CODING SHUTTLE

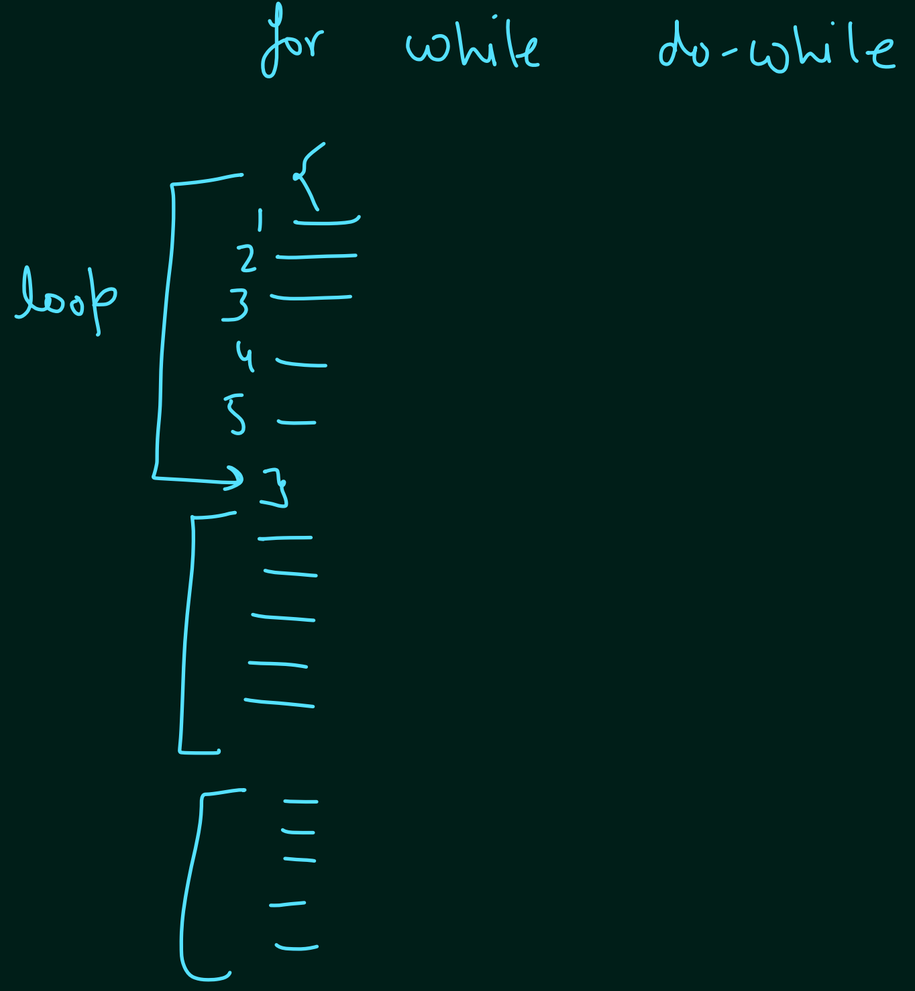
Loops in Java

In This Lecture

1. for loop
2. while loop
3. do-while loop
4. break & continue statements
5. Nested loops
6. Labeled break & continue statements

Elements of Java Loops

- Initialization Expression(s)
- Test Expression(Condition)
- Update Expression(s)
- Body of the loop



