INTRODUCTION TO JAVA

Java 1.0

LOOPS

LOOPING STATEMENTS

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LOOP OVERVIEW

- There may be situation when you need to execute a block of code several number of times

- A loop statement allows us to execute a statement or group of statements multiple times

- Looping statements available:

1. while
2. for
3. do...while

LOOP STRUCTURE

- There is a control variable, called the loop counter
- Loop variable must be initialized
- The increment or decrement of the control variable, which is modified each time the iteration of the loop occurs
- The loop condition that determines if the looping should continue or the program should break from it

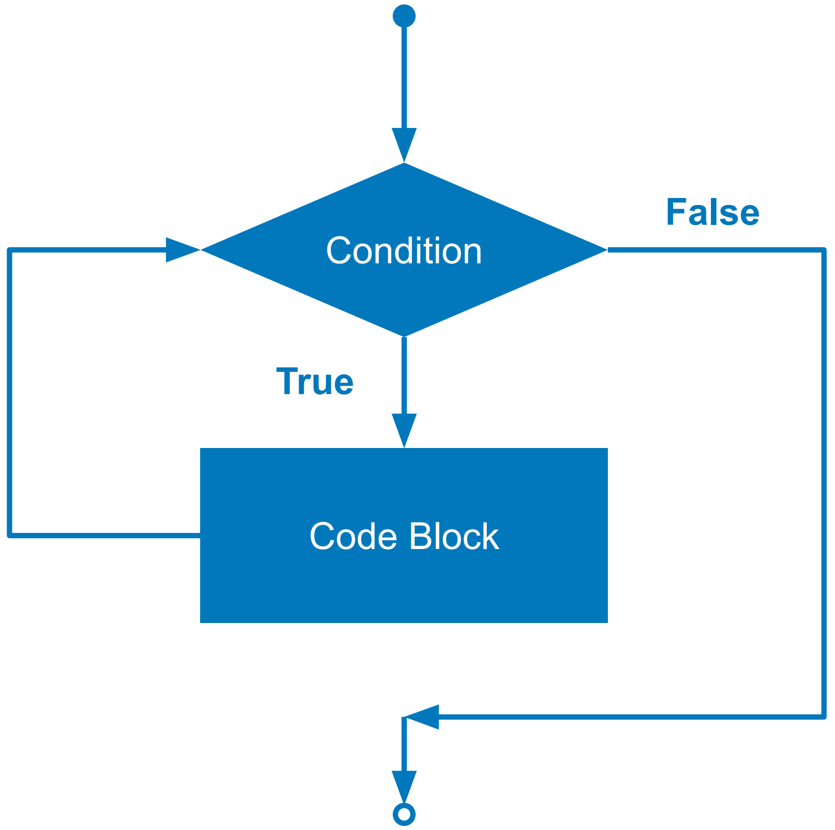
WHILE LOOP

- Repeats a statement or block of statements while its controlling Boolean expression is true

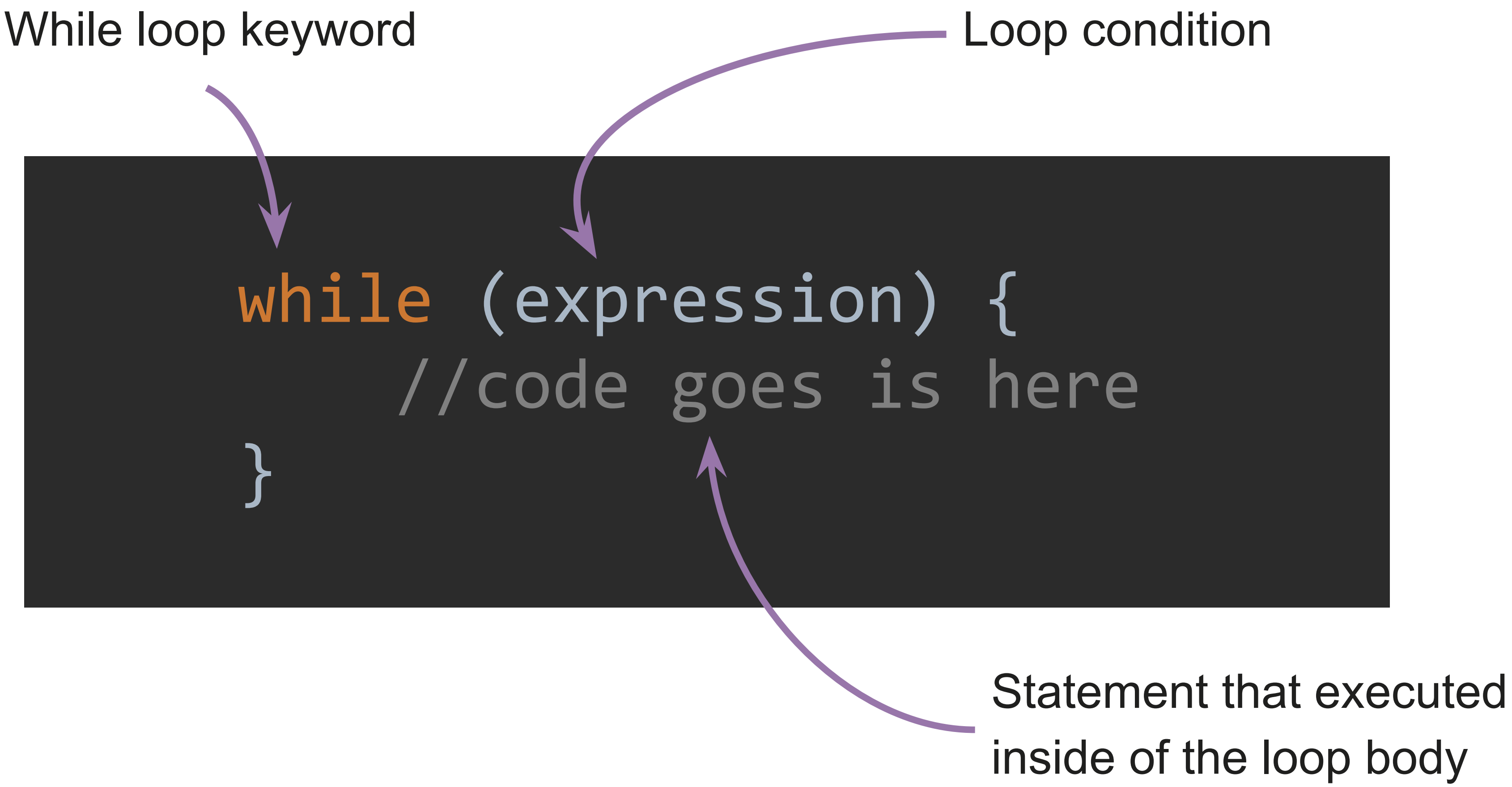
- Boolean expression is evaluated before the first iteration of the loop, hence executed zero or many times

