Assignment 2 – BCS 345 Java Programming

Due: 10/6/2021 @ 10:50am

Submission Guidelines

Create a winzip file containing the WHOLE project directory and submit on Blackboard.

IMPORTANT – Make sure you ***properly comment*** AND ***properly indent*** your program. The commenting and indenting documents are on Blackboard. ***If you fail to properly comment or properly indent points will be deducted.***

Programs with compile errors will have 50pts automatically taken off!!!

Overview

There are two main parts to this assignment.

1. Write a package that contains definitions for the SubDate, Student, and Submission classes (see below for specifications).
2. Write a package that uses the above classes (this will contain the Main class).

We are writing two layers of software. There will be a business layer and a presentation layer. The presentation layer will use classes in the business layer.

Packages

Create two packages in your project. The packages should be named com.<your full name>.business and com.<your full name>.presentation.

Example Project/Package Setup:

com.arthurhoskey.business ← Package
    SubDate.java ← Source file
    Student.java ← Source file
    Submission.java ← Source file

com.arthurhoskey.presentation ← Package
    Main.java ← Source file

Git Version Control

The project directory you submit must be under Git version control. You should periodically execute commits to save your progress. You must execute at least three commits for this assignment during development. The commits should be spaced out evenly. Do not wait until the end of your development to do all the commits.

Class Specifications

Class – SubDate

Store in **business** package.

Member Variables (all private)

Variable	Data Type	Description
Month	int	Contains the month portion of the date.
Day	int	Contains the day portion of the date.
Year	int	Contains the year portion of the date.

Member Method Signatures and Descirptions (all public)

Signature	**Description**
SubDate()	Default constructor. Sets the values of each member variable to a default value.
SubDate(int month, int day, int year)	Constructor. Sets the values of each member variable to the corresponding parameter values.
Get/Set methods	Write get/set methods for all member variables.
void readJSON(FileReader fr)	Read the contents of all member variables from the given instance of FileReader as JSON. Assume the FileReader is open.
void writeJSON(PrintStream ps)	Write the member variables in JSON format to the given PrintStream.
@Override String toString()	This method should return a String instance (not print on the screen) that contains a formatted date. Here is an example of a string that gets returned from the method. Example date string: `9/1/2021`

Class – Student

Store in **business** package.

Member Variables (all private)

Variable	**Data Type**	**Description**
First	String	Contains the first name.
Last	String	Contains the last name.
Major	String	Contains the major.

Member Method Signatures and Descriptions (all public)

Signature	**Description**
Student()	Default constructor. Sets the values of each member variable to a default value.
Student(String first, String last, String major)	Constructor. Sets the values of each member variable to the corresponding parameter values.
Get/Set methods	Write get/set methods for all member variables.
void readJSON(FileReader fr)	Read the contents of all member variables from the given instance of FileReader as JSON. Assume the FileReader is open.
void writeJSON(PrintStream ps)	Write the member variables in JSON format to the given PrintStream.
@Override String toString()	This method should return a string with descriptive text. All member variable should be represented in the string.

Class – Submission

Store in **business** package.

Member Variables (all private)

Variable	**Data Type**	**Description**
Date	SubDate	Contains date.
Assignment	String	Contains the assignment name.
Score	double	Contains the numeric score for the submission.

Member Method Signatures and Descirptions (all public)

Signature	**Description**
Submission()	Default constructor. Sets the values of each member variable to a default value.

Submission(SubDate d, String assignmentName, double score)	Constructor. Sets the values of each member variable to the corresponding parameter values.
Get/Set methods	Write get/set methods for all member variables.
void readJSON(FileReader fr)	Read the contents of all member variables from the given instance of FileReader as JSON. Assume the FileReader is open.
void writeJSON(PrintStream ps)	Write the member variables in JSON format to the given PrintStream.
@Override String toString()	This method should return a string with descriptive text.

Sample JSON File

```
{
  "date": {
    "month": 9,
    "day": 1,
    "year": 2021
  },
  "assignment": "Lab 1",
  "score": 80.0
}
```

Class – Main

Store in **presentation** package.

Member Variables (all private)

Variable	Data Type	Description
No member variables		

Member Method Signatures and Descirptions (all public)

Signature	Description

public static void main(String args[])	Code to show menu and process user choices goes here.

UI Menu Description

Write code in main that will present a menu to the user and then perform an action depending on what the user chooses to do. You should create an instance of Submission inside of main. When the program runs it should display the menu to the user and give them a chance to input a choice. An action should be taken depending on what choice the user makes.

Each action should operate on the one instance of Submission that you declared at the top of main (do not declare other instances of Submission).

Here is the user menu:

```
Submission UI
-------------
1 – Read submission from file as JSON
2 – Write submission to file as JSON
3 – Show submission info on screen
4 - Exit
Enter Choice
```

THE PROGRAM SHOULD KEEP SHOWING THE MENU AND PERFORMING AN ACTION UNTIL THE USER CHOOSES TO EXIT (sample program execution below).

Sample Program Execution

```
Submission UI
-------------
1 – Read submission from file as JSON
2 – Write submission to file as JSON
3 – Show submission info on screen
4 - Exit
Enter Choice
3

Submission Date = 1/1/2021
Assignment = NO_ASSIGNMENT
Score = 0.0

Submission UI
-------------
1 – Read submission from file as JSON
2 – Write submission to file as JSON
3 – Show submission info on screen
4 - Exit
Enter Choice
1
Enter input filename
submission.json

Submission UI
-------------
1 – Read submission from file as JSON
2 – Write submission to file as JSON
3 – Show submission info on screen
4 - Exit
Enter Choice
3

Submission Date = 9/1/2021
Assignment = Lab 1
Score = 80.0

Submission UI
-------------
1 – Read submission from file as JSON
2 – Write submission to file as JSON
3 – Show submission info on screen
4 - Exit
Enter Choice
2
Enter output filename
submission2.json

Submission UI
-------------
1 – Read submission from file as JSON
2 – Write submission to file as JSON
3 – Show submission info on screen
4 - Exit
Enter Choice
4
Program done
```