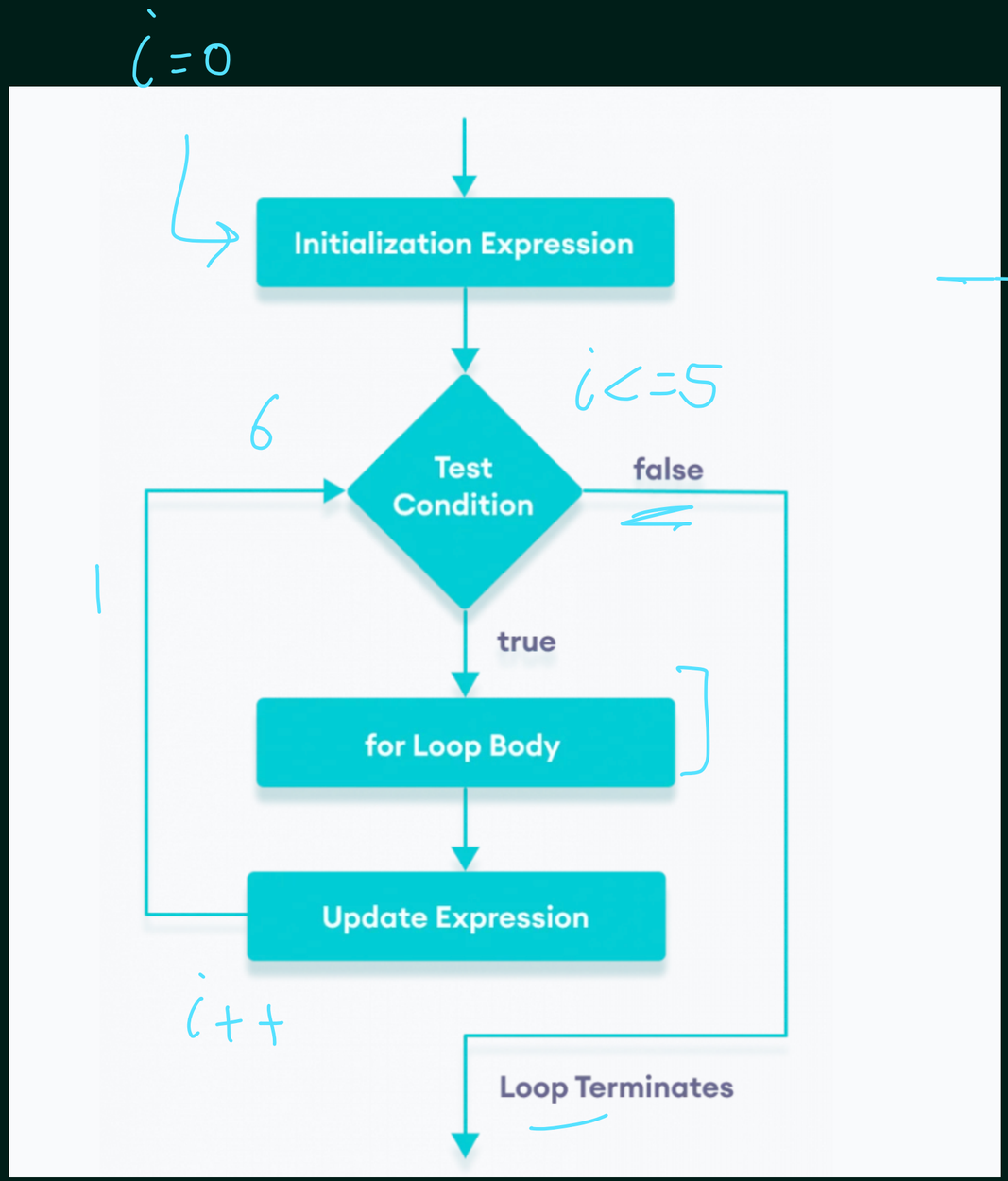
Java for Loops

① Table of n

3 x 1 = 3
3 * 2 = 6
⋮

