunk(Ed Sheeran)	기억의 습작(전람회)	올래(장윤정)	초혼(장윤정)
6 GENIE(소녀시대)	Gee(소녀시대)	R.E.A.L(원더걸스)	단념(장윤정)	불나비(장윤정)
7 Dreams Come true(S.E.S)	Run Devil Run(소녀시대)	운명(쿨)	아차차(장윤정)	올래(장윤정)
8 Show! Show! Sho!(소녀시대)	Teacher(아이유)	그 남자 그 여자 (Feat. 장혜진)(바이브)	불나비(장윤정)	곤드레 만드레(박현빈)
9 I Don't Care(2NE1)	Oh!(소녀시대)	보고 싶다(김범수)	Gee(소녀시대)	애모(김수희)
10 BAE BAE(BIGBANG)	Mr.TAXI(소녀시대)	결혼을 할 거라면(쿨)	서른 즈음에(김광석)	Earthquake(포맨)

4. 세대별 인기가수(TOP5) -정진

```
--4.세대별 인기가수(TOP5)
SELECT SUB7080.S_NAME AS "7080년대", SUB1990.S_NAME AS "1990년대", SUB2000.S_NAME AS "2000년대", SUB2010.S_NAME AS "2010년대"
FROM (SELECT S_NAME, RANK
      FROM (SELECT SG.S_NAME, ROW_NUMBER() OVER(ORDER BY COUNT(*) DESC) AS RANK
            FROM SALES S, MUSIC MS, SINGER SG
            WHERE S.M_CODE IN(SELECT M_CODE FROM MUSIC WHERE S_CODE IN (SELECT S_CODE FROM SINGER WHERE SUBSTR(DEBUT,1,4) >= 1970 AND SUBSTR(DEBUT,1,4) < 1990))
            AND MS.S_CODE = SG.S_CODE
            AND MS.M_CODE = S.M_CODE
            GROUP BY SG.S_NAME)
      WHERE RANK<=5) SUB7080,
(SELECT S_NAME, RANK
      FROM (SELECT SG.S_NAME, ROW_NUMBER() OVER(ORDER BY COUNT(*) DESC) AS RANK
            FROM SALES S, MUSIC MS, SINGER SG
            WHERE S.M_CODE IN(SELECT M_CODE FROM MUSIC WHERE S_CODE IN (SELECT S_CODE FROM SINGER WHERE SUBSTR(DEBUT,1,4) >= 1990 AND SUBSTR(DEBUT,1,4) < 2000))
            AND MS.S_CODE = SG.S_CODE
            AND MS.M_CODE = S.M_CODE
            GROUP BY SG.S_NAME)
      WHERE RANK<=5) SUB1990,
(SELECT S_NAME, RANK
      FROM (SELECT SG.S_NAME, ROW_NUMBER() OVER(ORDER BY COUNT(*) DESC) AS RANK
            FROM SALES S, MUSIC MS, SINGER SG
            WHERE S.M_CODE IN(SELECT M_CODE FROM MUSIC WHERE S_CODE IN (SELECT S_CODE FROM SINGER WHERE SUBSTR(DEBUT,1,4) >= 2000 AND SUBSTR(DEBUT,1,4) < 2010))
            AND MS.S_CODE = SG.S_CODE
            AND MS.M_CODE = S.M_CODE
            GROUP BY SG.S_NAME)
      WHERE RANK<=5) SUB2000,
(SELECT S_NAME, RANK
      FROM (SELECT SG.S_NAME, ROW_NUMBER() OVER(ORDER BY COUNT(*) DESC) AS RANK
            FROM SALES S, MUSIC MS, SINGER SG
            WHERE S.M_CODE IN(SELECT M_CODE FROM MUSIC WHERE S_CODE IN (SELECT S_CODE FROM SINGER WHERE SUBSTR(DEBUT,1,4) >= 2010 AND SUBSTR(DEBUT,1,4) < 2020))
            AND MS.S_CODE = SG.S_CODE
            AND MS.M_CODE = S.M_CODE
            GROUP BY SG.S_NAME)
      WHERE RANK<=5) SUB2010
WHERE SUB7080.RANK=SUB1990.RANK AND
      SUB1990.RANK=SUB2000.RANK AND
      SUB2000.RANK=SUB2010.RANK;
```

