ECE-C301 Advanced Programming for Engineers
Laboratory Assignment: Week 3

Name: _____

(10 Points) Implement a base class called **`Question`**. The class should have attributes to store a question string and an answer string. The class should also have mutator methods **`setText`**, which sets the question text, and **`setAnswer`**, which sets the answer to the question. Additionally, supply a **`display`** method for printing the question to the screen and a **`checkAnswer`** method, which takes a string as an argument, for checking if a supplied answer is correct.

Demonstrate that this class works by creating a **`Question`** instance, setting its text and answer, calling **`display()`** for the instance, and using **`checkAnswer()`**.

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(10 Points) Implement a derived class called **`ChoiceQuestion`** that inherits from **`Question`**. **`ChoiceQuestion`** implements a multiple choice question, and should encapsulate a list of strings. Each string in the list is one of the answer choices to the **`ChoiceQuestion`**—only one should be the right answer. Add a method called **`addChoice`**, which takes two parameters: (1) the choice text and (2) a boolean indicating if the choice is the correct answer. Override the **`display`** method to print both the question and the answer choices—each choice should be numbered (i.e. 1, 2, 3, etc). The overridden method should call the superclass's **`display`** method to print the question. Also override the **`checkAnswer`** method to accept the number of the correct answer—the overridden method should call the superclass's **`checkAnswer`** method to check if the supplied solution is correct.

Demonstrate that this class works by creating a **`ChoiceQuestion`** instance, setting its text and answer, calling **`display()`** for the instance, and using **`checkAnswer()`**.

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(10 Points) Write a polymorphic function called **`presentQuestion`** that accepts a **`Question`** object (and its derived classes) as a parameter. This function should display the question, get input from the user using the build-in **`raw_input`**, check the answer, and print if the supplied answer is correct or incorrect.

Demonstrate that this class works by creating a heterogeneous list of **`Question`** and **`ChoiceQuestion`** objects—your list should have at least 5 questions. Use a for loop to cycle through this list and call **`presentQuestion`** for each item in the list. Show your working "quiz" to the TA.

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