



Muscat College

Database Principles and Applications

Code: CSCUMB3

Assignment 2020

Submitted by

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Database Principles and Applications

Part B

Task 1: MySQL database implementation

- Create table of the rowdata.csv:

Table Team			
No	Columns	Datatype	Constraints
1	Team Name	Varchar(8)	<u>Primary Key</u>
2	Town	Varchar(15)	NOT NULL
Table Player			
No	Columns	Datatype	Constraints
1	Player ID	Int(5)	<u>Primary key</u>
2	Forename	Varchar(11)	NOT NULL
3	Surname	Varchar(12)	NOT NULL
4	Team	Varchar(8)	<u>Foreign Key</u>
5	Status	Varchar(12)	NOT NULL
Table Game			
No	Columns	Datatype	Constraints
1	Venue	Varchar(15)	NOT NULL
2	Date	Varchar(10)	<u>Primary Key</u>
Table teamGames			
No	Columns	Datatype	Constraints
1	TeamName	Varchar(8)	<u>Primary Key, Foreign Key</u>
2	Date	Varchar(10)	<u>Primary Key, Foreign Key</u>

Table Skills			
<u>No</u>	Columns	Datatype	Constraints
1	Player ID	Int(5)	<u>Primary Key</u> , <u>Foreign Key</u>
2	Skill	Varchar(9)	<u>Primary Key</u> , <u>Foreign Key</u>
Table Points			
<u>No</u>	Columns	Datatype	Constraints
1	Player ID	Int(5)	<u>Primary Key</u> , <u>Foreign Key</u>
2	Date	Varchar(10)	<u>Primary Key</u> , <u>Foreign Key</u>
3	Points	Int(1)	NOT NULL

1) Import rowdata.csv:

To import rowdata.csv into the database:

- go to “Import” option.
- browse for the csv file.
- Select format “CSV” from dropdown list
- Check the option: “The first line of the file contains the table column names”

Importing into the current server

File to import:

File may be compressed (gzip, bzip2, zip) or uncompressed.
A compressed file's name must end in `.[format].[compression]`. Example: `.sql.zip`

Browse your computer: (Max: 40MiB)

You may also drag and drop a file on any page.

Character set of the file:

Figure 1-Import rowdata.csv

Format:

Note: If the file contains multiple tables, they will be combined into one.

Format-specific options:

☐ Update data when duplicate keys found on import (add ON DUPLICATE KEY UPDATE)

Columns separated with:

Columns enclosed with:

Columns escaped with:

Lines terminated with:

Name of the new table (optional):

Name of the new database (optional):

Import these many number of rows (optional):

☒ The first line of the file contains the table column names (if this is unchecked, the first line will become part of the data)

Figure 2- Select format “CSV”

When click on “Go” button, here the screen result showing that import was successful. To check if data is loaded, here the screen showing data:

```
SELECT * FROM `rawdata`
```

Showing rows 0 - 24 (4283 total, Query took 0.0020 seconds.)

`SELECT * FROM `rawdata``

☐ Profiling

1 > >> | Number of rows: 25 | Filter rows: Search this table

+ Options

ID	Forename	Surname	Team	Status	skill	Name	Town	Venue	Date	Points
19650	Joanna	Cambridge	Rams	Professional	Catching	Rams	Dunblane	Cornton	2012-12-25	5
19650	Joanna	Cambridge	Rams	Professional	Scoring	Rams	Dunblane	Cornton	2012-12-25	5
19650	Joanna	Cambridge	Rams	Professional	Throwing	Rams	Dunblane	Cornton	2012-12-25	5
17405	Ronald	Coleing	Rams	Professional	Catching	Rams	Dunblane	Cornton	2012-12-25	3
17405	Ronald	Coleing	Rams	Professional	Defending	Rams	Dunblane	Cornton	2012-12-25	3
17405	Ronald	Coleing	Rams	Professional	Jumping	Rams	Dunblane	Cornton	2012-12-25	3
17921	Andy	Sutton	Rams	Amateur	Defending	Rams	Dunblane	Cornton	2012-12-25	7
17921	Andy	Sutton	Rams	Amateur	Jumping	Rams	Dunblane	Cornton	2012-12-25	7
12470	Shirley	Burdett	Rams	Professional	Catching	Rams	Dunblane	Cornton	2012-12-25	3
12470	Shirley	Burdett	Rams	Professional	Running	Rams	Dunblane	Cornton	2012-12-25	3
12470	Shirley	Burdett	Rams	Professional	Scoring	Rams	Dunblane	Cornton	2012-12-25	3
13441	Marcell	Avery	Rams	Amateur	Catching	Rams	Dunblane	Cornton	2012-12-25	3

Figure 3- import was successful

2) SQL Code to create 3NF Tables:

```
CREATE TABLE game (
Venue varchar(15) NOT NULL,
Date varchar(10) NOT NULL
);

CREATE TABLE player (
PlayerID int(5) NOT NULL,
Forename varchar(11) NOT NULL,
Surname varchar(12) NOT NULL,
```

```
Team varchar(8) NOT NULL,
Status varchar(12) NOT NULL
);

CREATE TABLE points (
PlayerID int(5) NOT NULL,
Date varchar(10) NOT NULL,
Points int(1) NOT NULL
);

CREATE TABLE skills (
PlayerID int(5) NOT NULL,
Skill varchar(9) NOT NULL
);

CREATE TABLE team (
TeamName varchar(8) NOT NULL,
Town varchar(15) NOT NULL
);

CREATE TABLE teamgames (
TeamName varchar(8) NOT NULL,
Date varchar(10) NOT NULL
);

ALTER TABLE game
ADD PRIMARY KEY (Date);

ALTER TABLE player
ADD PRIMARY KEY (PlayerID);

ALTER TABLE points
ADD PRIMARY KEY (PlayerID,Date);
```

```
ALTER TABLE skills  
ADD PRIMARY KEY (PlayerID,Skill);
```

```
ALTER TABLE team  
ADD PRIMARY KEY (TeamName);
```

```
ALTER TABLE teamgames  
ADD PRIMARY KEY (TeamName,Date);
```

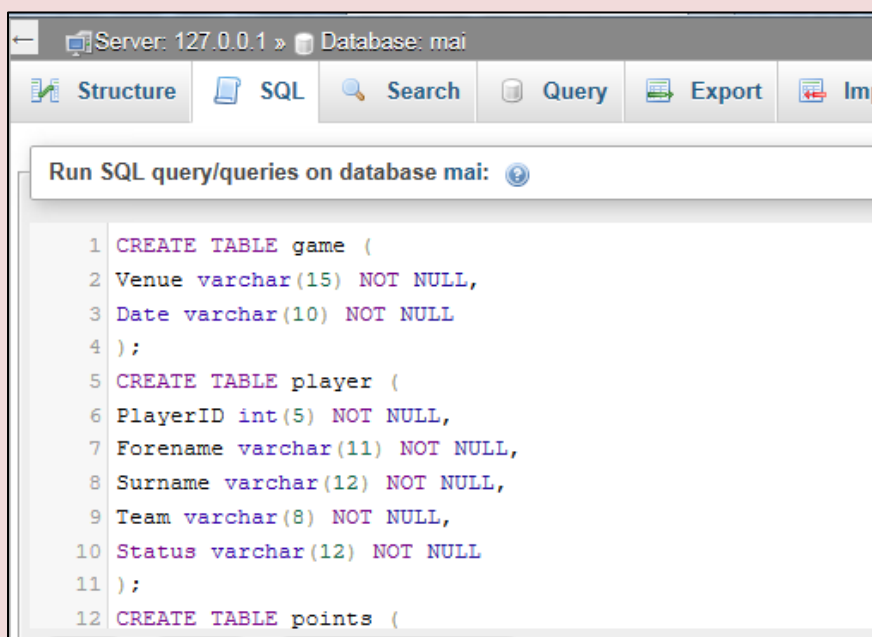


Figure 4-Inserting the codes into SQL.