	7080년대	1990년대	2000년대	2010년대
1	김광석	포맨	소녀시대	Ed Sheeran
2	김완선	장윤정	Coldplay	Imagine Dragons
3	김수희	Keira Knightley	아이유	미쓰에이
4	이승철	클	BIGBANG	블락비 (Block B)
5	전유나	이소라	원더걸스	블락비 바스타즈

5. 걸그룹 노래 순위 TOP30

```
--5.걸그룹 노래 순위 TOP30
SELECT S.RANK AS 순위, S.TITLE AS 제목, S.S_NAME AS 가수, A_NAME AS 앨범
FROM(SELECT ROW_NUMBER() OVER(ORDER BY COUNT(*)DESC) AS RANK, TITLE, S.S_NAME, A_NAME
FROM SINGER S, MUSIC M, SALES SL, ALBUM A
WHERE S.SEX = 'F'
AND MEMBER_COUNT > 1
AND A.A_CODE = M.A_CODE
AND M.S_CODE = S.S_CODE
AND SL.M_CODE = M.M_CODE
GROUP BY S.S_NAME, M.TITLE, A_NAME) S
WHERE S.RANK <= 30;
```

순위	제목	가수	앨범
1	Gee	소녀시대	The First Mini Album 'Gee'
2	Mr.TAXI	소녀시대	GIRLS'GENERATION
3	Run Devil Run	소녀시대	GIRLS'GENERATION
4	Oh!	소녀시대	Oh' The Second Album
5	뽀 & Fun	소녀시대	Oh' The Second Album
6	GENIE	소녀시대	GIRLS'GENERATION
7	Show! Show! Sho!	소녀시대	Oh' The Second Album
8	I Don't Care	2NE1	2NE1 1st Mini Album
9	Like this	원더걸스	Wonder Party
10	Nobody	원더걸스	The Wonder Years - Trilogy
11	Breathe	미쓰에이	A Class
12	R.E.A.L	원더걸스	Wonder Party
13	Dreams Come true	S.E.S	S.E.S 2
14	Bad Girl Good Girl	미쓰에이	Bad But Good
15	박수쳐	2NE1	To Anyone
16	Be My Baby	원더걸스	Wonder World
17	Girls Girls	원더걸스	Wonder World
18	Tell me (Sampling From 'Two Of Hearts')	원더걸스	The Wonder Years
19	Go Away	2NE1	To Anyone
20	Girlfriend	원더걸스	Wonder Party
21	사랑 사랑아	다비치	Love Delight
22	UGLY	2NE1	2nd Mini Album
23	Lonely	2NE1	2nd Mini Album
24	break it	미쓰에이	Bad But Good
25	안녕이라고 말하지만	다비치	Love Delight
26	딱 마주쳐	미쓰에이	Bad But Good
27	Can't Nobody	2NE1	To Anyone
28	Good-Bye baby	미쓰에이	A Class
29	내가 제일 잘 나가	2NE1	2nd Mini Album
30	둘이서 한잔해	다비치	Mystic Ballad Part.2

6. 가장 인기있는 앨범 TOP10 (앨범에 속해있는 음악 다운로드횟수로 순위지정)

```
--6.가장 인기있는 앨범 TOP10(앨범에 속해있는 음악 다운로드횟수로 순위지정)
SELECT K.*
FROM (SELECT K.앨범명, SUM(K.다운로드) AS 다운로드
      FROM (SELECT M.TITLE, S.M_CODE, A.A_CODE, A.A_NAME AS 앨범명, COUNT(*) AS 다운로드
            FROM SALES S, MUSIC M, ALBUM A
            WHERE S.M_CODE = M.M_CODE AND M.A_CODE = A.A_CODE
            GROUP BY M.TITLE, S.M_CODE, A.A_CODE, A.A_NAME
            ORDER BY 5 DESC) K
      GROUP BY K.앨범명
      ORDER BY 2 DESC) K
WHERE ROWNUM <= 10;
```

앨범명	다운로드
1 스틸	81
2 GIRLS' GENERATION	79
3 Oh' The Second Album	75
4 올래	74
5 Last Fantasy	70
6 Always	69
7 REMEMBER ME	68
8 + (Deluxe Edition)	64
9 Begin Again - Music From And Inspired By The Original Motion Picture	62
10 Modern Times-Epilogue	59

