A Simple Quiz System (C Project)

Table of content

Overview

For anyone to learn a programming language thoroughly, it is always a good idea to execute a project to check, if he/she is in a position to apply the techniques that is learnt during the training.

The entire process of learning becomes all the more interesting when the project involves something that we love do as a game. The project you will execute, is named as "Simple Quiz System". This is going to test your ability on the following aspects of C language.

1) If you can write moderately complex programs in C with the use of functions.
2) Can you use library functions wherever it applies.
3) Can you apply techniques involving array (sorting and searching) , structures and the method of reading from file.

Whatever we develop here, is also going to be part of the system that we will develop in C++ Project. And we need to design this in such a manner that we can integrate with our main project directly.

We will provide you enough clues on how to approach designing the system using functions, but it will be your responsibility to work on details and implement the ideas that are discussed in the document.

Problem Statement

In this project we will develop a module where the user will appear in a test where 10 questions , one at a time. These questions will picked up from a file containing 30 questions. Each question will have 4 answers. User has to choose the correct one. When he submits his answer, the program will evaluate it against stored answer for the specific questions. All the 10 questions will be evaluated in the similar manner and marks will be assigned to the correctly chosen answers. At the end it will display the marks that the user has secured.

The testing rules

Rules that will apply

1. No question can repeat in a session.
2. Every time the question sequence will be random.

Question bank

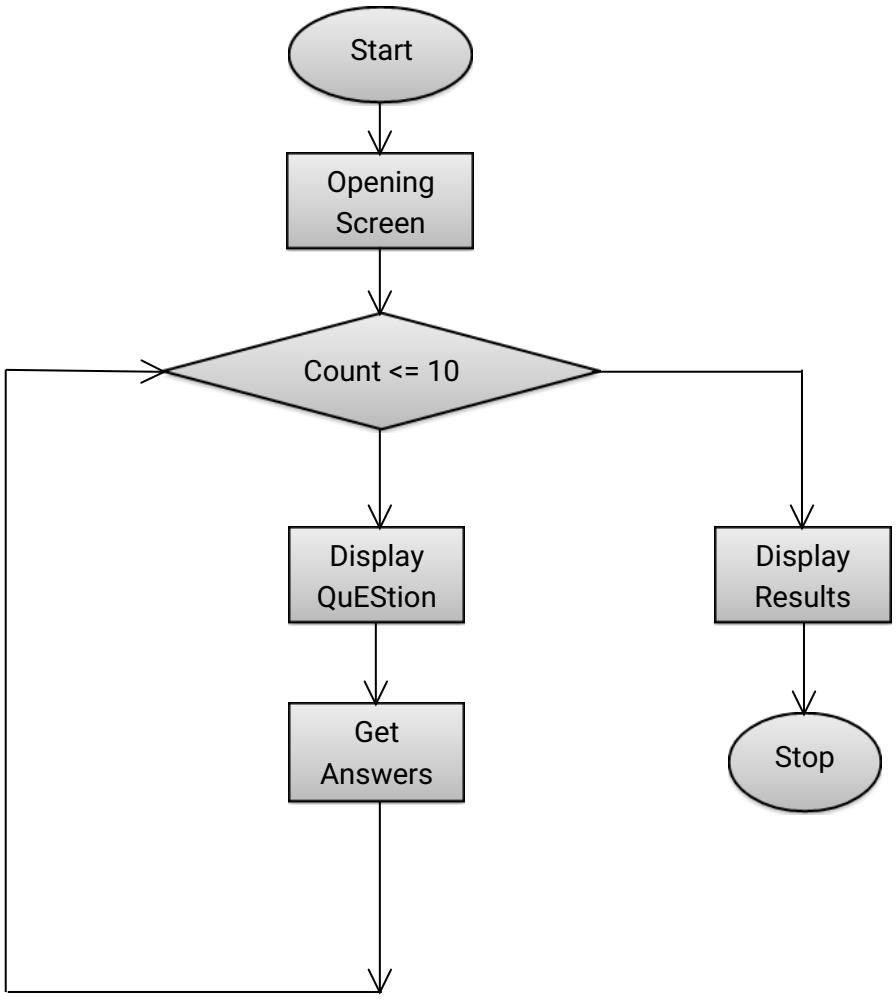
The question bank will be available in from of a predefined text file. The format of the text file will be given. The questions in the text file should include questions on various subject like general knowledge, sports, music, etc. For this project in a run we ask 10 questions but it is up to the student to decide how many questions he will like to ask. Whatever numbers of questions are asked the number questions in question banks are to be at least three times to avoid displaying same questions over and over again.