This is the screen to show the created tables:

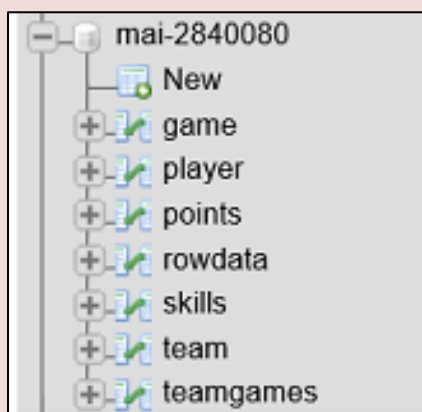


Figure 5-Tables inserted.

3) Loading data:

Load data to table “Team”:

INSERT INTO team (TeamName, Town) SELECT Distinct Name, Town FROM rawdata;

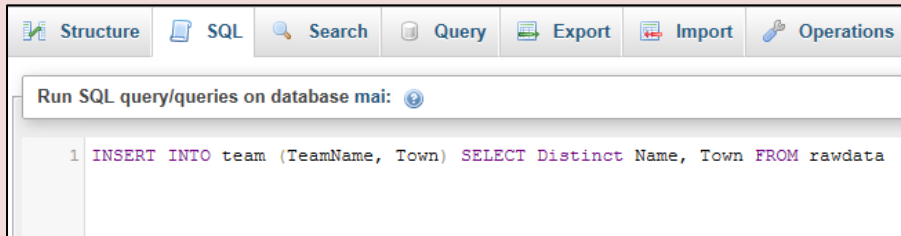


Figure 6-Load data for Team table.

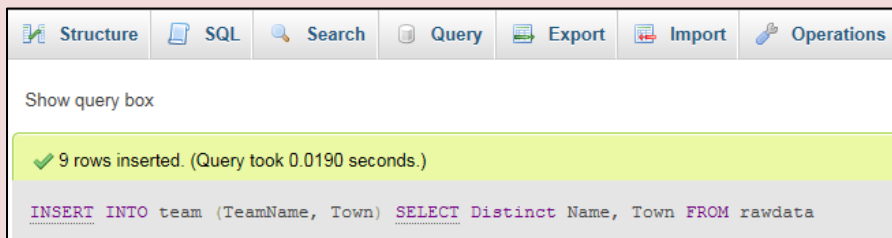
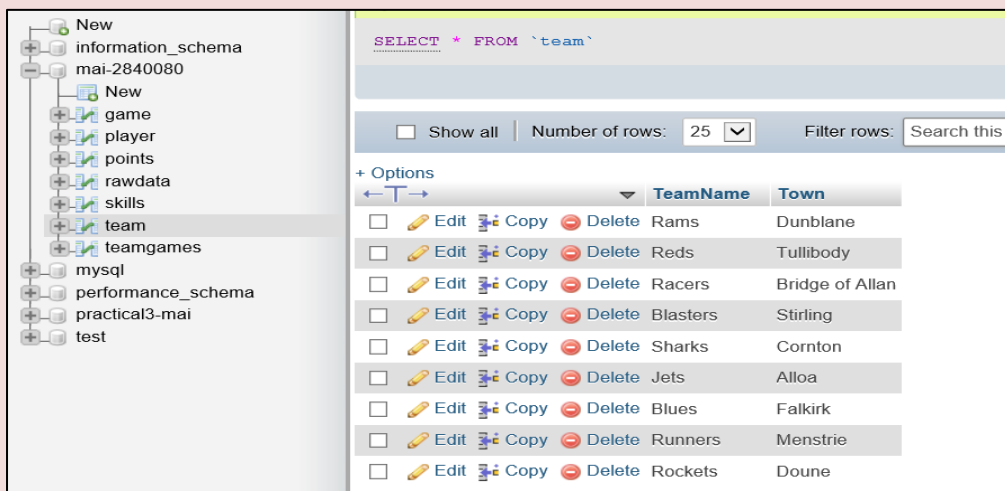
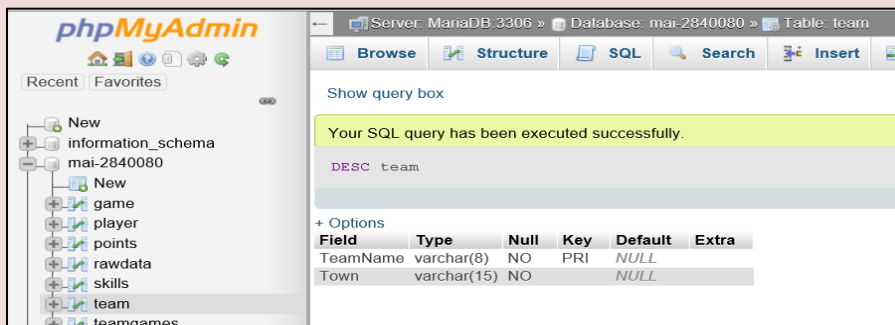


Figure 7-The data for Team table is inserted.



Load data to table “Player”:

INSERT INTO player SELECT Distinct ID, Forename, Surname, Team, STATUS FROM rawdata;

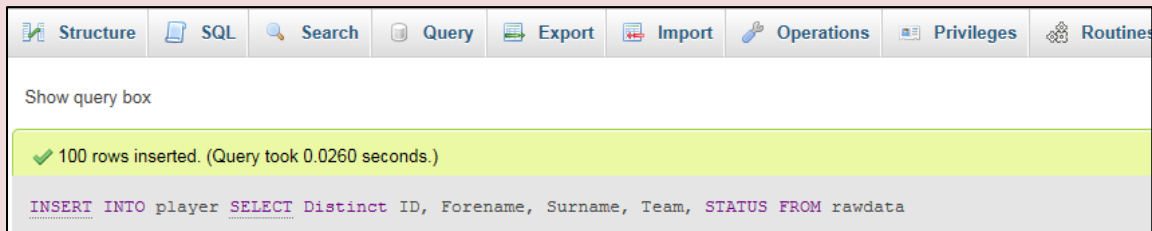
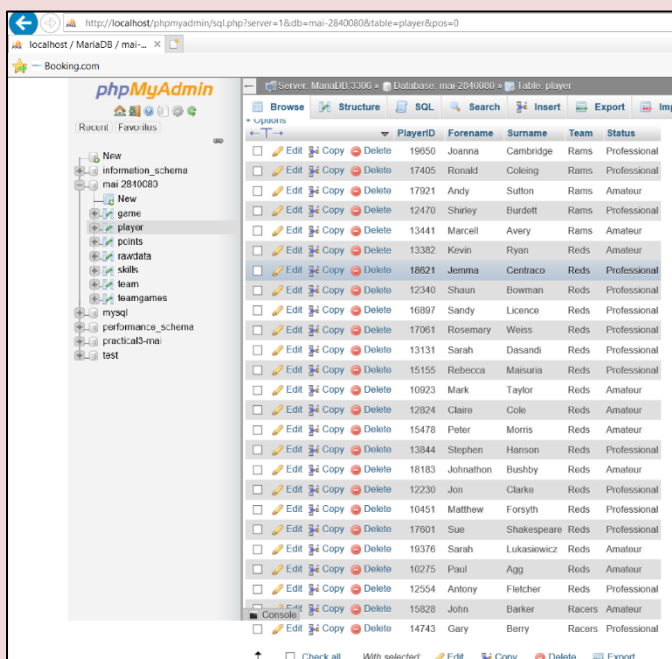
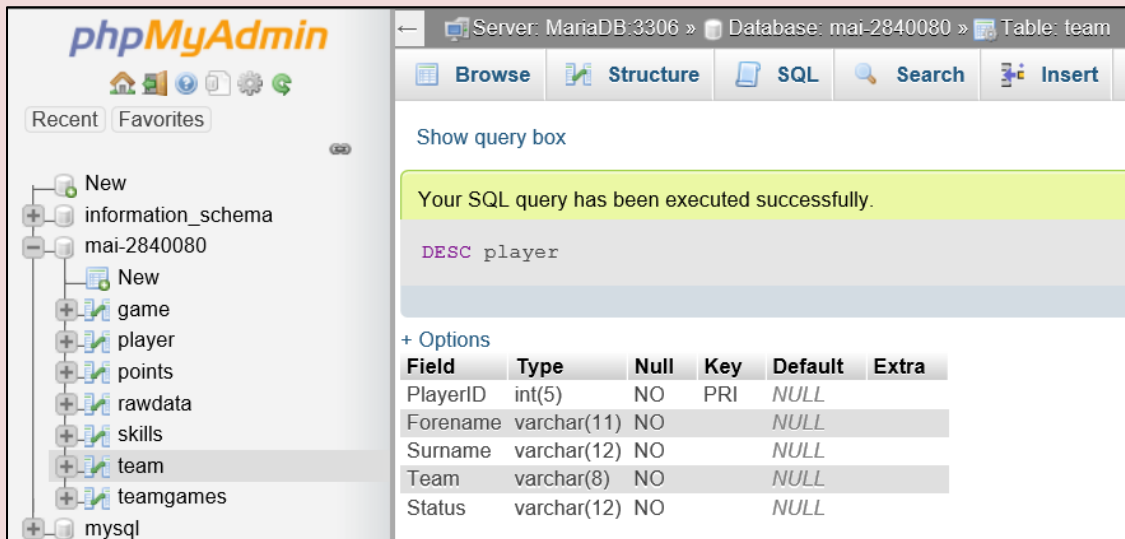


