Loop Structures and Selection Structures

# Part 1

1. Would you use a **for** or a **while** loop if you were creating an application to print the odd numbers from 1 to 1000? Explain why.

I would use a for loop to create an application which prints the odd numbers from 1 to 1000. For loops allow for a pre-set range to be set in place and in this case, whereas while loops are better when checking conditions such as whether a variable or condition is True or False. Both can be used in this case, however a for loop would suit this application better because I know that the loop must be run from 1 to 1000. For loops also allow for a step increase parameter that can be used to simply print out every other number (odd numbers for this application). In this case, it would take less code to do the same thing in the for loop rather than the while loop.

For example:

for (int i = 1; i <=1000; i += 2;) {  
 System.out.println(i);

}

1. Create a variable trace form for the following code segment, tracing the values from myNum and mySum, as well as the output.

|  |  |
| --- | --- |
| myNum | mySum |
| 11 | 0 |
| 10 | 50 |
| 9 | 95 |
| 8 | 135 |
| 7 | 170 |
| 6 | 200 |
| 5 | 225 |
| 4 | 245 |
| 3 | 260 |
| 2 | 270 |
| 1 | 275 |
| 0 | 270 |

Output

myNum: -1

mySum: 270