FOOTBALL MATCHES MANAGEMENT SYSTEM

SUBMITTED BY:

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REVIEW-3
J-COMPONENT PROJECT
DATABASE MANAGEMENT SYSTEM (ITE1003)

VIT®
Vellore Institute of Technology
(Deemed to be University under section 3 of UGC Act, 1956)

SUBMITTED TO:

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VELLORE INSTITUE OF TECHNOLOGY

1. **Choose a mini world for design and implementation of its database assigning an appropriate title for the database.**

   The mini world we have chosen is football tournament, and the title for our database is Football Match Records.

2. **Write down the data requirements and functional requirements for the database (*in approximately 1500 words*).The data requirements, apart from data to be stored in the database should also take into account the necessary integrity constraints that are reasonable for the database under consideration. The functional requirements should involve at least four different scenarios of removal of old data, four different scenarios for modification of existing data and eight different scenarios of data retrieval.**

. **Data requirements**

Our Database Management System Project is based upon Football Matches Management System. The Mini World constitutes of Different number of Players and Each Player plays for a Single Team. Each Team has its own Manager and Sponsors as well which can sponsor a team in several ways. Also, two teams play matches with each other as Home and Away Team and each match has its own Statistics as Number of Goals Scored, Possession Percentage, Number of Fouls committed. Each match has referees also and there are different types of Referees (Main Referee and Side-line Referee). Also, in a match number of players can be substituted and that record is also maintained here.

Information needs to be stored about the following entities:

Player information includes player id which will be the key attribute used to uniquely identify player, player name (made of first and last name), which team he/she is playing for, shirt no., date of birth (from which age can be calculated) and his position on the field.

Team information includes team id which will be the key attribute used to uniquely identify team, team name, city, home stadium information, information about its away and home play matches and its sponsors.

Manager information includes manager id which will be the key attribute used to uniquely identify the manager, manager name (made of first and last name), nationality and his/her email id (a multi valued attribute).

Sponsor information includes name of the sponsor which uniquely identifies the sponsor and its type (such as kit, jersey sponsor, gaming partner, beverage partner, training partner etc.).

Match information includes match number which will be the key attribute used to uniquely identify each match, match date and result.

Statistics are drawn after every match gets over and collected for future reference. Statistics information includes team number, number of goals sored in a match, possession percentage, and fouls of a team.

Referee is required in every match for making the fair conduction of the match possible. Match information includes referee id (referring the particular match), his/her name and type (Main referee and Sideline referee).

Substitution is required by a team when it’s players get injured during the play of the match. Substitution information includes substitution id given to a player substituting the injured player and time of substitution (value ranges between 0 to 90) as its attributes.

Information needs to be stored about the following relationships:

The relationship plays_in is between the entities Players and Team. The cardinality ratio is N:1 for Player to Team. Both have total participation.

The relationship manages is between the entities Manager and Team. The cardinality ratio is 1:1 for Manager to Team. Both have total participation.

The relationship sponsors is between the entities Team and Sponsor and contains contract_tenure which stores the duration of the contract between the Sponsor and the Team. The cardinality ratio is M:N between the team and the sponsor. Team has partial participation whereas sponsor has total participation.

The relationship substituted is between the entities Players and Substitution. The cardinality ratio is 1:N between the Players and Substitution. Player has partial participation and substitution has total participation in the relationship.

The relationship substituted_by is also between Players and Substitution. It’s Cardinality ratio is 1:N between the Players and Substitution. Again the Player has partial participation and the Substitution has total participation.

The relationship home_play is between the entities Team and Match. The cardinality ratio is 1:1 between Team and Match. Both Team and Match have total participation.

The relationship away_play is between the entities Team and Match. The cardinality ratio is 1:1 between Team and Match. Both Team and Match have total participation.

The relationship with is between the entities Substitution and Match. The cardinality ratio is N:1 for Substitution and Match. Substitution has total participation whereas Match has partial participation.

The relationship having is between the entities Statistics and Match. The cardinality ratio is 1:1 between Team and Match. Both Statistics and Match have total participation.

The relationship referred_by is between the entities Referee and Match. The cardinality ratio is N:1 for Referee and Match. Referee has total participation as well as Match has total participation.

Integrity constraints:

In table Player, player_id cannot be null as it is a primary key.In table Manager, manager_id cannot be null as it is primary key.

In table Team, team_id cannot be null as it is a primary key. Also manager_id is a foreign key and references to the table Manager so can take either null or the values present in table Manager only.

In table Match, match_no cannot be null as it is a primary key. Also host and guest references to team_id in table Team so can take null or the values present in table Team only.

In table Sponsor, s_name cannot be null as it is a primary key. In table Sponsors, team_id and s_name constitute composite primary key. The attribute s_name is a foreign key of table sponsors and references to the table Sponsor so can take either null or the values present in table Sponsor only. Also team_id is a foreign key and references to the table team so can take either null or the values present in table Team only.

In table Statistics, match_no and team_no constitute composite primary key which combinedly uniquely identifies each entry so both cannot be null at the same time.

In table manager_email, manager_id and email constitute composite primary key which combinedly uniquely identifies each entry so both cannot be null at the same time.

In table referee, id and match_no constitute composite primary key which combinedly uniquely identifies each entry so both cannot be null at the same time.

In table substitution, sub_id and match_no constitute composite primary key which combinedly uniquely identifies each entry so both cannot be null at the same time. Also substituted_player and substitute_player are foreign keys and references to player_id in table Player, so can take either null values or the values present in the table Players.

Functional Requirements

Viewer system must be designed such that the users are able to see the player details of each player in the database. The scores of each tournament must be visible. The venue and other details of the match must be displayed if the user wants to see it. System should display the complete roster of a team including the substitutes and the players playing in the starting 11. The details of managers of each team must be accessible by the users. Along with the details of the managers, the details of the referee is also very important and hence must be displayed. The statistics of the teams playing the match which includes- number of goals scored, possession and the number of fouls committed must also be available. The home and away teams of each game are also mentioned. System should display data on each goal which has been scored in the duration of the entire tournament. System should allow fixtures to be searched.

The responsibility of the **administrator** is to allow the user to access the database. In addition to the privileges of the user, the administrator as an extra privilege of adding and removing data from the database. Administrators generate the fixtures and update them in the database. Administrators allows the entering of home and away teams. He has the ability to change the venue and date of the match if needed. The administrator can delete any player if that player has retired or has withdrawn himself from the tournament.

REMOVAL OF OLD DATA:

The system provides the functionality to remove or delete any data which is not require any more. Eg:

- If a player has an agreement to play for a certain period of time then after that time the information about the player needs to be removed.
- If a player is retired or the player resign before his retirement then also information about that player needs to be removed.
- If any team is excluded from the tournament then their information should be removed from the competition’s database.
- If a referee is retired then the data of that referee will be removed.

MODIFICATION OF DATA:

The system provides the functionality to modify any data whenever required. Eg:

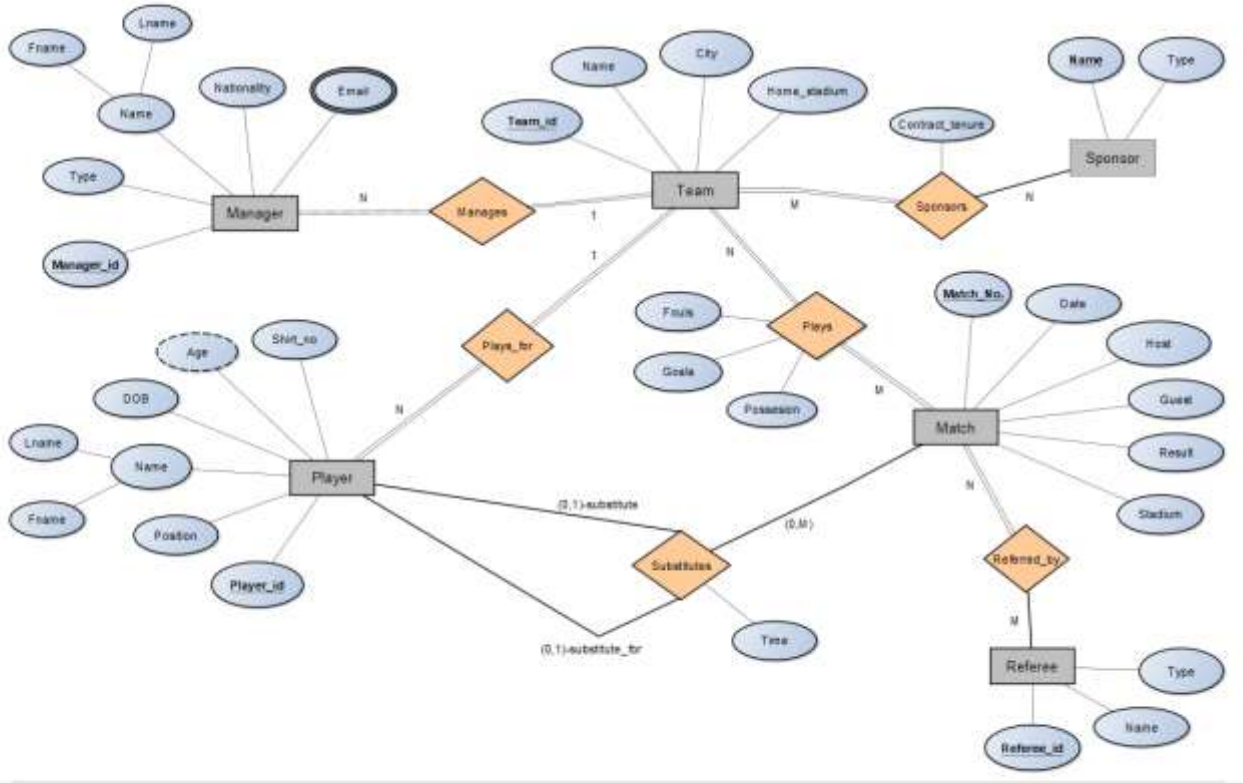
- The database needs to be changed or modified after any player scores a goal in a match.
- If due to any reason the manager of the team gets changed then that should be reflected in the database also.
- Often for every team several sponsors cancel their sponsorship or begin to sponsor the team so that should be updated time to time.
- Position of players often gets changed in team based on performance so that should be modified accordingly.

RETREIVAL OF DATA:

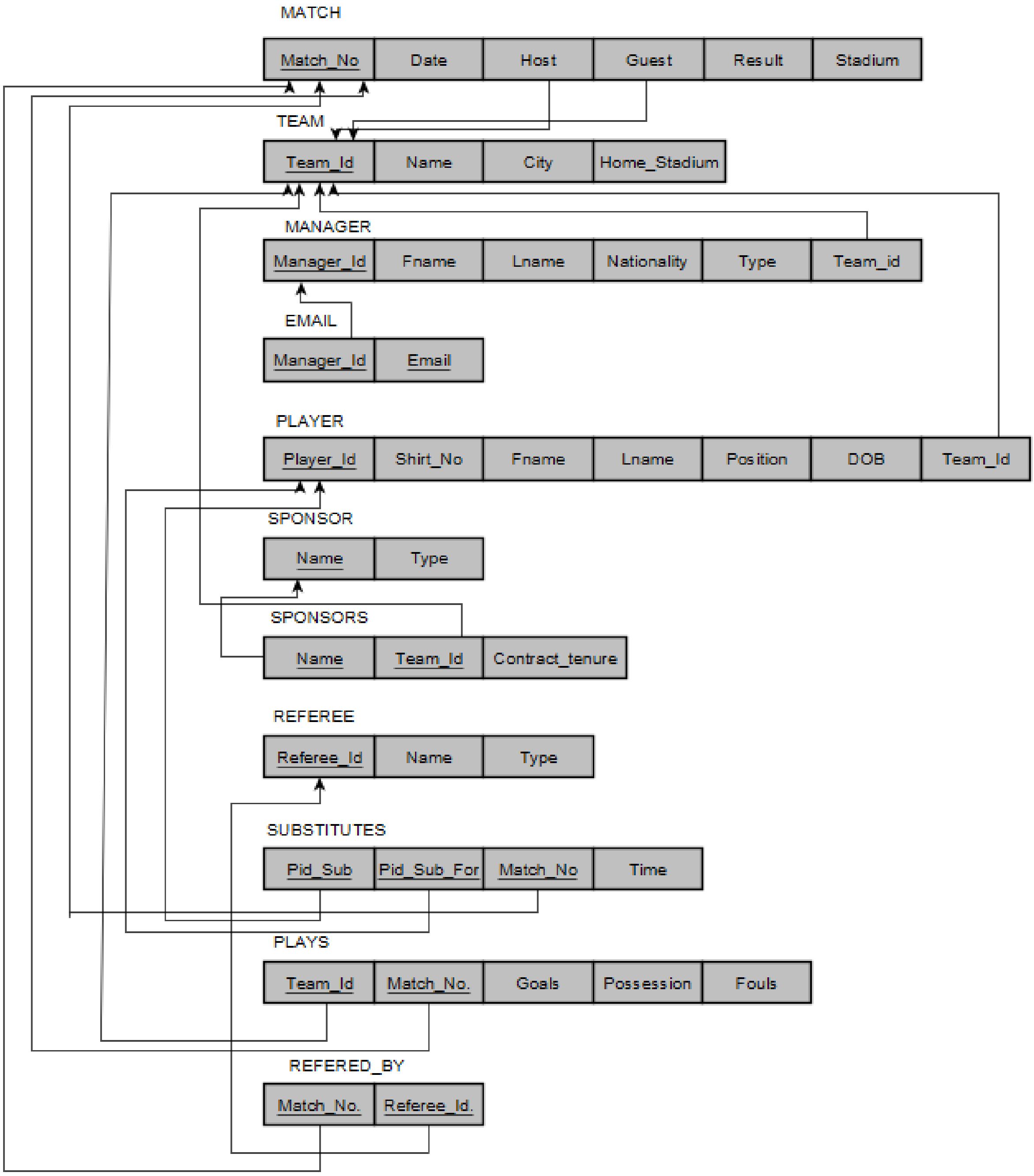
The system provides functionalities to retrieve data using specific queries. Eg:

- After each match we need retrieve the information about the goals scored by each team to declare the result.
- Also, in the winning team for awarding any player his information needs to be fetched out from the database. In a club meeting the information about each manager needs to be retrieved so as to check the performance of the team under a particular manager.
- While every match information about each player (name, position, etc.) of the team and about the referee needs to be displayed. If any player gets injured in a match then from whom the player gets substituted and for how much time all this information can be retrieved.
- Before sponsoring any team, each sponsor needs to check the records of all teams and compare among them based on their performance in their previous matches. In any match the accuracy of any team can be compared based on the fouls they have made in that match.
- Based on the performance of teams, we can calculate the number of points scored by a particular team in the tournament.

