

## Part 1: Create the database

Log into the psql interactive terminal with `psql --username=freecodecamp --dbname=postgres` and create your database structure according to the user stories below.

Don't forget to connect to the database after you create it.

- ✓ You should create a database named `worldcup`

```
postgres=> CREATE DATABASE worldcup;
CREATE DATABASE
```

- ✓ You should connect to your worldcup database and then create `teams` and `games` tables

```
postgres=> \c worldcup;
You are now connected to database "worldcup" as user "freecodecamp".
worldcup=> CREATE TABLE teams();
CREATE TABLE
worldcup=> CREATE TABLE games();
CREATE TABLE
```

- ✓ Your `teams` table should have a `team_id` column that is a type of `SERIAL` and is the primary key, and a `name` column that has to be `UNIQUE`

```
worldcup=> ALTER TABLE teams ADD COLUMN team_id SERIAL PRIMARY KEY;
ALTER TABLE
worldcup=> ALTER TABLE teams ADD COLUMN name VARCHAR(30) NOT NULL UNIQUE;
ALTER TABLE
```

- ✓ Your `games` table should have a `game_id` column that is a type of `SERIAL` and is the primary key, a `year` column of type `INT`, and a `round` column of type `VARCHAR`

```
worldcup=> ALTER TABLE games ADD COLUMN game_id SERIAL PRIMARY KEY;
ALTER TABLE
worldcup=> ALTER TABLE games ADD COLUMN year INT NOT NULL;
ALTER TABLE
worldcup=> ALTER TABLE games ADD COLUMN round VARCHAR(30) NOT NULL;
ALTER TABLE
```

- ✓ Your `games` table should have `winner_id` and `opponent_id` foreign key columns that each reference `team_id` from the `teams` table

```
worldcup=> ALTER TABLE games ADD COLUMN winner_id INT NOT NULL REFERENCES teams(team_id);
ALTER TABLE
worldcup=> ALTER TABLE games ADD COLUMN opponent_id INT NOT NULL REFERENCES teams(team_id);
ALTER TABLE
```

- ✓ Your `games` table should have `winner_goals` and `opponent_goals` columns that are type `INT`

```
worldcup=> ALTER TABLE games ADD COLUMN winner_goals INT NOT NULL;
ALTER TABLE
worldcup=> ALTER TABLE games ADD COLUMN opponent_goals INT NOT NULL;
ALTER TABLE
```

- ✔ Your two script ( `.sh` ) files should have executable permissions. Other tests involving these two files will fail until permissions are correct. When these permissions are enabled, the tests will take significantly longer to run

```
codeally@1a48a51a1fd5:~/project$ chmod +x insert_data.sh
codeally@1a48a51a1fd5:~/project$ chmod +x queries.sh
codeally@1a48a51a1fd5:~/project$
```

```
CodeRoad    queries.sh    expected_output.txt    insert_data.sh X
1  #!/bin/bash
2
3  if [[ $1 == "test" ]]
4  then
5      PSQL="psql --username=postgres --dbname=worldcup --no-align -c"
6  else
7      PSQL="psql --username=freecodecamp --dbname=worldcup --no-align -c"
8  fi
9
10 # Do not change code above this line. Use the PSQL variable above to query your database.
11 # Script to insert data from games.csv into worldcup database
12 #PSQL="psql -X --username=freecodecamp --dbname=worldcup --no-align --tuples-only -c"
13 echo $($PSQL "TRUNCATE games, teams")
14 cat games.csv | while IFS="," read YEAR ROUND WINNER OPPONENT WINNER_GOALS OPPONENT_GOALS
15 do
16     if [[ $YEAR != "year" ]]
17     then
18         # get team_id from winner
19         TEAM_ID=$(($PSQL "SELECT team_id FROM teams WHERE name='$WINNER'"))
20         # if not found
21         if [[ -z $TEAM_ID ]]
22         then
23             # insert team
24             INSERT_TEAM_RESULT=$(($PSQL "INSERT INTO teams(name) VALUES('$WINNER')"))
25             if [[ $INSERT_TEAM_RESULT == "INSERT 0 1" ]]
26             then
27                 echo Inserted into teams from winner, $WINNER
28             fi
29         fi
30     fi
31     # get winner_id
32     WINNER_ID=$(($PSQL "SELECT team_id FROM teams WHERE name='$WINNER'"))
33     # get team_id from opponent
34     TEAM_ID=$(($PSQL "SELECT team_id FROM teams WHERE name='$OPPONENT'"))
35     # if not found
36     if [[ -z $TEAM_ID ]]
37     then
38         # insert team
39         INSERT_TEAM_RESULT=$(($PSQL "INSERT INTO teams(name) VALUES('$OPPONENT')"))
40         if [[ $INSERT_TEAM_RESULT == "INSERT 0 1" ]]
41         then
42             echo Inserted into teams from opponent, $OPPONENT
43         fi
44     fi
45     # get opponent_id
46     OPPONENT_ID=$(($PSQL "SELECT team_id FROM teams WHERE name='$OPPONENT'"))
47     INSERT_GAME_RESULT=$(($PSQL "INSERT INTO games(year, round, winner_id, opponent_id, winner_goals, opponent_goals) VALUES($YEAR, '$ROUND', $WINNER_ID, $OPPONENT_ID, $WINNER_GOALS, $OPPONENT_GOALS)"))
48     if [[ $INSERT_GAME_RESULT == "INSERT 0 1" ]]
49     then
50         echo Inserted into games, $YEAR, $ROUND, $WINNER_ID, $OPPONENT_ID, $WINNER_GOALS, $OPPONENT_GOALS
51     fi
52 fi
53 done
```

```
47 # get opponent_id
48 OPPONENT_ID=$(($PSQL "SELECT team_id FROM teams WHERE name='$OPPONENT'"))
49
50 INSERT_GAME_RESULT=$(($PSQL "INSERT INTO games(year, round, winner_id, opponent_id, winner_goals, opponent_goals) VALUES($YEAR, '$ROUND', $WINNER_ID, $OPPONENT_ID, $WINNER_GOALS, $OPPONENT_GOALS)"))
51 if [[ $INSERT_GAME_RESULT == "INSERT 0 1" ]]
52 then
53     echo Inserted into games, $YEAR, $ROUND, $WINNER_ID, $OPPONENT_ID, $WINNER_GOALS, $OPPONENT_GOALS
54 fi
55 fi
56 done
```