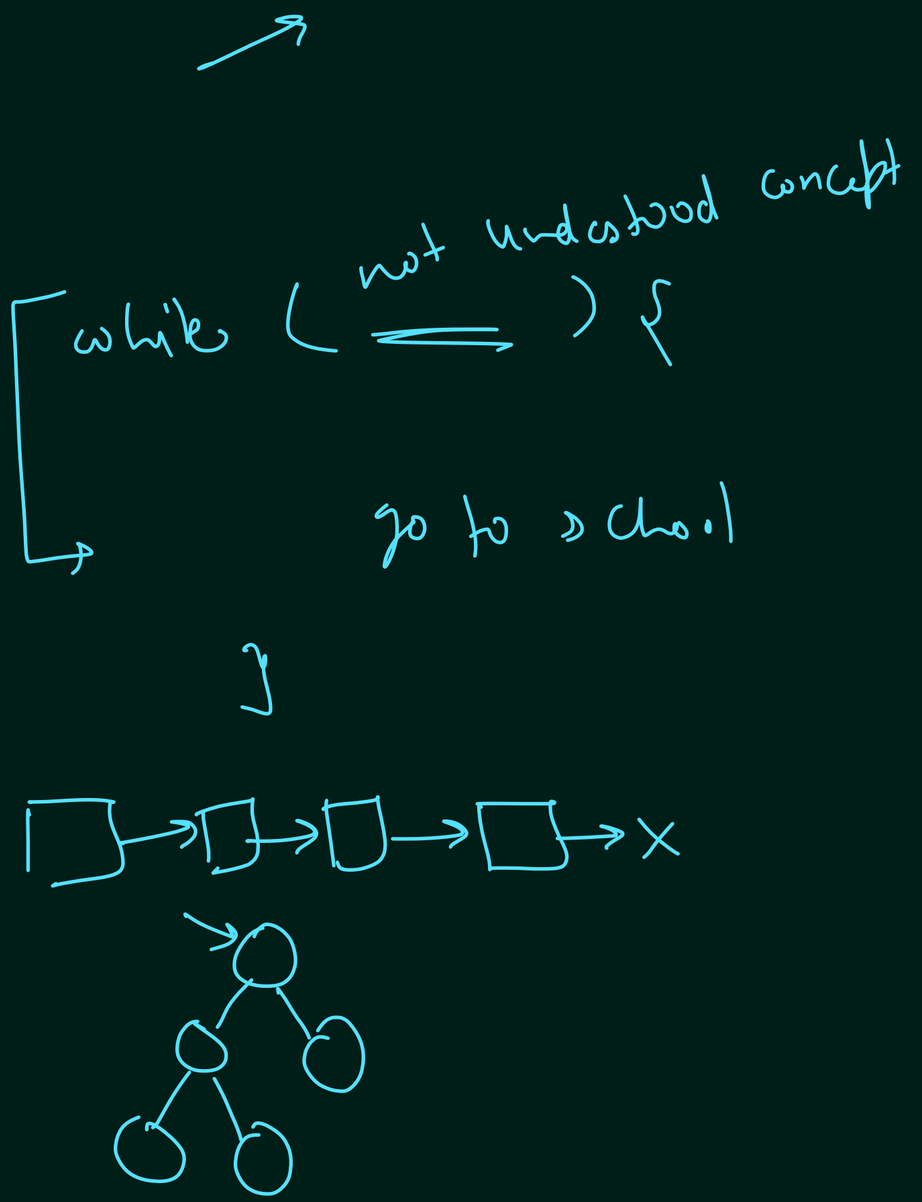
② Sum of N natural numbers

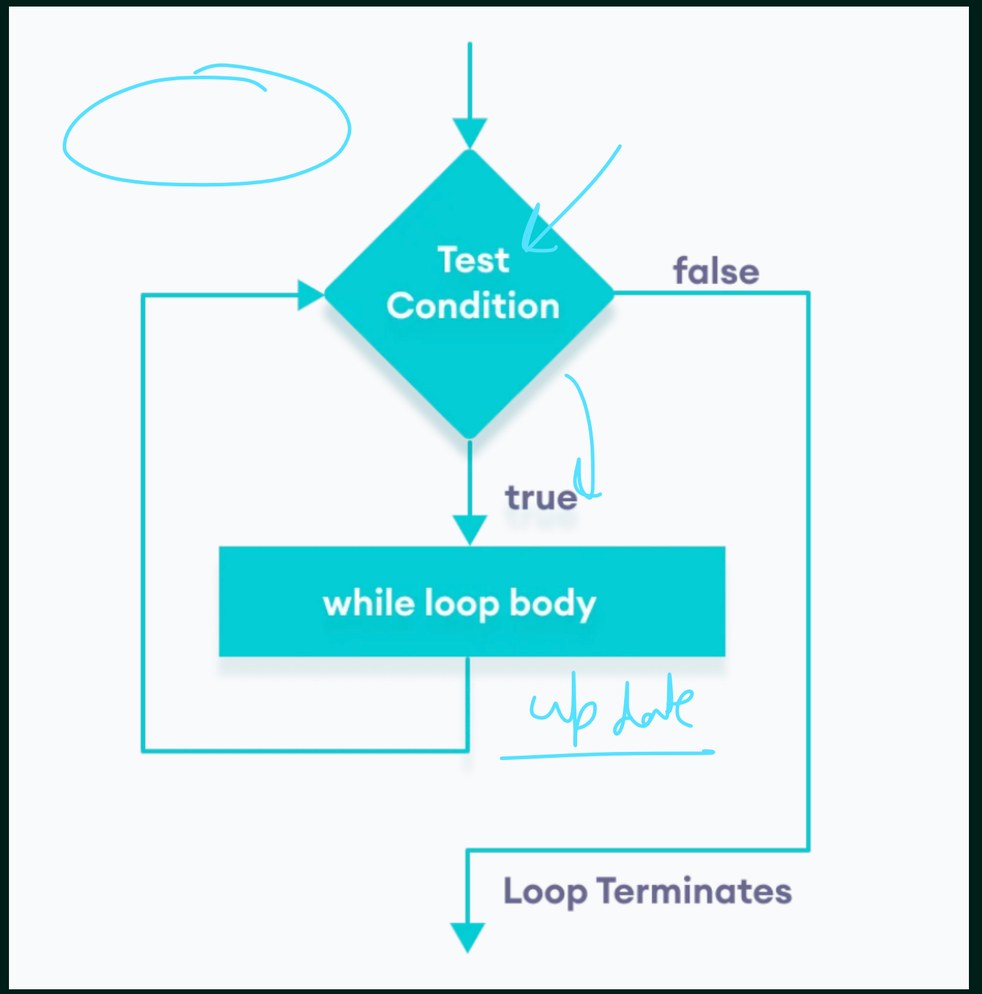
$= \frac{N(N+1)}{2}$



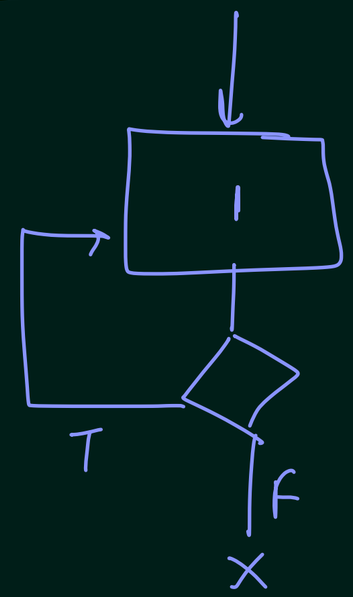
n = 5
(1 + 2 + 3 + 4 + 5)
→ 2 + 4 + 6 + 8 + 10