Displaying the results

The result screen will be displayed in three parts ..

1) The first part will show the questions and the corresponding answers with the correct answer.
2) The second part will show category wise performance.
3) The part will show the total marks obtained by the quiz player.

Flow Diagram



User Interface

Opening Screen – SC-1.0
==========
Welcome to Simple Quiz Game ..

Your Options
==========

1) Start The Quiz
2) Exit

Quiz Welcome Screen - SC-2.2.1
==========
Welcome to Simple Quiz Game

Player Name : XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Ready (Y/N) : X

Quiz Run Screen - SC-2.2.2
==========
Question : Number : XX
Question Category : XXXXXXXXX
Question Text :
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Available Answers :

1) XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
2) XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
3) XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
4) XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Marks allotted : X

Enter the correct answer : X

Lock it (Y/N) : X

This repeats for 9 more questions

Quiz End Screen - SC-2.2.3

==========

Congratulations XXXXXXXXXXXXXXXXX. You have completed the quiz

You have scored XX out of 10

Here are your answers …

Question Category : XXXXXXXX
Question <Number> :
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
Correct Answer : XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
Your Answer :
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
Marks Awarded : X

<repeats for 9 more questions>

Category Wise Marks …

<Category > : <Marks>
<Category > : <Marks>
<Category > : <Marks>

Your Final Total Score : XXX out of XXX

Press any key to go to main menu ..

Suggested text file format

Question Bank : SQG-QTNBNK.txt

Characters	Field Name	Data type	Restriction
1-9	Question Category	String	
10-14	Question ID	Integer	
15-64	Question Text	String	
65-114	Answer - 1	String	
115-164	Answer - 2	String	
165-214	Answer - 3	String	
215-264	Answer – 4	String	
265-265	Correct Answer	Integer	1/2/3/4
266-268	Allotted Marks	Integer	Max marks 100

Procedural approach with C

About the solution

Here we will take a procedural approach to develop the solution in C language. For that we will need to use structures wherever we have to store composite data set in the memory. The questions sets in the question bank represent this kind of data set. Moreover we have to use functions to simplify the complexity of processing.

Function : main()

The main is the starting function to call all other functions as appropriate. The function will call **menuController()** …

Function : menuController()

The function displays the following screens based on the parameter userType

It displays **Opening Screen – SC-1.0**

Function : StartQuiz()

The function shows the Welcome screen for the Quiz Game **: Quiz Welcome Screen - SC-2.2.1**

At this stage the entire text file is read and 10 questions are chosen randomly and stored into a predefined array of structure. The structure will resemble the file format and store the questions in a sorted way in the order of their category. However, logic should be such that questions should not be selected repetitively.

Function: runQuiz()

Function runs the quiz game. Screen reference : **Quiz Run Screen - SC-2.2.2.** In this part the questions will be again displayed in random order. This means the questions will not be in order of category. Every time the player answers the question, it will be evaluated and marks will be allotted (zero for incorrect and allotted marks for a correct answer)

Function : DisplayResult()

Function displays the result after the quiz is over. Screen reference : **Quiz End Screen - SC-2.2.3**

Here, when showing the result the marks will also be shown category wise as shown in the screen.

Future Use

All these programs and functions will be reused in the next project with little bit of modifications.