CodeRoad	queries.sh	expected_output.txt	insert_data.sh
1	#!/bin/bash		
2			
3	PSQL="psql --username=freecodecamp --dbname=worldcup --no-align --tuples-only -c"		
4			
5	# Do not change code above this line. Use the PSQL variable above to query your database.		
6			
7	echo -e "\nTotal number of goals in all games from winning teams:"		
8	echo "\$(\$PSQL "SELECT SUM( winner_goals ) FROM games")"		
9			
10	echo -e "\nTotal number of goals in all games from both teams combined:"		
11	echo "\$(\$PSQL "SELECT SUM( winner_goals + opponent_goals ) FROM games")"		
12			
13	echo -e "\nAverage number of goals in all games from the winning teams:"		
14	echo "\$(\$PSQL "SELECT AVG( winner_goals ) FROM games")"		
15			
16	echo -e "\nAverage number of goals in all games from the winning teams rounded to two decimal places:"		
17	echo "\$(\$PSQL "SELECT ROUND(AVG( winner_goals ), 2 ) FROM games")"		
18			
19	echo -e "\nAverage number of goals in all games from both teams:"		
20	echo "\$(\$PSQL "SELECT AVG( winner_goals + opponent_goals ) FROM games")"		
21			
22	echo -e "\nMost goals scored in a single game by one team:"		
23	echo "\$(\$PSQL "SELECT MAX( winner_goals ) FROM games")"		
24			
25	echo -e "\nNumber of games where the winning team scored more than two goals:"		
26	echo "\$(\$PSQL "SELECT COUNT( * ) FROM games WHERE winner_goals > 2")"		

```

25 echo -e "\nNumber of games where the winning team scored more than two goals:"
26 echo "$($PSQL "SELECT COUNT( * ) FROM games WHERE winner_goals > 2")"
27
28 echo -e "\nWinner of the 2018 tournament team name:"
29 echo "$($PSQL "SELECT name FROM teams INNER JOIN games ON teams.team_id = games.winner_id WHERE year = 2018 AND round = 'Final'")"
30
31 echo -e "\nList of teams who played in the 2014 'Eighth-Final' round:"
32 echo "$($PSQL "SELECT name FROM teams FULL JOIN games ON teams.team_id = games.winner_id OR teams.team_id = games.opponent_id WHERE year = 2014 AND round = 'Eighth-Final'")"
33
34 echo -e "\nList of unique winning team names in the whole data set:"
35 echo "$($PSQL "SELECT DISTINCT(name) FROM teams INNER JOIN games ON teams.team_id = games.winner_id ORDER BY name")"
36
37 echo -e "\nYear and team name of all the champions:"
38 echo "$($PSQL "SELECT year, name FROM teams FULL JOIN games ON teams.team_id = games.winner_id WHERE round = 'Final' ORDER BY year")"
39
40 echo -e "\nList of teams that start with 'Co':"
41 echo "$($PSQL "SELECT DISTINCT(name) FROM teams FULL JOIN games ON teams.team_id = games.winner_id OR teams.team_id = games.opponent_id WHERE name LIKE 'Co%' ORDER BY name")"
42

```















