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INTRODUCTION:

A database management system (DBMS) refers to the technology for creating and managing databases.

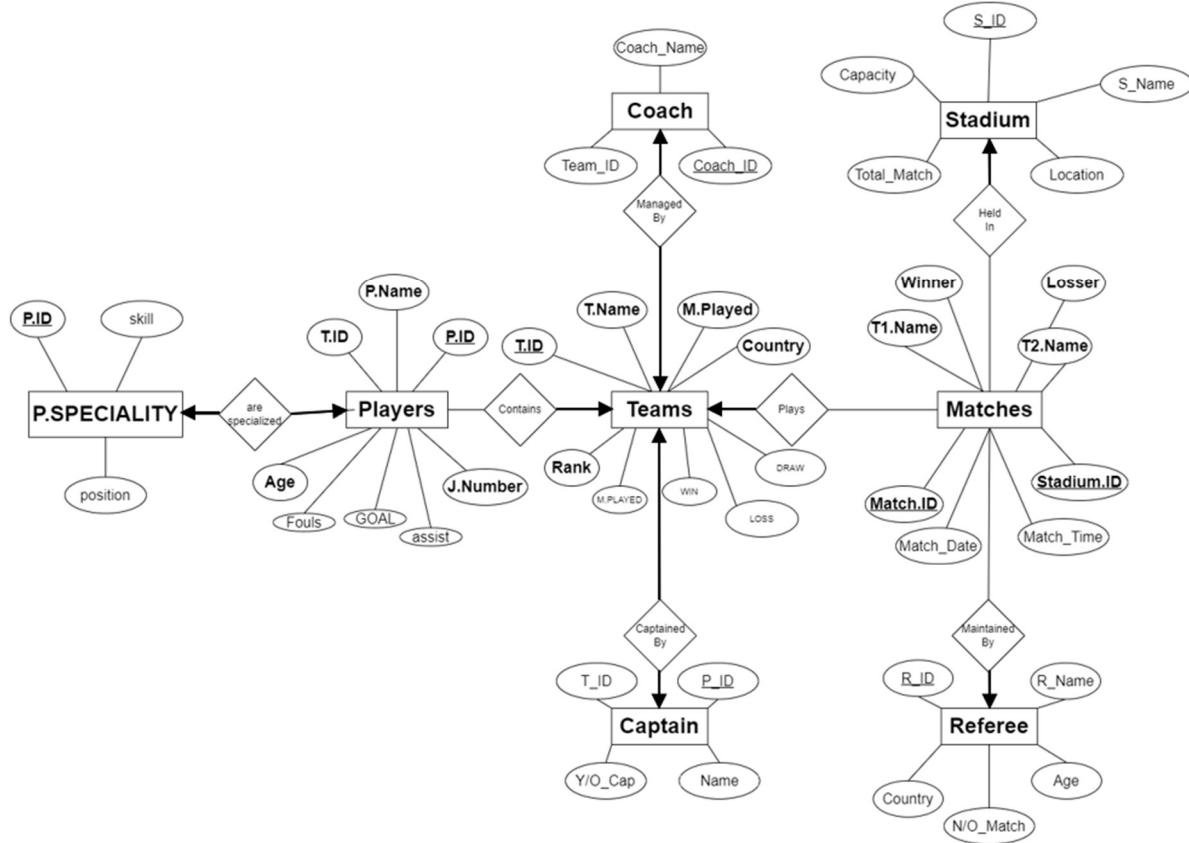
The main objective of this database project is to create a database to centrally handle a Database Management System based on FIFA Football World Cup Management. The database can provide various information about the teams or matters within the teams such as players or coaches of the World cup. Others matters such as matches, referee, stadium can be found also. This database consists of ten entities.

SCENARIO DESCRIPTION:

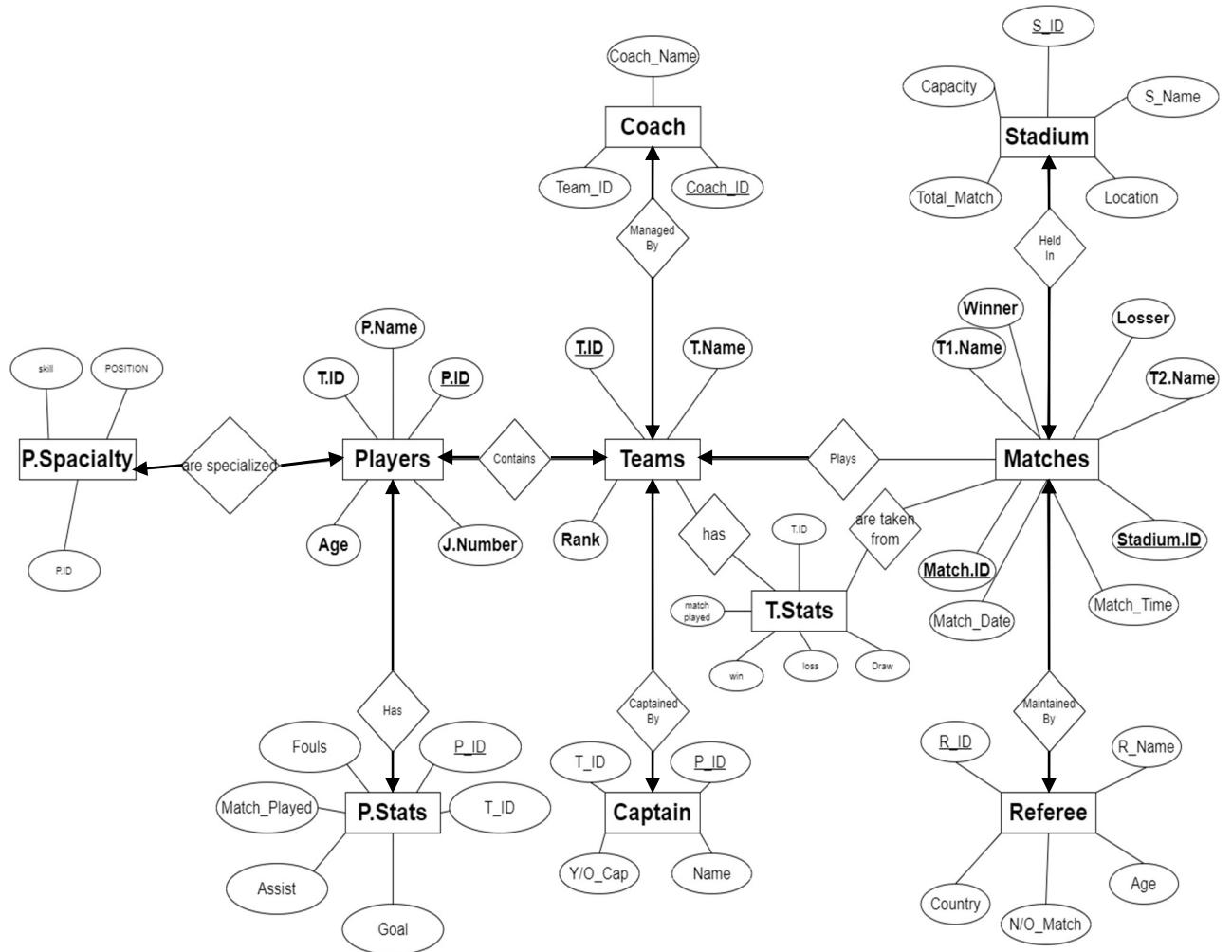
A FIFA Football World Cup management system contains Team. Team is uniquely identified by TEAM ID. Other attributes of a Team are TEAM NAME, RANK. A team has a Team_Stats. Team_Stats is also identified by TEAM ID Team_Stats has MATCH PLAYED, WIN, LOSS, DRAW. A Team plays many Matches. A Match is identified by MATCH ID. A Match also has TEAM 1 NAME, TEAM 2 NAME, WINNER, LOSER, MATCH DATE, STADIUM ID, REFEREE ID. Many Matches are held in many Stadiums. A Stadium has unique STADIUM ID. Stadium also has STADIUM NAME, LOCATION, TOTAL MATCHES, CAPACITY. One Match is maintained by one Referee. Referee has unique REFEREE ID as primary key. Referee also has REFEREE NAME, AGE, N/O MATCHES, COUNTRY. One Team is maintained by one Coach. Coach is identified by COACH ID. Coach also has TEAM ID and COACH NAME. One Team contains many players. Player is identified by unique PLAYER ID. Player also has PLAYER NAME, TEAM ID, AGE and JERSEY NUMBER. A team also is captained by one Captain. Captain is identified by PLAYER ID. Captain also has TEAM ID, Y/O CAPTAINCY. One Player has one Player Stats. Player Stats is also identified by PLAYER ID. Player_Stats also has TEAM ID, GOALS, ASSIST, MATCH PLAYED, FOUL. A Player can be specialized in many Player Speciality. Player Speciality is also identified by PLAYER ID. Player Speciality also has POSITION and SKILL.

