MIDDLE EAST TECHNICAL UNIVERSITY, NORTHERN CYPRUS CAMPUS
CNG140 C Programming Assignment 3

Date handed out : 30 August 2023, Wed
Date submission due : 7 September 2023, Thursday, 23:55, Cyprus Time

Programming Assignment 3: Quiz Game

Purpose:

The main purpose of this programming assignment is to revise the topics that we have covered so far, including arrays, pointers, functions, repetitive statements, conditional statements and fundamentals of C programming.

In this assignment, you are going to create a programming quiz game in C. You are tasked with creating a C program based on C programming concepts for a quiz game. The game should have the following features:

1.) The program should display a menu with the following options:

- Start Quiz
- View High Scores
- Quit

2.) If the user selects "Start Quiz," the program should load a set of C programming questions from the provided file **"questions.txt"**.

3.) The program should randomly select a specified number of questions (e.g., 8) for the quiz.

4.) For each question, the program should display the question and multiple-choice options, and the user should input their answer (A, B, C, or D). The program should keep track of the user's score.

5.) After completing the quiz, the program should display the user's score and ask if they want to save their score to a high scores list.

6.) If the user selects "View High Scores," the program should display the top 5 high scores with the names of the players who achieved those scores.

7.) Implement appropriate error handling for file reading and user input.

Programming Requirements:

In order to implement this game, you will need to write **at least** the following functions, but if you need more functions, please add them.

Function	Description
main	The **main** function initializes the game, including the randomization seed,

	data structures for quiz questions and high scores, and it handles the main menu loop. It interacts with the user, allowing them to choose between starting the quiz, viewing high scores, or quitting the game. Based on the user's choice, it calls the relevant functions to perform the selected action. The **main** function also manages program flow and provides an overall structure for the entire game.
displayMenu	This function displays the main menu options to the user. It provides a user-friendly interface for players to choose between starting the quiz, viewing high scores, or quitting the game.
startQuiz	The **startQuiz** function handles the logic for starting and conducting the quiz. It encompasses loading questions from a file, presenting questions one by one, checking user answers, and calculating the final score.
viewHighScores	This function displays the high scores to the user. It retrieves and shows the top high scores achieved by previous players, providing motivation for the current player to aim for a high score.
loadQuestions	The **loadQuestions** function loads quiz questions from a file into the questions array. It reads data from a specified file, parses questions and answer options, and populates the **questions** array
loadHighScores	This function loads high scores from a file into the **highScores** array. It reads data from a file, such as player names and scores, and populates the **highScores** array with this information.
saveHighScores	The **saveHighScores** function saves high scores from the **highScores** array to a file. It is called after a player completes the quiz and achieves a score worth saving.
askQuestion	This function presents a single quiz question to the player, including the question text and answer options. It also checks the player's answer and updates the score accordingly.
getUserInput	The **getUserInput** function reads user input from the keyboard. It is used for obtaining the player's choices, answers, or other input during the game.

Sample Output:

```
Welcome to the C Programming Quiz Game!

Menu:
1. Start Quiz
2. View High Scores
3. Quit

Enter your choice: 1
```

Loading quiz questions...
Question 1: What is the keyword used to define a constant in C?
A. const
B. define
C. constant
D. var
Your answer: A
Correct!

Question 2: What is the main function's return type in C?
A. void
B. int
C. float
D. char
Your answer: B
Correct!

...

You completed the quiz! Your score: 8/10

Do you want to save your score? (Y/N): Y
Enter your name: John

Menu:
1. Start Quiz
2. View High Scores
3. Quit

Enter your choice: 2

Top 5 High Scores:
1. John - 8/10
2. Alice - 7/10
3. Bob - 6/10
4. Emily - 5/10
5. Sarah - 4/10

Menu:
1. Start Quiz
2. View High Scores
3. Quit

Enter your choice: 3

```
Goodbye!
```

Grading Policy:

If your code does not compile, you will automatically get zero. If your code compiles, you will then be graded based on the following scheme:

Grading Point	Marks (100)
main	10
displayMenu	10
startQuiz	10
viewHighScores	10
loadQuestions	10
loadHighScores	10
saveHighScores	10
askQuestion	10
getUserInput	10
Code quality (Appropriate comments, variable names, formulation of selection statements and loops, reusability, extensibility etc.)	10

Please make sure that you follow the restrictions for the assignment as follows:

- Strictly obey the input-output format. Do not print extra things.
- You are not allowed to use global and boolean variables.
- Add your name/surname and ID at the top of your code as comments, and name your source file "Name-Surname-StudentID.c"
- Only submit your C code.