3. **Draw an ER/EER diagram based on the data requirements. Indicate key constraints, cardinality constraints and participation constraints on the diagram.**



4. Convert the ER/EER diagram into a relational database schema diagram.


MATCH
Match_No | Date | Host | Guest | Result | Stadium
TEAM
Team_Id | Name | City | Home_Stadium
MANAGER
Manager_Id | Fname | Lname | Nationality | Type | Team_id
EMAIL
Manager_Id | Email
PLAYER
Player_Id | Shirt_No | Fname | Lname | Position | DOB | Team_Id
SPONSOR
Name | Type
SPONSORS
Name | Team_Id | Contract_tenure
REFEREE
Referee_Id | Name | Type
SUBSTITUTES
Pid_Sub | Pid_Sub_For | Match_No | Time
PLAYS
Team_Id | Match_No. | Goals | Possession | Fouls
REFERED_BY
Match_No. | Referee_Id.

5. **Implement the relational database schema incorporating appropriate (based on data requirements) integrity constraints and enter necessary sample data into the tables. Each integrity constraint should be assigned a name.**

Table Creation:

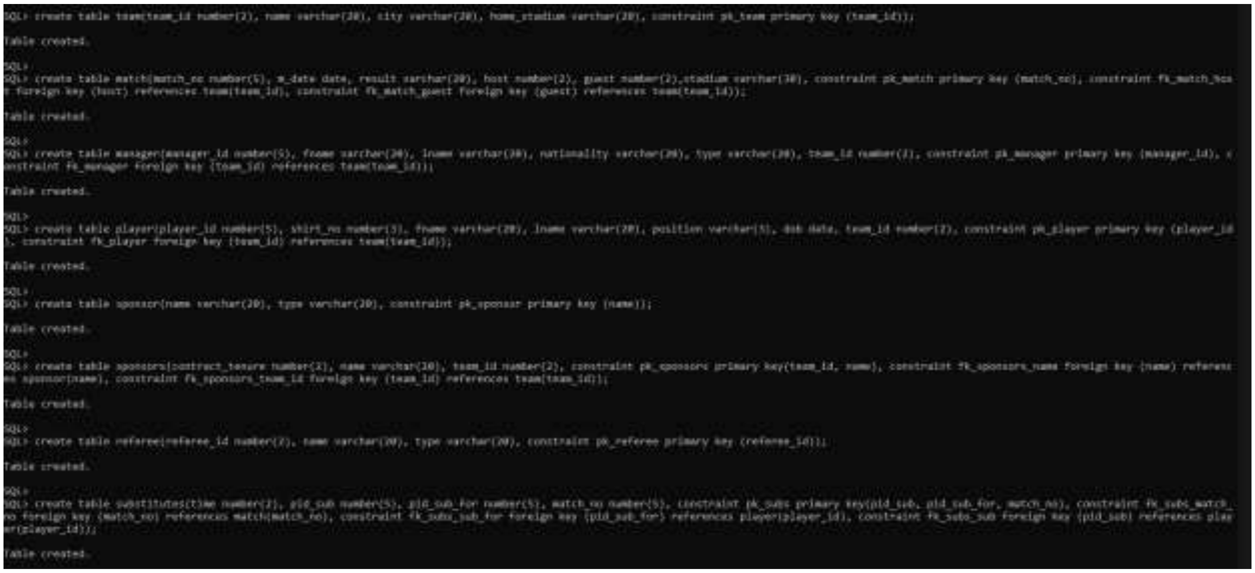
```
create table team(team_id number(2), name varchar(20), city varchar(20), home_stadium
varchar(20), constraint pk_team primary key (team_id));

create table match(match_no number(5), m_date date, result varchar(20), host number(2),
guest number(2),stadium varchar(30), constraint pk_match primary key (match_no),
constraint fk_match_host foreign key (host) references team(team_id) on delete cascade,
constraint fk_match_guest foreign key (guest) references team(team_id) on delete
cascade);

create table manager(manager_id number(5), fname varchar(20), lname varchar(20),
nationality varchar(20), type varchar(20), team_id number(2), constraint pk_manager
primary key (manager_id), constraint fk_manager foreign key (team_id) references
team(team_id) on delete cascade);

create table player(player_id number(5), shirt_no number(3), fname varchar(20), lname
varchar(20), position varchar(3), dob date, team_id number(2), constraint pk_player
primary key (player_id), constraint fk_player foreign key (team_id) references
team(team_id) on delete cascade);

create table sponsor(name varchar(20), type varchar(20), constraint pk_sponsor primary
key (name));

create table sponsors(contract_tenure number(2), name varchar(20), team_id number(2),
constraint pk_sponsors primary key(team_id, name), constraint fk_sponsors_name
foreign key (name) references sponsor(name) on delete cascade, constraint
fk_sponsors_team_id foreign key (team_id) references team(team_id) on delete cascade);
create table referee(referee_id number(2), name varchar(20), type varchar(20), constraint
pk_referee primary key (referee_id));

create table substitutes(time number(2), pid_sub number(5), pid_sub_for number(5),
match_no number(5), constraint pk_subs primary key(pid_sub, pid_sub_for, match_no),
constraint fk_subs_match_no foreign key (match_no) references match(match_no) on
```

delete cascade, constraint fk_subs_sub_for foreign key (pid_sub_for) references player(player_id) on delete cascade, constraint fk_subs_sub foreign key (pid_sub) references player(player_id) on delete cascade);

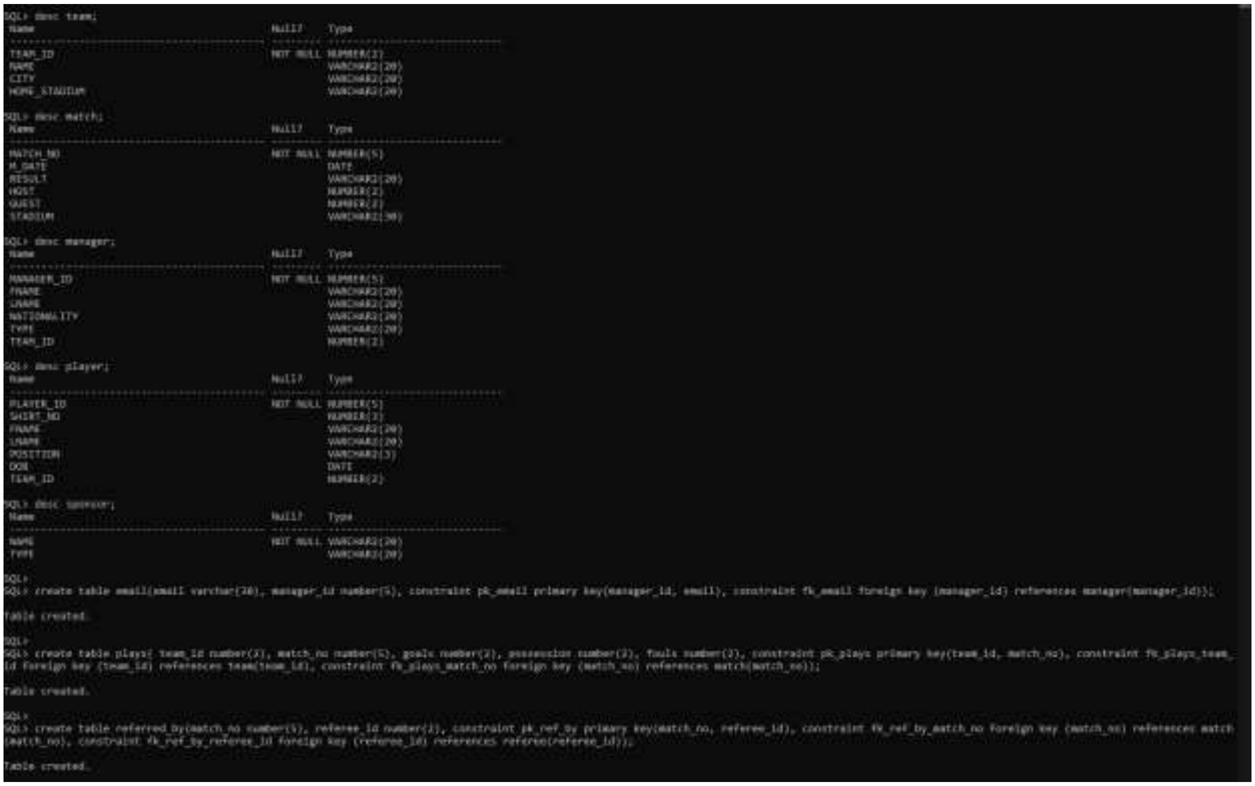
create table email(email varchar(30), manager_id number(5), constraint pk_email primary key(manager_id, email), constraint fk_email foreign key (manager_id) references manager(manager_id) on delete cascade);

create table plays(team_id number(2), match_no number(5), goals number(2), possession number(2), fouls number(2), constraint pk_plays primary key(team_id, match_no), constraint fk_plays_team_id foreign key (team_id) references team(team_id) on delete cascade, constraint fk_plays_match_no foreign key (match_no) references match(match_no) on delete cascade);

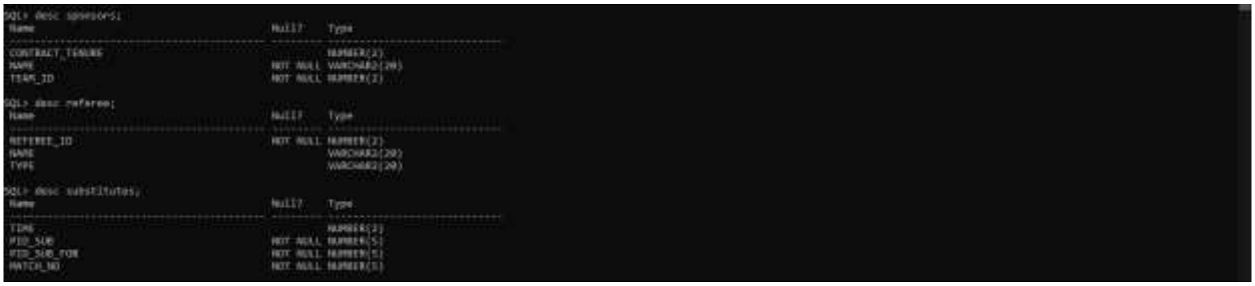
create table referred_by(match_no number(5), referee_id number(2), constraint pk_ref_by primary key(match_no, referee_id), constraint fk_ref_by_match_no foreign key (match_no) references match(match_no) on delete cascade, constraint fk_ref_by_referee_id foreign key (referee_id) references referee(referee_id) on delete cascade);



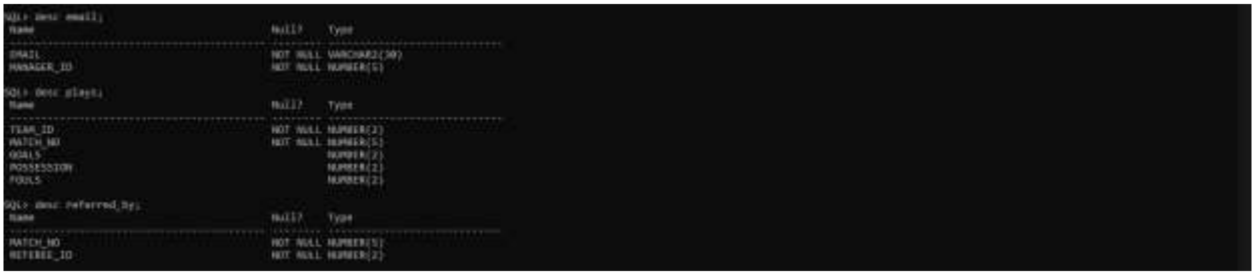
```
SQL> create table team(team_id number(2), name varchar(20), city varchar(20), home_stadium varchar(20), constraint pk_team primary key (team_id));

Table created.

SQL>
SQL> create table match(match_no number(5), m_date date, result varchar(20), host number(2), guest number(2),stadium varchar(30), constraint pk_match primary key (match_no), constraint fk_match_hos
t foreign key (host) references team(team_id), constraint fk_match_guest foreign key (guest) references team(team_id));

Table created.

SQL>
SQL> create table manager(manager_id number(5), fname varchar(20), lname varchar(20), nationality varchar(20), type varchar(20), team_id number(2), constraint pk_manager primary key (manager_id), c
onstraint fk_manager foreign key (team_id) references team(team_id));

Table created.

SQL>
SQL> create table player(player_id number(5), shirt_no number(3), fname varchar(20), lname varchar(20), position varchar(5), dob date, team_id number(2), constraint pk_player primary key (player_id
), constraint fk_player foreign key (team_id) references team(team_id));

Table created.

SQL>
SQL> create table sponsor(name varchar(20), type varchar(20), constraint pk_sponsor primary key (name));

Table created.

SQL>
SQL> create table sponsors(contract_tenure number(2), name varchar(20), team_id number(2), constraint pk_sponsors primary key(team_id, name), constraint fk_sponsors_name foreign key (name) referenc
es sponsor(name), constraint fk_sponsors_team_id foreign key (team_id) references team(team_id));

Table created.

SQL>
SQL> create table referee(referee_id number(2), name varchar(20), type varchar(20), constraint pk_referee primary key (referee_id));

Table created.

SQL>
SQL> create table substitutes(time number(2), pid_sub number(5), pid_sub_for number(5), match_no number(5), constraint pk_subs primary key(pid_sub, pid_sub_for, match_no), constraint fk_subs_match_
no foreign key (match_no) references match(match_no), constraint fk_subs_sub_for foreign key (pid_sub_for) references player(player_id), constraint fk_subs_sub foreign key (pid_sub) references play
er(player_id));

Table created.
```



```
SQL> desc team;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 TEAM_ID                                   NOT NULL NUMBER(2)
 NAME                                               VARCHAR2(20)
 CITY                                               VARCHAR2(20)
 HOME_STADIUM                                       VARCHAR2(20)

SQL> desc match;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 MATCH_NO                                  NOT NULL NUMBER(5)
 M_DATE                                             DATE
 RESULT                                             VARCHAR2(20)
 HOST                                               NUMBER(2)
 GUEST                                              NUMBER(2)
 STADIUM                                            VARCHAR2(30)

SQL> desc manager;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 MANAGER_ID                                NOT NULL NUMBER(5)
 FNAME                                              VARCHAR2(20)
 LNAME                                              VARCHAR2(20)
 NATIONALITY                                        VARCHAR2(20)
 TYPE                                               VARCHAR2(20)
 TEAM_ID                                            NUMBER(2)

SQL> desc player;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 PLAYER_ID                                 NOT NULL NUMBER(5)
 SHIRT_NO                                           NUMBER(3)
 FNAME                                              VARCHAR2(20)
 LNAME                                              VARCHAR2(20)
 POSITION                                           VARCHAR2(3)
 DOB                                                DATE
 TEAM_ID                                            NUMBER(2)

SQL> desc sponsor;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 NAME                                      NOT NULL VARCHAR2(20)
 TYPE                                               VARCHAR2(20)

SQL>
SQL> create table email(email varchar(30), manager_id number(5), constraint pk_email primary key(manager_id, email), constraint fk_email foreign key (manager_id) references manager(manager_id));

Table created.

SQL>
SQL> create table plays( team_id number(2), match_no number(5), goals number(2), possession number(2), fouls number(2), constraint pk_plays primary key(team_id, match_no), constraint fk_plays_team_
id foreign key (team_id) references team(team_id), constraint fk_plays_match_no foreign key (match_no) references match(match_no));

Table created.

SQL>
SQL> create table referred_by(match_no number(5), referee_id number(2), constraint pk_ref_by primary key(match_no, referee_id), constraint fk_ref_by_match_no foreign key (match_no) references match
(match_no), constraint fk_ref_by_referee_id foreign key (referee_id) references referee(referee_id));

Table created.
```



```
SQL> desc sponsors;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 CONTRACT_TENURE                                    NUMBER(2)
 NAME                                      NOT NULL VARCHAR2(20)
 TEAM_ID                                   NOT NULL NUMBER(2)

SQL> desc referee;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 REFEREE_ID                                NOT NULL NUMBER(2)
 NAME                                               VARCHAR2(20)
 TYPE                                               VARCHAR2(20)

SQL> desc substitutes;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 TIME                                               NUMBER(2)
 PID_SUB                                   NOT NULL NUMBER(5)
 PID_SUB_FOR                               NOT NULL NUMBER(5)
 MATCH_NO                                  NOT NULL NUMBER(5)
```



```
SQL> desc email;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 EMAIL                                     NOT NULL VARCHAR2(30)
 MANAGER_ID                                NOT NULL NUMBER(5)

SQL> desc plays;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 TEAM_ID                                   NOT NULL NUMBER(2)
 MATCH_NO                                  NOT NULL NUMBER(5)
 GOALS                                              NUMBER(2)
 POSSESSION                                         NUMBER(2)
 FOULS                                              NUMBER(2)

SQL> desc referred_by;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 MATCH_NO                                  NOT NULL NUMBER(5)
 REFEREE_ID                                NOT NULL NUMBER(2)
```

