

SECTION B**QUESTION 2: SQL AND DATABASE**

The LAN FANatics group has developed a database called **LanFans.mdb**, which contains information about players and the games they have played.

The **LanFans.mdb** database contains two tables called **tblPlayers** and **tblGames**.

The records contained in the **tblPlayers** table consist of the following fields:

- PlayerID – a unique five-character identification code (text data type) which is the primary key (PK)
- Name – name of player (text data type)
- Email – e-mail address of player (text data type)
- DateOfBirth – date of birth of player (date/time data type)

Example data from the **tblPlayers** table:

| PlayerID | Name | Email | DateOfBirth |
|----------|-------------------|----------------------|-------------|
| JS009 | Joe Smuts | joe@mpw.com | 2002-11-16 |
| LK001 | Louis Koekemoer | louisk@yahoo.com | 1998-06-11 |
| SN002 | Sifiso Ntshangase | ntshangase@gmail.com | 1995-03-18 |
| UH004 | Ulrich Hinze | ulrich@yahoo.com | 2001-07-31 |

The records contained in the **tblGames** table consist of the following fields:

- GameIndx – unique index code for each game (number data type) starting from the value of 1(PK)
- GameDate – date on which game was played (date/time data type)
- PlayerID – code of player who played the game (text data type)
- Duration – number of minutes the game lasted (integer data type)
- Score – score obtained by the player who played the game (integer data type)

Example data from the **tblGames** table:

| GameIndx | GameDate | PlayerID | Duration | Score |
|----------|------------|----------|----------|-------|
| 1 | 2016/01/11 | SM004 | 455 | 2200 |
| 2 | 2016/01/12 | SM004 | 241 | 1952 |
| 3 | 2016/01/12 | SV007 | 381 | 1280 |
| 4 | 2016/01/12 | LK001 | 372 | 5237 |
| 5 | 2016/01/12 | HN023 | 389 | 4142 |

The **PlayerID** field has been used to link the two tables.

NOTE:

- The date format might be displayed differently on your computer due to the regional settings on your computer.
- Connection code has been provided.
- The database is password-protected. Therefore you will not be able to access the database directly.

Do the following:

- Compile and execute the program in the **Question2** folder. The program limited functionality.
- Complete the code for each question as described in QUESTION 2.1 and QUESTION 2.2.

The program provides a GUI with two tab sheets: **Qst2.1 SQL** and **Qst2.2 DB**.

2.1 SQL

Select tab sheet **Qst2.1 SQL**, which displays the following GUI:

LAN FANatics - SQL

Query Result

| | |
|--|--|
| | |
| | |
| | |

2.1.1 Show All Players 2.1.4 Highest Score

2.1.2 Players Born in September 2.1.5 Add Game

2.1.3 Average Game Times Restore Database

NOTE: When the **Restore Database** button is clicked, the data in the database tables will be restored to the original data.

Complete the SQL code to meet the requirements specified in QUESTION 2.1.1 to QUESTION 2.1.5.

2.1.1 Button [Show All Players]

All the fields must be displayed for all the players in the **tblPlayers** table. The records must be displayed in ascending order according to the **Name** field.

Example of output of the first four records:

| PlayerID | Name | Email | DateOfBirth |
|----------|--------------------|---------------------|-------------|
| AS019 | Andrew Singh | singh@easymail.com | 1991-09-14 |
| FM013 | Franky Mwelase | fmwelase@mpw.com | 2003-09-21 |
| GO002 | Gerhard Oosthuizen | gerhard@webmail.com | 2001-02-26 |
| HN023 | Helen Ncube | hncube@gmail.com | 1990-09-21 |

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2.1.2 Button [Players Born in September]

Display the **Name** and **DateOfBirth** fields for all players born in September.

Example of output:

| Name | DateOfBirth |
|----------------|-------------|
| Helen Ncube | 1990-09-21 |
| Piet Venter | 2000-09-23 |
| John Smith | 1994-09-24 |
| Andrew Singh | 1991-09-14 |
| Franky Mwelase | 2003-09-21 |

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2.1.3 Button [Average Game Times]

Display the average duration of the games played each day in a new field called **AverageDuration**. The values must be rounded off to ONE decimal place.

Example of output:

| GameDate | AverageDuration |
|------------|-----------------|
| 2016-01-11 | 455 |
| 2016-01-12 | 294.8 |
| 2016-01-30 | 299.2 |
| 2016-03-10 | 209.5 |
| 2016-04-11 | 290.3 |

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2.1.4 Button [Highest Scores]

Display the **Name** of the player and the highest score that the player obtained in any game so far in a field called **HighestScore**.

