

```

SQL> @C:/Users/siddh/Documents/Ex-1-MusicStore-Create.sql
SQL> REM ***** Ex-1-MusicStore
SQL>
SQL> DROP TABLE Sung_By;

```

Table dropped.

```
SQL> DROP TABLE Artist;
```

Table dropped.

```
SQL> DROP TABLE Song;
```

Table dropped.

```
SQL> DROP TABLE Album;
```

Table dropped.

```
SQL> DROP TABLE Studio;
```

Table dropped.

```
SQL> DROP TABLE Musician;
```

Table dropped.

```

SQL>
SQL> REM *****Creating the tables;
SQL>
SQL> CREATE TABLE Musician(
2      Musician_ID NUMBER(10),
3      Musician_name VARCHAR2(20) CONSTRAINT musician_name_nn NOT
      NULL,
4      Birthplace VARCHAR2(20),
5      CONSTRAINT musician_id_pk PRIMARY KEY (Musician_ID)
6 );

```

Table created.

```

SQL>
SQL> DESC Musician;

```

Name	Null?	Type
MUSICIAN_ID	NOT NULL	NUMBER(10)
MUSICIAN_NAME	NOT NULL	VARCHAR2(20)
BIRTHPLACE		VARCHAR2(20)

```

SQL>
SQL> CREATE TABLE Artist(
2      Artist_ID NUMBER(6) CONSTRAINT art_id_pk PRIMARY KEY,
3      Artist_name VARCHAR2(15) CONSTRAINT artist_n_nn NOT NULL
4 );

```

Table created.

SQL> DESC Artist;

Name	Null?	Type
ARTIST_ID	NOT NULL	NUMBER(6)
ARTIST_NAME	NOT NULL	VARCHAR2(15)

SQL>

```
SQL> CREATE TABLE Studio(  
2     studio_name VARCHAR2(15) CONSTRAINT studio_pk PRIMARY KEY,  
3     studio_address VARCHAR2(50),  
4     studio_phone NUMBER(10)  
5 );
```

Table created.

SQL> DESC Studio;

Name	Null?	Type
STUDIO_NAME	NOT NULL	VARCHAR2(15)
STUDIO_ADDRESS		VARCHAR2(50)
STUDIO_PHONE		NUMBER(10)

SQL>

```
SQL> CREATE TABLE Album(  
2     Album_name VARCHAR2(20),  
3     Album_ID NUMBER(6) CONSTRAINT album_ID_pk PRIMARY KEY,  
4     Year_release NUMBER(4) CONSTRAINT year_check  
5     CHECK(Year_release > 1945),  
6     No_tracks NUMBER(3),  
7     Studio VARCHAR2(15) CONSTRAINT studio_nn NOT NULL  
8     CONSTRAINT studio_fk REFERENCES  
9     STUDIO(Studio_name),  
10    genre VARCHAR2(30) CONSTRAINT genre_c CHECK(genre in('CAR',  
11    'DIV', 'MOV', 'POP')),  
12    Musician_ID NUMBER(10) CONSTRAINT mus_id_fk REFERENCES  
13    Musician(Musician_ID)  
14 );
```

Table created.

SQL> DESC Album;

Name	Null?	Type
ALBUM_NAME		VARCHAR2(20)
ALBUM_ID	NOT NULL	NUMBER(6)
YEAR_RELEASE		NUMBER(4)
NO_TRACKS		NUMBER(3)
STUDIO	NOT NULL	VARCHAR2(15)
GENRE		VARCHAR2(30)
MUSICIAN_ID		NUMBER(10)

SQL>

```
SQL> CREATE TABLE Song(  
2     Album_ID NUMBER(6) REFERENCES Album(Album_ID),  
3     Track_no NUMBER(3),  
4     Song_name VARCHAR2(30),  
5     Song_length NUMBER(2),
```

```

6      Song_genre VARCHAR2(3) CONSTRAINT genre_c1 CHECK(Song_genre
      in ('REL', 'PHI', 'LOV', 'DEV', 'PAT')),
7      CONSTRAINT song_pk PRIMARY KEY(Album_ID, Track_no),
8      CONSTRAINT album_fk FOREIGN KEY(Album_ID) REFERENCES
      Album(Album_ID),
9      CONSTRAINT length_ch CHECK(Song_genre !='PAT' OR
      Song_length>7)
10 );

```

Table created.