Inserting Values:

Team:

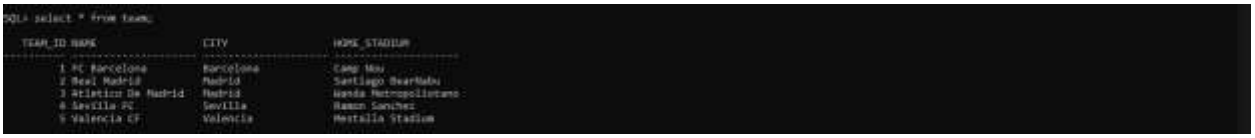
insert into team values(01, 'FC Barcelona', 'Barcelona', 'Camp Nou');

insert into team values(02, 'Real Madrid', 'Madrid', 'Santiago BearNabu');

insert into team values(03, 'Atletico De Madrid', 'Madrid', 'Wanda Metropoliotano');

insert into team values(04, 'Sevilla FC', 'Sevilla', 'Ramon Sanchez');

insert into team values(05, 'Valencia CF', 'Valencia', 'Mestalla Stadium');



```
SQL> select * from team;

   TEAM_ID NAME                 CITY                 HOME_STADIUM
---------- -------------------- -------------------- --------------------
         1 FC Barcelona         Barcelona            Camp Nou
         2 Real Madrid          Madrid               Santiago BearNabu
         3 Atletico De Madrid   Madrid               Wanda Metropoliotano
         4 Sevilla FC           Sevilla              Ramon Sanchez
         5 Valencia CF          Valencia             Mestalla Stadium
```

Match:

insert into match values(1, '10-Aug-2019', 'FC Barcelona', 01,02, 'Camp Nou');

insert into match values(2, '11-Aug-2019', 'Atletico De Madrid', 02,03,'Santiago BearNabu');

insert into match values(3, '12-Aug-2019', 'FC Barcelona', 03,04,'Wanda Metropoliotano');

insert into match values(4, '13-Aug-2019', 'Drawn', 04,05,'Ramon Sanchez');

insert into match values(5, '14-Aug-2019', 'Drawn', 05,01, 'Mestalla Stadium');

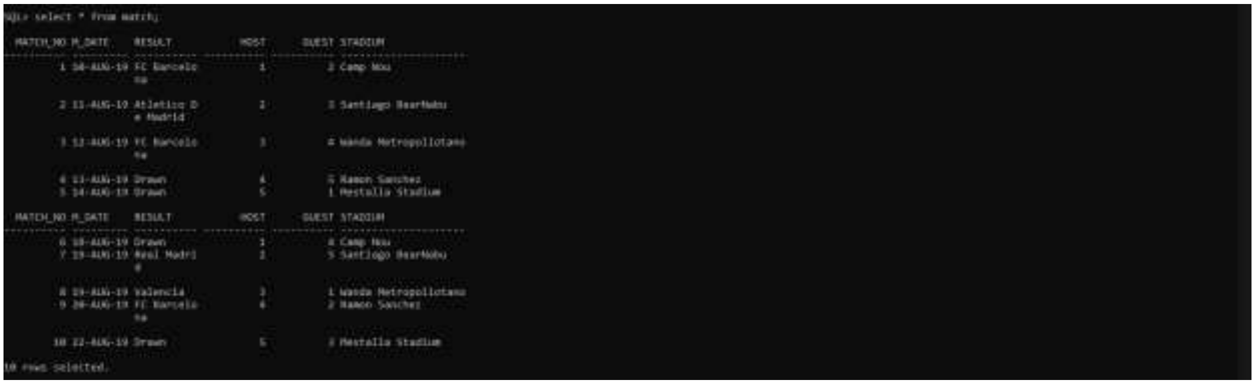
insert into match values(6, '18-Aug-2019', 'Drawn', 01,04, 'Camp Nou');

insert into match values(7, '19-Aug-2019', 'Real Madrid', 02,05, 'Santiago BearNabu');

insert into match values(8, '19-Aug-2019', 'Valencia', 03,01, 'Wanda Metropoliotano');

insert into match values(9, '20-Aug-2019', 'FC Barcelona', 04,02, 'Ramon Sanchez');

insert into match values(10, '22-Aug-2019', 'Drawn', 05,03, 'Mestalla Stadium');



```
SQL> select * from match;

  MATCH_NO M_DATE    RESULT           HOST      GUEST STADIUM
---------- --------- ---------- ---------- ---------- --------------------
         1 10-AUG-19 FC Barcelo          1          2 Camp Nou
                     na

         2 11-AUG-19 Atletico D          2          3 Santiago BearNabu
                     e Madrid

         3 12-AUG-19 FC Barcelo          3          4 Wanda Metropolitano
                     na

         4 13-AUG-19 Drawn               4          5 Ramon Sanchez
         5 14-AUG-19 Drawn               5          1 Mestalla Stadium

  MATCH_NO M_DATE    RESULT           HOST      GUEST STADIUM
---------- --------- ---------- ---------- ---------- --------------------
         6 18-AUG-19 Drawn               1          4 Camp Nou
         7 19-AUG-19 Real Madri          2          5 Santiago BearNabu
                     d

         8 19-AUG-19 Valencia            3          1 Wanda Metropolitano
         9 20-AUG-19 FC Barcelo          4          2 Ramon Sanchez
                     na

        10 22-AUG-19 Drawn               5          3 Mestalla Stadium

10 rows selected.
```

Manager:

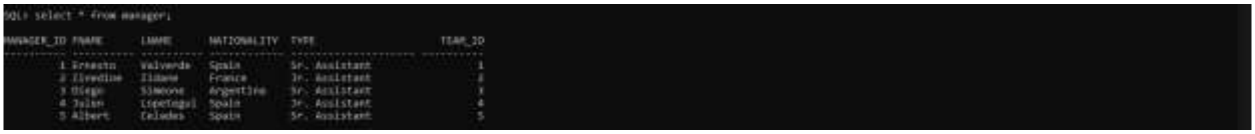
insert into manager values(00001, 'Ernesto', 'Valverde', 'Spain', 'Sr. Assistant',01);

insert into manager values(00002, 'Zinedine', 'Zidane', 'France', 'Jr. Assistant',02);

insert into manager values(00003, 'Diego', 'Simeone', 'Argentina', 'Sr. Assistant',03);

insert into manager values(00004, 'Julen', 'Lopetegui', 'Spain', 'Jr. Assistant',04);

insert into manager values(00005, 'Albert', 'Celades', 'Spain', 'Sr. Assistant',05);



```
SQL> select * from manager;

MANAGER_ID FNAME      LNAME      NATIONALITY  TYPE                    TEAM_ID
---------- ---------- ---------- ------------ -------------------- ----------
         1 Ernesto    Valverde   Spain        Sr. Assistant                 1
         2 Zinedine   Zidane     France       Jr. Assistant                 2
         3 Diego      Simeone    Argentina    Sr. Assistant                 3
         4 Julen      Lopetegui  Spain        Jr. Assistant                 4
         5 Albert     Celades    Spain        Sr. Assistant                 5
```

Player:

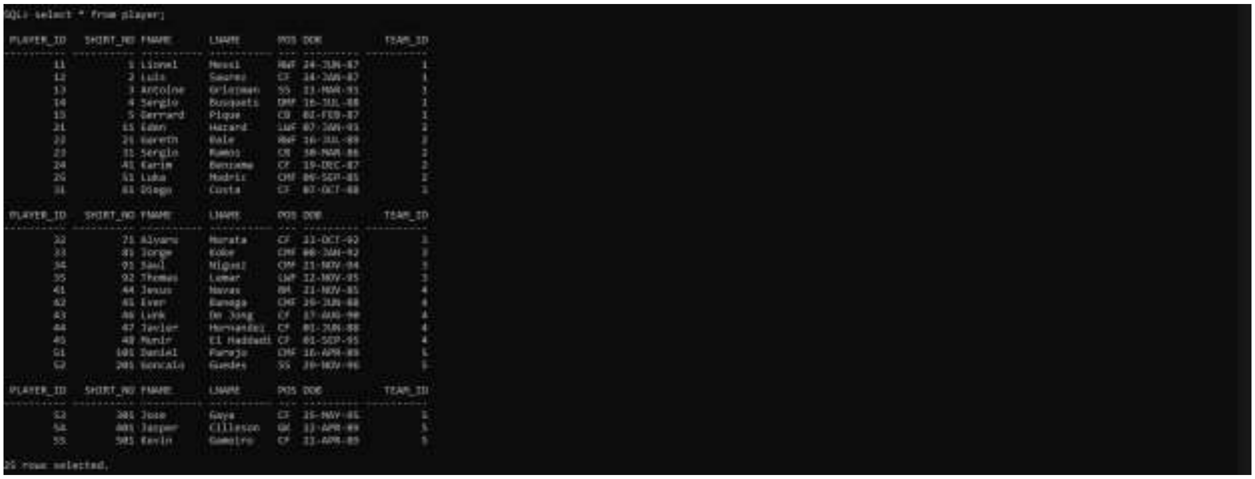
insert into player values(00011, 001, 'Lionel', 'Messi', 'RWF', '24-Jun-1987', 01);

```
insert into player values(00012, 002, 'Luis', 'Saurez', 'CF', '24-Jan-1987', 01);

insert into player values(00013, 003, 'Antoine', 'Griezman', 'SS', '21-Mar-1991', 01);

insert into player values(00014, 004, 'Sergio', 'Busquets', 'DMF', '16-Jul-1988', 01);

insert into player values(00015, 005, 'Gerrard', 'Pique', 'CB', '02-Feb-1987', 01);


insert into player values(00021, 011, 'Eden', 'Hazard', 'LWF', '07-Jan-1991', 02);

insert into player values(00022, 021, 'Gareth', 'Bale', 'RWF', '16-Jul-1989', 02);

insert into player values(00023, 031, 'Sergio', 'Ramos', 'CB', '30-Mar-1986', 02);

insert into player values(00024, 041, 'Karim', 'Benzema', 'CF', '19-Dec-1987', 02);

insert into player values(00025, 051, 'Luka', 'Modric', 'CMF', '09-sep-1985', 02);


insert into player values(00031, 061, 'Diego', 'Costa', 'CF', '07-Oct-1988', 03);

insert into player values(00032, 071, 'Alvaro', 'Morata', 'CF', '23-Oct-1992', 03);

insert into player values(00033, 081, 'Jorge', 'Koke', 'CMF', '08-Jan-1992', 03);

insert into player values(00034, 091, 'Saul', 'Niguez', 'CMF', '21-Nov-1994', 03);

insert into player values(00035, 092, 'Thomas', 'Lemar', 'LWF', '12-Nov-1995', 03);


insert into player values(00041, 044, 'Jesus', 'Navas', 'RM', '21-Nov-1985', 04);

insert into player values(00042, 045, 'Ever', 'Banega', 'CMF', '29-Jun-1988', 04);

insert into player values(00043, 046, 'Lunk', 'De Jong', 'CF', '27-Aug-1990', 04);

insert into player values(00044, 047, 'Javier', 'Hernandez', 'CF', '01-Jun-1988', 04);

insert into player values(00045, 048, 'Munir', 'E1 Haddadi', 'CF', '01-Sep-1995', 04);


insert into player values(00051, 101, 'Daniel', 'Parejo', 'CMF', '16-Apr-1989', 05);

insert into player values(00052, 201, 'Goncalo', 'Guedes', 'SS', '29-Nov-1996', 05);
```

insert into player values(00053, 301, 'Jose', 'Gaya', 'CF', '25-May-1995', 05);

insert into player values(00054, 401, 'Jasper', 'Cilleson', 'GK', '22-Apr-1989', 05);

insert into player values(00055, 501, 'Kevin', 'Gameiro', 'CF', '22-Apr-1989', 05);



```
SQL> select * from player;

 PLAYER_ID   SHIRT_NO FNAME      LNAME       POS DOB          TEAM_ID
---------- ---------- ---------- ----------- --- --------- ----------
        11          1 Lionel     Messi       RWF 24-JUN-87          1
        12          2 Luis       Suarez      CF  24-JAN-87          1
        13          3 Antoine    Griezman    SS  21-MAR-91          1
        14          4 Sergio     Busquets    DMF 16-JUL-88          1
        15          5 Gerrard    Pique       CB  02-FEB-87          1
        21         15 Eden       Hazard      LWF 07-JAN-91          2
        22         21 Gareth     Bale        RWF 16-JUL-89          2
        23         31 Sergio     Ramos       CB  30-MAR-86          2
        24         41 Karim      Benzema     CF  19-DEC-87          2
        25         51 Luka       Modric      CMF 09-SEP-85          2
        31         81 Diego      Costa       CF  07-OCT-88          3

 PLAYER_ID   SHIRT_NO FNAME      LNAME       POS DOB          TEAM_ID
---------- ---------- ---------- ----------- --- --------- ----------
        32         71 Alvaro     Morata      CF  23-OCT-92          3
        33         81 Jorge      Koke        CMF 08-JAN-92          3
        34         91 Saul       Niguez      CMF 21-NOV-94          3
        35         92 Thomas     Lemar       LWF 12-NOV-95          3
        41         44 Jesus      Navas       GK  21-NOV-85          4
        42         45 Ever       Banega      CMF 29-JUN-88          4
        43         46 Luuk       De Jong     CF  27-AUG-90          4
        44         47 Javier     Hernandez   CF  01-JUN-88          4
        45         48 Munir      El Haddadi  CF  01-SEP-95          4
        51        101 Daniel     Parejo      CMF 16-APR-89          5
        52        201 Goncalo    Guedes      SS  29-NOV-96          5

 PLAYER_ID   SHIRT_NO FNAME      LNAME       POS DOB          TEAM_ID
---------- ---------- ---------- ----------- --- --------- ----------
        53        301 Jose       Gaya        CF  25-MAY-95          5
        54        401 Jasper     Cilleson    GK  22-APR-89          5
        55        501 Kevin      Gameiro     CF  22-APR-89          5

25 rows selected.
```

