For the part of the Control Structure assignment related to printing a set of patterns to the console, I will use four different “for” loops to create these patterns. To do so, I will set an index variable int i to a certain value. If we are creating a pattern that ascends in string length, I will set the index variable to 0 increment by 1 while i < 10. As it is 0 indexed, the operations inside the for loop will execute 10 times, for a total of ten lines, starting with one asterisk on the first line to ten asterisks at line 10.

For the second pattern however, and others like it, I will set int i = 9, decrementing by one each execution while i+1 > 0. That concludes the for loop syntax part of the program.

Inside each of these for loops, I will use separate counters, int counter and int sCounter to use in while loops to repeatedly print “\*” in a sequence. The counter variable increments by 1 each execution, and executes while it is less than the index variable i. However, in patterns where on a given line there may be spaces preceding the asterisks, the while loop for sCounter executes while it is less than 9 – i, and increments sCounter each execution.

After the execution and exit of the while loops, the last statement is a creation of a new line in the console. This allows the move to the next line, such as from “\*” to “\*\*”.

After exit from the for loop, another new line is created using System.out.println() to create space for the next pattern.