7. 소속사별 가장 인기있는 가수

--7.소속사별 가장 인기있는 가수를 보여주세요

```
SELECT LABELS AS 소속사, S_NAME AS 가수, CNT AS 다운로드
FROM (SELECT S1.LABELS, S1.S_NAME, COUNT(*) AS CNT,
      ROW_NUMBER() OVER(PARTITION BY S1.LABELS ORDER BY COUNT(*) DESC) AS RANK
FROM SINGER S1, MUSIC M, SALES S2
WHERE S1.S_CODE = M.S_CODE AND M.M_CODE = S2.M_CODE
GROUP BY S1.LABELS, S1.S_NAME)
WHERE RANK=1;
```

소속사	가수	다운로드
1 (주)G엔터테인먼트	BOBBY	8
2 (주)JYP엔터테인먼트	원더걸스	117
3 (주)SM엔터테인먼트	소녀시대	182
4 (주)YG엔터테인먼트	BIGBANG	124
5 (주)동아엔터테인먼트	이소라	28
6 (주)스톤뮤직엔터테인먼트	다비치	57
7 (주)카카오M	아이유	129
8 A&M Octone Records	Maroon 5	104
9 Asylum Records	Ed Sheeran	119
10 DnA Entertainment	팀	2
11 FNC엔터테인먼트	FTISLAND (FT아일랜드)	63
12 HIS ENTERTAINMENT	테이	10
13 Independent	Naomi Scott	15
14 Interscope Records	Imagine Dragons	91
15 Island Records	Carly Rae Jepsen	16

8. 국내 해외 비교

01

02

03

04

```
--8.국내 해외 비교
SELECT (SELECT COUNT(MS.GENRE)
        FROM SALES S, MUSIC MS
        WHERE GENRE = ANY (SELECT GENRE
                           FROM MUSIC
                           WHERE GENRE = 'POP')
        AND S.M_CODE= MS.M_CODE) 해외,

        (SELECT COUNT(MS.GENRE)
        FROM SALES S, MUSIC MS
        WHERE GENRE = ANY (SELECT GENRE
                           FROM MUSIC
                           WHERE GENRE != 'POP')
        AND S.M_CODE= MS.M_CODE) 국내
FROM DUAL;
```

해외	국내
673	1823

9. 그룹별 제일 많은 노래가 팔린 그룹의 이름과 판매개수

```
--9.그룹별 제일 많은 노래가 팔린 그룹의 이름과 판매개수
SELECT Q.이름, Q.SEX AS "F/M/G", Q.음악판매수
FROM (SELECT S.S_NAME AS 이름, S.S_CODE, S.SEX AS SEX, SUM(Q) AS 음악판매수
      FROM (SELECT M_CODE, COUNT(*) AS Q
            FROM SALES
            GROUP BY M_CODE
            ORDER BY COUNT(*) DESC) K,
      MUSIC M,
      SINGER S
      WHERE M.M_CODE = K.M_CODE AND M.S_CODE = S.S_CODE AND S.SEX = 'M'
      GROUP BY S.S_NAME, S.S_CODE, S.SEX
      ORDER BY 4 DESC) Q,
SINGER S
WHERE ROWNUM = 1
UNION
SELECT Q.이름, Q.SEX AS "F/M/G", Q.음악판매수
FROM (SELECT S.S_NAME AS 이름, S.S_CODE, S.SEX AS SEX, SUM(Q) AS 음악판매수
      FROM (SELECT M_CODE, COUNT(*) AS Q
            FROM SALES
            GROUP BY M_CODE
            ORDER BY COUNT(*) DESC) K,
      MUSIC M,
      SINGER S
      WHERE M.M_CODE = K.M_CODE AND M.S_CODE = S.S_CODE AND S.SEX = 'F'
      GROUP BY S.S_NAME, S.S_CODE, S.SEX
      ORDER BY 4 DESC) Q,
SINGER S
WHERE ROWNUM = 1
UNION
SELECT Q.이름, Q.SEX AS "F/M/G", Q.음악판매수
FROM (SELECT S.S_NAME AS 이름, S.S_CODE, S.SEX AS SEX, SUM(Q) AS 음악판매수
      FROM (SELECT M_CODE, COUNT(*) AS Q
            FROM SALES
            GROUP BY M_CODE
            ORDER BY COUNT(*) DESC) K,
      MUSIC M,
      SINGER S
      WHERE M.M_CODE = K.M_CODE AND M.S_CODE = S.S_CODE AND S.SEX = 'G'
      GROUP BY S.S_NAME, S.S_CODE, S.SEX
      ORDER BY 4 DESC) Q,
SINGER S
WHERE ROWNUM = 1;
```