SQL> DESC Song;

Name	Null?	Type
-----	-----	-----
ALBUM_ID	NOT NULL	NUMBER(6)
TRACK_NO	NOT NULL	NUMBER(3)
SONG_NAME		VARCHAR2(30)
SONG_LENGTH		NUMBER(2)
SONG_GENRE		VARCHAR2(3)

SQL>

```

SQL> CREATE TABLE Sung_By(
2      Album_ID NUMBER(6),
3      Artist_ID NUMBER(6),
4      Track_no NUMBER(3),
5      Recording_date DATE,
6      CONSTRAINT sung_by_pk PRIMARY KEY(Album_ID, Artist_ID,
      Track_no),
7      CONSTRAINT sung_by_fk1 FOREIGN KEY(Album_ID, Track_no)
      REFERENCES Song(Album_ID, Track_no),
8      CONSTRAINT sung_by_fk2 FOREIGN KEY(Artist_ID) REFERENCES
      Artist(Artist_ID)
9 );

```

Table created.

SQL> DESC Sung_By;

Name	Null?	Type
-----	-----	-----
ALBUM_ID	NOT NULL	NUMBER(6)
ARTIST_ID	NOT NULL	NUMBER(6)
TRACK_NO	NOT NULL	NUMBER(3)
RECORDING_DATE		DATE

SQL>

SQL> REM *****Inserting rows into the tables

SQL>

SQL> REM ***** Populating Musician;

```

SQL> INSERT INTO Musician VALUES(
2      1134,
3      'AR RAHMAN',
4      'Chennai'
5 );

```

1 row created.

```
SQL>
SQL> INSERT INTO Musician VALUES(
  2      1135,
  3      'RAJ S',
  4      'Mumbai'
  5  );
```

1 row created.

```
SQL>
SQL> INSERT INTO Musician VALUES(
  2      1136,
  3      'JOHN C',
  4      'Kerala'
  5  );
```

1 row created.

```
SQL>
SQL> REM ***** Populating Studio;
SQL> INSERT INTO Studio VALUES(
  2      'ART Studio',
  3      'EAST AVE',
  4      9869597979
  5  );
```

1 row created.

```
SQL>
SQL> INSERT INTO Studio VALUES(
  2      'Peak Studio',
  3      'PARK STREET',
  4      9384999594
  5  );
```

1 row created.

```
SQL>
SQL> REM ***** Populating Album;
SQL> INSERT INTO Album VALUES(
  2      'Old Collections',
  3      1012,
  4      2004,
  5      12,
  6      'Peak Studio',
  7      'CAR',
  8      1136
  9  );
```

1 row created.

```
SQL>
```

```
SQL> INSERT INTO Album VALUES (
  2      'Siding',
  3      1019,
  4      2006,
  5      12,
  6      'Peak Studio',
  7      'MOV',
  8      1134
  9  );
```

1 row created.

```
SQL>
SQL> INSERT INTO Album VALUES (
  2      'New Collections',
  3      1015,
  4      2009,
  5      10,
  6      'ART Studio',
  7      'DIV',
  8      1135
  9  );
```

1 row created.

```
SQL>
SQL> REM ***** Populating Song;
SQL> INSERT INTO Song VALUES (
  2      1015,
  3      3,
  4      'Old Times',
  5      8,
  6      'PAT'
  7  );
```

1 row created.

```
SQL>
SQL> INSERT INTO Song VALUES (
  2      1012,
  3      2,
  4      'Parting',
  5      8,
  6      'PAT'
  7  );
```

1 row created.

```
SQL>
SQL> INSERT INTO Song VALUES (
  2      1019,
  3      1,
  4      'Air',
  5      4,
  6      'REL'
  7  );
```

1 row created.

```
SQL>
SQL> INSERT INTO Song VALUES(
  2      1019,
  3      3,
  4      'Clarity',
  5      12,
  6      'PAT'
  7  );
```

1 row created.

```
SQL>
SQL> REM *****Violating Patriotic song length:
SQL> INSERT INTO Song VALUES(
  2      1012,
  3      1,
  4      'Air',
  5      6,
  6      'PAT'
  7  );
INSERT INTO Song VALUES(
*
ERROR at line 1:
ORA-02290: check constraint (SYS.LENGTH_CH) violated
```

```
SQL>
SQL> REM ***** Populating Artist;
SQL> INSERT INTO Artist VALUES(
  2      9000,
  3      'AR RAHMAN'
  4  );
```

1 row created.

```
SQL>
SQL> INSERT INTO Artist VALUES(
  2      9001,
  3      'JOHN C'
  4  );
```

1 row created.

```
SQL>
SQL> INSERT INTO Artist VALUES(
  2      9003,
  3      'ARYAN B'
  4  );
```

1 row created.

```
SQL>
```

```
SQL> REM ***** Populating Sung_By;
SQL> INSERT INTO Sung_By VALUES(
  2      1015,
  3      9001,
  4      3,
  5      '20-Jan-2000'
  6 );
```