ER DIAGARM ON SCENARIO:

BEFORE NORMALIZATION:



AFTER NORMALIZATION:



NORMALIZATION:

PLAYER_STATS table:

Before 1NF:

PLAYER_ID	POSITION	SKILL
PORP01	LEFT WING, STRIKER	GOAL MAKER, GOAL MACHINE
ARGP01	RIGHT WING, CENTRE MIDFIELD	PLAY MAKER, GREAT PASS
GERPO3	CENTRE MIDFIELD, STRIKER	GREAT PASS, SHOOT
FRAP01	STRIKER	SCORER
BRAP01	LEFTWING, MIDFIELD	Dribbling, PLAYMAKER

After 1NF:

PLAYER_ID	POSITION	SKILL
PORP01	LEFT WING	GOAL MAKER
PORP01	STRIKER	GOAL MACHINE
ARGP01	RIGHT WING	CROSSING
ARGP01	CENTRE MIDFIELD	PLAY MAKER
GERP03	CENTRE MIDFIELD	GREAT PASS
GERP03	STRIKER	SHOOT
FRAP01	STRIKER	SCORER
BRAP01	LEFT WING	Dribbling
BRAP01	MIDFIELD	PLAYMAKER

2NF and 3NF are not required on this table.

Player Table:

Before 2NF:

PLAYER_ID	TEAM_ID	PLAYER_NAME	AGE	MATCH_PLAYED	GOALS	ASSIST	FOULS	JERSEY NUMBER
ARGP01	ARG01	MESSI	35	4	5	2	1	10
ARGP02	ARG01	DI MARIA	34	4	2	3	2	11
ARGP03	ARG01	DE PAUL	24	4	1	5	3	7
ARGP04	ARG01	EMI	30	5	0	2	1	1
GERP01	GER01	MUSIALA	19	4	6	1	0	14
GERP02	GER01	HERVERTZ	23	4	3	2	4	11
GERP03	GER01	MULLER	34	6	2	5	2	13
BRAP01	BRA01	NEYMER	30	4	7	2	1	10

AFTER 2 NF:

PLAYER TABLE:

PLAYER_ID	TEAM_ID	PLAYER_NAME	AGE	JERSEY_NO
ARGP01	ARG01	MESSI	35	10
ARGP03	ARG01	DE PAUL	24	7
ARGP04	ARG01	ALVAREZ	21	9
ARGP05	ARG01	EMI	30	1
GERP01	GER01	MUSIALA	19	14
GERP02	GER01	HARVERTZ	23	11
GERP03	GER01	MULLER	34	13
GERP04	GER01	NUERE	35	1
BRAP01	BRA01	NEYMAR	30	10
ARGP02	ARG01	DI MARIA	34	11

PLAYER_STATS TABLE:

PLAYER_ID	TEAM_ID	MATCH_PLAYED	GOALS	ASSIST	FOULS
ARGP01	ARG01	4	5	2	1
ARGP02	ARG01	4	2	3	2
ARGP03	ARG01	4	1	5	3
ARGP04	ARG01	5	0	2	1
ARGP05	ARG01	4	0	2	3
GERP01	GER01	4	6	1	0
GERP02	GER01	4	3	2	4
GERP03	GER01	6	2	5	2
GERP04	GER01	3	0	0	1
BRAP01	BRA01	4	7	2	1

1NF and 3NF are not required on this table.

Table Team

Before 2NF:

TEAM_ID	TEAM_NAME	RANK	MATCH_PLAYED	WINS	LOSS	DRAW
ARG01	ARGENTINA	1	4	3	0	1
BRA01	BRAZIL	3	4	2	1	1
GER01	GERMANY	2	4	2	1	1
POR01	PORTUGAL	5	4	0	3	1
FRA01	FRANCE	4	4	0	3	1

After 2NF:

Table TEAM:

TEAM_ID	TEAM_NAME	RANK
ARG01	ARGENTINA	1
BRA01	BRAZIL	3
GER01	GERMANY	2
POR01	PORTUGAL	5
FRA01	FRANCE	4

Table TEAM_STATS:

TEAM_ID	MATCH_PLAYED	WINS	LOSS	DRAW
ARG01	4	3	0	1
BRA01	4	2	1	1
GER01	4	2	1	1
FRA01	4	0	3	1
POR01	4	0	3	1

1NF and 3NF are not required on this table

TABLE CREATION:

TEAM:

```
create table TEAM(
```

```
    TEAM_ID varchar(10) primary key,
```

```
    TEAM_NAME varchar(20),
```

```
    RANK number(3)
```

```
);
```

The screenshot shows the Oracle Database Express Edition Object Browser interface. On the left, a tree view lists various database objects: CAPTAIN, COACH, HTMLDB_PLAN_TABLE, MATCH, PLAYER, PLAYER_SPECIALITY, PLAYER_STATS, REFEREE, STADIUM, TEAM (which is selected), and TEAM_STATS. In the center, a table definition for 'TEAM' is displayed. The table has three columns: TEAM_ID (VARCHAR2(10)), TEAM_NAME (VARCHAR2(20)), and RANK (NUMBER(3)). The 'Primary Key' constraint is applied to the TEAM_ID column. The table is currently empty, as indicated by the '1 - 3' entry at the bottom of the grid.

TEAM_STATS:

```
create table TEAM_STATS(
```

```
    TEAM_ID references TEAM,
```

```
    MATCH_PLAYED number(2),
```

```
    WINS number(2),
```

```
    LOSS number (2),
```

```
    DRAW number(2)
```

```
);
```

The screenshot shows the Oracle Database Express Edition Object Browser interface. On the left, a sidebar lists various database objects: CAPTAIN, COACH, HTMLDB_PLAN_TABLE, MATCH, PLAYER, PLAYER_SPECIALITY, REFEREE_STATS, REFEREE, STADIUM, TEAM, and TEAM_STATS. The 'Tables' option is selected. In the main panel, a table named 'PLAYER_STATS' is being created. The table structure is defined as follows:

Column Name	Data Type	Nullable	Default	Primary Key
PLAYER_ID	VARCHAR2(10)	Yes	-	-
TEAM_ID	VARCHAR2(10)	Yes	-	-
MATCH_PLAYED	NUMBER(2,0)	Yes	-	-
GOALS	NUMBER(2,0)	Yes	-	-
ASSIST	NUMBER(2,0)	Yes	-	-
FOULS	NUMBER(2,0)	Yes	-	-

At the bottom of the table definition, there is a note: "1 - 6". The top right corner of the main panel has a "Create" button. The status bar at the bottom indicates "Language: en-gb", "Application Express 21.1.0.0.59", and "Copyright © 1999-2024, Oracle. All rights reserved."

MATCH:

```
CREATE TABLE MATCH(
    MATCH_ID VARCHAR(20) PRIMARY KEY,
    TEAM1_NAME VARCHAR(20),
    TEAM2_NAME VARCHAR(20),
    WINNER VARCHAR(20),
    LOSSER VARCHAR(20),
    MATCH_DATE DATE,
    STADIUM_ID REFERENCES STADIUM,
    REFEREE_ID REFERENCES REFEREE
);
```

Object Browser

ORACLE® Database Express Edition

User: PROJECT

Home > Object Browser

Tables

MATCH

Column Name	Data Type	Nullable	Default	Primary Key
MATCH_ID	VARCHAR2(20)	No	-	1
TEAM1_NAME	VARCHAR2(20)	Yes	-	-
TEAM2_NAME	VARCHAR2(20)	Yes	-	-
WINNER	VARCHAR2(20)	Yes	-	-
LOSSER	VARCHAR2(20)	Yes	-	-
MATCH_DATE	DATE	Yes	-	-
STADIUM_ID	VARCHAR2(20)	Yes	-	-
REFEREE_ID	VARCHAR2(20)	Yes	-	-

Language: en-gb

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REFREE:

```
create table REFEREE(
    REFEREE_ID varchar(20) primary key,
    REFEREE_NAME varchar(20),
    AGE number(3),
    COUNTRY varchar(20),
    TOTAL_MATCH number(3));
```

Object Browser

ORACLE® Database Express Edition

User: PROJECT

Home > Object Browser

Tables

REFEREE

Column Name	Data Type	Nullable	Default	Primary Key
REFEREE_ID	VARCHAR2(20)	No	-	1
REFEREE_NAME	VARCHAR2(20)	Yes	-	-
AGE	NUMBER(3)	Yes	-	-
COUNTRY	VARCHAR2(20)	Yes	-	-
TOTAL_MATCH	NUMBER(3)	Yes	-	-

Language: en-gb

Application Express 2.1.0.0.39
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STADIUM:

```
create table STADIUM(  
    STADIUM_ID varchar(20) primary key,  
    STADIUM_NAME varchar(20),  
    CAPACITY number(6),  
    LOCATION varchar(30),  
    TOTAL_MATCHES number(2)  
);
```

The screenshot shows the Oracle Database Express Edition Object Browser interface. The left sidebar lists various tables: CAPTAIN, COACH, HTML_DB_PLAN_TABLE, MATCH, PLAYER, PLAYER_SPECIALITY, PLAYER_STATS, REFEREE, STADIUM (which is selected and highlighted in green), TEAM, and TEAM_STATS. The main panel displays the 'STADIUM' table definition. The table has six columns: STADIUM_ID, STADIUM_NAME, CAPACITY, LOCATION, and TOTAL_MATCHES. The 'Primary Key' column for STADIUM_ID is marked with a '1'. The table is defined over 1 row.