Figure 8- The data for Player table is inserted.



Load data to table “Skills”:

INSERT INTO skills SELECT Distinct ID, skill FROM rawdata;

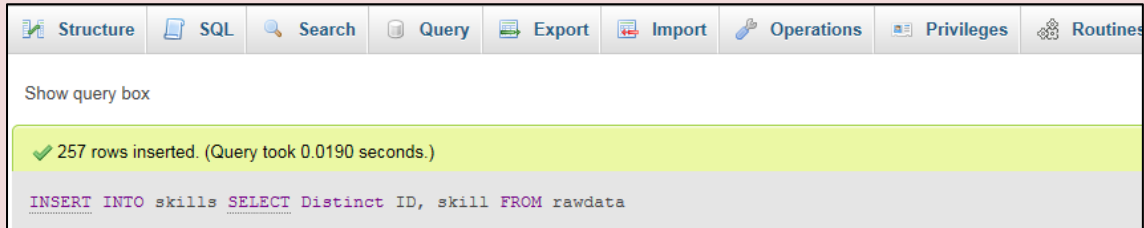
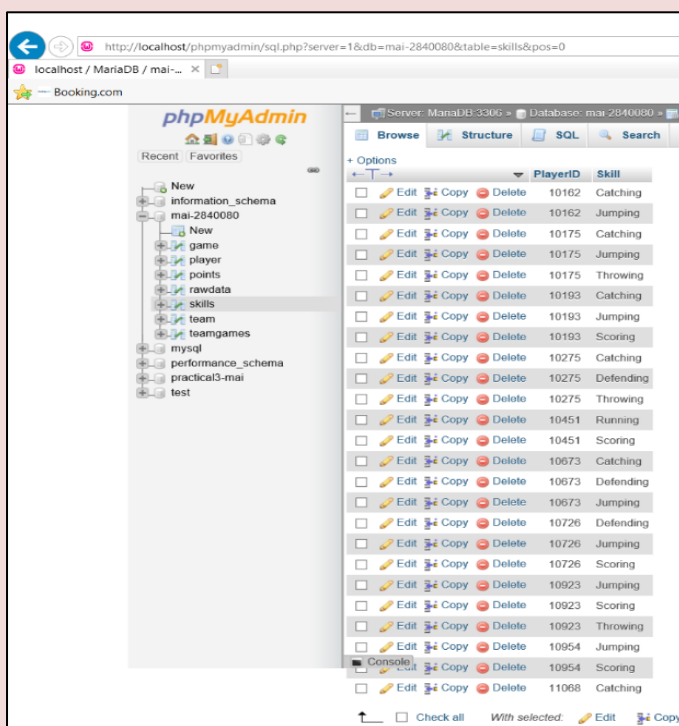
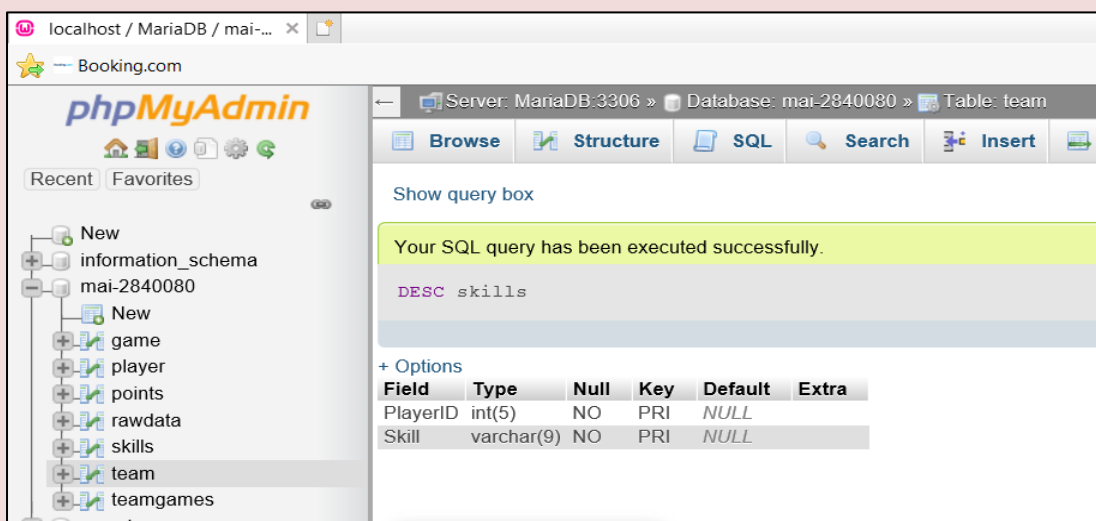


Figure 9- The data for Skills table is inserted.



Load data to table “Game”:

INSERT INTO game SELECT Distinct Venue, Date FROM rawdata;