Sponsor:

insert into sponsor values('Nike', 'Kit');

insert into sponsor values('Adidas', 'Kit');

insert into sponsor values('Puma', 'Kit');

insert into sponsor values('Rakuten', 'Jersey Sponsor');

insert into sponsor values('Beko', 'Training Partner');

insert into sponsor values('Konami', 'Gaming Partner');

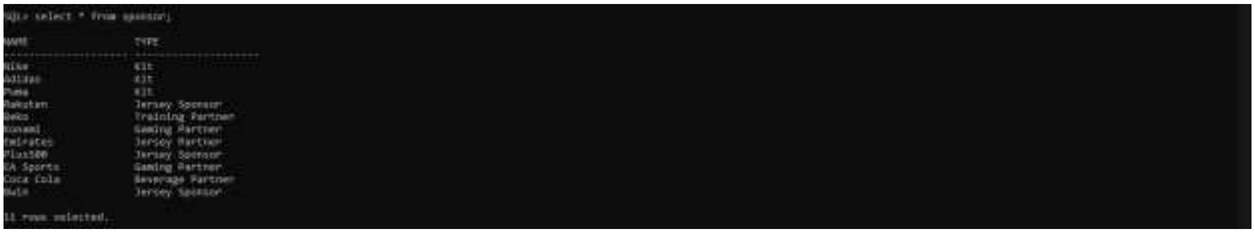
insert into sponsor values('Emirates', 'Jersey Partner');

insert into sponsor values('Plus500', 'Jersey Sponsor');

insert into sponsor values('EA Sports', 'Gaming Partner');

insert into sponsor values('Coca Cola', 'Beverage Partner');

insert into sponsor values('Bwin', 'Jersey Sponsor');



```
SQL> select * from sponsor;

NAME                 TYPE
-------------------- --------------------
Nike                 Kit
Adidas               Kit
Puma                 Kit
Rakuten              Jersey Sponsor
Beko                 Training Partner
Konami               Gaming Partner
Emirates             Jersey Partner
Plus500              Jersey Sponsor
EA Sports            Gaming Partner
Coca Cola            Beverage Partner
Bwin                 Jersey Sponsor

11 rows selected.
```

Sponsors:

insert into sponsors values(06, 'Nike', 01);

insert into sponsors values(04, 'Adidas', 02);

insert into sponsors values(04, 'Nike', 03);

insert into sponsors values(05, 'Nike', 04);

insert into sponsors values(02, 'Puma', 05);

insert into sponsors values(05, 'Rakuten', 01);

insert into sponsors values(05, 'Beko', 01);

insert into sponsors values(03, 'Konami', 01);

insert into sponsors values(05, 'Emirates', 02);

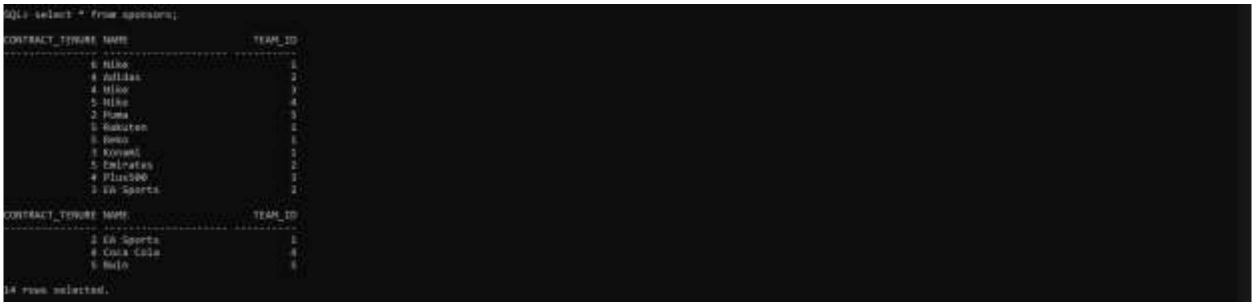
insert into sponsors values(04, 'Plus500', 03);

insert into sponsors values(03, 'EA Sports', 02);

insert into sponsor values(02, 'EA Sports', 01);

insert into sponsors values(04, 'Coca Cola', 04);

insert into sponsors values(05, 'Bwin', 05);



```
SQL> select * from sponsors;

CONTRACT_TENURE NAME                    TEAM_ID
--------------- -------------------- ----------
              6 Nike                          1
              4 Adidas                        2
              4 Nike                          3
              5 Nike                          4
              2 Puma                          5
              5 Rakuten                       1
              5 Beko                          1
              3 Konami                        1
              5 Emirates                      2
              4 Plus500                       3
              3 EA Sports                     2

CONTRACT_TENURE NAME                    TEAM_ID
--------------- -------------------- ----------
              2 EA Sports                     1
              4 Coca Cola                     4
              5 Nolo                          5

14 rows selected.
```

Referee:

insert into referee values(1, 'Antonio Lahoz', 'Main Referee');

insert into referee values(2, 'Jesus Manzano', 'Sideline Referee');

insert into referee values(3, 'Juan Martinez', 'Sideline Referee');

insert into referee values(4, 'Xavier Fernando', 'Main Referee');

insert into referee values(5, 'Carlos Grande', 'Sideline Referee');

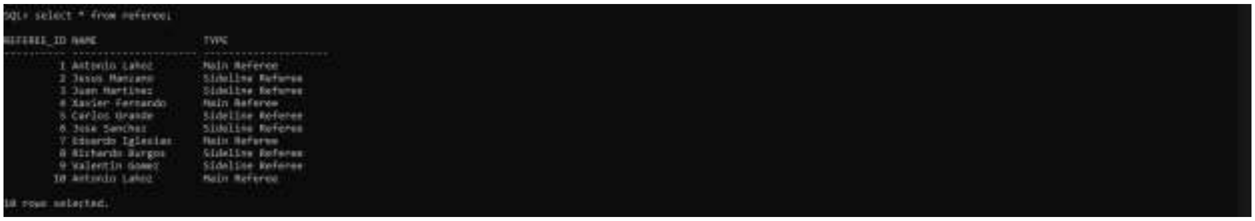
insert into referee values(6, 'Jose Sanchez', 'Sideline Referee');

insert into referee values(7, 'Eduardo Iglesias', 'Main Referee');

insert into referee values(8, 'Richardo Burgos', 'Sideline Referee');

insert into referee values(9, 'Valentin Gomez', 'Sideline Referee');

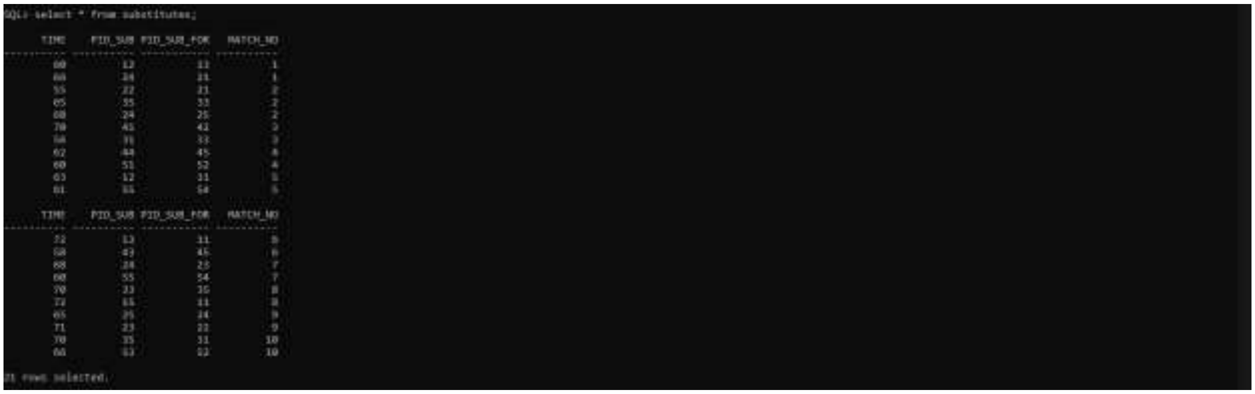
insert into referee values(10, 'Antonio Lahoz', 'Main Referee');



```
SQL> select * from referee;

REFEREE_ID NAME                 TYPE
---------- -------------------- --------------------
         1 Antonio Lahoz        Main Referee
         2 Jesus Manzano        Sideline Referee
         3 Juan Martinez        Sideline Referee
         4 Xavier Fernando      Main Referee
         5 Carlos Grande        Sideline Referee
         6 Jose Sanchez         Sideline Referee
         7 Eduardo Iglesias     Main Referee
         8 Richardo Burgos      Sideline Referee
         9 Valentin Gomez       Sideline Referee
        10 Antonio Lahoz        Main Referee

10 rows selected.
```

Substitutes:

```
insert into substitutes values(60,00012,00013,1);
insert into substitutes values(64,00024,00021,1);
insert into substitutes values(55,00022,00021,2);
insert into substitutes values(65,00035,00033,2);
insert into substitutes values(68,00024,00025,2);
insert into substitutes values(70,00041,00042,3);
insert into substitutes values(56,00031,00033,3);
insert into substitutes values(62,00044,00045,4);
insert into substitutes values(60,00051,00052,4);
insert into substitutes values(63,00012,00011,5);
insert into substitutes values(61,00055,00054,5);
insert into substitutes values(72,00013,00011,6);
insert into substitutes values(58,00043,00045,6);
insert into substitutes values(68,00024,00023,7);
insert into substitutes values(60,00055,00054,7);
insert into substitutes values(70,00033,00035,8);
insert into substitutes values(72,00015,00011,8);
insert into substitutes values(65,00025,00024,9);
insert into substitutes values(71,00023,00022,9);
insert into substitutes values(70,00035,00031,10);
insert into substitutes values(66,00053,00052,10);
```



```
SQL> select * from substitutes;

      TIME    PID_SUB PID_SUB_FOR   MATCH_NO
---------- ---------- ----------- ----------
        60         12          11          1
        66         24          21          1
        55         22          21          2
        65         35          33          2
        68         24          25          2
        70         45          41          3
        58         31          33          3
        62         44          45          4
        60         51          52          4
        63         12          11          5
        81         55          54          5

      TIME    PID_SUB PID_SUB_FOR   MATCH_NO
---------- ---------- ----------- ----------
        72         13          11          5
        58         43          45          6
        88         24          23          7
        60         55          54          7
        70         33          35          8
        72         65          11          8
        65         25          24          9
        71         23          22          9
        70         35          31         10
        66         63          62         10

21 rows selected.
```

Email:

insert into email values('valverde1@fcb.com',1);

insert into email values('ernestov@gmail.com',1);

insert into email values('zzidane@realmadrid.com',2);

insert into email values('zizou@gmail.com',2);

insert into email values('simeone@atm.com',3);

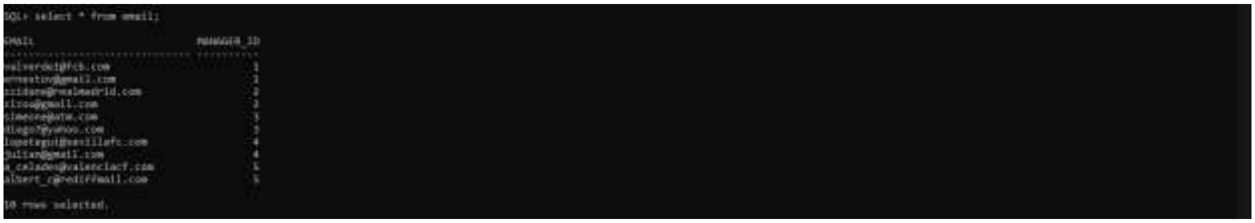
insert into email values('diego7@yahoo.com',3);

insert into email values('lopetegui@sevillafc.com',4);

insert into email values('julian@gmail.com',4);

insert into email values('a_celades@valenciacf.com',5);

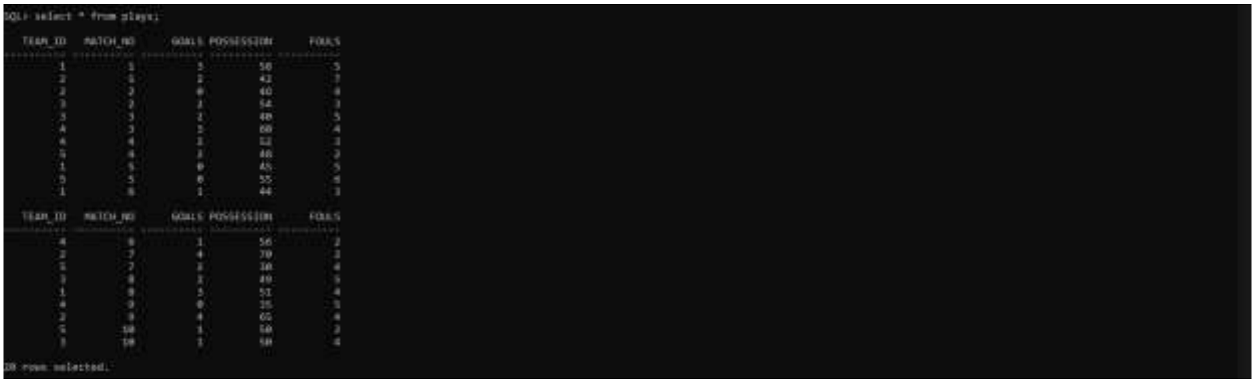
insert into email values('albert_c@rediffmail.com',5);



```
SQL> select * from email;

EMAIL                          MANAGER_ID
------------------------------ ----------
valverde1@fcb.com                       1
ernestov@gmail.com                      1
zzidane@realmadrid.com                  2
zizou@gmail.com                         2
simeone@atm.com                         3
diego7@yahoo.com                        3
lopetegui@sevillafc.com                 4
julian@gmail.com                        4
a_celades@valenciacf.com                5
albert_c@rediffmail.com                 5

10 rows selected.
```

