CLO - 4

Object Oriented Programming

Assignment # 4

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Polymorphism and Virtual Functions

You are required to design the code for a Quiz Generator that has only 2 types of questions; MCQs and OneWordAnswers.

Part 1: Teacher's Perspective

Your program should first compile the Quiz questions according to a Teacher's (your user) input.

1) Your program should begin by asking the Teacher: How many questions do you want in your quiz?
   You can then create a base class pointer array of size specified by the received input.

2) Next, you must ask the Teacher: What type of question do you want to add to your quiz?

   The Teacher would either say MCQ or Oneword. Depending on the answer, you will dynamically assign an object of either MCQ or Oneword type to your pointer array.

3) Your program should take the Teacher's input to create all the Quiz questions. So if the teacher chose to add an MCQ question, ask the Teacher to specify the question statement and also provide 4 associated MCQ options. Make sure to ask the Teacher to also enter which of the MCQ options is the correct answer.

   Similarly, if the question is a Oneword question, ask the Teacher to provide the question statement. Also ask him/her to enter the correct one word answer and store it.

Once your "Teacher" has entered all the questions, your base class pointer array should now contain multiple MCQ and Oneword type objects. Your program can now move to part 2.

Part 2: Student's Perspective

In your main function, your program should now display the compiled quiz to the student. Your program should step by step present each question to the user and ask

for their response. The response should then be compared with the correct answer provided by the Teacher in the previous part.

At the end of the quiz the student should be shown the marks he/she scored in this quiz.

Hints and Guidelines

This scenario can be modelled as one base class (QuizGenerator) and 2 derived classes (MCQ and Oneword)

Your base class pointer array can contain objects of both MCQ and Oneword type.

Your final array could look like this:

Array[MCQ,MCQ,Oneword,MCQ] if the Teacher had chosen to add MCQ in the first round of the for loop, MCQ in the second, Oneword in the third and MCQ in the fourth.

You will need virtual functions to control your pointer objects.

Virtual functions you may need:

1. Function to generate question
2. Function to pose the question to the student
3. Function to calculate the points scored in each question

You can add any variables or functions you want to your own unique solution.

So Get Coding!