Introduction To Programming: Independent Investigative Effort 8

(See Canvas→Assignments for due dates and marks. Late submissions incur a 10% penalty on the full mark for each working date late; submission cut-off is 5 working days late. Marks turnaround time is approx. 10 working days after submissions close.)

Having trouble with watching recordings, usernames, passwords, access, etc.? Please call the RMIT IT Service and Support Centre for quick help on 03-9925 8888 and remember to ask for a reference number and pass it on to your instructor.

Need extensions or special consideration? Please apply for special consideration online.

Please follow/complete all steps below in the given sequence:

1. Please check your official RMIT Student email account for important course communication.

2.a. Watch any unwatched recordings of the **Weekly Live Lecture** and do all missed tutorials before going further. Gaps in programming concepts will lead to difficulties. If you need further help, please also watch your Group's chat recordings.

2.b. If you need help in addition to what has been shown in the compulsory weekly live lecture, you are also expected to speak to your **group tutor via discussion forums** and attend/watch their live sessions. Please note that group tutors cannot debug your assessment code on your behalf as debugging is a part of every programming assessment.

3. Check any available feedback of your previous submissions and if you have any unresolved questions or if you need further feedback, post the relevant parts of your submitted work in a new post under Canvas→Discussions→Independent Investigative Effort and ask from your instructor. E.g. you can ask "*Gayan showed _____ but I did mine like _____, so which is the better approach and why?*", etc. Please note that the university requires teaching to be conducted in an equitable manner so please only use email for matters such as special consideration.

4. How did you go during the past week? Please give feedback to Gayan so he can improve your learning experience, before it's too late, during this study period itself!

5. This week's programming task will cover some concepts required by Assignment 2 and 3. **You should aim to get the help of your tutors and make further revisions.**

Coding exercise steps (Hint: Need help? Ask your tutor via Canvas→Discussions→"IIE07"):
Follow Canvas→Modules→Week 8 first. Ensure that you have followed and adapted the concepts from final solution shown at 20:11 (as shown on the shared screen's clock) from the 19/Oct/2020 IIE07 solution. Next, make a copy of your IIE07 and rename it to IIE08. Note: Your work must not be about the student manager.

a. This week, we will create a multi-class version of the IIE07 application. First, in your IIE08 Eclipse project, create a new Java class named Application.java with the following code (do not modify it afterwards):

```
public class Application {
	private BackEnd backEnd;
	private FrontEndGTerm uiGT;
	private FrontEndConsole uiConsole;

	public Application() {
		this.backEnd = new BackEnd();
		this.uiGT = new FrontEndGTerm(backEnd);
		this.uiConsole = new FrontEndConsole(backEnd);
	}

	public static void main(String[] args) {
		Application app = new Application();
	}
}
```

b. Next, you would need to create the following .java files (one class per .java file):

BackEnd.java: From your adaptation of the IIE07 solution, move the code that equivalent to 'addStudent', 'removeStudent', 'updateStudent' and 'getStudentByName' to the BackEnd.java class. From the IIE07 solution, you will also need to move all of the object member variables referred to by the above methods in to BackEnd.java as well. This class must not have any mentions of GTerm, Scanner, System.out, or any other user interface specific code.

FrontEndGTerm.java: From your adaptation of the IIE07 solution, move all of the GTerm-based methods to this class along with relevant object member variables. This class must not have any references to Scanner or System.out… or the student arrays. You may need to create additional methods in the BackEnd to provide you with further information.

FrontEndConsole.java: From your adaptation of the IIE07 solution, move all of the console-based methods to this class along with relevant object member variables. This class must not have any references to GTerm or the student arrays. You may need to create additional methods in the BackEnd to provide you with further information.

[Side note: The concepts of polymorphism, inheritance (parent-child/super class-sub class relationships) and interfaces are not covered in Intro To Programming and therefore must not be used. In subsequent courses such as Programming 1, Further Programming, etc. you would create an abstract super/parent class (or an interface) named FrontEnd.java and then have FrontEndGTerm.java and FrontEndConsole.java as child classes (or implementations) of FrontEnd.java]

c. [Optional for this week] Instead of having each student record spread across multiple arrays, create a separate class to minimise duplication.

Note: In Assignment 2, there must be only one user interface (GTerm) and all code must be within the same class.

Submission Checklist for Step 5:

a. Ensure steps above have been followed in sequence.

b. Ensure that there are no red dots (compilation errors) in your code. Code with red dots are not valid Java and cannot be marked.

c. If you have not made a final submission for your Assignment 2, make a progress/dummy submission for Assignment 2 by submitting **your .java files to Canvas→Assignments→Assignment 2.** Do the same for Assignment 3 as well. Remember, you can overwrite this submission any time when you have a proper submission for your assignment.

d. Take screenshots of the code and the running program (as you did for IIE01) and **only embed screenshots** in a post **under Canvas→Discussions→Independent Investigative Exercise 8**. Please do not attach the images or post your answers in any other format as this would make the submission invalid. The mark for this week's work will be given based on this submission.

e. Ensure that your files are correct. If they are not, you can edit/delete your post and retry.