	이름	F/M/G	음악판매수
1	Coldplay	M	149
2	소녀시대	F	182
3	어반자카파	G	96

10. 연도별 매출

--10.연도별 매출

```
SELECT TO_CHAR(S.BUY_DATE, 'YYYY')||'년' 연도, TO_CHAR(SUM(S.P_CODE*Q.PRICE), '999,999,999')||'원' 매출  
FROM SALES S, SOUND_QUALITY Q  
WHERE S.P_CODE=Q.P_CODE  
GROUP BY TO_CHAR(S.BUY_DATE, 'YYYY')  
ORDER BY 1;
```

	연도	매출
1	2017년	280,000원
2	2018년	430,400원
3	2019년	596,000원

11. 월별 매출

--11.월별 매출

```
SELECT TO_CHAR(S.BUY_DATE, 'MM')||'월' 월, TO_CHAR(SUM(S.P_CODE*Q.PRICE), '999,999,999')||'원' 매출
FROM SALES S, SOUND_QUALITY Q
WHERE S.P_CODE=Q.P_CODE
GROUP BY TO_CHAR(S.BUY_DATE, 'MM')
ORDER BY 1;
```

월	매출
01월	105,300원
02월	152,400원
03월	131,300원
04월	103,500원
05월	105,300원
06월	131,900원
07월	107,800원
08월	114,900원
09월	64,300원
10월	66,900원
11월	65,100원
12월	157,700원

12. 회원등급 및 포인트

--12.회원등급 및 포인트

```
SELECT MEM_NAME AS 이름, ID, NVL(G.RANK,'일반회원') AS 등급, SUB.POINT AS 포인트, CNT AS 다운로드
FROM (SELECT M.MEM_NAME, M.ID, SUM(Q.PRICE) AS SUM, SUM(Q.PRICE*0.1) AS POINT, COUNT(*) AS CNT
FROM SALES SAL, MEMBER M, SOUND_QUALITY Q
WHERE SAL.P_CODE=Q.P_CODE AND
SAL.MEM_CODE=M.MEM_CODE
GROUP BY M.MEM_NAME, ID) SUB, GRADE G
WHERE SUB.SUM BETWEEN G.LOAMT(+) AND G.HIAMT(+)
ORDER BY 4 DESC;
```

	이름	ID	등급	포인트	다운로드
1	이정진	veritas	DIAMOND	11590	425
2	송진훈	hoon92	DIAMOND	5830	123
3	김현정	kynrb94	GOLD	2820	110
4	심슨	dhqury	GOLD	2750	89
5	최슬기	silver-her	GOLD	2720	65
6	나한열	jhygsk	SILVER	1970	57
7	김힘찬	powerman	SILVER	1660	62
8	바비	standkang	SILVER	1600	68
9	전민	bluedragon	SILVER	1580	67
10	김진욱	shyun1	SILVER	1400	50

13. 여성회원 별 다운로드 한 곡 순위

--13.여성회원 별 다운로드 한 곡 순위

```
SELECT ROW_NUMBER() OVER(ORDER BY(COUNT(*))DESC) AS 순위, MS.TITLE AS 제목, S_NAME AS 가수, A_NAME AS 앨범명, GENRE AS 장르
FROM MEMBER M, SALES S, MUSIC MS, ALBUM A, SINGER SN
WHERE SUBSTR(JUMIN, 7, 1) IN (2, 3)
AND M.MEM_CODE = S.MEM_CODE
AND S.M_CODE = MS.M_CODE
AND A.A_CODE = MS.A_CODE
AND SN.S_CODE = MS.S_CODE
GROUP BY MS.TITLE, S_NAME, A_NAME, GENRE;
```