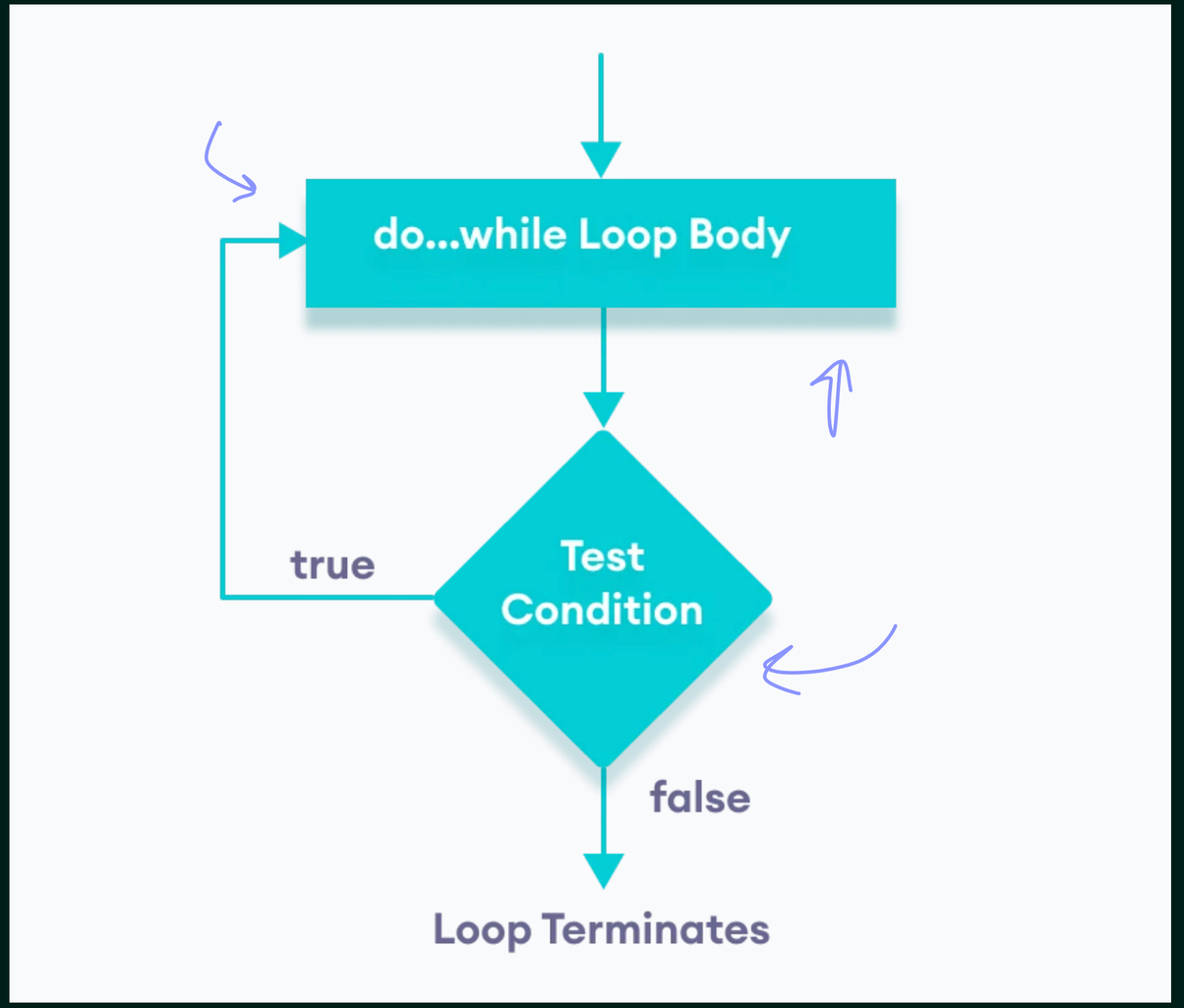
Java while Loops





Java do-while Loops





break statements in Java

switch

break

{

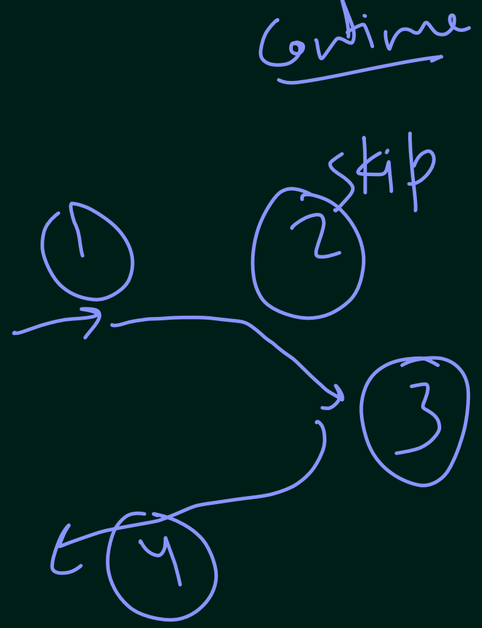
}

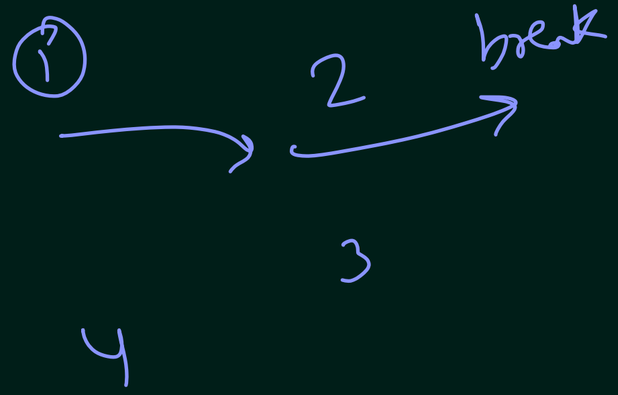
```
while (testExpression) {
    // codes
    if (condition to break) {
        break;
    }
    // codes
}
```

```
do {
    // codes
    if (condition to break) {
