

## Week 2: Research

### Prompts

1. What are the different loops Java provides us with?

Java is designed to execute all statements in order from top to bottom, however, to provide for conditions where statements must be returned to, built on one another, or repeated, java provides control flow statements categorized as loops. There are two kinds of loops, a “while” loop and a “for” loop. Both loops *can* be used fairly interchangeably. The main difference between the two is known versus unknown duration need. “for” loops are designed to be best utilized when the duration or iteration of loops is known (IE when a loop must be run 10 times) as they are designed to iterate over a range of values until their condition is satisfied and have the increment built into their expression. “while” loops, however, are best utilized when the duration is unknown and they simply need to run until some condition is no longer true.

2. What is the syntax of one of the loops in your above answer? How and when should you use this loop? Give an example.

“while” loops are designed fairly simply, as follows:

```
while (Boolean expression) {  
  
    Statement;  
  
    Statement;  
  
}
```

The condition listed in the Boolean expression must be true at initialization for the “while” loop to run. If the condition is true with no iteration or change the while loop will not stop running and will return through the statements until externally killed. However, if the condition is never true, the “while” loop will never run, with one exception. The “do-while” loop allows the statements to be run once and then checks to see if the Boolean condition is true. This allows a developer to utilize code that must be run *at least once* as either a simple line of code or, if the Boolean condition is true, a repeated loop. “do-while” loops use the following syntax:

```
do {  
    statement;  
    statement;  
} while (boolean expression);
```

#### References:

Martinez, Javier. *Week 2 Backend Software Development Class*. Promineo Tech. 13 September 2022.

*Control Flow Statements*. Control Flow Statements (The Java™ Tutorials > Learning the Java Language > Language Basics). (n.d.). Retrieved September 12, 2022, from <https://docs.oracle.com/javase/tutorial/java/nutsandbolts/flow.html>

*The for Statement*. The for Statement (The Java™ Tutorials > Learning the Java Language > Language Basics). (n.d.). Retrieved September 12, 2022, from <https://docs.oracle.com/javase/tutorial/java/nutsandbolts/for.html>

*The while and do-while Statements*. The while and do-while Statements (The Java™ Tutorials > Learning the Java Language > Language Basics). (n.d.). Retrieved September 12, 2022, from <https://docs.oracle.com/javase/tutorial/java/nutsandbolts/while.html>

*Loops*. Promineo Tech. (n.d.). Retrieved September 13, 2022, from <https://youtu.be/n3OEtq08ARw>