Plays:

```
insert into plays values(01, 1,3,58,5);

insert into plays values(02, 1,2,42,7);

insert into plays values(02, 2,0,46,4);

insert into plays values(03, 2,2,54,3);

insert into plays values(03, 3,2,40,5);

insert into plays values(04, 3,3,60,4);

insert into plays values(04, 4,2,52,3);

insert into plays values(05, 4,2,48,2);

insert into plays values(01, 5,0,45,5);

insert into plays values(05, 5,0,55,6);

insert into plays values(01, 6,1,44,3);

insert into plays values(04, 6,1,56,2);

insert into plays values(02, 7,4,70,2);

insert into plays values(05, 7,2,30,4);

insert into plays values(03, 8,2,49,5);

insert into plays values(01, 8,3,51,4);

insert into plays values(04, 9,0,35,5);

insert into plays values(02, 9,4,65,4);

insert into plays values(05, 10,1,50,2);

insert into plays values(03, 10,1,50,4);
```



```
SQL> select * from plays;

   TEAM_ID   MATCH_NO      GOALS POSSESSION      FOULS
---------- ---------- ---------- ---------- ----------
         1          1          5         58          5
         2          1          2         42          7
         2          2          0         60          8
         3          2          2         54          3
         3          3          2         48          5
         4          3          5         60          4
         4          4          1         52          3
         5          4          2         48          2
         1          5          0         45          5
         5          5          0         55          6
         1          6          1         44          3

   TEAM_ID   MATCH_NO      GOALS POSSESSION      FOULS
---------- ---------- ---------- ---------- ----------
         4          6          1         56          2
         2          7          4         70          2
         5          7          1         30          4
         3          8          2         49          5
         1          8          5         51          4
         4          9          0         35          5
         2          9          4         65          4
         5         10          1         50          2
         3         10          1         50          4

20 rows selected.
```

Referred_by:

insert into referred_by values(1,01);

insert into referred_by values(1,02);

insert into referred_by values(1,03);

insert into referred_by values(2,04);

insert into referred_by values(2,05);

insert into referred_by values(2,06);

insert into referred_by values(3,07);

insert into referred_by values(3,08);

insert into referred_by values(3,09);

insert into referred_by values(4,10);

insert into referred_by values(4,02);

insert into referred_by values(4,03);

insert into referred_by values(5,04);

insert into referred_by values(5,05);

insert into referred_by values(5,06);

insert into referred_by values(6,07);

insert into referred_by values(6,08);

insert into referred_by values(6,09);

insert into referred_by values(7,01);

insert into referred_by values(7,03);

insert into referred_by values(7,02);

insert into referred_by values(8,07);

insert into referred_by values(8,09);

insert into referred_by values(8,05);

insert into referred_by values(9,10);

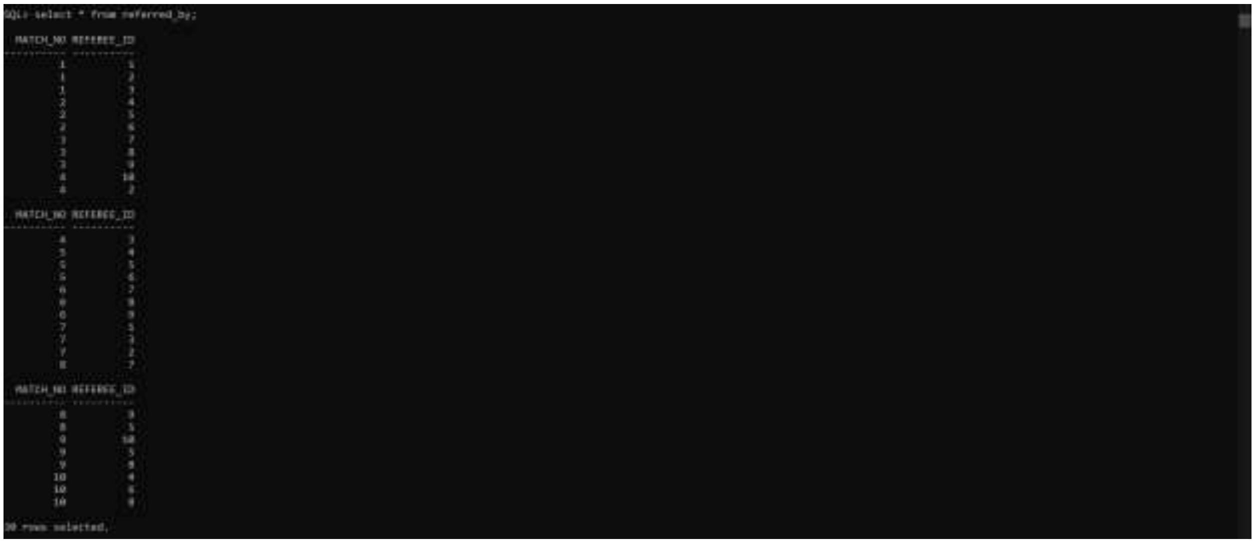
insert into referred_by values(9,05);

insert into referred_by values(9,08);

insert into referred_by values(10,04);

insert into referred_by values(10,06);

insert into referred_by values(10,08);

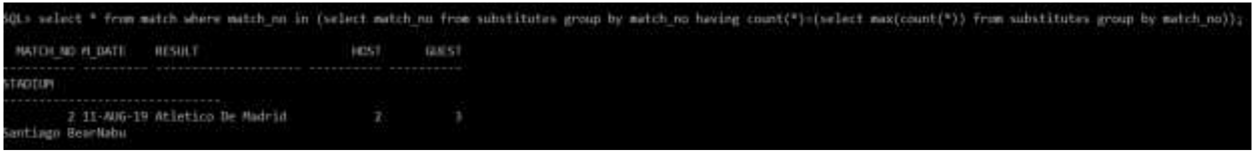


```
SQL> select * from referred_by;

  MATCH_NO REFEREE_ID
---------- ----------
         1          1
         1          2
         1          3
         2          4
         2          5
         2          6
         3          7
         3          8
         3          9
         4         10
         4          2

  MATCH_NO REFEREE_ID
---------- ----------
         4          3
         5          4
         5          5
         5          6
         6          7
         6          8
         6          9
         7          1
         7          3
         7          2
         8          7

  MATCH_NO REFEREE_ID
---------- ----------
         8          9
         8          5
         9         10
         9          5
         9          8
        10          4
        10          6
        10          8

30 rows selected.
```

6. Write down the necessary SQL statements for implementation of functional requirements through SQL query,delete and update statement.

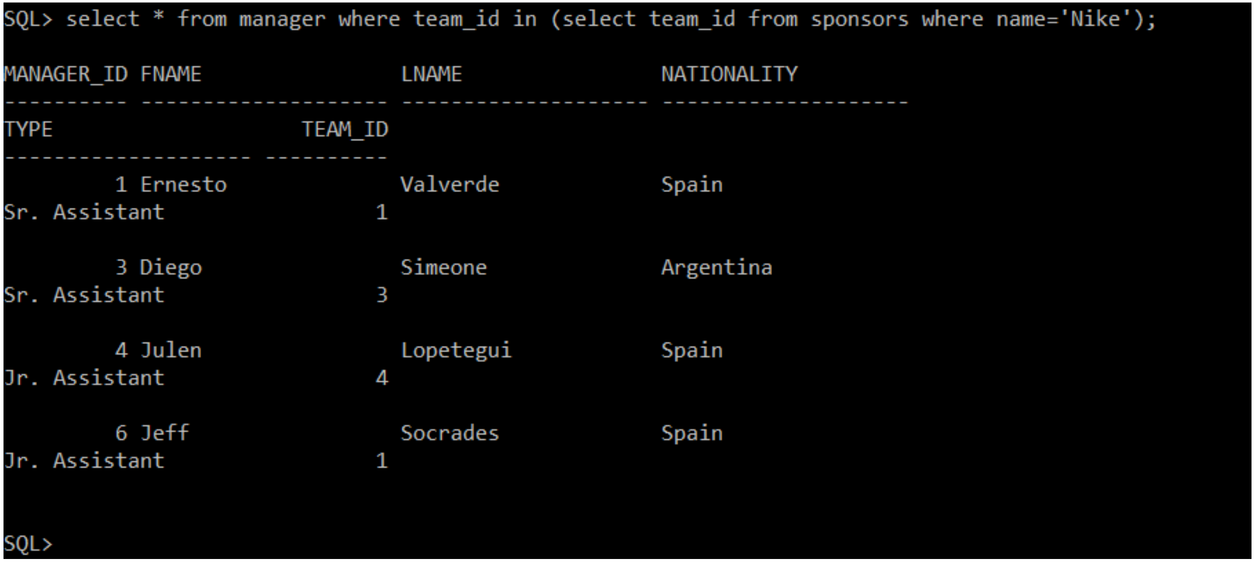
SELECT

1) Display all the details of the match which has maximum no. of substitutes.



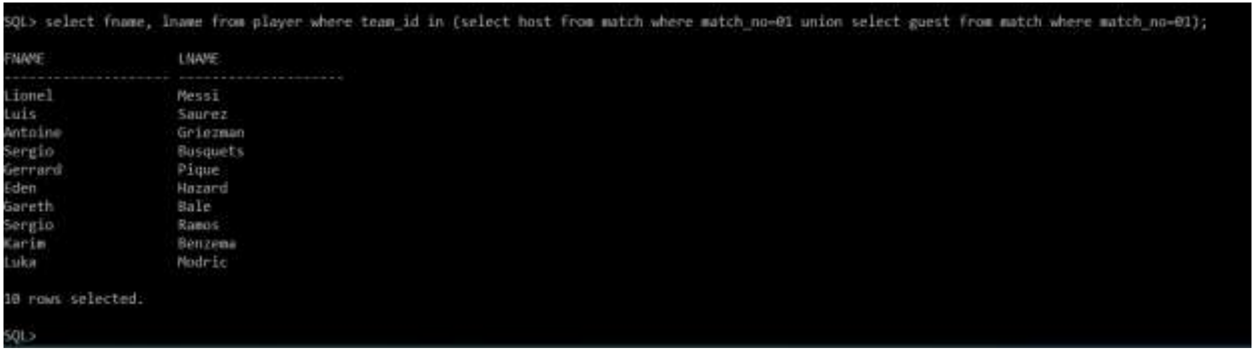
```
SQL> select * from match where match_no in (select match_no from substitutes group by match_no having count(*)=(select max(count(*)) from substitutes group by match_no));

  MATCH_NO M_DATE    RESULT                     HOST      GUEST
---------- --------- -------------------- ---------- ----------
STADIUM
------------------------------
         2 11-AUG-19 Atletico De Madrid            2          3
Santiago BearNabu
```

2) Display the manager details of all the teams sponsored by NIKE.



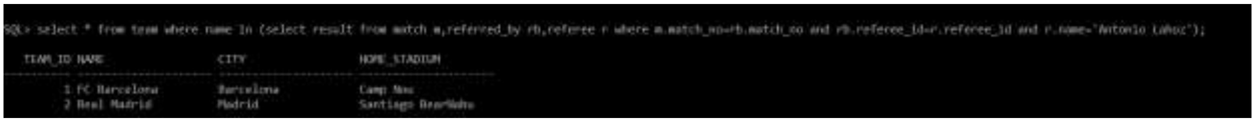
```
SQL> select * from manager where team_id in (select team_id from sponsors where name='Nike');

MANAGER_ID FNAME                LNAME                NATIONALITY
---------- -------------------- -------------------- --------------------
TYPE                    TEAM_ID
-------------------- ----------
         1 Ernesto              Valverde             Spain
Sr. Assistant                 1

         3 Diego                Simeone              Argentina
Sr. Assistant                 3

         4 Julen                Lopetegui            Spain
Jr. Assistant                 4

         6 Jeff                 Socrades             Spain
Jr. Assistant                 1


SQL>
```

3) Display the player names of all the players who played in the match number 1.



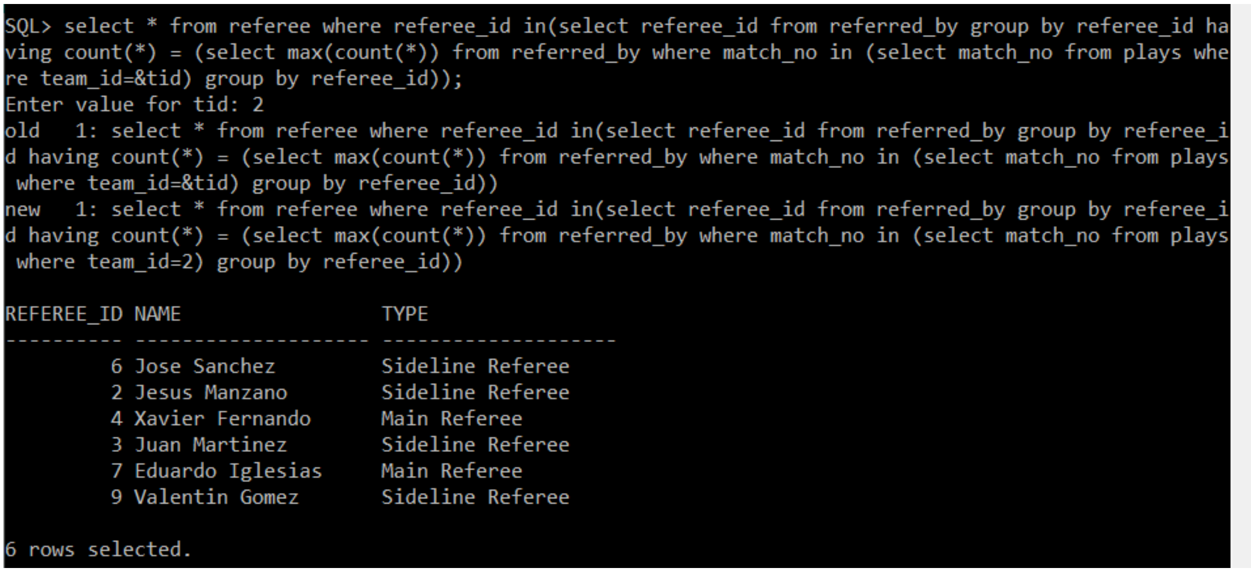
```
SQL> select fname, lname from player where team_id in (select host from match where match_no=01 union select guest from match where match_no=01);

FNAME                LNAME
-------------------- --------------------
Lionel               Messi
Luis                 Saurez
Antoine              Griezman
Sergio               Busquets
Gerrard              Pique
Eden                 Hazard
Gareth               Bale
Sergio               Ramos
Karim                Benzema
Luka                 Modric

10 rows selected.

SQL>
```

4) Display all the details of the winning team of all match referred by ‘Antonio Lahoz’.



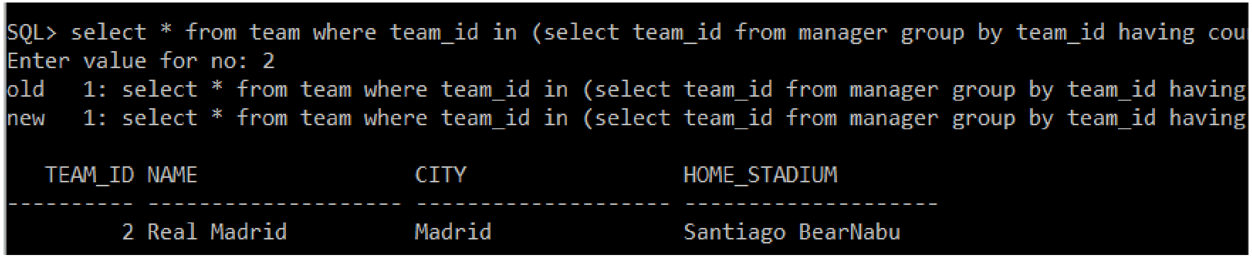
```
SQL> select * from team where name in (select result from match m,referred_by rb,referee r where m.match_no=rb.match_no and rb.referee_id=r.referee_id and r.name='Antonio Lahoz');

   TEAM_ID NAME                 CITY                 HOME_STADIUM
---------- -------------------- -------------------- --------------------
         1 FC Barcelona         Barcelona            Camp Nou
         2 Real Madrid          Madrid               Santiago BearNabu
```

5) Display the details of the referee which has referred a particular team in maximimum number of matches.