순위	제목	가수	앨범명	장르
1	Run Devil Run	소녀시대	GIRLS'GENERATION	댄스
2	금요일에 만나요	아이유	Modern Times-Epilogue	발라드
3	뻔 & Fun	소녀시대	Oh' The Second Album	댄스
4	Oh!	소녀시대	Oh' The Second Album	댄스
5	GENIE	소녀시대	GIRLS'GENERATION	댄스
6	Gee	소녀시대	The First Mini Album 'Gee'	댄스
7	다 좋아	어반자카파	스틸	RnB/Soul
8	그때의 나, 그때의 우리	어반자카파	그때의 나, 그때의 우리	RnB/Soul
9	Drunk	Ed Sheeran	+ (Deluxe Edition)	POP

14. 00이가 좋아하는 음악 장르 (다운로드)- 정진

01

02

03

04

----이정진이 좋아하는 장르 순위

SELECT RANK AS 순위, GENRE AS 장르

FROM (SELECT ROW_NUMBER() OVER(ORDER BY COUNT(*) DESC) AS RANK, MS.GENRE, COUNT(*)

FROM MEMBER M, SALES S, MUSIC MS

WHERE M.MEM_CODE = S.MEM_CODE

AND S.M_CODE = MS.M_CODE

AND MEM_NAME = '이정진'

GROUP BY MS.GENRE, MEM_NAME

ORDER BY 3 DESC);

순위	장르
1	POP
2	댄스
3	발라드
4	랩/힙합
5	RnB/Soul
6	인디음악

15. 00이가 좋아하는 아티스트의 노래 목록 (다운로드) -정진

```

SELECT SG.S_NAME "가장 좋아하는 가수", MS.TITLE "노래 목록"
FROM SINGER SG, MUSIC MS, MEMBER MB
WHERE SG.S_CODE = MS.S_CODE
AND (MB.MEM_NAME, S_NAME) IN (SELECT MEM_NAME, S_NAME
                                FROM (SELECT MEM_NAME, S_NAME, TITLE, ROW_NUMBER() OVER(ORDER BY SG1.S_CODE DESC) 순위
                                      FROM MEMBER M1, SALES S1, MUSIC MS1, SINGER SG1
                                      WHERE M1.MEM_CODE = S1.MEM_CODE
                                      AND S1.M_CODE = MS1.M_CODE
                                      AND MS1.S_CODE = SG1.S_CODE
                                      AND MEM_NAME = '이정진')
                                WHERE 순위 = 1)
GROUP BY SG.S_NAME, MS.TITLE
ORDER BY 1;

```

가장 좋아하는 가수	노래 목록
Maroon 5	Animals
Maroon 5	Girls Like You
Maroon 5	Just A Feeling
Maroon 5	Maps
Maroon 5	Never Gonna Leave This Bed
Maroon 5	She Will Be Loved
Maroon 5	Sugar
Maroon 5	Sunday Morning
Maroon 5	Sweetest Goodbye