Column Name	Date Type	Nullable	Default	Primary Key
STADIUM_ID	VARCHAR2(20)	No	-	1
STADIUM_NAME	VARCHAR2(20)	Yes	-	-
CAPACITY	NUMBER(6,0)	Yes	-	-
LOCATION	VARCHAR2(30)	Yes	-	-
TOTAL_MATCHES	NUMBER(2,0)	Yes	-	-

COACH:

```
create table COACH(  
    COACH_ID varchar(20) primary key,  
    COACH_NAME varchar(20),  
    AGE number(2),  
    TEAM_ID references TEAM  
);
```

The screenshot shows the Oracle Database Express Edition Object Browser interface. The top navigation bar includes links for Object Browser, Home, Inbox (612), Facebook, YouTube, Undergraduate Cou..., Electronic library, D..., Index, Monkeytype, BrightSkills, GitHub, Touhid Alam | Link..., Tutorials List - Java..., Home Feed | Research..., and Help. The main title is "ORACLE Database Express Edition". Below it, "User: PROJECT" and "Home > Object Browser" are displayed. On the left, a sidebar lists tables: CAPTAIN, COACH, HTMPLB_PLAN_TABLE, MATCH, PLAYER, PLAYER_SPECIALTY, PLAYER_STATS, REFEREE, STADIUM, TEAM, and TEAM_STATS. The central area is titled "COACH" and displays the table structure. The "Table" tab is selected, showing the following columns:

Column Name	Data Type	Nullable	Default	Primary Key
COACH_ID	VARCHAR2(20)	No	-	1
COACH_NAME	VARCHAR2(20)	Yes	-	-
AGE	NUMBER(2,0)	Yes	-	-
TEAM_ID	VARCHAR2(10)	Yes	-	-

At the bottom right of the table view, there is a "Create" button. A note at the bottom center says "1 - 4". The bottom status bar indicates "Language: en-gb" and "Application Express 2.1.0.00.39".



PLAYER:

```
create table PLAYER(  
    PLAYER_ID varchar(10) primary key,  
    TEAM_ID references TEAM,  
    PLAYER_NAME varchar(20),  
    AGE number(2),  
    JERSEY_NO number(2)  
);
```

User: PROJECT

Home > Object Browser

Tables

PLAYER

Column Name	Data Type	Nullable	Default	Primary Key
PLAYER_ID	VARCHAR2(10)	No	-	1
TEAM_ID	VARCHAR2(10)	Yes	-	-
PLAYER_NAME	VARCHAR2(20)	Yes	-	-
AGE	NUMBER(2,0)	Yes	-	-
JERSEY_NO	NUMBER(2,0)	Yes	-	-

Language: en-gb

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CAPTAIN:

```
create table CAPTAIN(
    PLAYER_ID references PLAYER,
    TEAM_ID references TEAM,
    NAME varchar(20),
    YEAR_OF_CAPTAINCY number(2));
```

User: PROJECT

Home > Object Browser

Tables

CAPTAIN

Column Name	Data Type	Nullable	Default	Primary Key
PLAYER_ID	VARCHAR2(10)	Yes	-	-
TEAM_ID	VARCHAR2(10)	Yes	-	-
NAME	VARCHAR2(20)	Yes	-	-
YEAR_OF_CAPTAINCY	NUMBER(2,0)	Yes	-	-

Language: en-gb

Application Express 2.1.0.0.39
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PLAYER_STATS:

```
create table PLAYER_STATS(  
    PLAYER_ID REFERENCES PLAYER,  
    TEAM_ID REFERENCES TEAM,  
    MATCH_PLAYED NUMBER(2),  
    GOALS NUMBER(2),  
    ASSIST NUMBER(2),  
    FOULS NUMBER(2)  
)
```

The screenshot shows the Oracle Database Express Edition Object Browser interface. The left sidebar lists tables: CAPTAIN, COACH, HTMLDB_PLAN_TABLE, MATCH, PLAYER, PLAYER_SPECIALITY, and TEAM. The TEAM_STATS table is selected. The main panel displays the structure of the newly created PLAYER_STATS table.

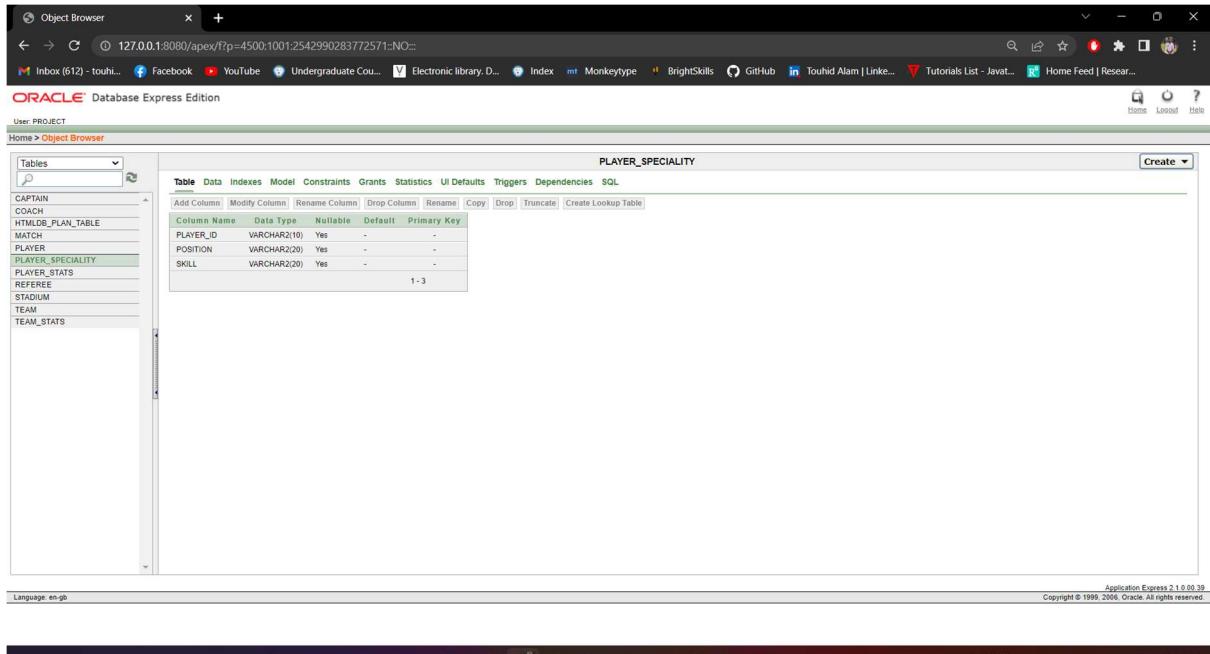
Column Name	Data Type	Nullable	Default	Primary Key
PLAYER_ID	VARCHAR2(10)	Yes	-	-
TEAM_ID	VARCHAR2(10)	Yes	-	-
MATCH_PLAYED	NUMBER(2,0)	Yes	-	-
GOALS	NUMBER(2,0)	Yes	-	-
ASSIST	NUMBER(2,0)	Yes	-	-
FOULS	NUMBER(2,0)	Yes	-	-

At the bottom right of the browser window, it says "Application Express 2.1.0.0939 Copyright © 1999, 2006, Oracle. All rights reserved."