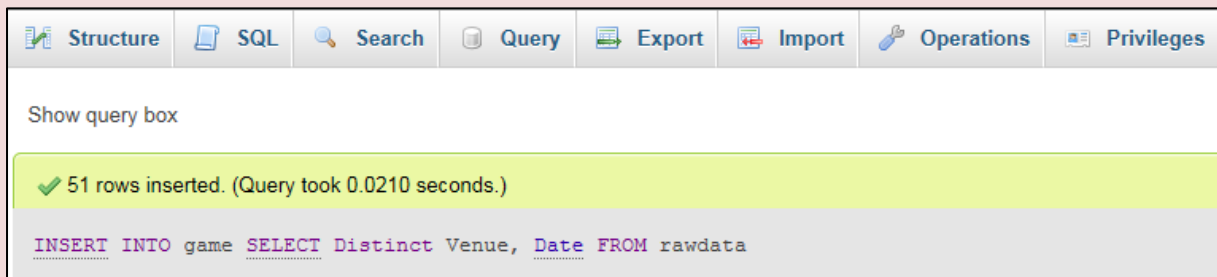
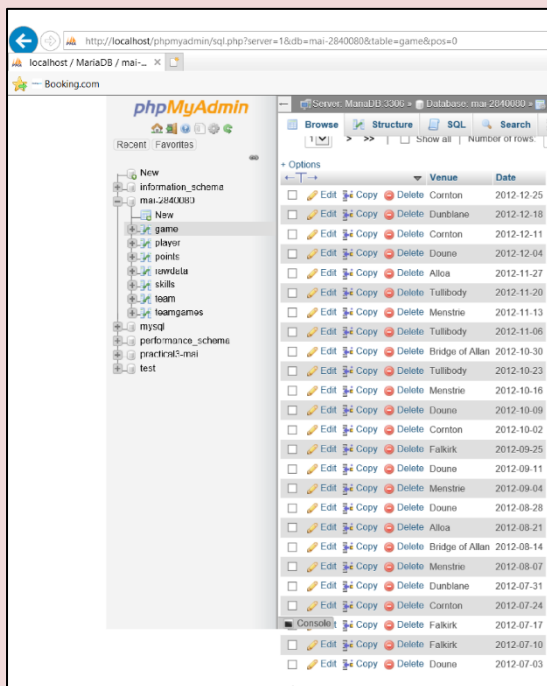
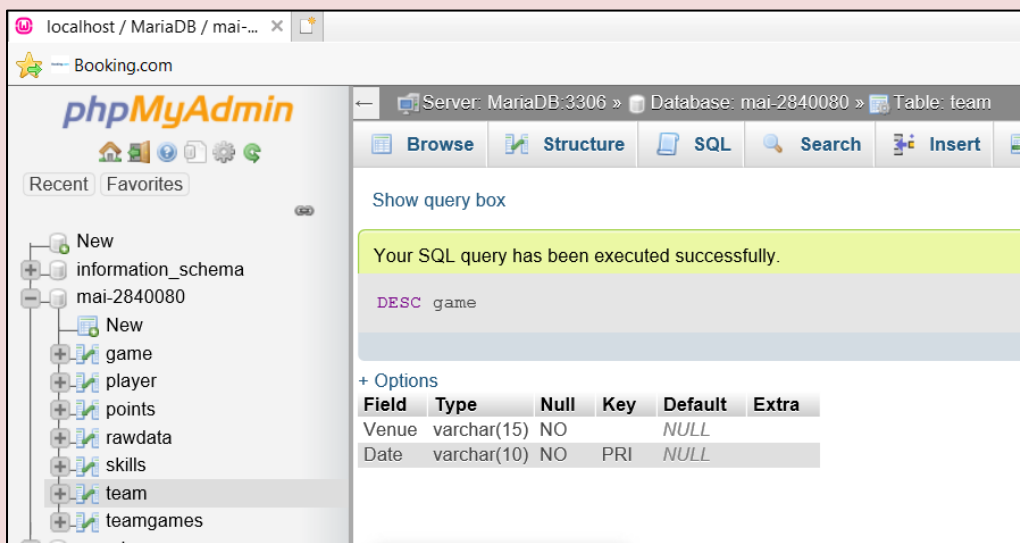


Figure 10-The data for Game table is inserted.



Load data to table “Points”:

INSERT INTO points SELECT Distinct ID, Date, Points FROM rawdata;

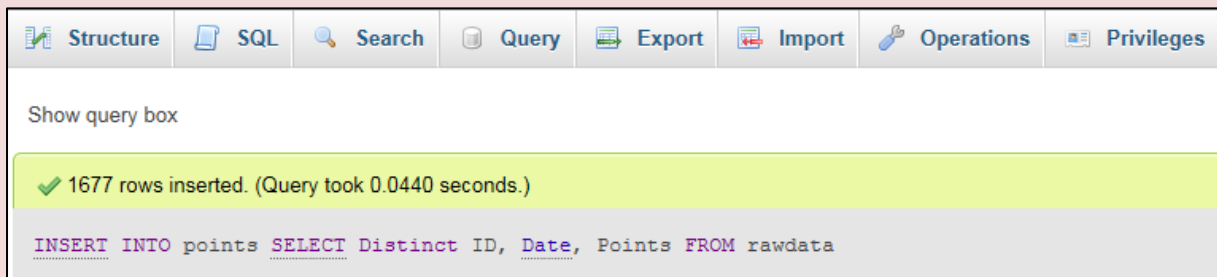
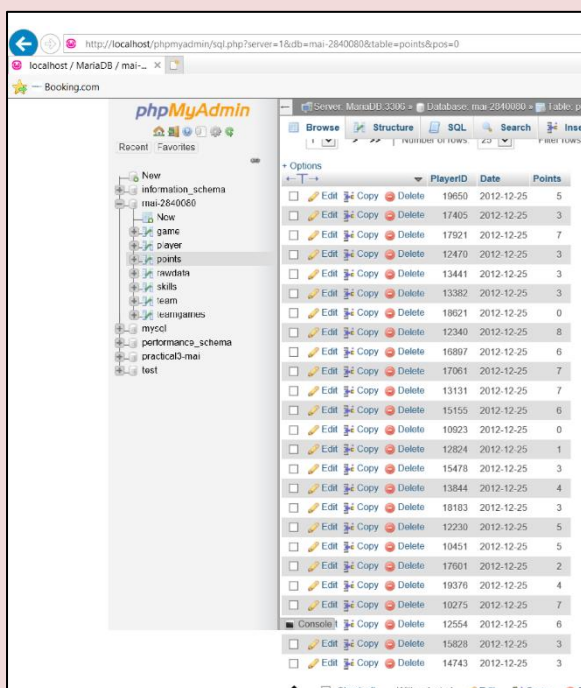
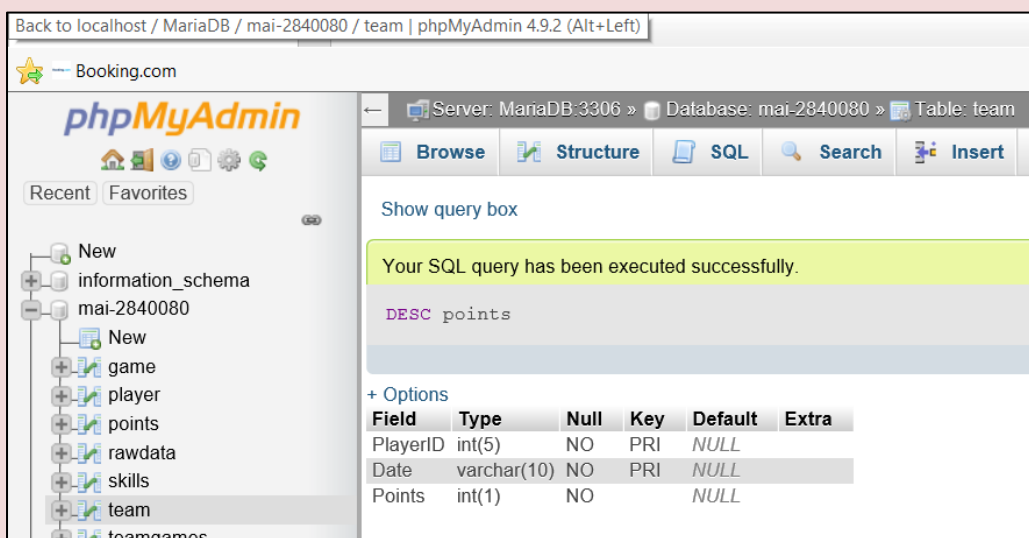


Figure 11-The data for Points table is inserted.



