

COSC 1P02 Assignment 1

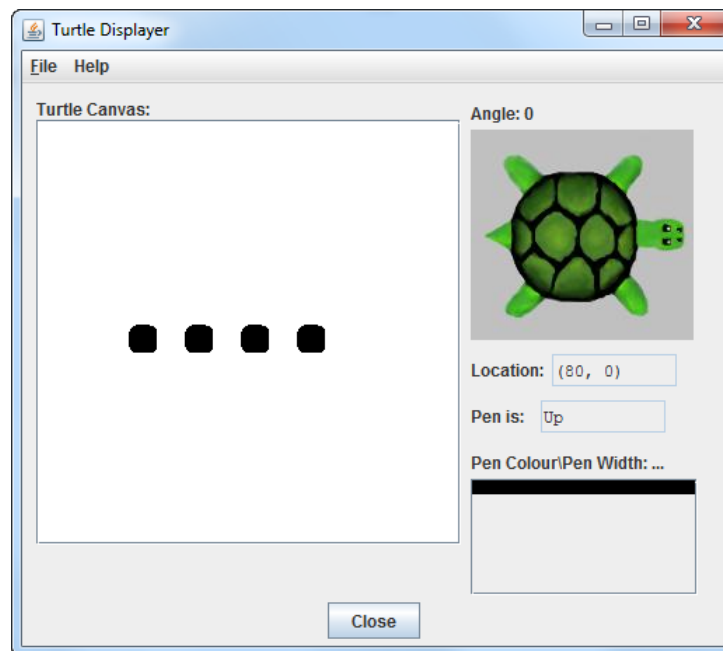
"I'm Game"

Due: Sept. 28, 2018 @ 4:00 pm (late date Oct. 1 @ 4:00 pm)

The emphasis of this assignment is to use nesting (composition) to produce a complex repeated pattern. In preparation for the assignment, create a folder called `Assign_1` and three subfolders `Assign_1_A`, `Assign_1_B` and `Assign_1_C` for the DrJava projects for the three parts of the assignment. The file `TurtleTemplate.txt` in the assignment folder is a skeleton of a Java program using Turtle Graphics and can be copied and pasted as a starting point for your program.

Part A

As part of a package called `Assign_1_A`, write a Java class called `Squares` that draws a set of 4 20x20 black squares at a distance of 20 units from each other across the canvas as shown below.

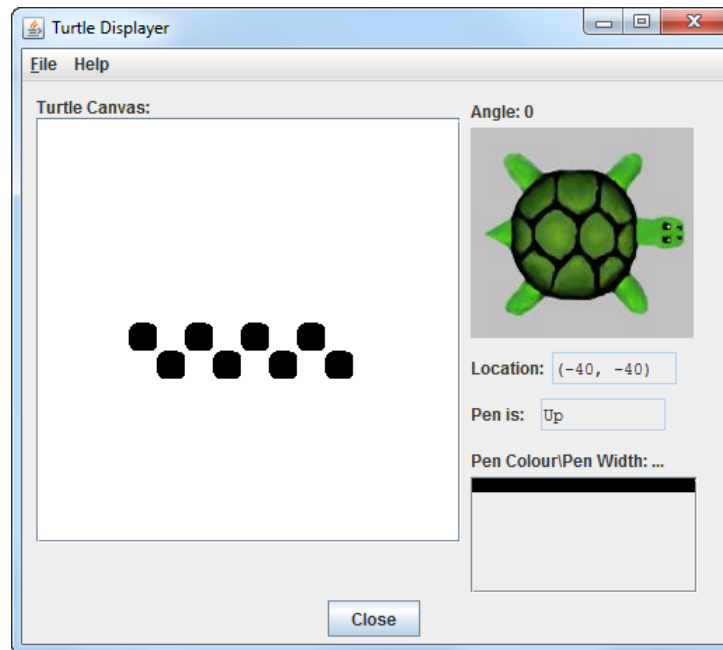


A 20x20 black square can be drawn by drawing a 10x10 square with a pen of width 10 (use `setPenWidth(10)`). The first (leftmost) square should be drawn 80 units to the left of the turtle starting point.

Use a for loop to draw the square and compose it in a for loop to draw the row of 4 squares. Be sure you know where you end up. Use relative positioning (i.e. `forward` or `backward` not `moveTo`) to move the turtle to the initial position and between the squares.

