CS102 – Algorithms and Programming II
Lab Programming Assignment 4
Spring 2022

ATTENTION:

- Feel free to ask questions on Moodle on the Lab Assignment Forum.
- Compress all of the Java program source files (.java) files into a single zip file.
- The name of the zip file should follow the below convention:
  CS102_SecX_Asgn4_YourSurname_YourName.zip
- Replace the variables "YourSurname" and "YourName" with your actual surname and name and X with your Section id (1, 2 or 3).
- Upload the above zip file to Moodle by March 22nd, 23:59 with at least Part 1 completed. Otherwise, significant points will be reduced. You will get a chance to update and improve your solution (Part 1 and Part 2) by consulting the TA during the lab. You will resubmit your code (Part 1 and Part 2 together) once you demo your work to the TA.

The work must be done individually. Codesharing and copying code from any source are strictly forbidden. We are using sophisticated tools to check the code similarities. We can even compare your code against online sources. The Honor Code specifies what you can and cannot do. Breaking the rules will result in a disciplinary action.

Part 1

In this assignment, you will implement a Java program with a Graphical User Interface that creates a stick figure object, of varying color and height. For this purpose, you should have a **StickFigure** class whose constructor takes the **baseX** and **baseY** coordinates (the coordinates of the bottom-center of the figure), **color**, and **size** (height) of the figure. Then, implement the methods setX and setY to set the x and y coordinates of the figure. Using these methods, animate the figure by sliding the figure on the floor from left to right. Use appropriate delay loops to control the animation so that the animations are visible.

The stick figure should at least have the following body parts: eyes, nose, mouth, head, arms, legs, backbone. What kind of shapes you draw for these parts is up to your imagination.

To sum up, In Part 1, you should draw the stick figure and slide it.

Part 2

In this Part, you will implement the UI elements (buttons, dropdowns, checkboxes, etc.).

Add buttons, like move forwards and move backwards so that the figure moves forwards or backwards according to the selection. Also, provide that when the figure reaches the right edge of the window (when moving forwards from left to right), have it reappear on the left side again until the animation is stopped by a button. Put a slider to select the height of the figure and a color chooser to select the color of the stick figure.

Finally, create UI elements to control the visibility of each body part listed in Part 1. For instance, you may create a checkbox for each body part to make them visible/invisible (buttons, dropdowns, etc. would also work).

IMPORTANT NOTES:

1. Please comment your code according to the documentation and commenting conventions used in the textbook.