PLAYER_SPECIALITY:

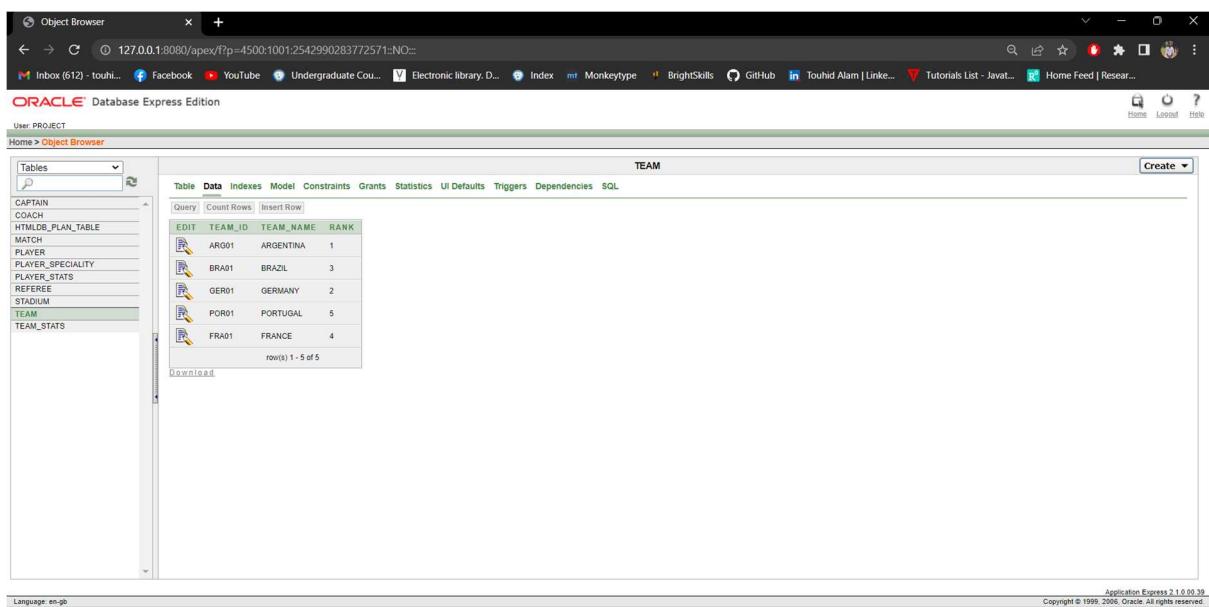
```
CREATE TABLE PLAYER_SPECIALITY(  
    PLAYER_ID REFERENCES PLAYER,  
    POSITION VARCHAR(20),  
    SKILL VARCHAR(20)  
);
```



DATA INSERTION:

INSERT INTO TEAM:

```
INSERT INTO TEAM VALUES(  
'BRA01','BRAZIL',3);  
  
INSERT INTO TEAM VALUES(  
'ARG01','ARGENTINA',1);  
  
INSERT INTO TEAM VALUES(  
'GER01','GERMANY',2);  
  
INSERT INTO TEAM VALUES(  
'POR01','PORTUGAL',5);  
  
INSERT INTO TEAM VALUES(  
'FRA01','FRANCE',4);
```



The screenshot shows the Oracle Database Express Edition Object Browser interface. The left sidebar lists tables: CAPTAIN, COACH, HTMLDB_PLAN_TABLE, MATCH, PLAYER, PLAYER_SPECIALITY, PLAYER_STATS, REFEREE, STADIUM, TEAM (which is selected), and TEAM_STATS. The main area displays the TEAM table data with the following rows:

EDIT	TEAM_ID	TEAM_NAME	RANK
	ARG01	ARGENTINA	1
	BRA01	BRAZIL	3
	GER01	GERMANY	2
	POR01	PORTUGAL	5
	FRA01	FRANCE	4

At the bottom right of the application window, it says "Application Express 2.1.0.0.39 Copyright © 1999, 2006, Oracle. All rights reserved."

INSERT INTO TEAM_STATS:

```
insert into TEAM_STATS VALUES(  
'ARG01',4,3,0,1);  
  
insert into TEAM_STATS VALUES(  
'BRA01',4,2,1,1);  
  
insert into TEAM_STATS VALUES(
```

```
'GER01',4,2,1,1);
insert into TEAM_STATS VALUES(
'FRA01',4,0,3,1);
insert into TEAM_STATS VALUES(
'POR01',4,0,3,1);
```

EDIT	TEAM_ID	MATCH_PLAYED	WINS	LOSS	DRAW
	ARG01	4	3	0	1
	BRA01	4	2	1	1
	GER01	4	2	1	1
	FRA01	4	0	3	1
	POR01	4	0	3	1

row(s) 1 - 5 of 5

INSERT INTO REFEREE:

```
INSERT INTO REFEREE VALUES(
'REF01','MARK',45,'SPAIN',23);
INSERT INTO REFEREE VALUES(
'REF02','COLLINA',54,'ITALY',54);
INSERT INTO REFEREE VALUES(
'REF03','WEBB',61,'SPAIN',58);
INSERT INTO REFEREE VALUES(
'REF04','PUHL',39,'PORTUGAL',17)
INSERT INTO REFEREE VALUES(
'REF05','LUKA',59,'ENGLAND',12);
```

The screenshot shows the Oracle Database Express Edition Object Browser interface. The left sidebar lists tables: CAPTAIN, COACH, HTML_DB_PLAN_TABLE, MATCH, PLAYER, PLAYER_SPECIALITY, REFEREE_STATS, REFEREE, STADIUM, TEAM, and TEAM_STATS. The central area displays the REFEREE table data:

	REFEREE_ID	REFEREE_NAME	AGE	COUNTRY	TOTAL_MATCH
	REF01	MARK	45	SPAIN	23
	REF02	COLLINA	54	ITALY	54
	REF03	WEBB	61	SPAIN	58
	REF04	PUHL	39	PORTUGAL	17
	REF05	LUKA	59	ENGLAND	12

Row(s) 1 - 5 of 5

Language: en-GB Application Express 2.1.0.0.39
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INSERT INTO STADIUM:

INSERT INTO STADIUM VALUES

```
('STD01','ALLINAZ ARENA',90000,'BAYERN',67);
```

INSERT INTO STADIUM VALUES

```
('STD02','SIGNAL IDUNA',70000,'BOROSSIA',54);
```

INSERT INTO STADIUM VALUES

```
('STD03','WESTFAL',85000,'BERLIN',78);
```

INSERT INTO STADIUM VALUES

```
('STD04','VELTINS',60000,'BERLIN',45);
```

INSERT INTO STADIUM VALUES

```
('STD05','PARK STADIUM',72000,'MUNICH',65);
```

STADIUM

STADIUM_ID	STADIUM_NAME	CAPACITY	LOCATION	TOTAL_MATCHES
STD01	ALLIANZ ARENA	90000	BAYERN	67
STD02	SIGNAL IDUNA	70000	BORUSSIA	54
STD03	WESTFAL	85000	BERLIN	78
STD04	VELTINS	60000	BERLIN	45
STD05	PARK STADIUM	72000	MUNICH	65



INSERT INTO COACH:

INSERT INTO COACH VALUES(

'GERC01','FLICK',57,'GER01');

INSERT INTO COACH VALUES(

'ARGC01','SCOLANI',41,'ARG01');

INSERT INTO COACH VALUES(

'BRAC01','TITE',62,'BRA01');

INSERT INTO COACH VALUES(

'PORC01','PELIPE',55,'POR01');

INSERT INTO COACH VALUES(

'FRAC01','DIDIER',54,'FRA01');

The screenshot shows the Oracle Database Express Edition Object Browser interface. The left sidebar lists tables: CAPTAIN, COACH, HTMLDB_PLAN_TABLE, MATCH, PLAYER, PLAYER_SPECIALITY, REFEREE, STADIUM, TEAM, and TEAM_STATS. The main area displays the COACH table with the following data:

	COACH_ID	COACH_NAME	AGE	TEAM_ID
	GERC01	FLICK	57	GER01
	ARGC01	SCOLANI	41	ARG01
	BRAC01	TITE	62	BRA01
	PORC01	PELUPE	55	POR01
	FRAC01	DIDIER	54	FRA01

At the bottom, it says "row(s) 1 - 5 of 5".