Load data to table “TeamGames”:

INSERT INTO teamgames SELECT Distinct Name, Date FROM rawdata;

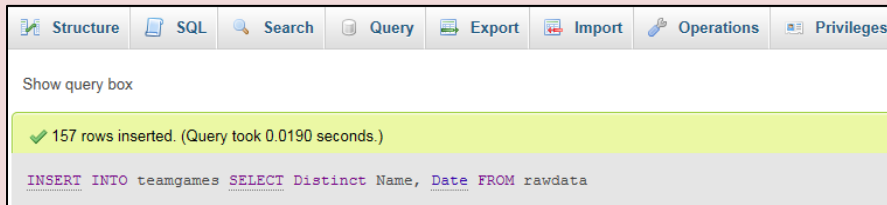
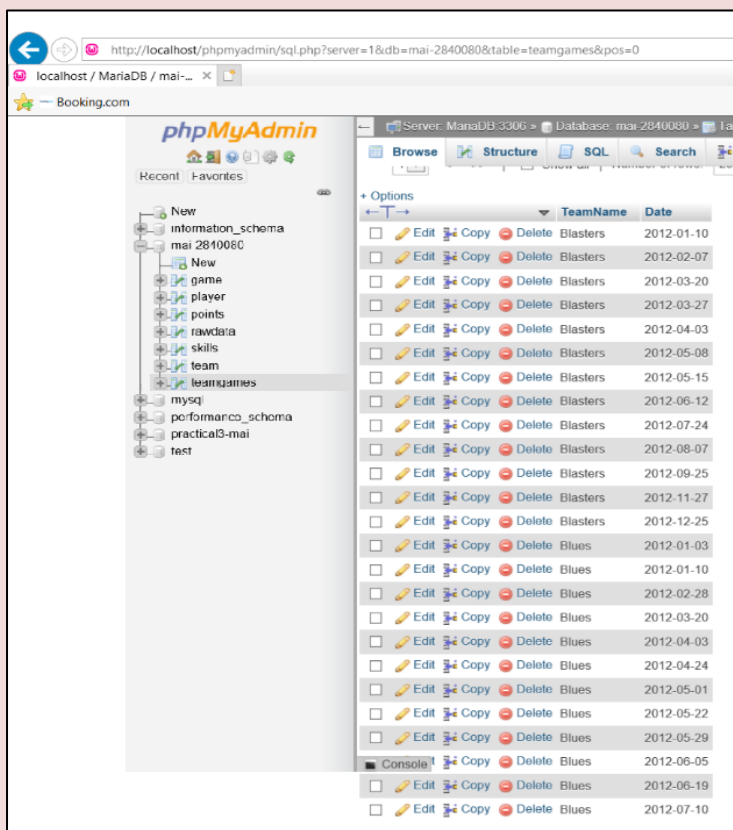
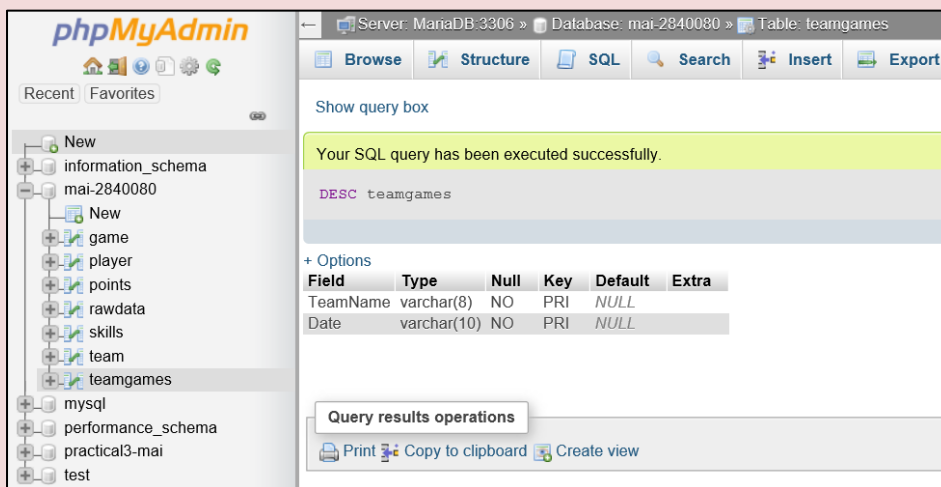


Figure 12-The data for TeamGame table is inserted.



• REFERENCES Function

- ```
CREATE TABLE teamgames;

(TeamName Varchar(8) REFERENCES Team,

Date VARCHAR (10) REFERENCES Game);

DESC teamgames;
```

The screenshot shows a database management interface. On the left, a tree view displays the database structure, including a schema named 'information\_schema' and a database named 'mai-2840080'. Under 'mai-2840080', there are several tables: 'game', 'player', 'points', 'rawdata', 'skills', 'team', and 'teamgames'. The 'teamgames' table is selected. On the right, a message box states 'Your SQL query has been executed successfully.' Below this, the command 'DESC teamgames' is shown. A table titled '+ Options' displays the table's structure:

| Field    | Type        | Null | Key | Default | Extra |
|----------|-------------|------|-----|---------|-------|
| TeamName | varchar(8)  | NO   | PRI | NULL    |       |
| Date     | varchar(10) | NO   | PRI | NULL    |       |

- ```
CREATE TABLE points;  
  
(playerID int(5) REFERENCES player,  
  
Date VARCHAR (9) REFERENCES Game);  
  
DESC Points;
```

The screenshot shows a database management interface. On the left, a tree view displays the database structure, including a schema named 'information_schema' and a database named 'mai-2840080'. Under 'mai-2840080', there are several tables: 'game', 'player', 'points', 'rawdata', 'skills', 'team', and 'teamgames'. The 'points' table is selected. On the right, a message box states 'Your SQL query has been executed successfully.' Below this, the command 'DESC points' is shown. A table titled '+ Options' displays the table's structure:

Field	Type	Null	Key	Default	Extra
PlayerID	int(5)	NO	PRI	NULL	
Date	varchar(10)	NO	PRI	NULL	
Points	int(1)	NO		NULL	

- ```
CREATE TABLE player;

(Forename VARCHAR(11),

Surname VARCHAR(12),

playerID int(5) REFERENCES skills,

Team VARCHAR (8) REFERENCES player,

Status VARCHAR(10)); DESC player;
```

The screenshot shows a database management interface. On the left, a tree view displays the database structure, including a schema named 'information\_schema' and a database named 'mai-2840080'. Under 'mai-2840080', there are several tables: 'game', 'player', 'points', 'rawdata', 'skills', 'team', and 'teamgames'. The 'player' table is selected. On the right, a message box states 'Your SQL query has been executed successfully.' Below this, the command 'DESC player' is shown. A table titled '+ Options' displays the table's structure:

| Field    | Type        | Null | Key | Default | Extra |
|----------|-------------|------|-----|---------|-------|
| PlayerID | int(5)      | NO   | PRI | NULL    |       |
| Forename | varchar(11) | NO   |     | NULL    |       |
| Surname  | varchar(12) | NO   |     | NULL    |       |
| Team     | varchar(8)  | NO   |     | NULL    |       |
| Status   | varchar(12) | NO   |     | NULL    |       |

## Task 2: Querying database

- 1) List the name of the team that is based in Stirling:

```
SELECT teamname FROM team WHERE Town='Stirling';
```

✓ Showing rows 0 - 0 (1 total, Query took 0.0030 seconds.)

```
SELECT teamname FROM team WHERE Town='Stirling'
```

☐ Show all | Number of rows: 25 | Filter rows: Search this table

+ Options

← T → teamname

☐ Edit Copy Delete Blasters

Figure 13-Team name selected successfully.

- 2) List the total number of games played by each team, with the largest number first:

```
SELECT count(TeamName), TeamName from teamgames GROUP BY TeamName order by count(TeamName) desc;
```

✓ Showing rows 0 - 8 (9 total, Query took 0.0080 seconds.)

```
SELECT count(TeamName), TeamName from teamgames GROUP BY TeamName order by count(TeamName) desc;
```

☐ Show all | Number of rows: 25 | Filter rows: Search this table

+ Options

|                                           | count(TeamName) | TeamName |
|-------------------------------------------|-----------------|----------|
| <input type="checkbox"/> Edit Copy Delete | 22              | Runners  |
| <input type="checkbox"/> Edit Copy Delete | 20              | Rams     |
| <input type="checkbox"/> Edit Copy Delete | 19              | Sharks   |
| <input type="checkbox"/> Edit Copy Delete | 19              | Rockets  |
| <input type="checkbox"/> Edit Copy Delete | 18              | Racers   |
| <input type="checkbox"/> Edit Copy Delete | 18              | Blues    |
| <input type="checkbox"/> Edit Copy Delete | 14              | Reds     |
| <input type="checkbox"/> Edit Copy Delete | 14              | Jets     |
| <input type="checkbox"/> Edit Copy Delete | 13              | Blasters |

Figure 14-The total number and the largest number of matches were determined successfully.

