Test 2 - Instructions

Submit: Save your program in the K-drive, in a folder with your student number only (e.g. 20911111 - **ONLY**). Add your name, surname, and student number as a comment line at the top of your program. Add comments as well.

Reminder: if you save your program anywhere else, your code will be lost.

Create a C++ project in Code::Blocks, and save it as:

Test2_student number *(include your student number)*

Problem

Given the following multiple-choice questions on the game of basketball and their correct answers:

1.	*How many players on a basketball team?*		
	A. 5	B. 6	C. 7
	Correct Answer: A		
2.	*How many points for a basket?*		
	A. 1	B. 2	C. 3
	Correct Answer: B		
3.	*How many points for a free throw?*		
	A. 1	B. 2	C. 3
	Correct Answer: A		
4.	*What's the size of an NBA basketball?*		
	A. 5	B. 6	C. 7
	Correct Answer: C		

Write a simple quiz program in C++ for a basketball trivia game. The program should ask a series of multiple-choice questions and evaluate the user's answers. The C++ program should accomplishes the following:

Instructions

- Define an array of strings to store the quiz questions.
- Define an array of characters to store the correct answers for each question.
- Prototype, define and use a function char getValidAnswer() that reads and validates a single character answer from the user (A, B, or C). It should prompt the user until a valid answer is provided.
- Prototype, define and use a function void askQuestionAndCheckAnswer(const string &question, char correctAnswer, int &correctCount) that takes a question, the correct answer, and a reference to the correct count. It should display the question, get the user's

answer using getValidAnswer(), and then check if the user's answer is correct. If correct, increment the correctCount and display "Correct!"; otherwise, display the correct answer.

- Prototype, define and use a function to display the question and answers.
- Prototype, define and use a function to delete a question and answers.
- In the main() function:
    - Have an iterative menu item. 1. Play Game, 2. Display Questions, 3. Delete a question and 4. Exit program
    - use a loop to iterate through the questions array, calling askQuestionAndCheckAnswer() for each question.
    - Finally, display the total number of correct and incorrect answers.

Note

- Remember to comment your code and follow good programming practices, like using named constants where applicable, and input validation.
- Test your program thoroughly to ensure accuracy.
- Your answers must be either A, B or C

Example of input/output

```
Basketball trivia game

Menu
1. Play Game
2. Display Question
3. Delete a Question
4. Exit

Enter your choice: 2

Questions:
#    Question                                Choices                    Answer
1    How many players on a basketball team?  A. 5  B. 6  C. 7           A
2    How many points for a basket?           A. 1  B. 2  C. 3           B
3    How many points for a free throw?       A. 1  B. 2  C. 3           A
4    What's the size of an NBA basketball?   A. 5  B. 6  C. 7           C

Menu
1. Play Game
2. Display Question
3. Delete a Question
4. Exit

Enter your choice:
```

Figure 1- Option 2

```
Basketball trivia game

Menu
1. Play Game
2. Display Question
3. Delete a Question
4. Exit

Enter your choice: 3

Questions:
#    Question                              Choices                    Answer
1    How many players on a basketball team?  A. 5  B. 6  C. 7        A
2    How many points for a basket?           A. 1  B. 2  C. 3        B
3    How many points for a free throw?       A. 1  B. 2  C. 3        A
4    What's the size of an NBA basketball?   A. 5  B. 6  C. 7        C

Enter the question number you want to delete: 4
Question deleted successfully.

Menu
1. Play Game
2. Display Question
3. Delete a Question
4. Exit

Enter your choice: 2

Questions:
#    Question                              Choices                    Answer
1    How many players on a basketball team?  A. 5  B. 6  C. 7        A
2    How many points for a basket?           A. 1  B. 2  C. 3        B
3    How many points for a free throw?       A. 1  B. 2  C. 3        A

Menu
1. Play Game
2. Display Question
3. Delete a Question
4. Exit

Enter your choice:
```

Figure 2 - Option 3

```
Menu
1. Play Game
2. Display Question
3. Delete a Question
4. Exit

Enter your choice: 1

Your answer must be A, B, or C (6 marks)

How many players on a basketball team?
A. 5  B. 6  C. 7
a
Your answer must be A, B, or C. Please try again: A
Correct!
How many points for a basket?
A. 1  B. 2  C. 3
B
Correct!
How many points for a free throw?
A. 1  B. 2  C. 3
B
The correct answer is A

You got 2 right and 1 wrong
Total score is 4

Menu
1. Play Game
2. Display Question
3. Delete a Question
4. Exit

Enter your choice:
```

Figure 4 - Option 1

```
Menu
1. Play Game
2. Display Question
3. Delete a Question
4. Exit

Enter your choice: 4
Exit program!
```

Figure 3 - Option 4

Assessment rubric

Mark allocation rubric	
Item	**Mark allocation**
Menu and Main Loop (3 marks)	
Proper menu display and handling of user choices	**2**
Proper exit condition from the main loop	**1**
Input Validation (4 marks)	
getValidAnswer function correctly validates user input	**4**
Question Asking and Answer Checking (5 marks)	
askQuestionAndCheckAnswer function correctly asks questions and checks answers	**5**
Game Playing Functionality (7 marks)	
playGame function correctly loops through questions and calculates scores	**5**
Displaying total correct and incorrect answers	**2**
Displaying Questions and Answers (4 marks)	
displayQuestionsAndAnswers function correctly displays questions and answers	**4**
Question Deletion Functionality (5 marks)	
deleteQuestion function correctly deletes questions and adjusts arrays correctly	**5**
Well-structured and indented code	**1**
Use of comments to explain major sections	**1**
Proper use of functions, prototypes, and parameter passing	**1**
Program runs and meets All requirements	**14**
TOTAL	**45**