        break;
    }
    // codes
}
while (testExpression);
```

```
for (init; testExpression; update) {
    // codes
    if (condition to break) {
        break;
    }
    // codes
}
```

continue statements in Java





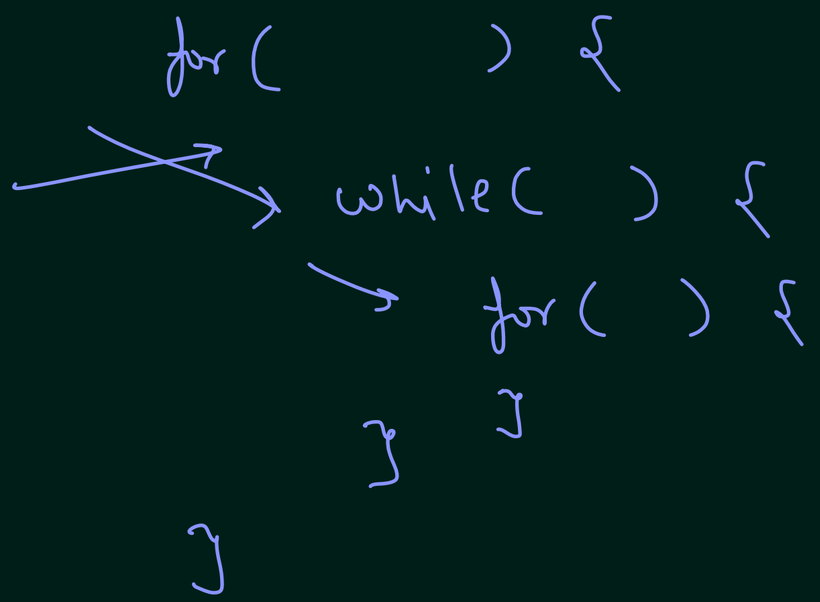

```
while (testExpression) {
    // codes
    if (testExpression) {
        continue;
    }
    // codes
}
```

