

Simple Console Based Quiz

Build a simple quiz application using the object oriented programming concepts you learnt in this course. The quiz application features several multiple choice questions. Here is an example of displaying one question with 4 choices on the console.

```
Who is the current Chief Minister of Telangana? (Max Marks: 3)
KCR      Chandra Babu Naidu      President's Rule      None
```

The first line of the example is the "question text" along with the maximum marks awarded for giving the right answer to the question. The second line has the "answer choices" that the user can choose from. The user has to choose one of the answers and type it the console. One of the choices is the correct answer. User gets the max marks on giving the correct answer. An incorrect answer to the question attracts penalty. Penalty for each question is given.

Here is a test case, sample input.

```
1  LOAD_QUESTIONS 4
2  question text 1:choice 1,choice 2,choice 3,choice 4:3:1:-4
3  question text 2:choice 1,choice 2,choice 3,choice 4:1:2:-3
4  question text 3:choice 1,choice 2,choice 3,choice 4:2:3:-2
5  question text 4:choice 1,choice 2,choice 3,choice 4:4:4:-1
6  START_QUIZ 4
7  choice 1
8  choice 2
9  choice 4
10 choice 3
11 SCORE_REPORT
```

First line of input is for loading 4 questions into the quiz.

The line has the command LOAD_QUESTIONS space 4.

Lines 2 to 5 are for the 4 questions one in each line.

Each field in the question line is delimited by a ":". When you split the line you will get 5 tokens. The first token is the question text, second token is the list of choices delimited by a ",". Third token is a number indicating the correct answer choice. Fourth token is the max marks awarded on when the user gives the correct answer. Fifth token is the penalty when the user gives the wrong answer.

Line 6 of the input is to start the quiz with 4 responses.

The line has the command START_QUIZ space 4.

Line 7 to 10 are for the 4 answers given by the user one in each line.

Line 11 of the input is to print the score report.

The line has the command SCORE_REPORT

Here is a test case, sample output.

```
|-----|
| Load Questions |
|-----|
4 are added to the quiz
|-----|
| Start Quiz |
|-----|
question text 1(1)
choice 1      choice 2      choice 3      choice 4

question text 2(2)
choice 1      choice 2      choice 3      choice 4

question text 3(3)
choice 1      choice 2      choice 3      choice 4

question text 4(4)
choice 1      choice 2      choice 3      choice 4

|-----|
| Score Report |
|-----|
question text 1
 Correct Answer! - Marks Awarded: 1
question text 2
 Wrong Answer! - Penalty: -3
question text 3
 Wrong Answer! - Penalty: -2
question text 4
 Wrong Answer! - Penalty: -1
Total Score: -5
```

The text decorated with a box is printed by the main function. There are 3 such boxes.

The first box is for load questions. After reading the questions from the input “4 questions are added to the quiz” message is printed on the console.

The second box is to start the quiz. A question is displayed with the question text in the first line and the choices in the second line. Each choice is separated by a tab. Then the blank line is for the user answer input to the question. The user answer doesn’t show on the screen as it is directly read from the test case input file. This repeats for each question in the quiz.

The third box is to show the score report. First line is the question text. Next line has a space at the beginning followed by “Correct Answer! - Marks Awarded: 1”. This is the output when the user’s answer to the question is correct. The answer is correct when the user answer matches the text as it is given in the choice. For incorrect answer “ Wrong Answer! - Penalty: -3” is displayed on the screen. This format repeats for all the questions.

The last line of the output is the total score obtained. “Total Score: -5”

Error Handling

1. Quiz should contain a minimum of 1 question. If there are 0 questions then print "Quiz does not have questions"
2. Every question should have question text, choices, correct answer, marks awarded and penalty. In case any one of these is missing in the question then print "Error! Malformed question".
3. Each question should have a minimum of 2 choices. If there are less than 2 choices then print "<question text> does not have enough answer choices"
4. The correct answer choice should be in the range of 1 to the count of choices given. If the correct answer choice number is out of range then print "Error! Correct answer choice number is out of range for <question text>"
5. Max marks should be greater than 0 and penalty should be less than or equal to 0. If there is an error in max marks then print "Invalid max marks for <question text>". If there is an error in penalty then print "Invalid penalty for <question text>".