INSERT INTO PLAYER:

```

INSERT INTO PLAYER VALUES(
'ARGP01','ARG01','MESSI',35,10);

INSERT INTO PLAYER VALUES(
'ARGP02','ARG01','DI MARIA',34,11);

INSERT INTO PLAYER VALUES(
'ARGP03','ARG01','DE PAUL',24,7);

INSERT INTO PLAYER VALUES(
'ARGP04','ARG01','ALVAREZ',21,9);

INSERT INTO PLAYER VALUES(
'ARGP05','ARG01','EMI',30,1);

INSERT INTO PLAYER VALUES(
'GERP01','GER01','MUSIALA',19,14);

INSERT INTO PLAYER VALUES(
'GERP02','GER01','HARVERTZ',23,11);

INSERT INTO PLAYER VALUES(
'GERP03','GER01','MULLER',34,13);

INSERT INTO PLAYER VALUES(
'GERP04','GER01','NUERE',35,1);

```

```
INSERT INTO PLAYER VALUES(  
'BRAP01','BRA01','NEYMAR',30,10);  
INSERT INTO PLAYER VALUES(  
'BRAP02','BRA01','RODREYGO',20,11);  
INSERT INTO PLAYER VALUES(  
'BRAP03','BRA01','VINI',19,18);  
INSERT INTO PLAYER VALUES(  
'BRAP04','BRA01','BECKER',29,01);  
INSERT INTO PLAYER VALUES(  
'FRAP01','FRA01','MBAPPE',21,10);  
INSERT INTO PLAYER VALUES(  
'FRAP02','FRA01','GIROUD',28,9);  
INSERT INTO PLAYER VALUES(  
'FRAP03','FRA01','KANTE',26,6);  
INSERT INTO PLAYER VALUES(  
'FRAP04','FRA01','LLORIS',32,1);  
INSERT INTO PLAYER VALUES(  
'PORP01','POR01','RONALDO',37,7);  
INSERT INTO PLAYER VALUES(  
'PORP02','POR01','BRUNO',24,8);  
INSERT INTO PLAYER VALUES(  
'PORP03','POR01','MENDES',21,5);  
INSERT INTO PLAYER VALUES(  
'PORP04','POR01','COSTA',32,1);
```

	PLAYER_ID	TEAM_ID	PLAYER_NAME	AGE	JERSEY_NO
EDIT					
	ARGP01	ARG01	MESSI	35	10
	ARGP03	ARG01	DE PAUL	24	7
	ARGP04	ARG01	ALVAREZ	21	9
	ARGP05	ARG01	EMI	30	1
	GERP01	GER01	MUSIALA	19	14
	GERP02	GER01	HARVERTZ	23	11
	GERP03	GER01	MULLER	34	13
	GERP04	GER01	NUERE	35	1
	BRAP01	BRA01	NEYMAR	30	10
	BRAP02	BRA01	DI MARIA	34	11
	BRAP03	BRA01	RODREYGO	20	11
	BRAP04	BRA01	VINI	19	18
	FRAP01	FRA01	MBAPPE	21	10
	FRAP02	FRA01	GIROUD	28	9

INSERT CAPTAIN:

```
INSERT INTO CAPTAIN VALUES(
```

```
'ARGP01','ARG01','MESSI',8);
```

```
INSERT INTO CAPTAIN VALUES(
```

```
'GERP03','GER01','MULLER',5);
```

```
INSERT INTO CAPTAIN VALUES(
```

```
'BRAP01','BRA01','NEYMAR',4);
```

```
INSERT INTO CAPTAIN VALUES(
```

```
'FRAP04','FRA01','LLORIS',6);
```

The screenshot shows the Oracle Database Express Edition Object Browser interface. On the left, a sidebar lists tables: CAPTAIN, COACH, HTMLDB_PLAN_TABLE, MATCH, PLAYER, PLAYER_SPECIALITY, REFEREE, STADIUM, TEAM, and TEAM_STATS. The main area displays the CAPTAIN table with the following data:

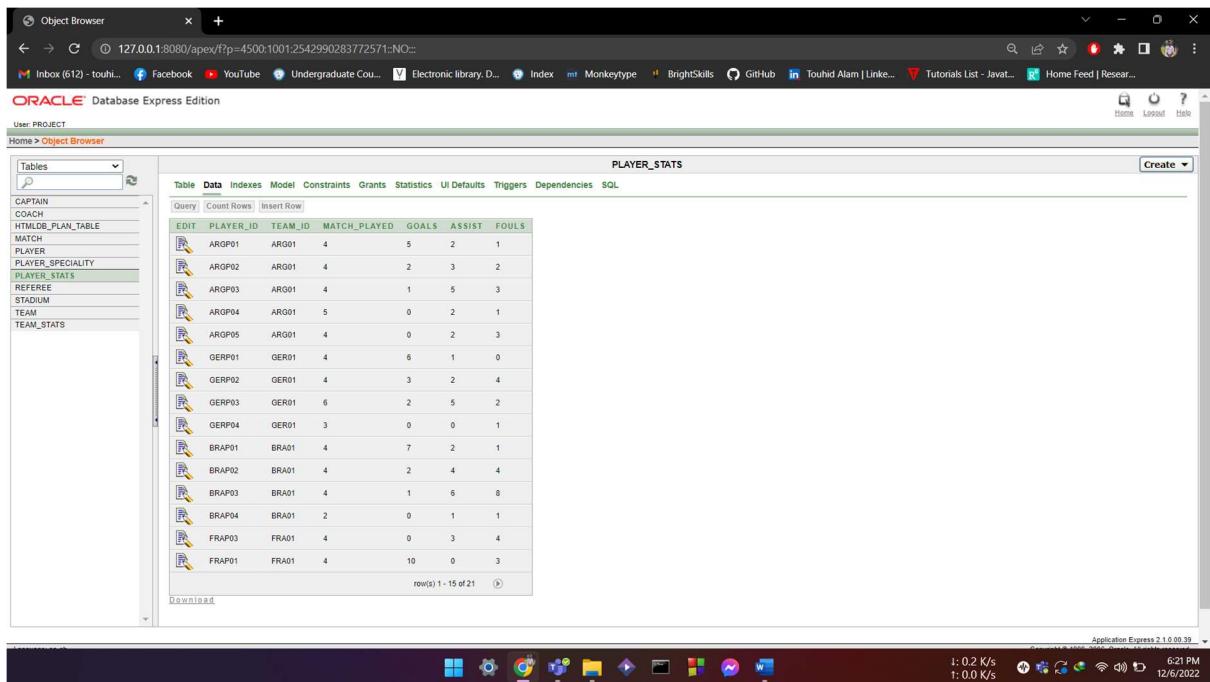
EDIT	PLAYER_ID	TEAM_ID	NAME	YEAR_OF_CAPTAINCY
	ARGP01	ARG01	MESSI	8
	GERP03	GER01	MULLER	5
	BRAP01	BRA01	NEYMAR	4
	FRAP04	FRA01	LLORIS	6
	PORP01	POR01	RONALDO	8

At the bottom of the table view, it says "row(s) 1 - 5 of 5".

INSERT PLAYER_STATS

```
INSERT INTO PLAYER_STATS
  into PLAYER_STATS VALUES(
  'ARGP01','ARG01',04,05,02,01)
  insert into PLAYER_STATS VALUES(
  'ARGP02','ARG01',04,02,03,02)
  insert into PLAYER_STATS VALUES(
  'ARGP03','ARG01',04,01,05,03)
  insert into PLAYER_STATS VALUES(
  'ARGP04','ARG01',05,0,02,01)
  insert into PLAYER_STATS VALUES(
  'ARGP05','ARG01',04,0,02,03)
  insert into PLAYER_STATS VALUES(
  'GERP01','GER01',04,06,01,00)
  insert into PLAYER_STATS VALUES(
  'GERP02','GER01',04,03,02,04)
  insert into PLAYER_STATS VALUES(
  'GERP03','GER01',06,02,05,02);
  insert into PLAYER_STATS VALUES(
```

```
'GERP04','GER01',03,00,00,01);
insert into PLAYER_STATS VALUES(
'BRAP01','BRA01',04,07,02,01);
insert into PLAYER_STATS VALUES(
'BRAP02','BRA01',04,02,04,04);
insert into PLAYER_STATS VALUES(
'BRAP03','BRA01',04,01,06,08);
insert into PLAYER_STATS VALUES(
'BRAP04','BRA01',02,00,01,01);
insert into PLAYER_STATS VALUES(
'FRAP01','FRA01',04,10,00,03);
insert into PLAYER_STATS VALUES(
'FRAP02','FRA01',04,2,05,07);
insert into PLAYER_STATS VALUES(
'FRAP03','FRA01',04,0,3,04);
insert into PLAYER_STATS VALUES(
'FRAP04','FRA01',05,0,0,00);
insert into PLAYER_STATS VALUES(
'PORP01','POR01',04,08,01,09);
insert into PLAYER_STATS VALUES(
'PORP02','POR01',03,00,06,02);
insert into PLAYER_STATS VALUES(
'PORP03','POR01',04,01,02,04);
```



