

(50 pts) Approx. 3 days

We’ve gotten a lot of experience with asking questions of different kinds and using various conditionals to make decisions in a program. The second half of control structures is all about looping within a program. Here, we’ll get good practice with both the *while* and *for* loops, also called “sentinel controlled” and “counter controlled” repetition, respectively.

1. Watch the three videos on looping control structure. Take a full page of good notes on each, making special note of the differences between the different kinds of looping structures, how, and when they are used!
2. Now, complete the following Java Tasks below that all require using Scanners and/or if statements!
  - a. JAVA TASK 16: Write a program that lets the user enter as many positive integers as they would like, and responds by telling them each time whether the numbers is even or odd. Your program should use a *while* loop, and should let the user type a negative number to end the program.
  - b. JAVA TASK 17: Write a program that uses a *for* loop to ask the user for 7 integers. The program should then print both the sum and the decimal average of the seven numbers.
  - c. JAVA TASK 18: Write a program that lets the user enter as many positive integers as they’d like and counts how many are even and how many are odd. The user should be able to type a negative number to end the program.
  - d. JAVA TASK 19: Write a program that uses a *for* loop to print a grid of numbers that show integer values multiplied by 10, 100, 1000, and 10000.

Example Output:

n	n*10	n*100	n*1000	n*10000
1	10	100	1000	10000
2	20	200	2000	20000

- e. JAVA TASK 20: Write a program that lets the user enter a maximum integer. The program should then print a nice 4x8 grid of *random* numbers that are all less-than-or-equal-to the user defined max number.
- f. JAVA TASK 21: Write a program that prints a grid of numbers that display a multiplication table up to 12x12. This program should use a nested *for* loop to make the grid and calculate the proper values.
- g. JAVA TASK 22: Write a program that lets the user enter a positive single digit integer. The program should then use a nested for loop to print a grid of alternating 0’s and 1’s. The length of the side of the grid should be the value the user typed. The 0’s and 1’s should alternate in a checkerboard pattern.

Example Program:      User: 3

(Output)

1	0	1
0	1	0
1	0	1

- h. JAVA TASK 23: Write a program that lets the user enter two small integers (less than 15), and then prints a rectangle of asterisks (\*) that has a width and height equal to the user’s two numbers.

3. Complete the *Control Structures Assignment* about the different control structures we need to know
4. Take the Unit 3 Quiz **by October 11** – the quiz is linked from our website!

Part 2: Tasks	10-7 points	6-4 points	3-0 points
 Conditionals Notes	+ Watch all presentations + You took a full page of notes on loops in Java + Your notes include detailed differences between while & for	- Less than a full page of loops notes - No notes on differences in types of loops	- Very brief or no notes in your notebook
 Java Tasks 16-23	+ You completed all 8 Java Tasks from this section	- You did not complete all 8 tasks	- You did not complete any tasks
 Control Structures Assignment	+ You completed the Control Structures Assignment	- You only did part of the Control Structures Assignment	- You did not do the assignment
 Unit 3 Quiz: Control Structures	+ You took the Unit 3 Quiz by the due date + Your grade is based on how many you get correct.	N/A	- You did not take the Unit 3 Quiz