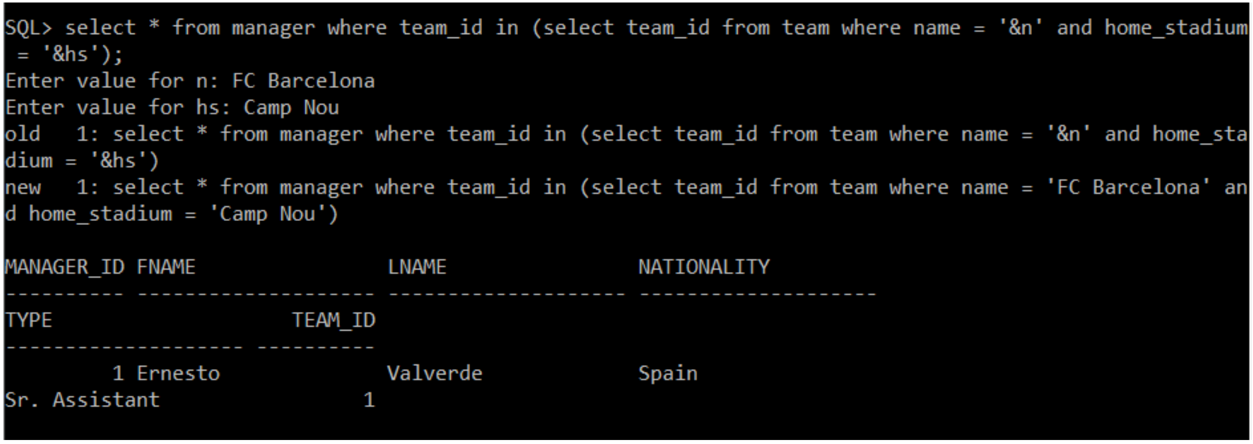
```
SQL> select * from referee where referee_id in(select referee_id from referred_by group by referee_id ha
ving count(*) = (select max(count(*)) from referred_by where match_no in (select match_no from plays whe
re team_id=&tid) group by referee_id));
Enter value for tid: 2
old   1: select * from referee where referee_id in(select referee_id from referred_by group by referee_i
d having count(*) = (select max(count(*)) from referred_by where match_no in (select match_no from plays
 where team_id=&tid) group by referee_id))
new   1: select * from referee where referee_id in(select referee_id from referred_by group by referee_i
d having count(*) = (select max(count(*)) from referred_by where match_no in (select match_no from plays
 where team_id=2) group by referee_id))

REFEREE_ID NAME                 TYPE
---------- -------------------- --------------------
         6 Jose Sanchez         Sideline Referee
         2 Jesus Manzano        Sideline Referee
         4 Xavier Fernando      Main Referee
         3 Juan Martinez        Sideline Referee
         7 Eduardo Iglesias     Main Referee
         9 Valentin Gomez       Sideline Referee

6 rows selected.
```

6) Display the details of the team which has particular number of managers.



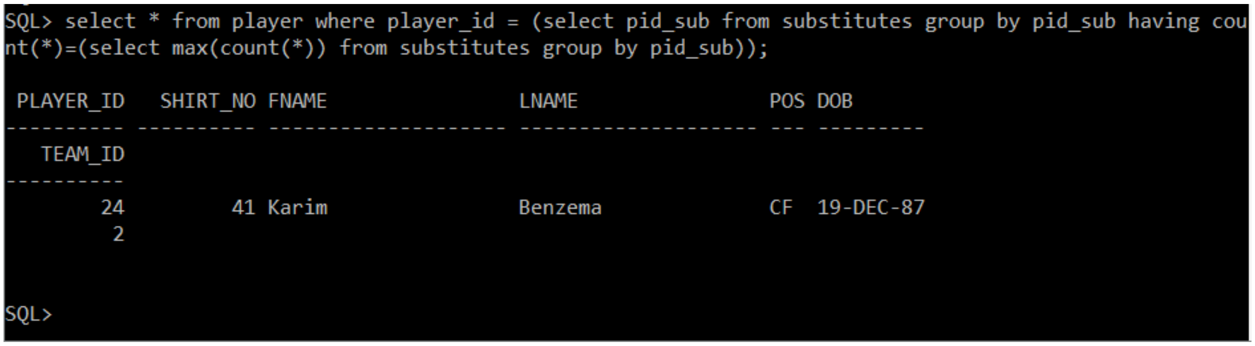
```
SQL> select * from team where team_id in (select team_id from manager group by team_id having cou
Enter value for no: 2
old   1: select * from team where team_id in (select team_id from manager group by team_id having
new   1: select * from team where team_id in (select team_id from manager group by team_id having

   TEAM_ID NAME                 CITY                 HOME_STADIUM
---------- -------------------- -------------------- --------------------
         2 Real Madrid          Madrid               Santiago BearNabu
```

7) Show the details of the managers of a particular team having particular homestadium.



```
SQL> select * from manager where team_id in (select team_id from team where name = '&n' and home_stadium
 = '&hs');
Enter value for n: FC Barcelona
Enter value for hs: Camp Nou
old   1: select * from manager where team_id in (select team_id from team where name = '&n' and home_sta
dium = '&hs')
new   1: select * from manager where team_id in (select team_id from team where name = 'FC Barcelona' an
d home_stadium = 'Camp Nou')

MANAGER_ID FNAME                LNAME                NATIONALITY
---------- -------------------- -------------------- --------------------
TYPE                    TEAM_ID
-------------------- ----------
         1 Ernesto              Valverde             Spain
Sr. Assistant                 1
```

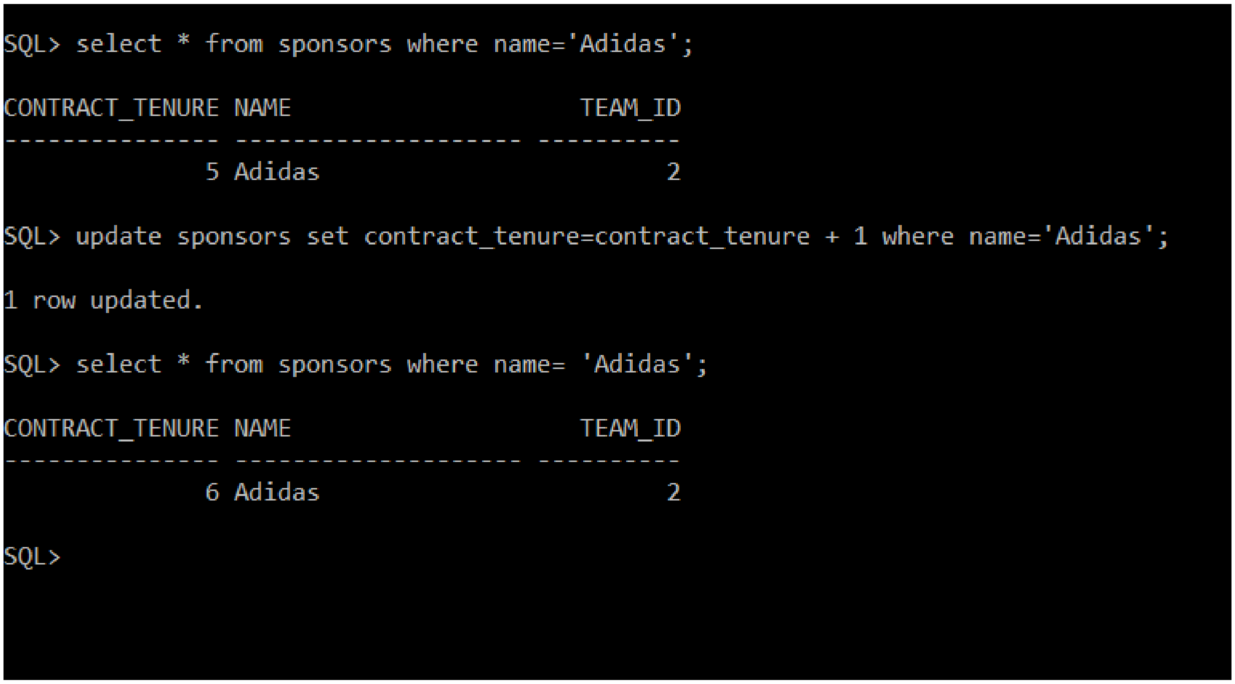
8) Display the details of the player who has been substituted the most number of times.



```
SQL> select * from player where player_id = (select pid_sub from substitutes group by pid_sub having cou
nt(*)=(select max(count(*)) from substitutes group by pid_sub));

 PLAYER_ID   SHIRT_NO FNAME                LNAME                POS DOB
---------- ---------- -------------------- -------------------- --- ---------
   TEAM_ID
----------
        24         41 Karim                Benzema              CF  19-DEC-87
         2


SQL>
```

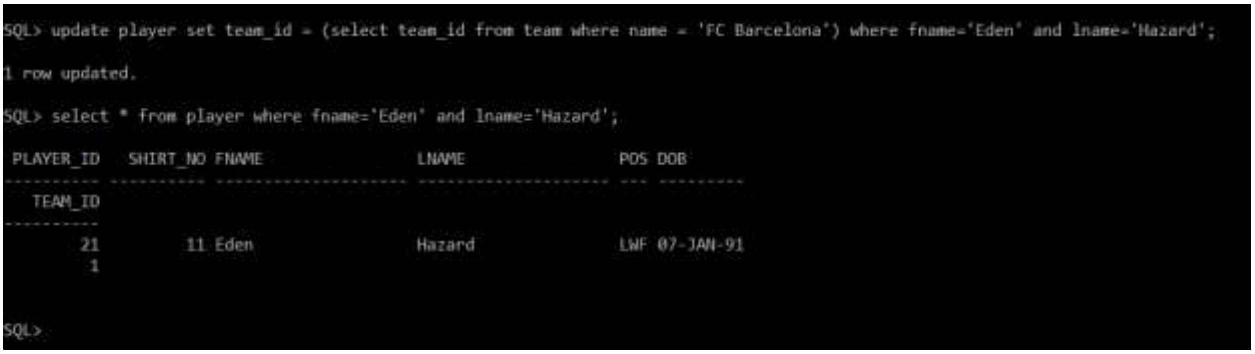
UPDATE

1) Extend the contract tenure of all the teams sponsored by ADIDAS by 1 year.



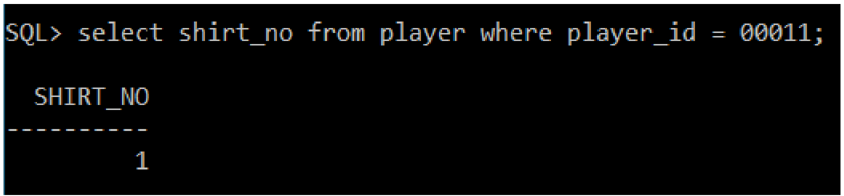
```
SQL> select * from sponsors where name='Adidas';

CONTRACT_TENURE NAME                    TEAM_ID
--------------- -------------------- ----------
              5 Adidas                        2

SQL> update sponsors set contract_tenure=contract_tenure + 1 where name='Adidas';

1 row updated.

SQL> select * from sponsors where name= 'Adidas';

CONTRACT_TENURE NAME                    TEAM_ID
--------------- -------------------- ----------
              6 Adidas                        2

SQL>
```

2) Player ‘Eden Hazard’ has moved from Real Madrid to FC Barcelona. Update the same in the database.

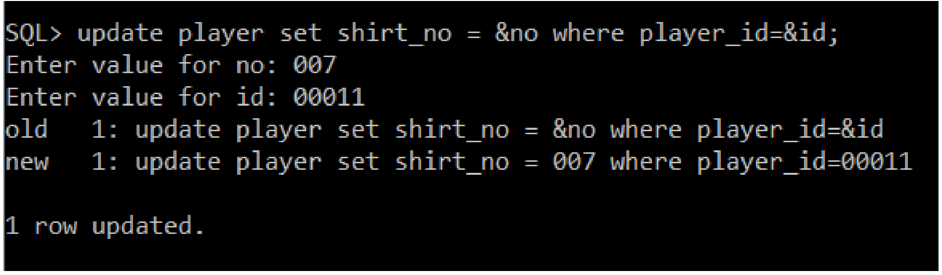


```
SQL> update player set team_id = (select team_id from team where name = 'FC Barcelona') where fname='Eden' and lname='Hazard';

1 row updated.

SQL> select * from player where fname='Eden' and lname='Hazard';

 PLAYER_ID   SHIRT_NO FNAME                LNAME                POS DOB
---------- ---------- -------------------- -------------------- --- ---------
   TEAM_ID
----------
        21         11 Eden                 Hazard               LWF 07-JAN-91
         1


SQL>
```

3) Update the shirt no. of the player having particular player id.