16. 등급별 유저들이 가장 많이 구매한 음질순위 -정진

```
--16.등급별 유저들이 가장 많이 구매한 음질순위
SELECT SUBDIA.음질||' : '||SUBDIA.다운로드 "DIAMOND", SUBGOLD.음질||' : '||SUBGOLD.다운로드 "GOLD", SUBSIL.음질||' : '||SUBSIL.다운로드 "SIVER", SUBBRO.음질||' : '||SUBBRO.다운로드 "BRONZE"
FROM (SELECT 음질, 다운로드, RANK
      FROM (SELECT Q2.QUALITY AS 음질, COUNT(*)||'건' AS 다운로드, ROW_NUMBER() OVER(ORDER BY COUNT(*) DESC) AS RANK
            FROM (SELECT MEM_CODE
                  FROM (SELECT M.MEM_CODE, SUM(Q1.PRICE) AS SUM
                        FROM SALES SAL1, MEMBER M, SOUND_QUALITY Q1 WHERE SAL1.P_CODE=Q1.P_CODE AND SAL1.MEM_CODE=M.MEM_CODE
                        GROUP BY M.MEM_CODE) SUB1, GRADE G
                  WHERE SUB1.SUM BETWEEN G.LOAMT(+) AND G.HIAMT(+)
                  AND G.RANK='DIAMOND') SUB2, SALES SAL2, SOUND_QUALITY Q2
            WHERE SUB2.MEM_CODE=SAL2.MEM_CODE AND SAL2.P_CODE=Q2.P_CODE
            GROUP BY Q2.QUALITY)) SUBDIA,
(SELECT 음질, 다운로드, RANK
      FROM (SELECT Q2.QUALITY AS 음질, COUNT(*)||'건' AS 다운로드, ROW_NUMBER() OVER(ORDER BY COUNT(*) DESC) AS RANK
            FROM (SELECT MEM_CODE
                  FROM (SELECT M.MEM_CODE, SUM(Q1.PRICE) AS SUM
                        FROM SALES SAL1, MEMBER M, SOUND_QUALITY Q1 WHERE SAL1.P_CODE=Q1.P_CODE AND SAL1.MEM_CODE=M.MEM_CODE
                        GROUP BY M.MEM_CODE) SUB1, GRADE G
                  WHERE SUB1.SUM BETWEEN G.LOAMT(+) AND G.HIAMT(+) AND G.RANK='GOLD') SUB2, SALES SAL2, SOUND_QUALITY Q2
            WHERE SUB2.MEM_CODE=SAL2.MEM_CODE AND SAL2.P_CODE=Q2.P_CODE
            GROUP BY Q2.QUALITY)) SUBGOLD,
(SELECT 음질, 다운로드, RANK
      FROM (SELECT Q2.QUALITY AS 음질, COUNT(*)||'건' AS 다운로드, ROW_NUMBER() OVER(ORDER BY COUNT(*) DESC) AS RANK
            FROM (SELECT MEM_CODE
                  FROM (SELECT M.MEM_CODE, SUM(Q1.PRICE) AS SUM
                        FROM SALES SAL1, MEMBER M, SOUND_QUALITY Q1 WHERE SAL1.P_CODE=Q1.P_CODE AND SAL1.MEM_CODE=M.MEM_CODE
                        GROUP BY M.MEM_CODE) SUB1, GRADE G
                  WHERE SUB1.SUM BETWEEN G.LOAMT(+) AND G.HIAMT(+) AND G.RANK='SILVER') SUB2, SALES SAL2, SOUND_QUALITY Q2
            WHERE SUB2.MEM_CODE=SAL2.MEM_CODE AND SAL2.P_CODE=Q2.P_CODE
            GROUP BY Q2.QUALITY)) SUBSIL,
(SELECT 음질, 다운로드, RANK
      FROM (SELECT Q2.QUALITY AS 음질, COUNT(*)||'건' AS 다운로드, ROW_NUMBER() OVER(ORDER BY COUNT(*) DESC) AS RANK
            FROM (SELECT MEM_CODE
                  FROM (SELECT M.MEM_CODE, SUM(Q1.PRICE) AS SUM
                        FROM SALES SAL1, MEMBER M, SOUND_QUALITY Q1 WHERE SAL1.P_CODE=Q1.P_CODE AND SAL1.MEM_CODE=M.MEM_CODE
                        GROUP BY M.MEM_CODE) SUB1, GRADE G
                  WHERE SUB1.SUM BETWEEN G.LOAMT(+) AND G.HIAMT(+) AND G.RANK='BRONZE') SUB2, SALES SAL2, SOUND_QUALITY Q2
            WHERE SUB2.MEM_CODE=SAL2.MEM_CODE AND SAL2.P_CODE=Q2.P_CODE
            GROUP BY Q2.QUALITY)) SUBBRO
WHERE SUBDIA.RANK=SUBGOLD.RANK AND SUBGOLD.RANK=SUBSIL.RANK AND SUBSIL.RANK=SUBBRO.RANK;
```

	DIAMOND	GOLD	SIVER	BRONZE
1	320K : 216건	320K : 93건	128K : 309건	AAC+ : 201건
2	AAC+ : 112건	192K : 74건	192K : 253건	192K : 124건
3	128K : 110건	AAC+ : 52건	AAC+ : 231건	320K : 121건
4	192K : 110건	128K : 45건	320K : 224건	128K : 118건