Part B

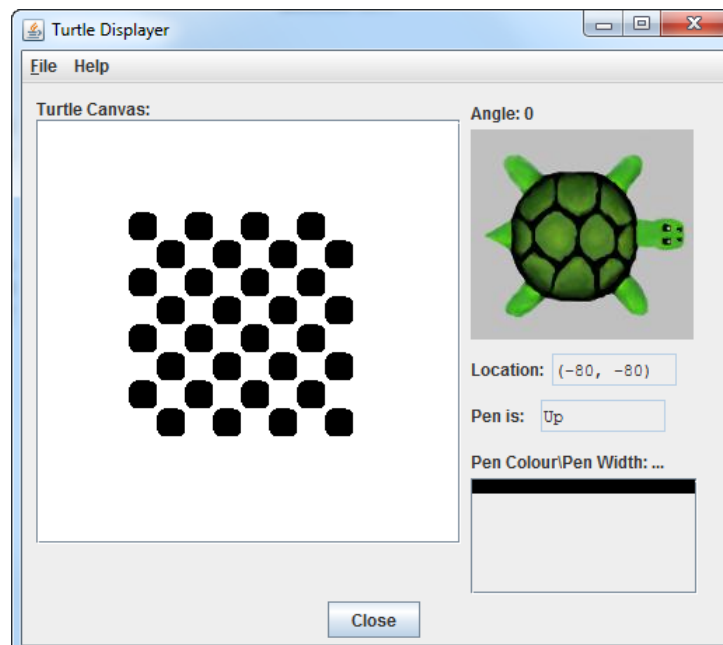
As part of a package called `Assign_1_B`, write a Java class called `DoubleRow` that draws two rows of squares across the display as shown below. The lower row should be 20 units below the upper row (i.e. there is no gap) and should be offset to the right by 20 units. The result should look like alternating black and white squares.



Use a for loop to draw the series of 2 rows. You may copy and paste the code from Part A that draws a single row for use in this part. Be sure you know where the turtle winds up relative to where you started.

Part C

As part of a package called `Assign_1_C`, write a Java class called `Board` that creates an eight by eight board (e.g. a chess or checkers board) covered with alternating black and white squares as seen below. There will be four repetitions of the double row of squares. The turtle will have to be positioned appropriately before starting so that the board is centered on the 300x300 canvas.



Submission:

Details regarding preparation and submission of assignments in COSC 1P02 are found on the COSC 1P02 Sakai Site as [Assignment Guidelines](#) under [Course Documents](#). This document includes a discussion of assignment preparation, programming standards, evaluation criteria and academic conduct (including styles for citation) in addition to the detailed assignment submission process copied below.

To prepare and submit the assignment electronically, follow the procedure below:

1. Ensure your folder (Assign_1) for the assignment has subfolders Assign_1_A, Assign_1_B and Assign_1_C containing the DrJava projects for the three parts of the assignment.
2. Using DrJava, print (as a pdf file, e.g. using “printer” Microsoft Print to PDF or similar) the .java file of each of the parts for your assignment using the name *ClassName*.pdf where *ClassName* is the class name (i.e. same name as the .java file) and save the .pdf files at the **top level** of the assignment folder (i.e. directly within Assign_1).
3. Run the program for each part. When the display is finished (i.e. Close button visible), select Print Image of Window... from the File menu on the TurtleDisplayer and direct the output to Microsoft Print to PDF and saving the .pdf file at the **top level** of the assignment folder (i.e. directly within Assign_1) using an appropriate name (e.g. PartA.pdf).
4. Create a .zip file of your submission by right-clicking on the top level folder (i.e. Assign_1) and selecting Send to/Compressed (zipped) folder. A zipped version of the folder will be created. Use the default name (Assign_1.zip).
5. Log on to Sakai and select the COSC 1P02 site.
6. On the Assignments page select Assignment 1. Attach your .zip file (e.g. Assign_1.zip) to the assignment submission (use the Add/Remove Attachments button and select Browse. Navigate to where you stored your assignment and select the .zip file (Assign_1.zip)). The file will be added to your submission. Be sure to check the Honor Pledge checkbox. Press Submit to submit the assignment. You should receive a confirmation email.

DrJava

The .zip folder you submit should contain the project folders for the two parts, including all files relevant to the project—the .java and .class files for the assignment—and the .pdf files for program listings and output at the top level.

Other Platforms

If you are using an IDE other than DrJava to prepare your assignment, you must include the .java source files and the .pdf files described above for each part as well as an executable file (likely .class or .jar) that will execute on the lab machines.