Example of output:

| Name | HighestScore |
|--------------------|--------------|
| Andrew Singh | 5152 |
| Franky Mwelase | 5674 |
| Gerhard Oosthuizen | 5662 |
| Helen Ncube | 5549 |
| Henry Mason | 4327 |

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2.1.5 Button [Add Game]

Add a new game with the number 76 as **GameIdx** to the **tblGames** table. The game was played by a player with **PlayerID** 'HM008' on 24 December 2017. The player scored 6 655 points and the game lasted 250 minutes.

Example of output:



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2.2 DATABASE MANIPULATION

Select tab sheet **Qst2.2 DB**, which displays the content of both tables as well as the three buttons for the questions that need to be completed:

Lan FANatics - DB

Players Table

| PlayerID | Name | Email | DateOfBirth |
|----------|--------------------|---------------------|-------------|
| AS019 | Andrew Singh | singh@easymail.com | 1991/09/14 |
| FM013 | Franky Mwelase | fmwelase@mpw.com | 2003/09/21 |
| GO002 | Gerhard Oosthuizen | gerhard@webmail.com | 2001/02/26 |
| HM008 | Henry Mason | mason@yahoo.com | 1998/01/25 |

2.2.1 Domain Users Count

2.2.2 Change Score

2.2.3 Add Game

Games Table

| GameIndx | GameDate | PlayerID | Duration | Score |
|----------|------------|----------|----------|-------|
| 1 | 2016/01/11 | SM004 | 455 | 2200 |
| 2 | 2016/01/12 | SM004 | 241 | 1952 |
| 3 | 2016/01/12 | SV007 | 381 | 1280 |
| 4 | 2016/01/12 | LK001 | 372 | 5237 |
| 5 | 2016/01/12 | HN023 | 389 | 4142 |

Restore Database

Display

Display output here

NOTE: NO marks will be allocated for the use of SQL statements for QUESTION 2.2. The names of the tables to be used in your code must be **tblPlayers** and **tblGames**.

Complete the code to meet the requirements specified in QUESTION 2.2.1 to QUESTION 2.2.3.

2.2.1 Button [Domain Users Count]

- An input box must be used to enter an e-mail domain name, e.g. 'gmail.com'.
- Display the names and e-mail addresses of players who use an e-mail address which contains the domain that was entered.
- Display headings, as shown in the example below.
- Show the total number of addresses at the bottom of the list.

Example of output if the domain name 'gmail.com' has been entered:

| PLAYER | E-MAIL ADDRESS |
|------------------------|----------------------|
| Sifiso Ntshangase | ntshangase@gmail.com |
| Helen Ncube | hncube@gmail.com |
| Michelle Grobelaar | grobelaar@gmail.com |
| Ian Packard | packard@gmail.com |
| William Campbell | campbell@gmail.com |
| Jane Flint | jflint@gmail.com |
| TOTAL for gmail.com: 6 | |

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2.2.2 Button [Change Score]

An additional 250 points can be added to a player's score in some cases, after a dispute has been resolved in favour of the player. Write code to increase the score of the player of the current active record in the **tblGames** table display grid, with 250 points.

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2.2.3 Button [Add Game]

Write code to add a new game to the **tblGames** table according to the following requirements:

- The **GameIndx** assigned to the new game must be compiled automatically and follow on the number that was assigned to the previous game.

NOTE: Records in a database table are indexed starting at 1 up to the number of records in the table.

- The **GameDate** must be the date the game was added to the table using the 'today's date' function.
- The **PlayerID** must be obtained from the selected record in the **tblPlayers** table.
- Input boxes in the supplied code must be used to allow the user to enter values for the **Duration** field and **Score** field.

Example of a new record that has been added for Sue Prins who played a game for 111 minutes and obtained a score of 2 222:

| GameIndx | GameDate | PlayerID | Duration | Score |
|----------|------------|----------|----------|-------|
| 72 | 2016-11-18 | SP012 | 313 | 3684 |
| 73 | 2016-12-12 | FM013 | 279 | 5674 |
| 74 | 2016-12-12 | AS019 | 117 | 5128 |
| 75 | 2016-12-12 | GO002 | 201 | 4793 |
| 76 | 2016-12-12 | SP012 | 111 | 2222 |

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- Enter your examination number as a comment in the first line of the program file.
- Save your program.
- Print the code if required.

TOTAL SECTION B: 40