Learning Consolidation
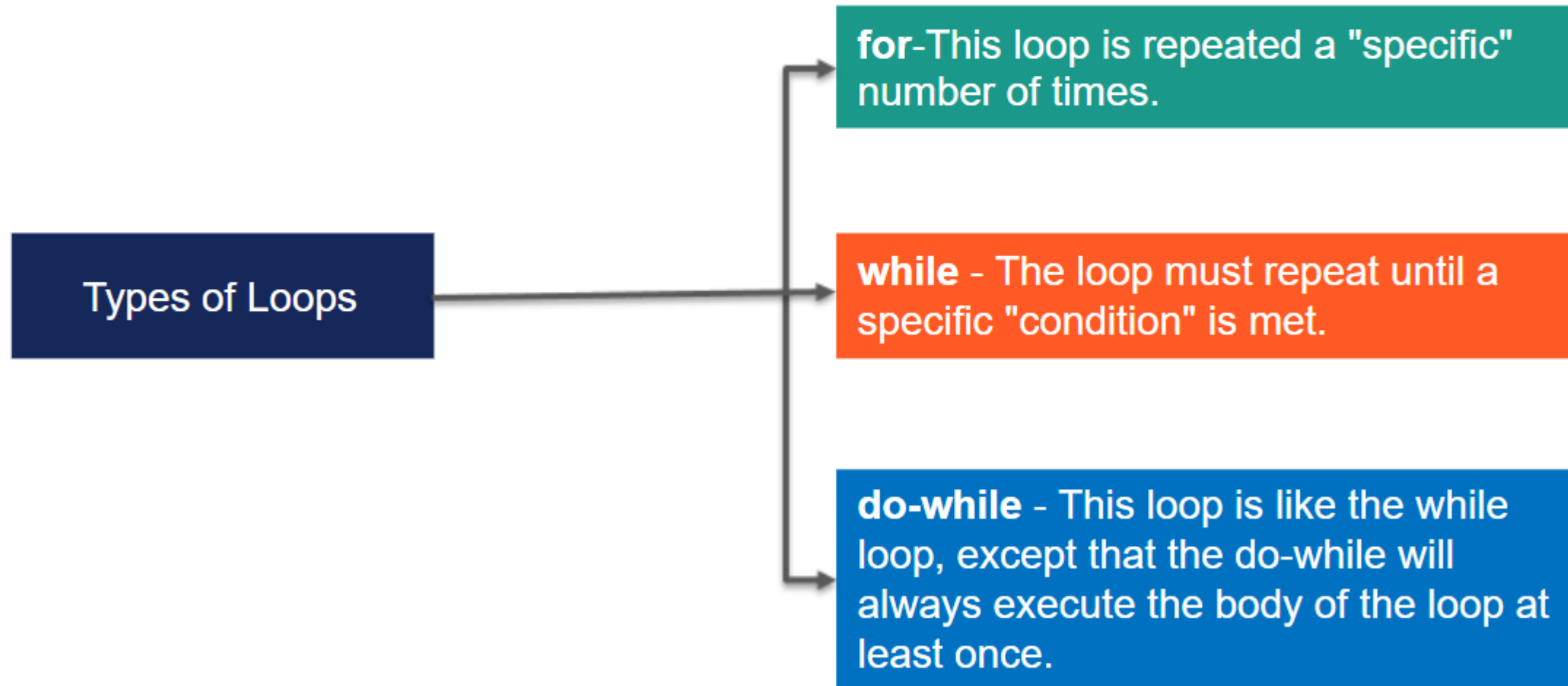# Looping Constructs

Learning Objective

- Define loops in Java

- Differentiate between For-Loop, While-Loop, and Do-while Loop

- Explain Infinite While Loop

- Describe Infinite For Loop

- Explain Infinite do-While Loop

Loops in Java

Loops

- Loops enable you to execute the same block of code several times.

- A set of repetitive instructions can be reduced to a single instruction by using a loop.

Types of Loops

for-This loop is repeated a "specific" number of times.

while - The loop must repeat until a specific "condition" is met.

do-while - This loop is like the while loop, except that the do-while will always execute the body of the loop at least once.

for-Loop vs while-Loop vs do-while Loop

for-loop	while-loop	do-while loop
If the number of iterations is fixed, it is recommended to use for loop.	If the number of iterations is not fixed, it is recommended to use while loop.	If the number of iterations is not fixed, and the loop needs to be executed at least once, use the do-while loop.
Initialization and updating are part of the syntax	Initialization and updating are **not** a part of the syntax	Initialization and updating are **not** a part of the syntax

break and continue Statements

- The break and continue statements are used to manage program flow.

- They can be used in a loop to control loop iterations.

- These statements help the control loop and switch statements by enabling them to break out of the loop or jump to the next iteration by skipping the current loop iteration.

- The break statement:

  - It is a statement used to **break the current execution** flow of the program.

    - If a break is used **inside a loop,** it will terminate the execution of the loop.

- The continue statement:

  - Breaks one iteration of the loop if a specified condition occurs and continues with the next iteration in the loop.

Infinite while-Loop

- Use the boolean literal *true* to write the infinite *while* loop condition.

```java
public void infiniteUsingWhileLoop(){
    while(true)
    {
        //do something
    }
}
```

Infinite for-Loop

- Using the boolean value true in the condition place will make the for loop infinite.

```java
public void infiniteUsingForLoop(){
    for (; true ;){
        System.out.println("This is infinite loop");
    }
}
```

Infinite do-while Loop

- Using the boolean value true in the while condition makes the do-while infinite.

```java
public void infiniteUsingDoWhileLoop(){
    do{
        System.out.println("This will print infinite time");
    }while (true);
}
```