



## 作业详情

202040CISC230-02 Object Oriented Design &amp; Prog

## Introduction

In this assignment, you have the opportunity to design and work with Java objects, interfaces, and inheritance. Additionally, you will be using ArrayList, Strings, String manipulation, Scanner, and other basic Java constructs.

This assignment is to be done individually.

Your task is to create a program called StudyBuddy. StudyBuddy is designed to help 230 students study for their Final.

## The Assignment

StudyBuddy should ask 3 types of Questions:

- True/False
- Multiple Choice
- Fill in the Blank

Your program will need to load the questions from a file specified by the user (more on this below.) After the questions are loaded, your program should ask the user how many problems they would like to practice (make sure to handle input mistakes gracefully.) Your program should then ask the user the specified number of random questions loaded from the file. Do NOT ask duplicate questions. Once the questions are loaded questions will be presented to the user one at a time. The user will have three options

1. Answer the question
2. Pass on the question
3. Delay the question

If the user passes on the question (they do so by entering "pass" which will never be an answer to a question), they neither gain nor lose points. If the user delays the question, it should be asked again after the user has seen all other questions. If the user answers the question correctly, they gain the number of points at which the question is valued. If they answer incorrectly, they lose the same number of points.

## Getting Questions from a File

Your program should read the questions in their raw form from a file. It should then convert these questions into the appropriate classes. Each line in the file represents all the information needed to create one question. Each line starts with an indicator of the type of question that is being stored in that line. The indicator will be one of the following: "TF" for true/false questions, "MC" for multiple-choice questions, and "FB" for fill in the blank questions. The format of the rest of the line depends on the type of question that is being represented. However, for all questions each portion for the information will be separated by a ";" (no question or answer should contain a ";").

For true/false questions the format is:

TF;QUESTION;ANSWER;POINTS

where QUESTION is the string representation of the question, ANSWER is the correct answer to the question (either true or false), and POINTS is the integer value of the question.

For Multiple Choice the format is:

MC;QUESTION;NUMBER\_OF\_CHOICES;CHOICE\_1;CHOICE\_2;CHOICE\_3...;CHOICE\_N;ANSWER;POINTS

where QUESTION is the string representation of the question, NUMBER\_OF\_CHOICES is a positive integer less than 20 indicating the number of choices for the question, CHOICE\_1...CHOICE\_N each contain a possible answer (there should be NUMBER\_OF\_CHOICES of them), ANSWER is the letter that corresponds to the correct choice, and POINTS is the integer value of the question.

For fill in the blank questions the format is:

FB;QUESTION;ANSWER;POINTS

where QUESTION is the string representation of the question, ANSWER is the correct answer to the question (single word, number, or a short phrase), and POINTS is the integer value of the question.

To aid you in reading from a file I have given you the code [FileReader](#). Notice that it is not commented. You should first comment the class (commenting code is a great way to learn what it is doing.)

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## Sample File

TF;A superclass's constructor must always invoke the subclass's constructor first.;false;12  
MC;@param is a;;3;Instance Variable;Class Variable;Javadoc tag;C;10  
FB;\_\_\_\_\_ is the best CISC class.;230;50  
FB;In Java "2==1||3!=4" evaluates to \_\_\_\_\_.;true;4

## Sample Program Interaction

Welcome to StudyBubby! Press enter when you are ready to select the file holding your study questions.  
\*\*\*dialog box opens and the user selects file above\*\*\*  
Thank you!

How many questions would you like to answer?

**10**

Sorry but you have only loaded 4 questions. How many questions would you like to answer?

**four**

Sorry, that is not a valid input.

How many questions would you like to answer?

**4**

Points: 4

Fill in the Blank: In Java "2==1||3!=4" evaluates to \_\_\_\_\_.

**True**

Correct! You get 4 points.

Points: 12

True/False: A superclass's constructor must always invoke the subclass's constructor first.

**delay**

Ok, I will ask that one later.

Points: 10

Multiple Choice: @param is a:

A)Instance Variable

B)Class Variable

C)Javadoc tag

**B**

Incorrect, the answer was C. You lose 10 points

Points: 4

Fill in the Blank: \_\_\_\_\_ is the best CISC class.

**pass**

Ok, let's skip that one.

Points: 12

True/False: A superclass's constructor must always invoke the subclass's constructor first.

