

**Due Date**

Thursday, March 26, by 11:59pm (spring break: March 14 ~ March 22)

**Submission**

1. You must designate a submitter (one of the team members) to submit all required files to Canvas. The comment block on top of each Java file must include the names of all team members.
2. Submit all relevant files, including
  - \*.java from Program2 and \*.java and \*.fxml of Program 3. [25 points]
  - Test design document [5 points]
  - Java docs [5 points]
3. Personal Time logs. This is an individual assignment. [5 points]

**Program Description**

You will be developing a GUI with JavaFX for Program 2. The GUI shall behave like the Tuition Manager in Program 2 and meet all the requirements in the following section.

**Program Requirement**

1. This is a **group assignment**. You **MUST** work in pair in order to get the credit for this program. You **MUST** submit a runnable program to pass this course.
2. You **MUST** follow the software development ground rules.
3. You are required to log your times working on this project with the template provided. **You will lose up to 5 points** if the log is not submitted or incomplete. The time log is an individual assignment.
4. Each Java class must go in a separate file. **-2 points** if you put more than one Java class into a file.
5. You **MUST** use all the classes in Program 2. You **get 0 points** if you don't. The GUI version of the Tuition Manager should be built on top of Program 2. That is, your command line version of the Tuition Manager from Program 2 shall work as usual without modifying. The user can run either the command line version or the GUI version. **-10 points** if you modified the Tuition Manager from Program 2 or it doesn't work anymore.
6. You must use JavaFX FXML with the Controller. **You will get 0 points** if you don't. In this program, one fxml file, one controller and one main class will be sufficient. Note, the controller is a new java program.
7. Your GUI must include the following JavaFX components.
  - a) Use at least 2 different Layout Panes, such as BorderPane, GridPane, VBox, Hbox, ....., or **-5 points**.
  - b) Use a TextArea to display output, or **-5 points**. All output should be appended to the TextArea. You are **NOT ALLOWED** to use System.out in the GUI program. **-2 points for each output to the console**.
  - c) Provide 3 Buttons – Add, Remove, and Print, **-5 points** for each button missing.
  - d) Include 4 TextFields and several Labels that allow the user to enter first name, last name, credit hours, and funding amount. **-2 points** for each violation.
  - e) Use a RadioButton group that allows the user to choose between Instate, Outstate, or International. This means that it is impossible for the user to choose more than one RadioButton at a time.
  - f) Provide at least 3 CheckBoxes as an option of funding, tri-state, or exchange status. You are required to disable the options that are not applicable. For example, disable tri-state and exchange check box if the Instate radio button is on. **-2 points** for each violation.
  - g) You **MUST** set the title of the primaryStage (title for the window.) – **2 points** if you don't.
  - h) A sample GUI design is shown below.

## Program Testing

- You MUST create a test document and design the test cases for the GUI program. The test document is worth 5 points. In addition to the valid test cases from Program 2, you must test the invalid conditions below.
  - 0 or negative for the number of credits, or negative for the funding amount of an in-state student.
  - Characters are entered where integers or numeric data are expected; you must catch the specific exceptions and display an error message.
  - An Instate cannot choose tri-state or exchange status.
  - An Outstate cannot enter funding or choose exchange status.
  - An International cannot enter funding or choose tri-state status.
  - Part time in-state students are not eligible for the funding.
  - Adding a student who is already in the list, printing an empty list, removing a student from an empty list, or removing a student who is not in the list.
  - Add or Remove button clicked but no data has been entered, or the data is incomplete.
  - The number of credits entered for international students is less than 9.
- You must use your test cases to manually test your GUI. All invalid data should be rejected by the GUI, and all exceptions must be caught by the GUI. Proper error messages must be displayed in the TextArea. **-2 points** for each invalid condition and error message not displayed in the TextArea.
- Your program MUST NOT CRASH under any conditions. That is, you must handle all exceptions and your program will continue to run until the user stop the program or close the window. **-2 points** for each exception not caught.