

Submit ONE solution per group.

- (10 pts ) Implement a class called **Question**. The UML below is a starting point. You may add other instance variables and methods if your group wants additional features represented. Please see the schedule for the review date of this class.

Question	
-question: string -answer : string	
+Question()	<i>//constructor. Set instance variables</i>
+Question(query : string, result : string)	<i>//constructor. Set instance variables</i>
+getQuestion() : string	<i>//returns the question</i>
+getAnswer : string	<i>//returns the answer to this question</i>
+answerCorrect(candidateAnswer :string) : boolean	<i>//returns true if the candidate answer matches the answer</i>
+displayQuestion() : void	<i>//displays this question and its answer</i>

- (10 pts) Implement a class called **Quiz** that manages an array of up to 25 Question objects. It keeps track of the correct and incorrect responses. The UML below is a starting point. Your group may add to this design and incorporate additional features. Please see the schedule for the review data of this class.

`const int MAX_QUESTIONS = 25;` *//the size of the array*

Quiz	
-questions : Question[MAX_QUESTIONS] <i>//an array named <b>questions</b> that holds <b>Question</b> objects</i> -current : int <i>//value of the index of the current location available in the <b>questions</b> array</i> -correct : int <i>// number of correct answers</i> -incorrect : int <i>//number of incorrect answers</i>	
+Quiz( )	<i>//constructor. Instance variables <b>current</b>, <b>correct</b>, and <b>incorrect</b> set to 0.</i>
+add(newQuestion : Question) : void	<i>//add the specified question to the <b>questions</b> array if room available</i>
+giveQuiz( ) : void	<i>// present each question to the user, accept an answer for each one, // and keep track of the results (the number of correct and incorrect answers).</i>
+getNumCorrect() : int	<i>//returns the number of correct answers</i>
+getNumIncorrect() : int	<i>//returns the number of incorrect answers</i>

- (10 pts) Define a tester/driver class called **QuizShow** with a **main** method that creates a **Quiz** object. Create 5 **Question** objects (read in a question and answer from a file) and populate the quiz using the **add** method. Then give the quiz and print the final results.
- (10 pts Extra Credit possible) Add the following enhancements:
  - In **Question**, add a point value to questions.
  - In **Quiz**, tally up a final score.
  - In **QuizShow**, add a function **manuallyFillQuiz** that populates the quiz by prompting the user for a question and answer.
  - In **QuizShow**, add a function **fillQuizFromFile** that populates the quiz with questions and answers read in from a file.
  - In **QuizShow**, give the user the option of using **manuallyFillQuiz** or **fillQuizFromFile**.
  - In **QuizShow**, show the user's final score.

Example output from a possible **initial** solution.

Please wait while we load the quiz with questions and answers.

\*\*\*\*\*Quiz Show\*\*\*\*\*

Question [1] :What is your favorite programming language?

Your Answer: C++

Question [2] :What datatype holds numbers such as 3, 4, and 6, but not 7.11?

Your Answer: int

Question [3] :What datatype can you use to hold your first name?

Your Answer: string

Question [4] :Write the include statement needed to read in data from a file.

Your Answer: #include <hello>

Results:

Correct: 3    Incorrect: 1

Goodbye

Press any key to continue . . .

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#### Group Project Rules:

- You will be a member of a group of 3 to 4 students to carry out this assignment. You will complete this assignment outside of class. Google Docs can be very helpful in collaborating with your group.  
***It is your group's responsibility to determine how/when you will meet outside of class to complete this project and how you will divide tasks.***
- You will be an active and contributing member of the group. This is a great opportunity to brainstorm and work together. A group can "fire" a member from the group with sufficient evidence of non-participation and with the instructor's approval.  
***"Fired" members receive a 0 for this assignment.***
- An individual student cannot hand in their own project for this assignment.  
***If you choose not to participate in a group, you will receive a 0 for this assignment.***
- Even though this is a group project, you will also be graded for your individual contribution. The other members of your group will be evaluating your contribution.  
***Individual grades for this assignment will reflect peer evaluations.***