1 row created.

```
SQL>
SQL> REM *****Different artist same album same track:
SQL> INSERT INTO Sung_By VALUES(
  2      1012,
  3      9000,
  4      2,
  5      '21-Jan-1991'
  6 );
```

1 row created.

```
SQL>
SQL> INSERT INTO Sung_By VALUES(
  2      1012,
  3      9003,
  4      2,
  5      '22-Jan-1991'
  6 );
```

1 row created.

```
SQL>
SQL> REM *****Different artist same album different track:
SQL> INSERT INTO Sung_By VALUES(
  2      1019,
  3      9000,
  4      3,
  5      '25-Jan-2006'
  6 );
```

1 row created.

```
SQL>
SQL> INSERT INTO Sung_By VALUES(
  2      1019,
  3      9001,
  4      1,
  5      '25-Jan-2005'
  6 );
```

1 row created.

```
SQL>
SQL>
```

```

SQL> REM @Z:/Ex-1-MusicStore-Create.sql
SQL> REM @C:/Users/siddh/Documents/Ex-1-MusicStore-Create.sql
SQL> @C:/Users/siddh/Documents/Ex-1-MusicStore-Alter.sql
SQL> REM *****Altering the tables:
SQL>
SQL>
SQL> REM ***** 10)It is necessary to represent the gender of an artist
      in the table.
SQL> REM ***** Original table
SQL> DESC Artist;

```

Name	Null?	Type
ARTIST_ID	NOT NULL	NUMBER(6)
ARTIST_NAME	NOT NULL	VARCHAR2(15)

```

SQL>
SQL> ALTER TABLE Artist
      2 ADD (Artist_gender CHAR(1));

```

Table altered.

```

SQL>
SQL> DESC ARTIST

```

Name	Null?	Type
ARTIST_ID	NOT NULL	NUMBER(6)
ARTIST_NAME	NOT NULL	VARCHAR2(15)
ARTIST_GENDER		CHAR(1)

```

SQL>
SQL> REM ***** 11)The first few words of the lyrics constitute the song
name. The song name do not accommodate some of the words (in lyrics).
SQL>
SQL> REM ***** Original table
SQL> DESC Song;

```

Name	Null?	Type
ALBUM_ID	NOT NULL	NUMBER(6)
TRACK_NO	NOT NULL	NUMBER(3)
SONG_NAME		VARCHAR2(30)
SONG_LENGTH		NUMBER(2)
SONG_GENRE		VARCHAR2(3)

```

SQL>
SQL> ALTER TABLE Song
      2 MODIFY Song_name VARCHAR2(100);

```

Table altered.

```

SQL> REM ***** New table
SQL> DESC Song;

```

Name	Null?	Type
ALBUM_ID	NOT NULL	NUMBER(6)
TRACK_NO	NOT NULL	NUMBER(3)
SONG_NAME		VARCHAR2(100)
SONG_LENGTH		NUMBER(2)
SONG_GENRE		VARCHAR2(3)


```

SQL>
SQL> REM ***** 12)The phone number of each studio should be different
SQL>
SQL> REM ***** Original table
SQL> SELECT * FROM Studio;

```

STUDIO_NAME	STUDIO_ADDRESS	STUDIO_PHONE
ART Studio	EAST AVE	9869597979
Peak Studio	PARK STREET	9384999594

```

SQL>
SQL> ALTER TABLE Studio
  2 ADD CONSTRAINT studio_phone_uq UNIQUE(studio_phone);

```

Table altered.

```

SQL>
SQL> INSERT INTO Studio VALUES(
  2      'Peaks',
  3      'PARKS1',
  4      9384999594
  5 );
INSERT INTO Studio VALUES(
*
ERROR at line 1:
ORA-00001: unique constraint (SYS.STUDIO_PHONE_UQ) violated

```

```

SQL> SELECT * FROM Studio;

```

STUDIO_NAME	STUDIO_ADDRESS	STUDIO_PHONE
ART Studio	EAST AVE	9869597979
Peak Studio	PARK STREET	9384999594

```

SQL> DESC Studio;

```

Name	Null?	Type
STUDIO_NAME	NOT NULL	VARCHAR2(15)
STUDIO_ADDRESS		VARCHAR2(50)
STUDIO_PHONE		NUMBER(10)

```

SQL>
SQL> REM ***** 13)An artist who sings a song for a particular track of
an album can not be recorded without the record_date.
SQL> REM ***** Original table
SQL> DESC Sung_By;