INSERT PLAYER_SPECIALITY:

```

INSERT INTO PLAYER_SPECIALITY VALUES(
'ARG01','RIGHT WING','CROSSING');

INSERT INTO PLAYER_SPECIALITY VALUES(
'ARGP01','CENTRE MIDFIELD','PLAY MAKER');

INSERT INTO PLAYER_SPECIALITY VALUES(
'GERP03','CENTRE MIDFIELD','GREAT PASS');

INSERT INTO PLAYER_SPECIALITY VALUES(
'GERP03','STRIKER','SHOOT');

INSERT INTO PLAYER_SPECIALITY VALUES(
'FRAP01','STRIKER','SCORER');

INSERT INTO PLAYER_SPECIALITY VALUES(
'BRAP01','LEFT WING','DRIBBLING');

INSERT INTO PLAYER_SPECIALITY VALUES(
'BRAP01','MIDFIELD','PLAYMAKER');

insert into PLAYER_SPECIALITY values(
'PORP01','LEFT WING','GOAL MAKER')

```

```
insert into PLAYER_SPECIALITY values(
'PORP01','STRIKER','GOAL MACHINE')
```

The screenshot shows the Oracle Database Express Edition Object Browser interface. The left sidebar lists tables such as CAPTAIN, COACH, HTMLDB_PLAN_TABLE, MATCH, PLAYER, REFEREE, STADIUM, TEAM, and TEAM_STATS. The main area displays the data for the 'PLAYER_SPECIALITY' table. The table has columns: EDIT, PLAYER_ID, POSITION, and SKILL. The data is as follows:

EDIT	PLAYER_ID	POSITION	SKILL
	ARGP01	RIGHT WING	CROSSING
	ARGP01	CENTRE MIDFIELD	PLAY MAKER
	GERP03	CENTRE MIDFIELD	GREAT PASS
	GERP03	STRIKER	SHOOT
	FRAP01	STRIKER	SCORER
	BRAPO1	LEFT WING	Dribbling
	BRAPO1	MIDFIELD	PLAYMAKER

At the bottom of the table view, it says "rows 1 - 7 of 7".

INSERT MATCH:

```
INSERT INTO MATCH VALUES(
```

```
'MTH01','ARGENTINA','BRAZIL','','TO_DATE('01-12-2022','DD-MM-  
YYYY'),'STD01','REF01');
```

```
INSERT INTO MATCH VALUES(
```

```
'MTH02','FRANCE','PORTUGAL','','TO_DATE('01-12-2022','DD-MM-  
YYYY'),'STD04','REF03');
```

```
INSERT INTO MATCH VALUES(
```

```
'MTH03','GERMANY','ARGENTINA','ARGENTINA','GERMANY',TO_DATE('03-12-  
2022','DD-MM-YYYY'),'STD02','REF05');
```

```
INSERT INTO MATCH VALUES(
```

```
'MTH04','BRAZIL','FRANCE','BRAZIL','FRANCE',TO_DATE('04-12-2022','DD-MM-  
YYYY'),'STD03','REF02');
```

```
INSERT INTO MATCH VALUES(
```

```
'MTH05','ARGENTINA','PORTUGAL','ARGENTINA','PORTUGAL',TO_DATE('05-12-  
2022','DD-MM-YYYY'),'STD05','REF04');
```

```
INSERT INTO MATCH VALUES(
```

```
'MTH06','GERMANY','FRANCE','GERMANY','FRANCE',TO_DATE('07-12-2022','DD-MM-YYYY'),'STD01','REF01');
```

INSERT INTO MATCH VALUES(

'MTH07','BRAZIL','PORTUGAL','BRAZIL','PORTUGAL',TO_DATE('08-12-2022','DD-MM-YYYY'),'STD02','REF04');

INSERT INTO MATCH VALUES(

```
'MTH08','GERMANY','BRAZIL','','TO_DATE('10-12-2022','DD-MM-  
YYYY'),'STD05','REF05');
```

INSERT INTO MATCH VALUES(

```
'MTH09','ARGENTINA','FRANCE','ARGENTINA','FRANCE',TO_DATE('12-12-2022','DD-MM-YYYY'),'STD04','REF03');
```

INSERT INTO MATCH VALUES(

'MTH10','PORTUGAL','GERMANY','GERMANY','PORTUGAL',TO_DATE('13-12-2022','DD-MM-YYYY'),'STD03','REF02');

Object Browser

127.0.0.1:8080/apex/f?p=4500:1001:2542990283772571:NO::

Inbox (612) - touhi... Facebook YouTube Undergraduate Cou... Electronic library. D... Index Monkeytype BrightSkills GitHub Touhid Alam | Link... Tutorials List - Java... Home Feed | Research...

ORACLE Database Express Edition

User: PROJECT

Home > Object Browser

Tables

CAPTAIN
COACH
HTMLOD_PLAN_TABLE
MATCH
PLAYER
PLAYER_SPECIALITY
PLAYER_STATS
REFEREE
STADIUM
TEAM
TEAM_STATS

Table Data Indexes Model Constraints Grants Statistics UI Defaults Triggers Dependencies SQL Create

Query | Count Rows | Insert Row

MATCH

	EDIT	MATCH_ID	TEAM1_NAME	TEAM2_NAME	WINNER	LOSSER	MATCH_DATE	STADIUM_ID	REFEREE_ID
		MTH01	ARGENTINA	BRAZIL	-	-	01-DEC-22	STD01	REF01
		MTH02	FRANCE	PORTUGAL	-	-	01-DEC-22	STD04	REF03
		MTH03	GERMANY	ARGENTINA	ARGENTINA	GERMANY	03-DEC-22	STD06	REF05
		MTH04	BRAZIL	FRANCE	BRAZIL	FRANCE	04-DEC-22	STD03	REF02
		MTH05	ARGENTINA	PORTUGAL	ARGENTINA	PORTUGAL	05-DEC-22	STD00	REF04
		MTH06	GERMANY	FRANCE	GERMANY	FRANCE	07-DEC-22	STD01	REF01
		MTH07	BRAZIL	PORTUGAL	BRAZIL	PORTUGAL	08-DEC-22	STD02	REF04
		MTH08	GERMANY	BRAZIL	-	-	10-DEC-22	STD06	REF05
		MTH09	ARGENTINA	FRANCE	ARGENTINA	FRANCE	12-DEC-22	STD04	REF03
		MTH10	PORTUGAL	GERMANY	GERMANY	PORTUGAL	13-DEC-22	STD03	REF02

row(s) 1 - 10 of 10

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QUERY DESIGN:

Function:

- Write a query to show match details with no winners

select * from match where winner is null and losser is null

The screenshot shows the Oracle Application Express SQL Workshop interface. At the top, there are buttons for 'Autocommit' (checked), 'Display' (set to 10), 'Save', and 'Run'. The SQL command entered is 'select * from match where winner is null and losser is null'. Below the command is a results grid showing three rows of data from the 'match' table. The results are as follows:

MATCH_ID	TEAM1_NAME	TEAM2_NAME	WINNER	LOSSER	MATCH_DATE	STADIUM_ID	REFEREE_ID
MTH01	ARGENTINA	BRAZIL	-	-	01-DEC-22	STD01	REF01
MTH02	FRANCE	PORTUGAL	-	-	01-DEC-22	STD04	REF03
MTH08	GERMANY	BRAZIL	-	-	10-DEC-22	STD05	REF05

Below the grid, it says '3 rows returned in 0.00 seconds' and has a 'CSV Export' link. At the bottom, it shows 'Language: en-gb', 'Application Express 2.1.0.00.39', 'Copyright © 1999, 2006, Oracle. All rights reserved.', and a Windows taskbar with various icons.

- Write a query to show the maximum capacity of stadium as MAX CAPACITY
SELECT MAX(CAPACITY) AS "MAXIMUM CAPACITY" FROM STADIUM;

The screenshot shows the Oracle Application Express SQL Workshop interface. At the top, there are buttons for 'Autocommit' (checked), 'Display' (set to 10), 'Save', and 'Run'. The SQL command entered is 'SELECT MAX(CAPACITY) AS "MAXIMUM CAPACITY" FROM STADIUM;'. Below the command is a results grid showing one row of data. The results are as follows:

MAXIMUM CAPACITY
90000

Below the grid, it says '1 rows returned in 0.00 seconds' and has a 'CSV Export' link. At the bottom, it shows 'Language: en-gb', 'Application Express 2.1.0.00.39', 'Copyright © 1999, 2006, Oracle. All rights reserved.', and a Windows taskbar with various icons.

