SCENARIO

Your community has planned different events to raise funds for the local community centre. One event planned is an annual dance competition.

QUESTION 1: PROGRAMMING AND DATABASE

The dance competition is held over a period of 12 weeks. It starts with 14 competing dance couples. Some of the competitors are professional dancers. Each week one of the dance couples is eliminated based on their performance at the weekly elimination round. During the final week of the competition two elimination rounds will take place to determine who the winning dance couple will be.

A Microsoft Office Access database named **Question1DB.mdb**, two text files (**tblDanceCouples.txt** and **tblResults.txt**) and an incomplete program are given in the folder named **Question1_XXXX**, where XXXX refers to the programming language you have studied.

The design of the tables in the **Question1DB** database and sample data from each table are given in **ANNEXURE A**.

Do the following:

- Make a backup copy of the **Question1DB** database BEFORE you start answering the questions. You will need a copy of the original database to be able to test your program thoroughly.
- Rename the folder for QUESTION 1 by replacing the name of the programming language you have studied with your examination number.
- Open the incomplete program for QUESTION 1.
- Enter your examination number as a comment in the first line of the program file.
- Compile and execute the program. The interface displays eight menu options: Option A to Option G and a 'Quit' option.

  NOTE:

  - An error message will be displayed if any of Option A to Option G are selected because of the incomplete SQL statements.
  - If you experience any problems using the database or connecting to the database, refer to **ANNEXURE B (Delphi)/ANNEXURE C (Java)** for troubleshooting hints.
  - If you still experience database problems, you must nevertheless do the SQL code and submit it for marking. **Marks will only be awarded for the programming code that contains the SQL statements.**

- Complete the code for each menu option by formulating an appropriate SQL statement to display the respective query results as described in QUESTIONS 1.1 to 1.7 below.

  NOTE: The code to some input statements and the code to execute the SQL statements and display the results of the queries have already been written as part of the given code.

1.1 **Menu Option A**

Display all the information in the **tblResults** table. Sort the data alphabetically according to the **TypeOfDance** field and then according to the **RoutineNo** field in descending order.

Example of the output of the first four records:

RoutineNo	Week	Round	DanceCoupleID	TypeOfDance	Song	Score	Result
116	12	2	8	American Smooth	Can't Help Falling in Love	39	Final
107	11	1	11	American Smooth	Time After Time	36	Safe
103	10	1	14	American Smooth	Singin' in the Rain	37	Safe
101	10	1	10	American Smooth	Pretty Woman	34	Safe

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(3)

1.2 **Menu Option B**

Determine the dance routines with scores between 25 and 35 (including both) that were performed during the fifth week and the ninth week of the competition. Display the **RoutineNo**, **Week, TypeOfDance** and the **Score** for these routines.

Example of the output of the first four records:

RoutineNo	Week	TypeOfDance	Score
55	5	Tango	32
57	5	Paso Doble	31
58	5	American Smooth	35
60	5	Tango	34

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(4)

1.3 **Menu Option C**

Allow the user to enter the name of a type of dance, for example Rumba.

Count and display the number of times this type of dance was performed during the competition. Name the calculated field **NumberOfPerformances**. Display the **TypeOfDance** and the **NumberOfPerformances**.

Example of the output if Rumba were entered by the user:

TypeOfDance	NumberOfPerformances
Rumba	7

(5)

1.4 **Menu Option D**

Determine the titles of the songs starting with the word 'Love' or containing the word 'you' or variations of the word 'you' that professional dance couples performed their dance routines to. Display the titles of the songs and the names of the dance couples who performed routines to these songs.

Example of the output:

Song	DancePartner1	DancePartner2
Love Man	Robbie	Ola
Love Ain't Here Anymore	Robbie	Ola
Let Me Entertain You	Robbie	Ola
You Sexy Thing	Robbie	Ola
You Can't Stop the Beat	Anita	Robin
I've Got You Under My Skin	Anita	Robin
Love Potion No. 9	Chelsee	Pasha
Spice Up Your Life	Chelsee	Pasha
Because of You	Chelsee	Pasha

(7)

1.5 **Menu Option E**

Calculate and display the average score for each dance couple in a calculated field named **AverageScore**.

The average score for each dance couple must be calculated using the total score and the number of dance routines they performed. Display the average score, correct to three decimal places. Display the **DanceCoupleID** and the **AverageScore** of all the dance couples.

Example of the output of the first four records:

DanceCoupleID	AverageScore
1	32.727
2	23.000
3	24.833
4	22.714
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(6)

1.6 **Menu Option F**

Display a list with the names of all the dance couples who were eliminated up to the final week (week 12) of the competition. The names of each dance couple must appear only once on the list.

Example of the output (on the next page):

DancePartner1	DancePartner2
Alex	James
Anita	Robin
Audley	Natalie
Dan	Katya
Edwina	Vincent
Holly	Artem
Lulu	Brendan
Nancy	Anton
Robbie	Ola
Rory	Erin
Russell	Flavia

(5)

1.7 **Menu Option G**

Dance Couple 8 are announced as the winners of the competition. Update the content of the **Result** field for Dance Couple 8 to contain the word 'WINNERS' for the second round of the final week of the competition.

Once the records have been updated successfully, a suitable message will be displayed. The code for this message is supplied. (5)

NOTE: If you want to test the menu options at this stage, use your backup copy of the **Question1DB** database.

- Enter your examination number as a comment in the first line of the file containing the SQL statements.
- Save your program.
- Make a printout of the code, if required.

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