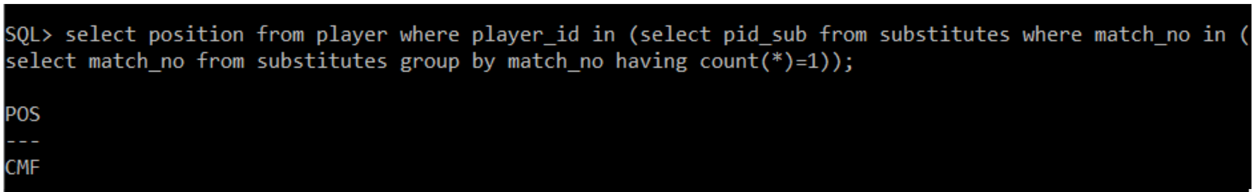


```
SQL> select shirt_no from player where player_id = 00011;

  SHIRT_NO
----------
         1
```

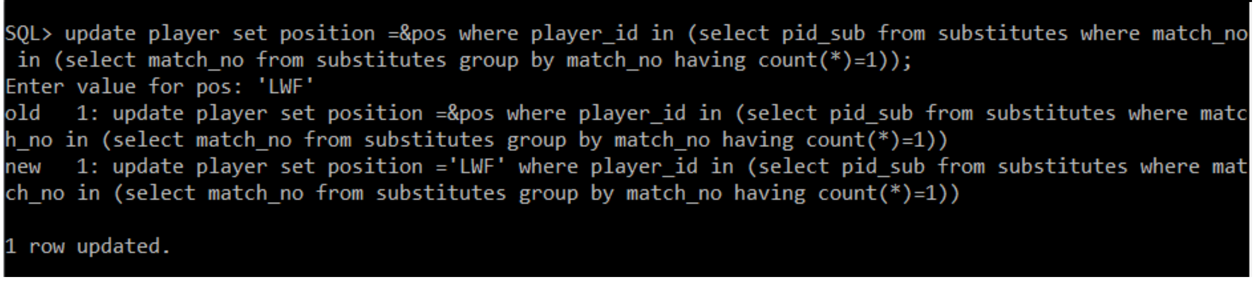


```
SQL> update player set shirt_no = &no where player_id=&id;
Enter value for no: 007
Enter value for id: 00011
old   1: update player set shirt_no = &no where player_id=&id
new   1: update player set shirt_no = 007 where player_id=00011

1 row updated.
```

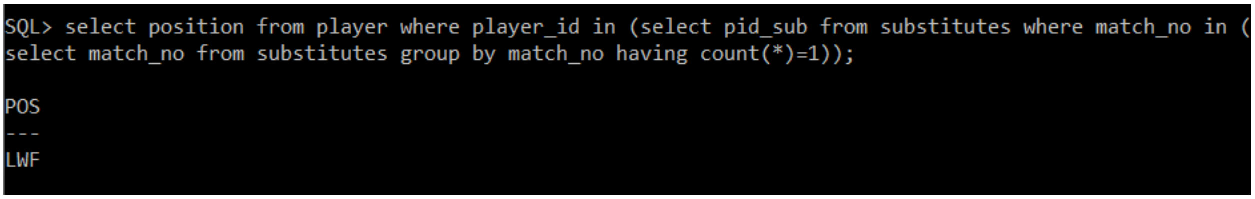
4) Update the position of the player which was substituted on a match having only one substitute.



```
SQL> select position from player where player_id in (select pid_sub from substitutes where match_no in (
select match_no from substitutes group by match_no having count(*)=1));

POS
---
CMF
```



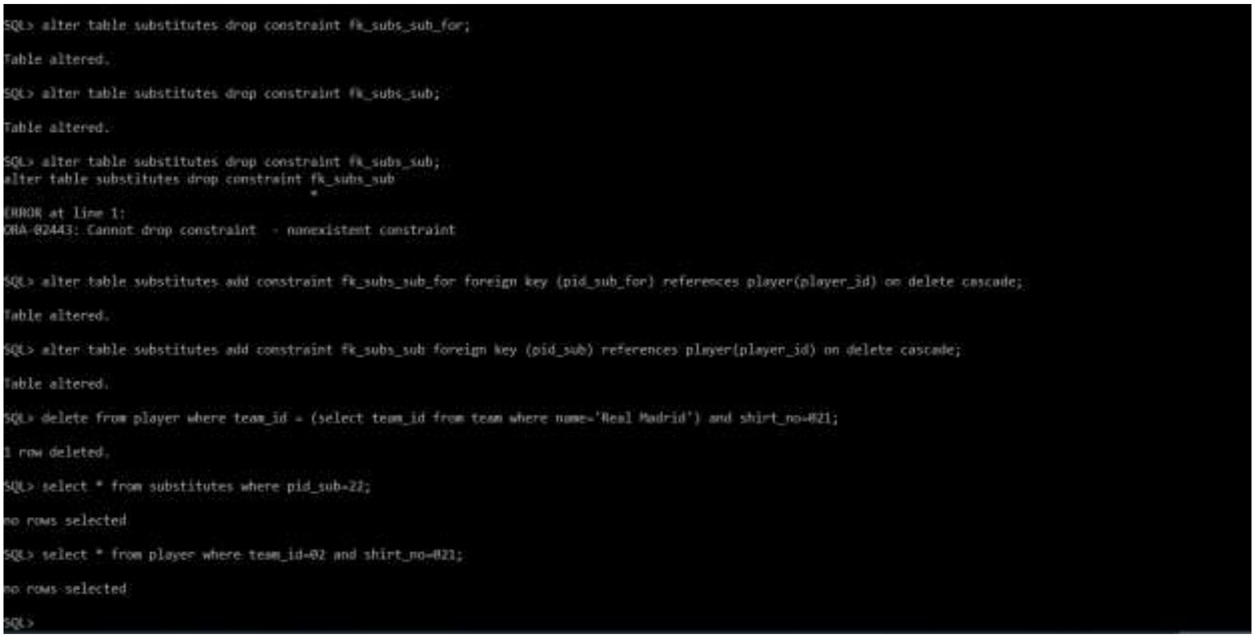
```
SQL> update player set position =&pos where player_id in (select pid_sub from substitutes where match_no
 in (select match_no from substitutes group by match_no having count(*)=1));
Enter value for pos: 'LWF'
old   1: update player set position =&pos where player_id in (select pid_sub from substitutes where matc
h_no in (select match_no from substitutes group by match_no having count(*)=1))
new   1: update player set position ='LWF' where player_id in (select pid_sub from substitutes where mat
ch_no in (select match_no from substitutes group by match_no having count(*)=1))

1 row updated.
```



```
SQL> select position from player where player_id in (select pid_sub from substitutes where match_no in (
select match_no from substitutes group by match_no having count(*)=1));

POS
---
LWF
```

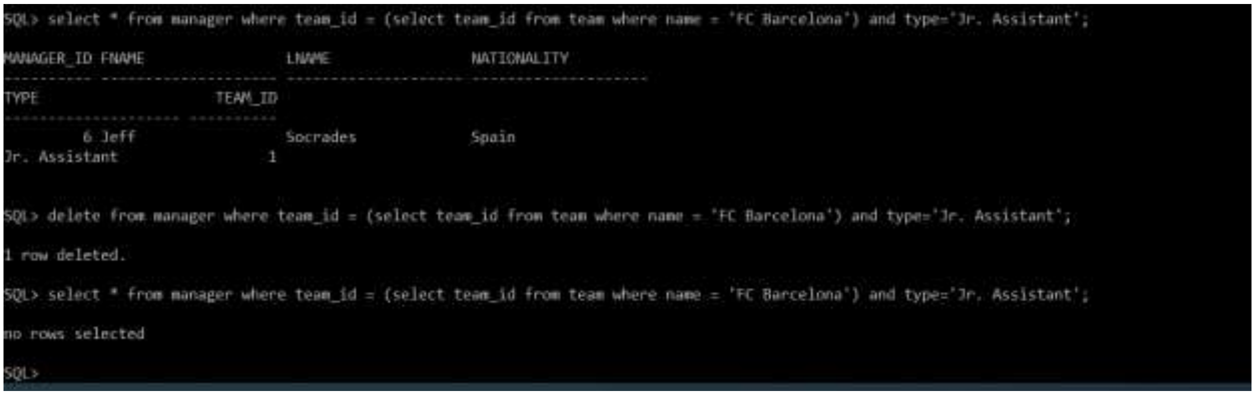
DELETE

1) Delete the player details of a player from Real Madrid whose shirt no. is 021.
   Table altered to use cascade delete:



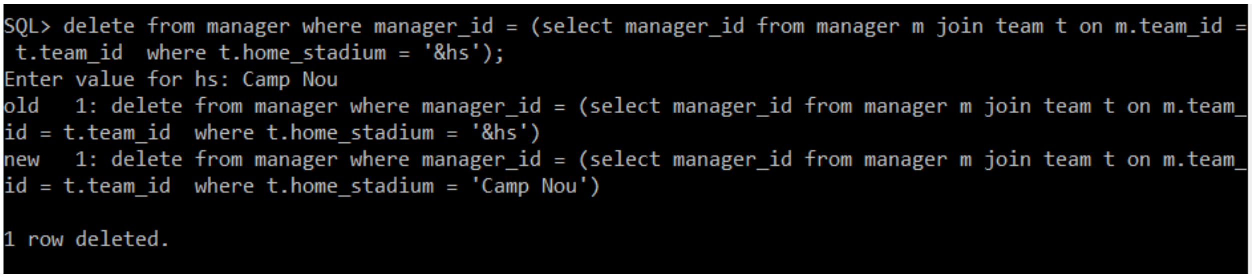
```
SQL> alter table substitutes drop constraint fk_subs_sub_for;

Table altered.

SQL> alter table substitutes drop constraint fk_subs_sub;

Table altered.

SQL> alter table substitutes drop constraint fk_subs_sub;
alter table substitutes drop constraint fk_subs_sub
                                        *
ERROR at line 1:
ORA-02443: Cannot drop constraint  - nonexistent constraint


SQL> alter table substitutes add constraint fk_subs_sub_for foreign key (pid_sub_for) references player(player_id) on delete cascade;

Table altered.

SQL> alter table substitutes add constraint fk_subs_sub foreign key (pid_sub) references player(player_id) on delete cascade;

Table altered.

SQL> delete from player where team_id = (select team_id from team where name='Real Madrid') and shirt_no=021;

1 row deleted.

SQL> select * from substitutes where pid_sub=22;

no rows selected

SQL> select * from player where team_id=02 and shirt_no=021;

no rows selected

SQL>
```

2) Delete manager details of Jr. Assistant of FC Barcelona as he has left the team.



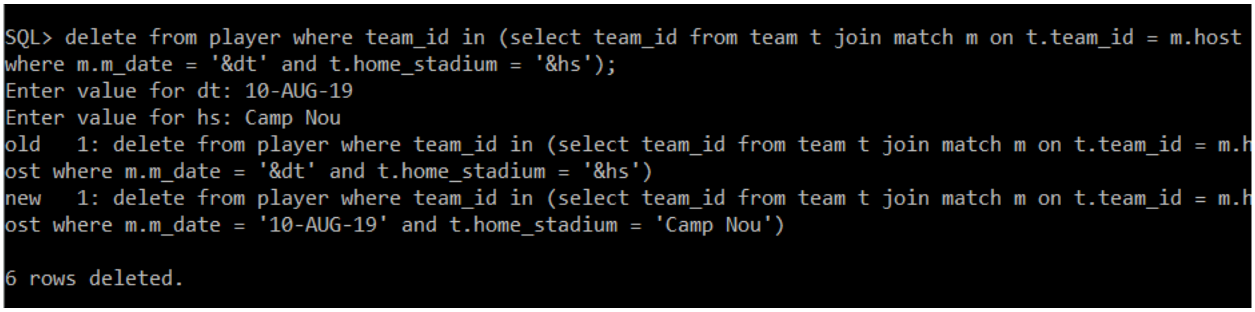
```
SQL> select * from manager where team_id = (select team_id from team where name = 'FC Barcelona') and type='Jr. Assistant';

MANAGER_ID FNAME                LNAME                NATIONALITY
---------- -------------------- -------------------- --------------------
TYPE                    TEAM_ID
-------------------- ----------
         6 Jeff                 Socrades             Spain
Jr. Assistant                 1


SQL> delete from manager where team_id = (select team_id from team where name = 'FC Barcelona') and type='Jr. Assistant';

1 row deleted.

SQL> select * from manager where team_id = (select team_id from team where name = 'FC Barcelona') and type='Jr. Assistant';

no rows selected

SQL>
```

3) Delete the Sr. Assistant manager of the team with a particular home stadium and a particular sponsor.



```
SQL> delete from manager where manager_id = (select manager_id from manager m join team t on m.team_id =
 t.team_id  where t.home_stadium = '&hs');
Enter value for hs: Camp Nou
old   1: delete from manager where manager_id = (select manager_id from manager m join team t on m.team_
id = t.team_id  where t.home_stadium = '&hs')
new   1: delete from manager where manager_id = (select manager_id from manager m join team t on m.team_
id = t.team_id  where t.home_stadium = 'Camp Nou')

1 row deleted.
```

4) Delete the player with particular home stadium and whose team has played on a particular date.

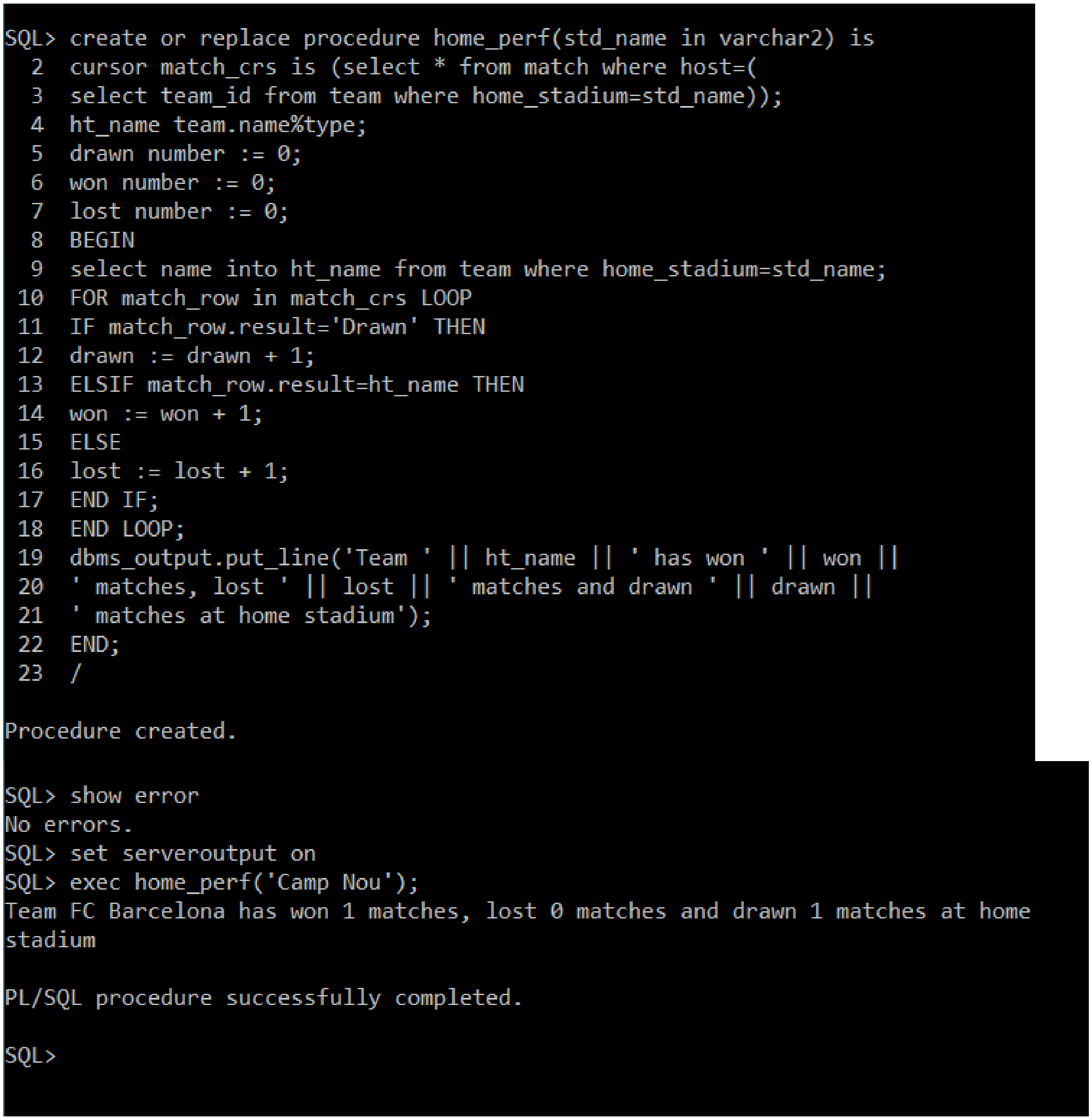


```
SQL> delete from player where team_id in (select team_id from team t join match m on t.team_id = m.host
where m.m_date = '&dt' and t.home_stadium = '&hs');
Enter value for dt: 10-AUG-19
Enter value for hs: Camp Nou
old   1: delete from player where team_id in (select team_id from team t join match m on t.team_id = m.h
ost where m.m_date = '&dt' and t.home_stadium = '&hs')
new   1: delete from player where team_id in (select team_id from team t join match m on t.team_id = m.h
ost where m.m_date = '10-AUG-19' and t.home_stadium = 'Camp Nou')

6 rows deleted.
```