- 3) List the total number of games played and the total points scored by each player (list player name plus total number of games and points scored, but just give the first 10 results in your report):

```
SELECT player.Forename, COUNT(player.Forename) as Total_Games, SUM(points.Points) as Total_Score from player,points GROUP BY player.Forename LIMIT 10;
```

✓ Showing rows 0 - 9 (10 total, Query took 0.2370 seconds.)

```
SELECT player.Forename, COUNT(player.Forename) as Total_Games, SUM(points.Points) as Total_Score from player,points GROUP BY player.Forename LIMIT 10;
```

+ Options

| Forename | Total_Games | Total_Score |
|----------|-------------|-------------|
| Alan     | 1677        | 6636        |
| Alex     | 1677        | 6636        |
| Andrew   | 3354        | 13272       |
| Andy     | 1677        | 6636        |
| Anthony  | 3354        | 13272       |
| Antony   | 1677        | 6636        |
| Asaf     | 1677        | 6636        |
| Barry    | 3354        | 13272       |
| Bob      | 1677        | 6636        |
| Brendon  | 1677        | 6636        |

Figure 15-The data results were shown successfully.

- 4) List the dates of all the games where the Reds and the Rams both played:

```
SELECT teamgames.Date from teamgames where TeamName='Reds' and teamgames.Date in (SELECT teamgames.Date from teamgames where TeamName='Rams');
```

✓ Showing rows 0 - 6 (7 total, Query took 0.0050 seconds.)

```
SELECT teamgames.Date from teamgames where TeamName='Reds' and teamgames.Date in (SELECT teamgames.Date from teamgames where TeamName='Rams');
```

☐ Show all | Number of rows: 25 | Filter rows: Search this table

+ Options

|                                           | Date       |
|-------------------------------------------|------------|
| <input type="checkbox"/> Edit Copy Delete | 2012-02-07 |
| <input type="checkbox"/> Edit Copy Delete | 2012-02-28 |
| <input type="checkbox"/> Edit Copy Delete | 2012-05-01 |
| <input type="checkbox"/> Edit Copy Delete | 2012-05-08 |
| <input type="checkbox"/> Edit Copy Delete | 2012-06-05 |
| <input type="checkbox"/> Edit Copy Delete | 2012-12-18 |
| <input type="checkbox"/> Edit Copy Delete | 2012-12-25 |

Figure 16-Show dates of all matches.



- 5) Produce the end of year team league table showing Team name, Number of games played, Number of points gained, Average points per game for each team:

```
SELECT distinct team.TeamName, COUNT(teamgames.Date) AS PlayedGames,
SUM(points.Points) AS PointsGained, AVG(points.Points) AS
AvgPointsPerGame FROM player INNER JOIN points ON player.PlayerID =
points.PlayerID INNER JOIN team ON player.Team = team.TeamName INNER
JOIN teamgames ON team.TeamName = teamgames.TeamName GROUP BY
team.TeamName, teamgames.Date;
```

✓ Showing rows 0 - 8 (9 total, Query took 0.1090 seconds.)

```
SELECT distinct team.TeamName, COUNT(teamgames.Date) AS PlayedGames,
AvgPointsPerGame FROM player INNER JOIN points ON player.PlayerID = p
INNER JOIN teamgames ON team.TeamName = teamgames.TeamName GROUP BY t
```

☐ Show all

Number of rows: 25

Filter rows:

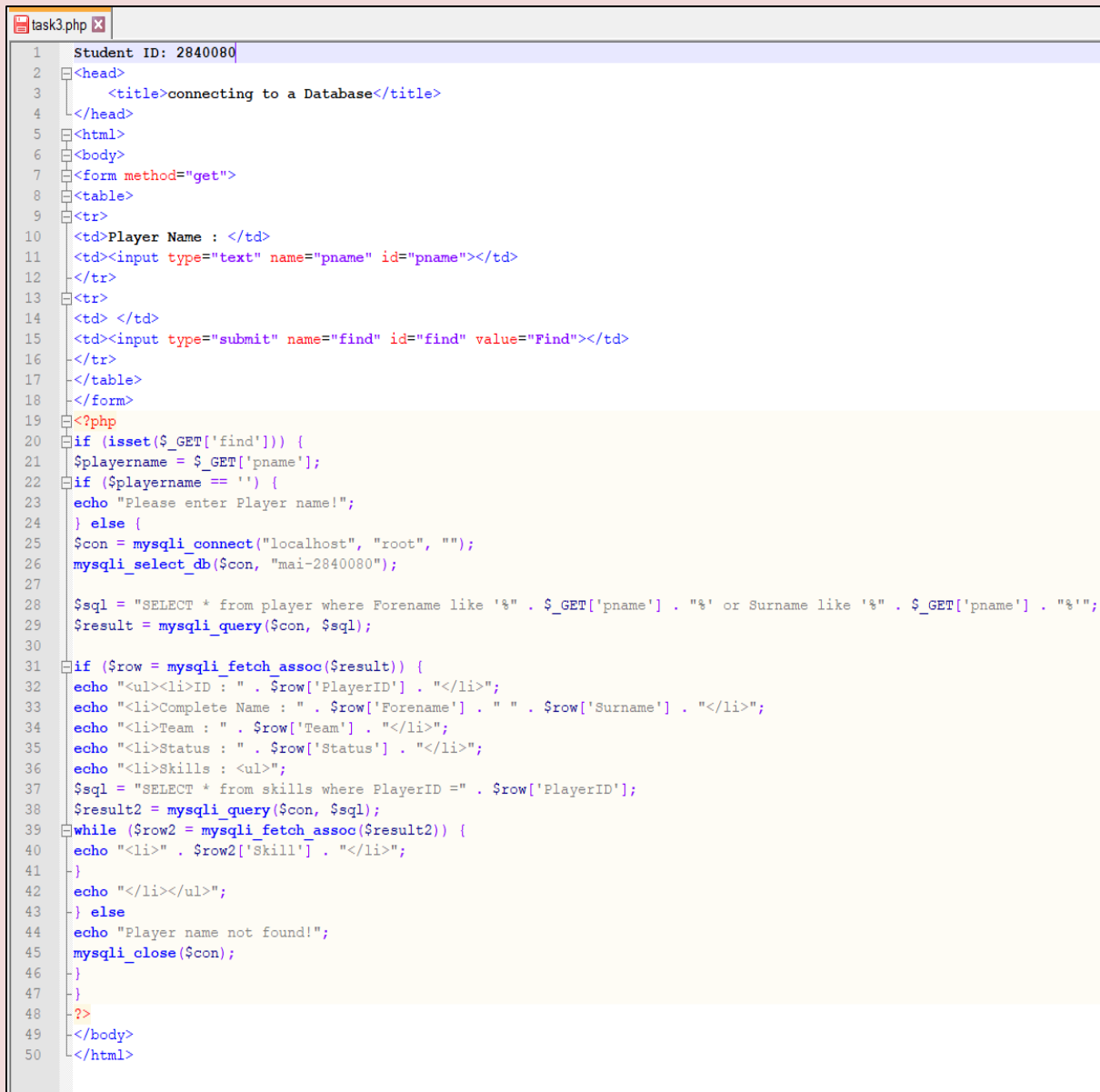
+ Options

| TeamName | PlayedGames | PointsGained | AvgPointsPerGame |
|----------|-------------|--------------|------------------|
| Blasters | 182         | 697          | 3.8297           |
| Blues    | 198         | 803          | 4.0556           |
| Jets     | 154         | 598          | 3.8831           |
| Racers   | 216         | 862          | 3.9907           |
| Rams     | 100         | 369          | 3.6900           |
| Reds     | 252         | 1051         | 4.1706           |
| Rockets  | 95          | 375          | 3.9474           |
| Runners  | 176         | 690          | 3.9205           |
| Sharks   | 304         | 1191         | 3.9178           |

Figure 17-Result of entering the table data.