```

Name	Null?	Type
ALBUM_ID	NOT NULL	NUMBER(6)
ARTIST_ID	NOT NULL	NUMBER(6)
TRACK_NO	NOT NULL	NUMBER(3)
RECORDING_DATE		DATE

```

SQL>

```

```
SQL> ALTER TABLE Sung_By
  2  MODIFY Recording_date DATE
  3  CONSTRAINT rec_date_nn NOT NULL;
```

Table altered.

```
SQL>
SQL> REM ***** New table
SQL> DESC Sung_By;
```

Name	Null?	Type
ALBUM_ID	NOT NULL	NUMBER(6)
ARTIST_ID	NOT NULL	NUMBER(6)
TRACK_NO	NOT NULL	NUMBER(3)
RECORDING_DATE	NOT NULL	DATE

```
SQL>
SQL>
SQL> REM ***** 14)It was decided to include the genre NAT for nature
songs
```

```
SQL>
SQL> REM ***** Initially
SQL> INSERT INTO Song VALUES(
  2      1015,
  3      4,
  4      'Old Times2',
  5      8,
  6      'NAT'
  7  );
```

```
INSERT INTO Song VALUES(
*
```

```
ERROR at line 1:
ORA-02290: check constraint (SYS.GENRE_C1) violated
```

```
SQL>
SQL> ALTER TABLE Song
  2  ADD CONSTRAINT genre_c2
  3  CHECK(Song_genre in ('REL', 'PHI', 'LOV', 'DEV', 'PAT', 'NAT'));
```

Table altered.

```
SQL>
SQL> ALTER TABLE Song
  2  DROP CONSTRAINT genre_c1;
```

Table altered.

```
SQL>
SQL> INSERT INTO Song VALUES(
  2      1015,
  3      4,
  4      'Old Times2',
  5      8,
  6      'NAT'
  7  );
```

1 row created.

```

SQL>
SQL> REM ***** 15)Due to typo-error, there may be a possibility of
false information. Hence while
SQL> REM ***** deleting the song information, make sure that all
the corresponding information are also deleted.
SQL>
SQL> REM ***** Attempting to delete without the ON DELETE CASCADE
SQL> DELETE FROM Song WHERE Song_name='Clarity';
DELETE FROM Song WHERE Song_name='Clarity'
*
ERROR at line 1:
ORA-02292: integrity constraint (SYS.SUNG_BY_FK1) violated - child
record found

```

```

SQL>
SQL> ALTER TABLE Sung_By
2 DROP CONSTRAINT sung_by_fk1;

```

Table altered.

```

SQL>
SQL> ALTER TABLE Sung_By
2 ADD CONSTRAINT sung_by_fk1
3 FOREIGN KEY(Album_ID, Track_no) REFERENCES Song(Album_ID,
Track_no)
4 ON DELETE CASCADE;

```

Table altered.

```

SQL>
SQL> REM ***** Testing out deletion of Album_ID, Track_No, Artist_ID
SQL>
SQL> REM ***** Original tables:
SQL>
SQL> SELECT * FROM Song;

```

ALBUM_ID	TRACK_NO	SONG_NAME	SONG_LENGTH	SON
1015	3	Old Times	8	PAT
1012	2	Parting	8	PAT
1019	1	Air	4	REL
1019	3	Clarity	12	PAT
1015	4	Old Times2	8	NAT

```

SQL>
SQL> SELECT * FROM Sung_By;

```

ALBUM_ID	ARTIST_ID	TRACK_NO	RECORDING
1015	9001	3	20-JAN-00
1012	9000	2	21-JAN-91
1012	9003	2	22-JAN-91
1019	9000	3	25-JAN-06
1019	9001	1	25-JAN-05

SQL>

```
SQL> REM ***** Deleting a song:
SQL> DELETE FROM Song WHERE Song_name='Clarity';
```

1 row deleted.

```
SQL>
SQL> REM ***** Updated tables:
SQL>
SQL> SELECT * FROM Song;
```

ALBUM_ID	TRACK_NO	SONG_NAME	SONG_LENGTH	SON
1015	3	Old Times	8	PAT
1012	2	Parting	8	PAT
1019	1	Air	4	REL
1015	4	Old Times2	8	NAT

```
SQL>
SQL> SELECT * FROM Sung_By;
```

ALBUM_ID	ARTIST_ID	TRACK_NO	RECORDING
1015	9001	3	20-JAN-00
1012	9000	2	21-JAN-91
1012	9003	2	22-JAN-91
1019	9001	1	25-JAN-05

```
SQL>
SQL> REM @Z:/Ex-1-MusicStore-Alter.sql
SQL> spool off
```