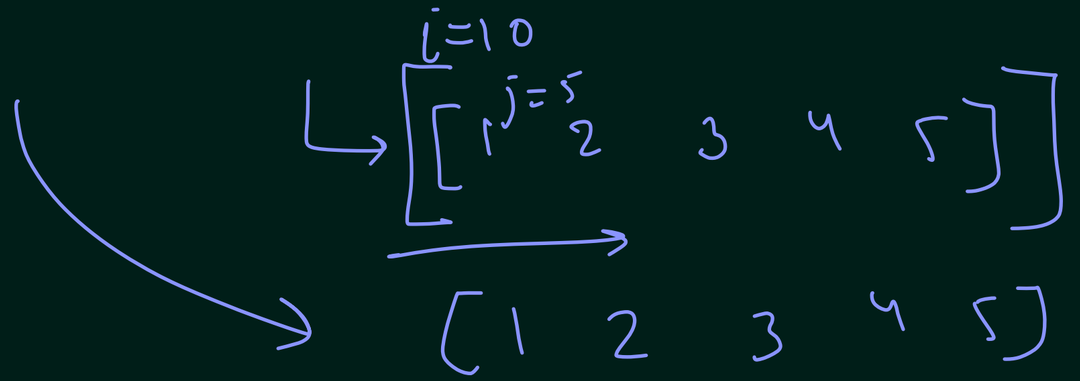
```
do {
    // codes
    if (testExpression) {
        continue;
    }
    // codes
}
while (testExpression);
```

```
for (init; testExpression; update) {
    // codes
    if (testExpression) {
        continue;
    }
    // codes
}
```

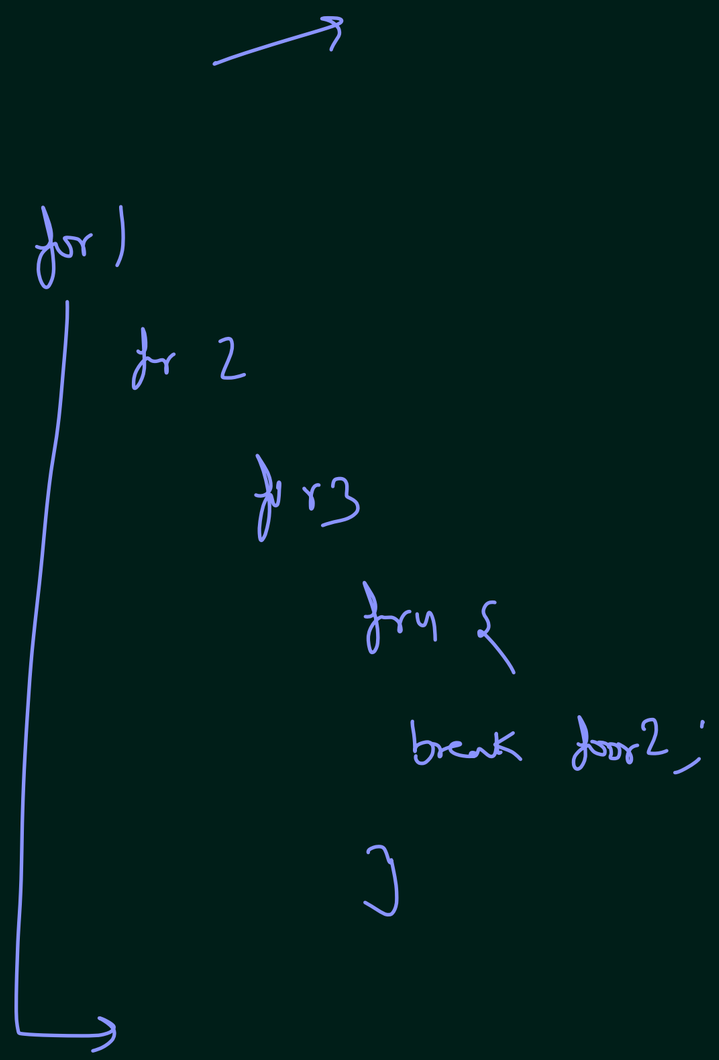
Nested loops

If a loop exists inside the body of another loop, it's called a nested loop.





Labeled break & continue statements




```
label:
while (testExpression) {
    // codes
    while (testExpression) {
        // codes
        if (testExpression) {
            continue label;
        }
        // codes
    }
    // codes
}
```