7. **Define and implement two PL/SQL function involving cursor and two PL/SQL procedure involving cursor for the database under consideration.**

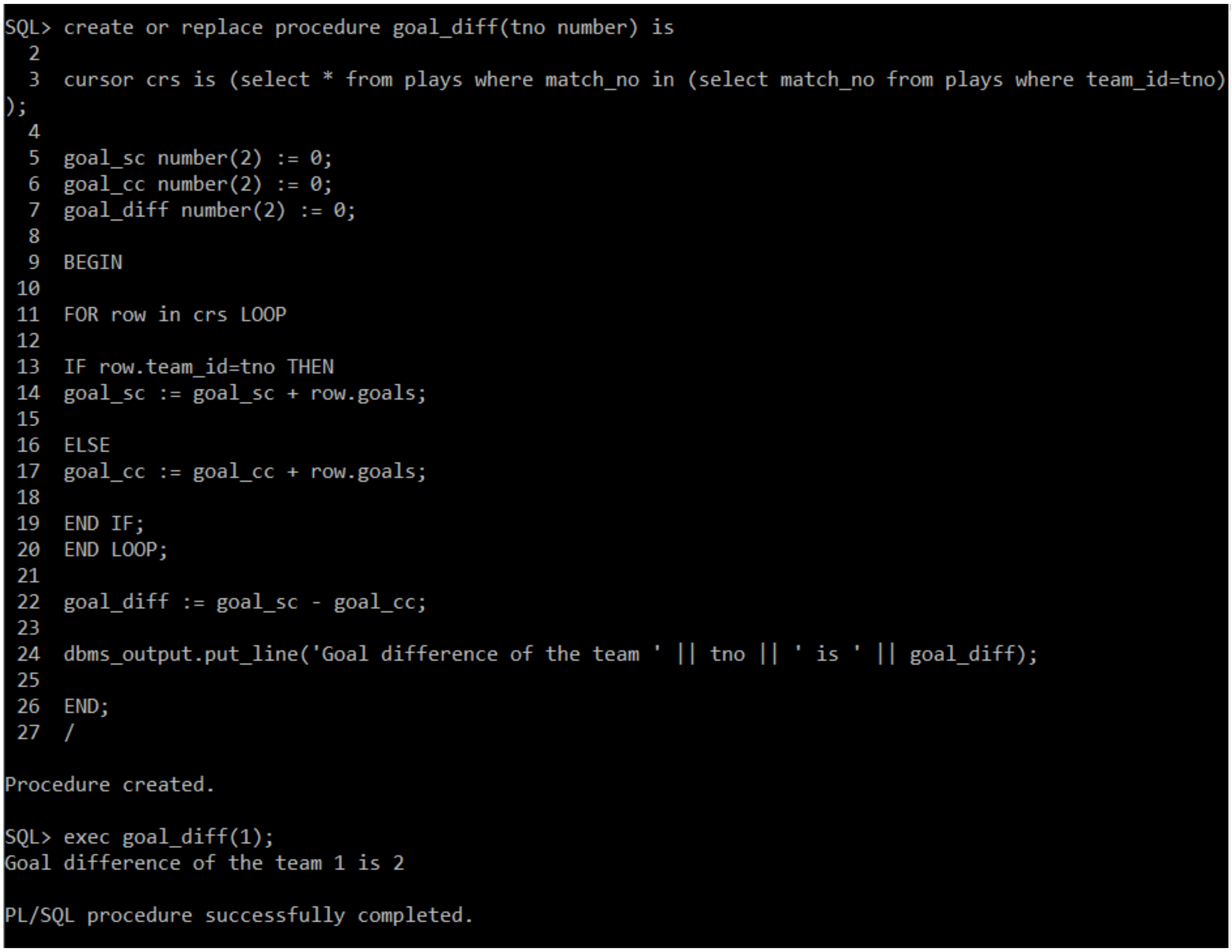
PL/SQL PROCEDURES

1) Procedure to display the performance of the home team for a particular stadium



```
SQL> create or replace procedure home_perf(std_name in varchar2) is
     cursor match_crs is (select * from match where host=(
     select team_id from team where home_stadium=std_name));
     ht_name team.name%type;
     drawn number := 0;
     won number := 0;
     lost number := 0;
     BEGIN
     select name into ht_name from team where home_stadium=std_name;
     FOR match_row in match_crs LOOP
     IF match_row.result='Drawn' THEN
     drawn := drawn + 1;
     ELSIF match_row.result=ht_name THEN
     won := won + 1;
     ELSE
     lost := lost + 1;
     END IF;
     END LOOP;
     dbms_output.put_line('Team ' || ht_name || ' has won ' || won ||
     ' matches, lost ' || lost || ' matches and drawn ' || drawn ||
     ' matches at home stadium');
     END;
     /

Procedure created.

SQL> show error
No errors.
SQL> set serveroutput on
SQL> exec home_perf('Camp Nou');
Team FC Barcelona has won 1 matches, lost 0 matches and drawn 1 matches at home
stadium

PL/SQL procedure successfully completed.

SQL>
```

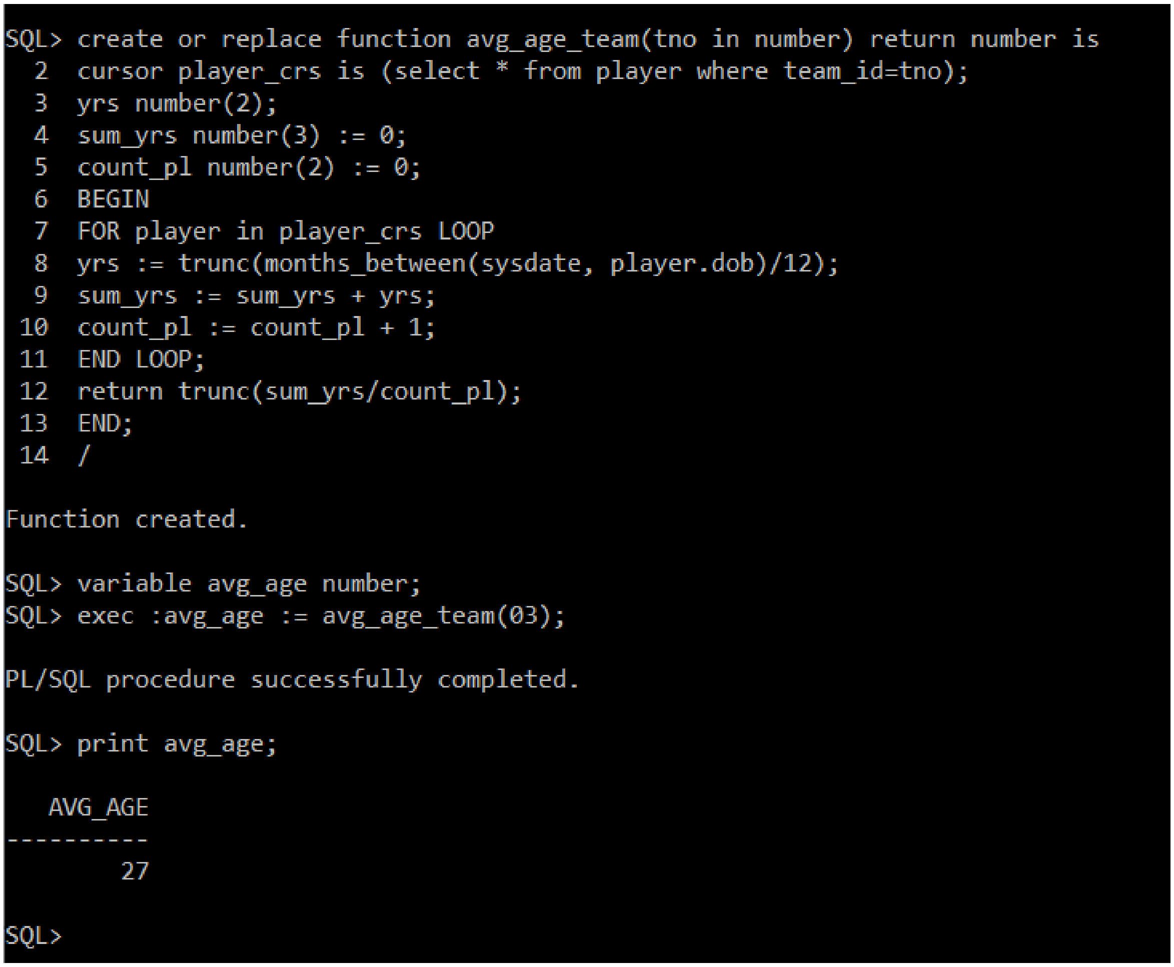
2) Procedure to display the goal difference of a given team for all matches entered.



```
SQL> create or replace procedure goal_diff(tno number) is

cursor crs is (select * from plays where match_no in (select match_no from plays where team_id=tno)
);

goal_sc number(2) := 0;
goal_cc number(2) := 0;
goal_diff number(2) := 0;

BEGIN

FOR row in crs LOOP

IF row.team_id=tno THEN
goal_sc := goal_sc + row.goals;

ELSE
goal_cc := goal_cc + row.goals;

END IF;
END LOOP;

goal_diff := goal_sc - goal_cc;

dbms_output.put_line('Goal difference of the team ' || tno || ' is ' || goal_diff);

END;
/

Procedure created.

SQL> exec goal_diff(1);
Goal difference of the team 1 is 2

PL/SQL procedure successfully completed.
```

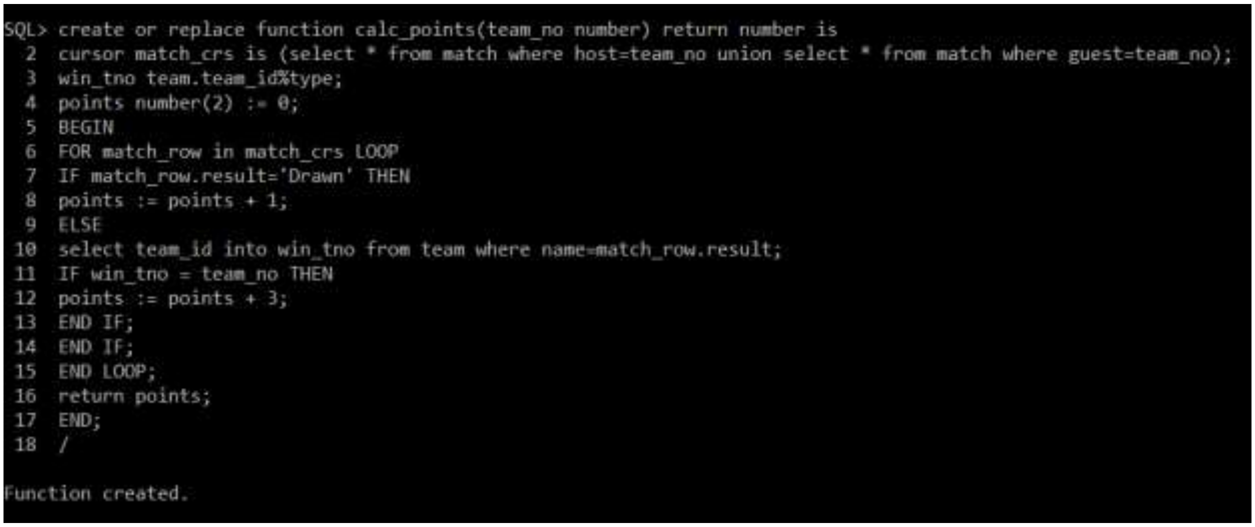
PL/SQL FUNCTIONS

1) Function to return the average age of all the players for a given team.

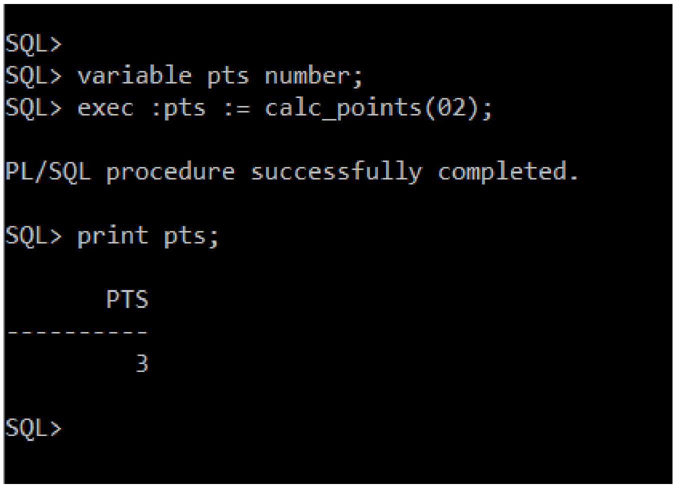


```
SQL> create or replace function avg_age_team(tno in number) return number is
     cursor player_crs is (select * from player where team_id=tno);
     yrs number(2);
     sum_yrs number(3) := 0;
     count_pl number(2) := 0;
     BEGIN
     FOR player in player_crs LOOP
     yrs := trunc(months_between(sysdate, player.dob)/12);
     sum_yrs := sum_yrs + yrs;
     count_pl := count_pl + 1;
     END LOOP;
     return trunc(sum_yrs/count_pl);
     END;
     /

Function created.

SQL> variable avg_age number;
SQL> exec :avg_age := avg_age_team(03);

PL/SQL procedure successfully completed.

SQL> print avg_age;

   AVG_AGE
----------
        27

SQL>
```

2) Function to return points scored by a given team.



```
SQL> create or replace function calc_points(team_no number) return number is
     cursor match_crs is (select * from match where host=team_no union select * from match where guest=team_no);
     win_tno team.team_id%type;
     points number(2) := 0;
     BEGIN
     FOR match_row in match_crs LOOP
     IF match_row.result='Drawn' THEN
     points := points + 1;
     ELSE
     select team_id into win_tno from team where name=match_row.result;
     IF win_tno = team_no THEN
     points := points + 3;
     END IF;
     END IF;
     END LOOP;
     return points;
     END;
     /

Function created.
```



```
SQL>
SQL> variable pts number;
SQL> exec :pts := calc_points(02);

PL/SQL procedure successfully completed.

SQL> print pts;

       PTS
----------
         3

SQL>
```