Subquery:

Single row:

- Write a query to show the players who scored more than average goals scored.
select player_id, goals from player_stats where goals>(select avg(goals) from player_stats);

The screenshot shows the Oracle Database Express Edition interface. In the SQL Commands window, the following query is entered:

```
select player_id, goals from player_stats where goals > (select avg(goals) from player_stats);
```

The results window displays the following data:

PLAYER_ID	GOALS
ARGP01	5
GERP01	6
GERP02	3
BRAF01	7
FRAP01	10
PORP01	8

6 rows returned in 0.00 seconds

- Write a query to show the details of most aged player.

select * from player where age=(select max(age) from player);

The screenshot shows the Oracle Database Express Edition interface. In the SQL Commands window, the following query is entered:

```
select * from player where age = (select max(age) from player);
```

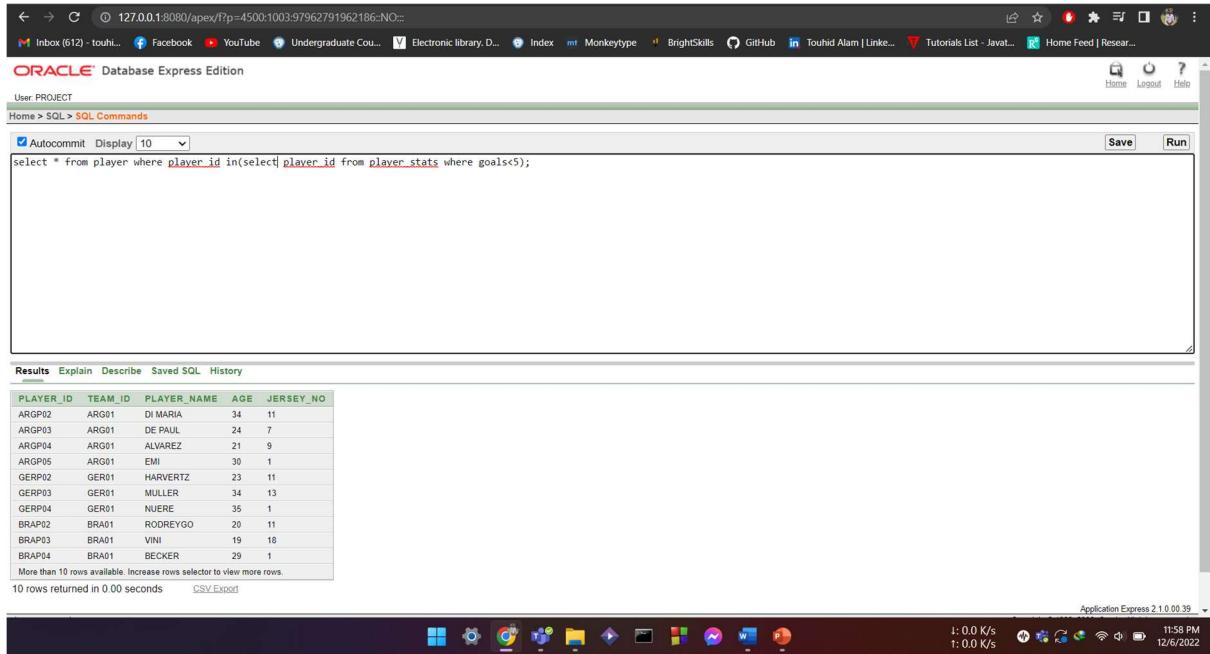
The results window displays the following data:

PLAYER_ID	TEAM_ID	PLAYER_NAME	AGE	JERSEY_NO
PORP01	POR01	RONALDO	37	7

1 rows returned in 0.00 seconds

Multiple row:

- Write a query to display information of player who scored less than 5 goals;
`select * from player where player_id in(select player_id from player_stats where goals<5);`



The screenshot shows the Oracle Database Express Edition interface. In the SQL Commands window, the following query is entered:

```
select * from player where player_id in(select player_id from player_stats where goals<5);
```

The results window displays a table with the following data:

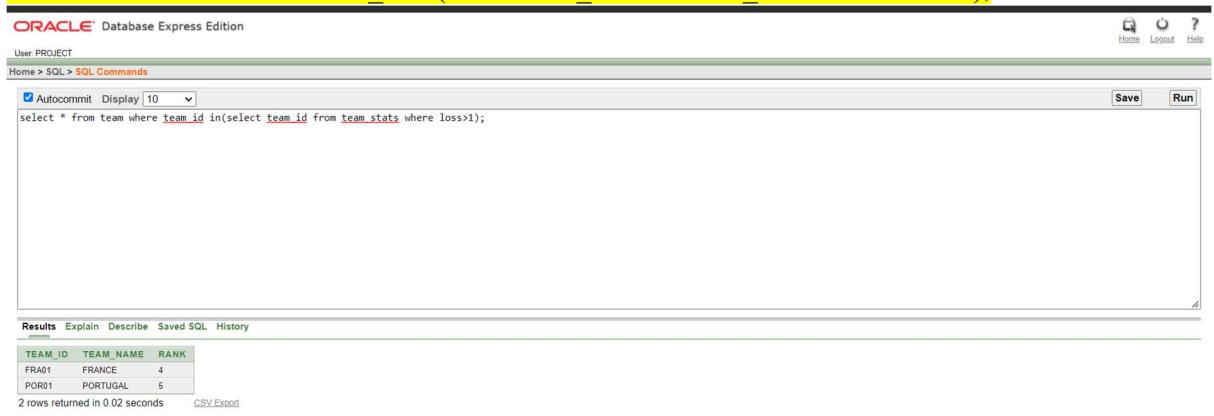
PLAYER_ID	TEAM_ID	PLAYER_NAME	AGE	JERSEY_NO
ARGP02	ARG01	DI MARIA	34	11
ARGP03	ARG01	DE PAUL	24	7
ARGP04	ARG01	ALVAREZ	21	9
ARGP05	ARG01	EMI	30	1
GERP02	GER01	HARVERTZ	23	11
GERP03	GER01	MULLER	34	13
GERP04	GER01	NUERE	35	1
BRAPI02	BRA01	RODREYGO	20	11
BRAPI03	BRA01	VINI	19	18
BRAPI04	BRA01	BECKER	29	1

More than 10 rows available. Increase rows selector to view more rows.

10 rows returned in 0.00 seconds [CSV Export](#)

Application Express 2.1.0.0.39

- Write a query to display the team information who lost more than one match
`select * from team where team_id in(select team_id from team_stats where loss>1);`



The screenshot shows the Oracle Database Express Edition interface. In the SQL Commands window, the following query is entered:

```
select * from team where team_id in(select team_id from team_stats where loss>1);
```

The results window displays a table with the following data:

TEAM_ID	TEAM_NAME	RANK
FRA01	FRANCE	4
POR01	PORTUGAL	5

2 rows returned in 0.02 seconds [CSV Export](#)

Application Express 2.1.0.0.39



Joining:

Equi-joining:

- Write a query to show the captain name, captain id and team name;

```
select player.player_name, captain.player_id ,team.team_name from team,captain,  
player where player.player_id=captain.player_id and player.team_id=team.team_id;
```

The screenshot shows the Oracle Database Express Edition interface. The SQL command window contains the following query:

```
select player.player_name, captain.player_id ,team.team_name from team,captain,  
player where player.player_id=captain.player_id and player.team_id=team.team_id;
```

The results pane displays a table with the following data:

PLAYER_NAME	PLAYER_ID	TEAM_NAME
MESSI	ARGP01	ARGENTINA
MULLER	GERP03	GERMANY
NEYMAR	BRAP01	BRAZIL
LLORIS	FRAP04	FRANCE
RONALDO	PORP01	PORTUGAL

5 rows returned in 0.00 seconds

Language: en-gb Application Express 2.1 0.00.39
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Outer-joining:

- Write a query to show the name of coaches and referee older than the coaches

```
select c.coach_name, r.referee_name from coach c,referee r where c.age<r.age;
```

The screenshot shows the Oracle Database Express Edition interface. The SQL command window contains the following query:

```
select c.coach_name, r.referee_name from coach c,referee r where c.age<r.age;
```

The results pane displays a table with the following data:

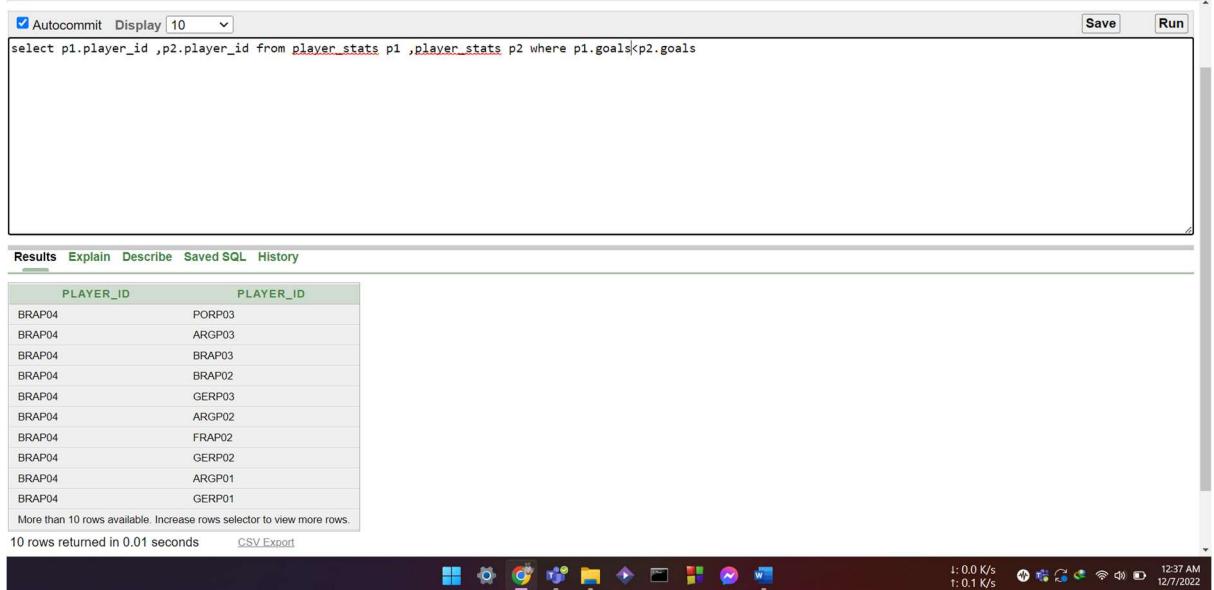
COACH_NAME	REFEREE_NAME
SCOLANI	MARK
SCOLANI	COLLINA
SCOLANI	LUKA
SCOLANI	WEBB
DIDIER	LUKA
DIDIER	WEBB
PELIPE	LUKA
PELIPE	WEBB
FICK	LUKA
FICK	WEBB

10 rows returned in 0.00 seconds

I: 0.1 K/s O: 0.2 K/s 12:33 AM 12/7/2022

Self-joining:

- Write a query to show two player_id where first scored less than other player.
`Select p1.player_id ,p2.player_id from player_stats p1 ,player_stats p2 where p1.goals<p2.goals`



The screenshot shows the Oracle SQL Developer interface. At the top, there is a toolbar with 'Autocommit' checked, 'Display 10', 'Save', and 'Run'. Below the toolbar is a code editor window containing the following SQL query:

```
select p1.player_id ,p2.player_id from player_stats p1 ,player_stats p2 where p1.goals<p2.goals
```

Below the code editor is a results grid titled 'Results' with two columns: 'PLAYER_ID' and 'PLAYER_ID'. The data in the grid is as follows:

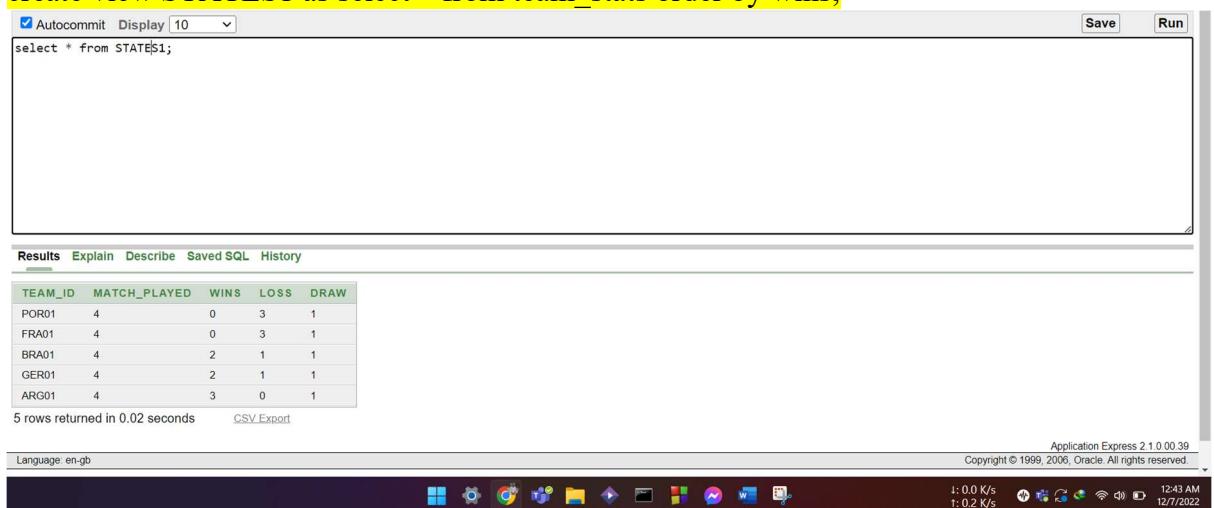
PLAYER_ID	PLAYER_ID
BRAP04	PORP03
BRAP04	ARGP03
BRAP04	BRAP03
BRAP04	BRAP02
BRAP04	GERP03
BRAP04	ARGP02
BRAP04	FRAP02
BRAP04	GERP02
BRAP04	ARGP01
BRAP04	GERP01

A note at the bottom of the grid says 'More than 10 rows available. Increase rows selector to view more rows.' Below the grid, it says '10 rows returned in 0.01 seconds' and has a 'CSV Export' link. At the bottom right, there is a status bar showing network activity and the date/time '12:37 AM 12/7/2022'.

View:

Simple view:

- Create a view STATES1 of team stats order by their wins from lowest to highest
`create view STATES1 as select * from team_stats order by wins;`



The screenshot shows the Oracle SQL Developer interface. At the top, there is a toolbar with 'Autocommit' checked, 'Display 10', 'Save', and 'Run'. Below the toolbar is a code editor window containing the following SQL query:

```
select * from STATES1;
```

Below the code editor is a results grid titled 'Results' with five columns: 'TEAM_ID', 'MATCH_PLAYED', 'WINS', 'LOSS', and 'DRAW'. The data in the grid is as follows:

TEAM_ID	MATCH_PLAYED	WINS	LOSS	DRAW
POR01	4	0	3	1
FRA01	4	0	3	1
BRA01	4	2	1	1
GER01	4	2	1	1
ARG01	4	3	0	1

A note at the bottom of the grid says '5 rows returned in 0.02 seconds' and has a 'CSV Export' link. Below the grid, it says 'Language: en-gb' and has a status bar showing 'Application Express 2.1.0.00.39' and 'Copyright © 1999, 2006, Oracle. All rights reserved.'. At the bottom right, there is a status bar showing network activity and the date/time '12:43 AM 12/7/2022'.

Complex view:

Create a view TEAM1 to show the team name, player name and goal scored of those player who scored maximum goals from each teams

```
create view view01 as select team.team_name,player.player_name,player_stats.goals from
team,player,player_stats where team.team_id=player.team_id and
player.player_id=player_stats.player_id and player_stats.goals in(select max(goals) from
player_stats group by team_id);
```

The screenshot shows the Oracle Database Express Edition interface. The SQL command `select * from view01;` is entered in the SQL Commands window. The results window displays a table with five rows, showing the team name, player name, and goals for each player who scored the maximum goals.

TEAM_NAME	PLAYER_NAME	GOALS
ARGENTINA	MESSI	5
GERMANY	MUSIALA	6
PORTUGAL	RONALDO	8
BRAZIL	NEYMAR	7
FRANCE	MBAPPE	10

5 rows returned in 0.01 seconds [CSV Export](#)

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Conclusion & Future work:

In a conclusion, FIFA Football World Cup Management System can help to keep the records of any kind of football tournament. This DBMS can keep records of any kind of information regarding the tournament. If necessary, we can also create more tables in future and also insert new attributes in necessary.

This project gave us the opportunity to implement the skills we learnt during the course. While doing the project we gained deeper understanding on database design and how it can be implemented in real life situations. In future we hope to use the knowledge and skills we gained from this project to implement into making more advanced database management system.