**delay**

Ok, I will ask that one later.

Points: 12

True/False: A superclass's constructor must always invoke the subclass's constructor first.

**TRUE**

Incorrect, the answer was false. You lose 12 points

Of the 4 questions you attempted, you got 1 correct.

You earned a total of -18 points.

Better luck next time!

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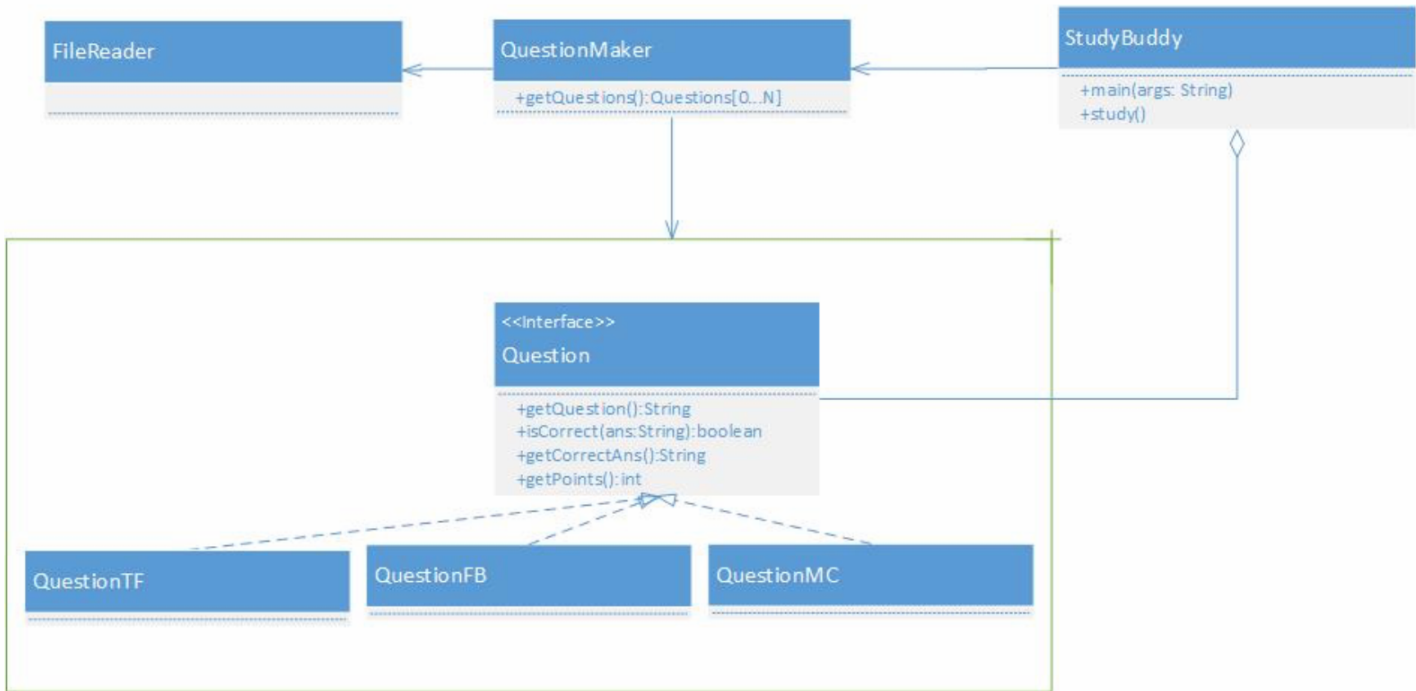
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## Partial UML Diagram

Below you will see partial UML diagram of the classes you have to build. Your classes will need more than what is shown but you must implement all the instance variables and methods currently displayed for each class. You must also use the exact names provided.



## Grading

I'll be watching for style, design, as well as the correct output. Your output should be neat and easily understood. At no point and time should your code crash. Make sure your code is well commented and carefully follows the class style guide (including a Javadoc-style comment (`/** comment */`) before each method). Use constants where appropriate, and focus on elegant solutions. If you find that you are writing very large methods, that likely means they should be broken into multiple smaller ones. If you have lots of repeated code, that indicates that you should write a method to do that work. When you are designing your classes, try to keep them very tightly focused.

## Submitting

Submit a *zip* all of your `.java` files and a sample question file containing no less than 20 real 230 questions to Canvas.

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