## Task 3: PHP interface

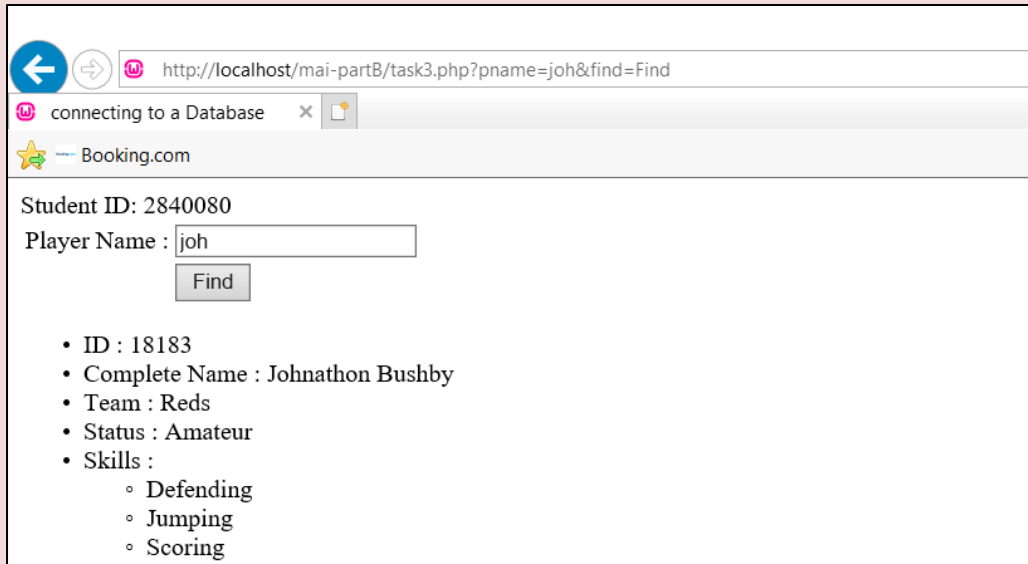
This screen shows the program I used to design the PHP page interface, (I used **NotePad++**).



```
task3.php
1 Student ID: 2840080
2 <head>
3 <title>connecting to a Database</title>
4 </head>
5 <html>
6 <body>
7 <form method="get">
8 <table>
9 <tr>
10 <td>Player Name : </td>
11 <td><input type="text" name="pname" id="pname"></td>
12 </tr>
13 <tr>
14 <td></td>
15 <td><input type="submit" name="find" id="find" value="Find"></td>
16 </tr>
17 </table>
18 </form>
19 <?php
20 if (isset($_GET['find'])) {
21 $playername = $_GET['pname'];
22 if ($playername == '') {
23 echo "Please enter Player name!";
24 } else {
25 $con = mysqli_connect("localhost", "root", "");
26 mysqli_select_db($con, "mai-2840080");
27
28 $sql = "SELECT * from player where Forename like '%" . $_GET['pname'] . "%' or Surname like '%" . $_GET['pname'] . "%'";
29 $result = mysqli_query($con, $sql);
30
31 if ($row = mysqli_fetch_assoc($result)) {
32 echo "ID : " . $row['PlayerID'] . "";
33 echo "Complete Name : " . $row['Forename'] . " " . $row['Surname'] . "";
34 echo "Team : " . $row['Team'] . "";
35 echo "Status : " . $row['Status'] . "";
36 echo "Skills : ";
37 $sql = "SELECT * from skills where PlayerID =" . $row['PlayerID'];
38 $result2 = mysqli_query($con, $sql);
39 while ($row2 = mysqli_fetch_assoc($result2)) {
40 echo "" . $row2['Skill'] . "";
41 }
42 echo "";
43 } else
44 echo "Player name not found!";
45 mysqli_close($con);
46 }
47 }
48 ?>
49 </body>
50 </html>
```

Figure 18-PHP Source Code

This interface shows the Search for any player whose names (forename or surname) contain the text entered:



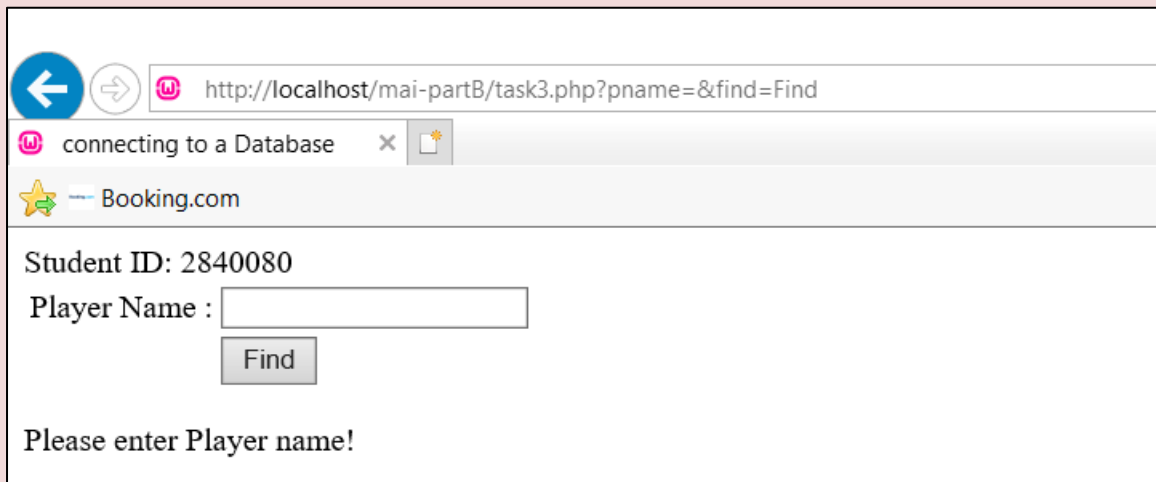
The screenshot shows a web browser window with the address bar displaying `http://localhost/mai-partB/task3.php?pname=joh&find=Find`. The browser has two tabs: "connecting to a Database" and "Booking.com". The main content area displays the following information:

Student ID: 2840080  
Player Name : joh

- ID : 18183
- Complete Name : Johnathon Bushby
- Team : Reds
- Status : Amateur
- Skills :
  - Defending
  - Jumping
  - Scoring

Figure 19-result of entering the first 3 letters.

If textbox is left blank, there are a message to indicate to enter player name:



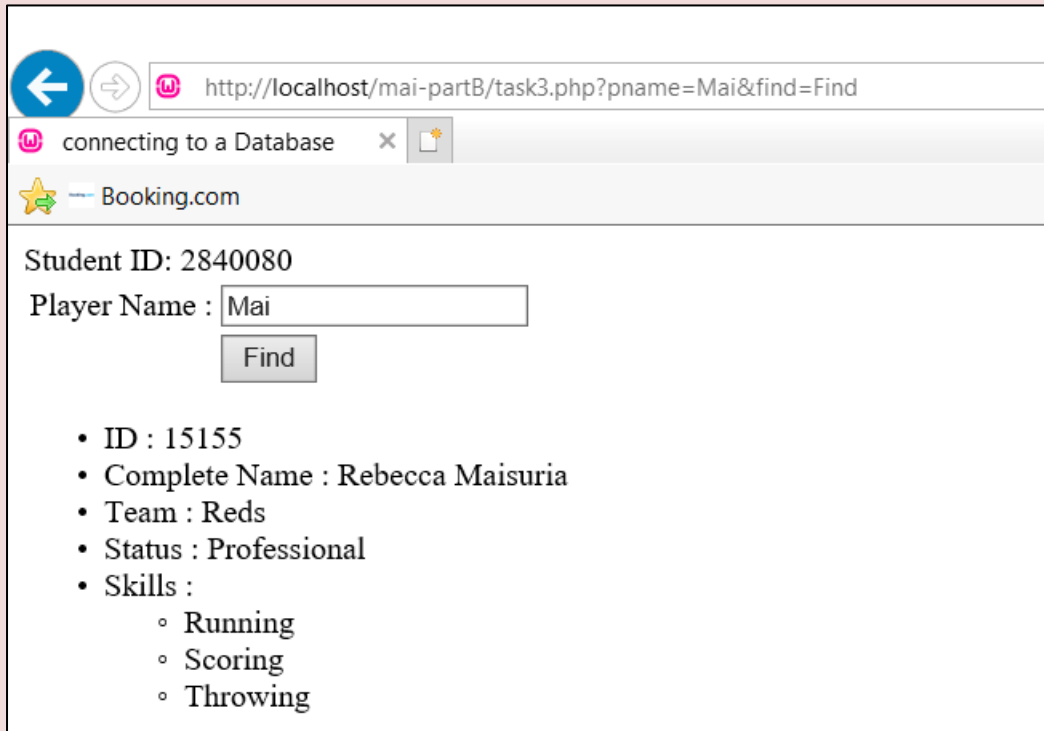
The screenshot shows a web browser window with the address bar displaying `http://localhost/mai-partB/task3.php?pname=&find=Find`. The browser has two tabs: "connecting to a Database" and "Booking.com". The main content area displays the following information:

Student ID: 2840080  
Player Name :

Please enter Player name!

Figure 20-result of not entering a player name.

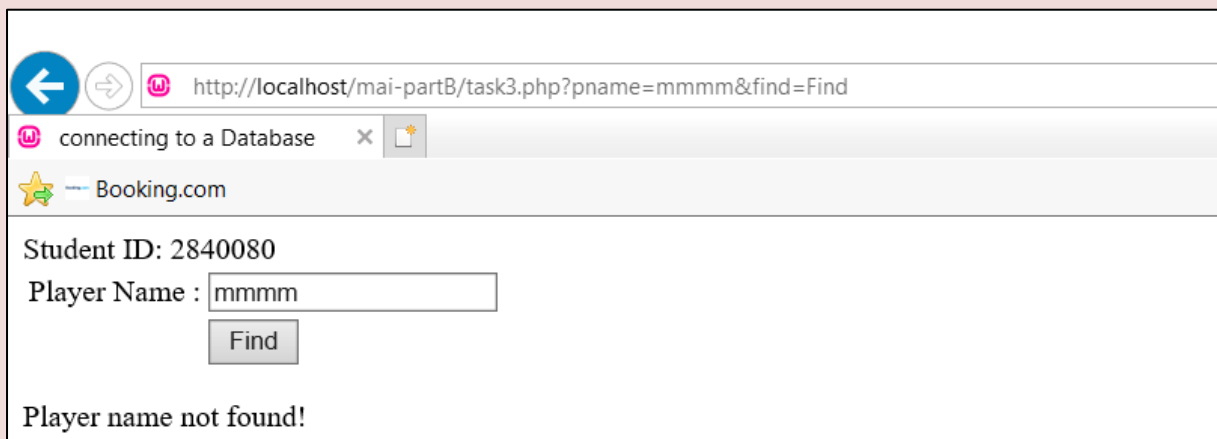
This interface shows when I enter “Mai” it searches for any name that contains these letters.



A screenshot of a web browser window. The address bar shows the URL `http://localhost/mai-partB/task3.php?pname=Mai&find=Find`. There are two tabs: 'connecting to a Database' and 'Booking.com'. The page content displays 'Student ID: 2840080' and a form with 'Player Name : Mai' and a 'Find' button. Below the form, a list of player details is shown:

- ID : 15155
- Complete Name : Rebecca Maisuria
- Team : Reds
- Status : Professional
- Skills :
  - Running
  - Scoring
  - Throwing

This interface shows that database do not find a player whose name contains the text “mmmm”:



A screenshot of a web browser window. The address bar shows the URL `http://localhost/mai-partB/task3.php?pname=mmmm&find=Find`. There are two tabs: 'connecting to a Database' and 'Booking.com'. The page content displays 'Student ID: 2840080' and a form with 'Player Name : mmmm' and a 'Find' button. Below the form, the text 'Player name not found!' is displayed.

Figure 21-result of entering a wrong name.

## **PHP Code:**

```
<head>

 <title>connecting to a Database</title>

</head>

<html>

<body>

<form method="get">

<table>

<tr>

<td>Player Name : </td>

<td><input type="text" name="pname" id="pname"></td>

</tr>

<tr>

<td> </td>

<td><input type="submit" name="find" id="find"
value="Find"></td>

</tr>

</table>

</form>

<?php

if (isset($_GET['find'])) {

$playername = $_GET['pname'];

if ($playername == '') {

echo "Please enter Player name!";

} else {

$con = mysqli_connect("localhost", "root", "");

mysqli_select_db($con, "mai-2840080");
```

```

$sql = "SELECT * from player where Forename like '%" .
$_GET['pname'] . "%' or Surname like '%" . $_GET['pname'] .
"%'";

$result = mysqli_query($con, $sql);

if ($row = mysqli_fetch_assoc($result)) {
echo "ID : " . $row['PlayerID'] . "";

echo "Complete Name : " . $row['Forename'] . " " .
$row['Surname'] . "";

echo "Team : " . $row['Team'] . "";

echo "Status : " . $row['Status'] . "";

echo "Skills : ";

$sql = "SELECT * from skills where PlayerID =" .
$row['PlayerID'];

$result2 = mysqli_query($con, $sql);

while ($row2 = mysqli_fetch_assoc($result2)) {
echo "" . $row2['Skill'] . "";

}

echo "";

} else

echo "Player name not found!";

mysqli_close($con);

}

}

?>

</body>

</html>

```

```

24 } else {
25 $con = mysqli_connect("localhost", "root", "");
26 mysqli_select_db($con, "mai-2840080");
27 }

```

Figure 22

```

10 <td>Player Name : </td>
11 <td><input type="text" name="pname" id="pname"></td>
12 </tr>
13 <tr>
14 <td> </td>
15 <td><input type="submit" name="find" id="find" value="Find"></td>
16 </tr>
17 </table>
18 </form>
19 <?php
20 if (isset($_GET['find'])) {
21 $playername = $_GET['pname'];
22 if ($playername == '') {
23 echo "Please enter Player name!";

```

Figure 23

```

31 if ($row = mysqli_fetch_assoc($result)) {
32 echo "ID : " . $row['PlayerID'] . "";
33 echo "Complete Name : " . $row['Forename'] . " " . $row['Surname'] . "";
34 echo "Team : " . $row['Team'] . "";
35 echo "Status : " . $row['Status'] . "";
36 echo "Skills : ";

```

Figure 24

```

37 $sql = "SELECT * from skills where PlayerID =" . $row['PlayerID'];
38 $result2 = mysqli_query($con, $sql);
39 while ($row2 = mysqli_fetch_assoc($result2)) {
40 echo "" . $row2['Skill'] . "";
41 }
42 echo "";
43 } else
44 echo "Player name not found!";
45 mysqli_close($con);
46 }
47 }
48 ?>
49 </body>
50 </html>

```

Figure 25

## **Explanation about php**

I created queries to searching the players whose names if for first name or last name, and showing in the php interface, where the player properties are displayed by simply typing the name, last name or one of the letters for the players name, which will display the following properties : `PlayerID`, `Forename`, `Surname`, `Team`, `Status`, `Skills`.

The reason for creating this is for one of the queries to search in the SQL table and take all the required data and at the same time the other query searches for another table in Mai-2840080 and collects all the skills of each player in one row and then display them with each player.

**End.**