San José State University
Computer Science Department
CS151, Object Oriented Design and Programming, 07, Spring 2021

Homework #8

Objective:

This homework's objective is to review and understand the units on GUI programming and how to get it done in Java.

Details:

Exercise 1:

Remember the calculator example I presented during my lectures? It was implemented using Java AWT libraries. Implement the same calculator application but now using Java Swing libraries. Please make sure it has all the basic functionality that the calculator in the demo had. In other words, your application is not just expected to have the GUI but also the functionality within those GUI components.

Please make sure that at least 1 set of buttons in your calculator uses images. By the "set" I mean functional sets/groups: digit buttons or operator buttons. Make sure that either the digit buttons or the operator buttons or both have images on them.

Implement a menu for your application. The menu should contain menu items for the following operations: add, subtract, divide, multiply, clear. Make sure your menu items work and perform the desired operation when clicked.

Save your program into a file named **Calculator.java**.

Extra Credit Exercise 2:

Implement an application that displays a screen partitioned into a 2x2 grid. There need to be some type of visual separators for the grid cells (e.g. border around each cell, lines separating them, etc.). Each cell of the grid should display a single shape. The following shapes should be present in the grid: sphere, cylinder, box, polygon. It is up to you what visual parameters to set to these shapes (size, color, etc.). Add user-intuitive controls (e.g. buttons or menu items, etc.) to your screen to animate each of the shapes. The specifics of the UI design are up to you. The user should be able select which cell of the grid to animate and select the animation type: RotateTransition, ScaleTransition, SequentialTransition. Additionally, implement FadeTransition for polygon shape. This transition will not work for 3-D shapes. Save your program to a file named **Animation.java**.

Submission:

In your class repo create a directory called “Assignment8” and add all the files created for this homework assignment to that directory. The following files are expected to be in this directory: Calculator.java. Optionally, your directory will contain Animation.java file.

Make sure to email this submission by 11:59pm on the due date listed in Canvas. Email your assignment submission to me at both Yulia.Newton@sjsu.edu and yulia.newton@gmail.com, as well as the grader at akshay.kajale@sjsu.edu. The subject of the email should say “CS151 Assignment 8”. Add your name as it appears on the class roster and the URL to your git repo in the body of an email.

In the prior semesters the grader and I had various git permission issues with some homework submissions, so we want you to also attach all the files for this homework as an attached single compressed file.

Grading:

Your code must compile and execute successfully in order to get full credit for this assignment. I will compile and execute Calculator.java and Animation.java.

- Program with no compile errors (5 pts)
- Program executes (5 pts)
- Program outputs what is required by the exercise (5 pts)

A total of 15 points are possible for the required part of this homework. Additional 15 points of extra credit are possible to earn by completing exercise 2.