- Usually used when number of iterations depends

WHILE LOOP FLOWCART



WHILE LOOP SYNTAX



While loop keyword

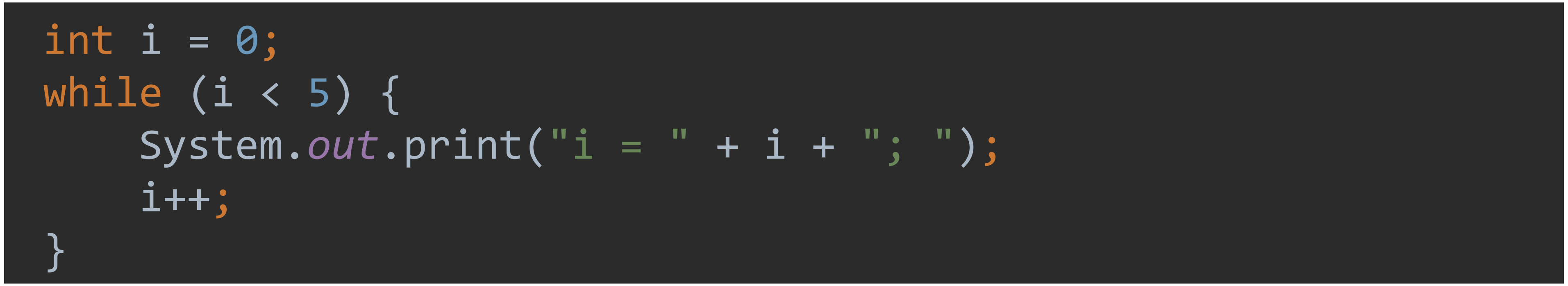
Loop condition

```
while (expression) {
    //code goes is here
}
```

Statement that executed inside of the loop body

WHILE LOOP EXAMPLE

Code



```java
int i = 0;
while (i < 5) {
    System.out.print("i = " + i + "; ");
    i++;
}
```

Console Output

```
i = 0; i = 1; i = 2; i = 3; i = 4;
Process finished with exit code 0
```

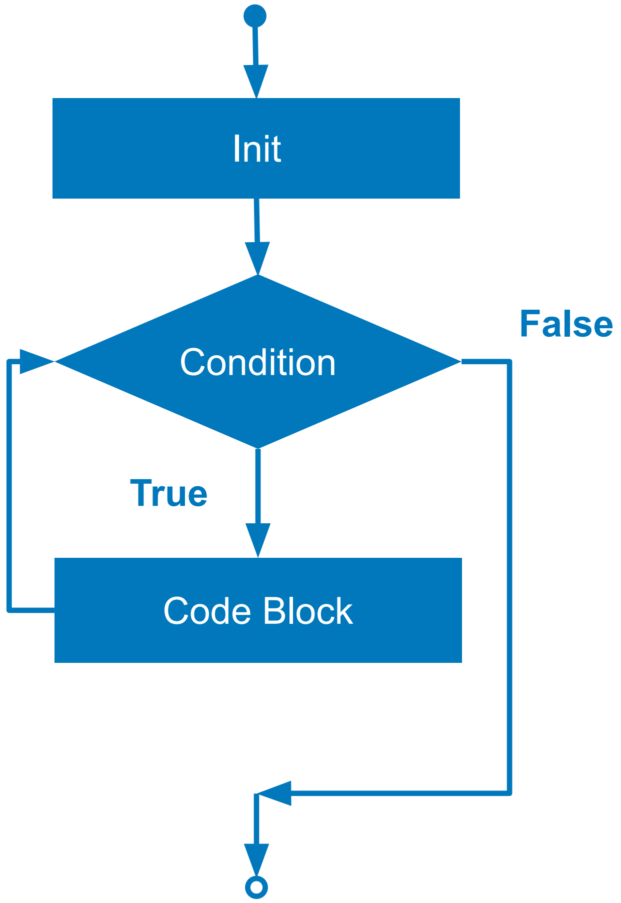
FOR LOOP

- Control structure that allows us to repeat certain operations by incrementing or decrementing and evaluating a loop counter

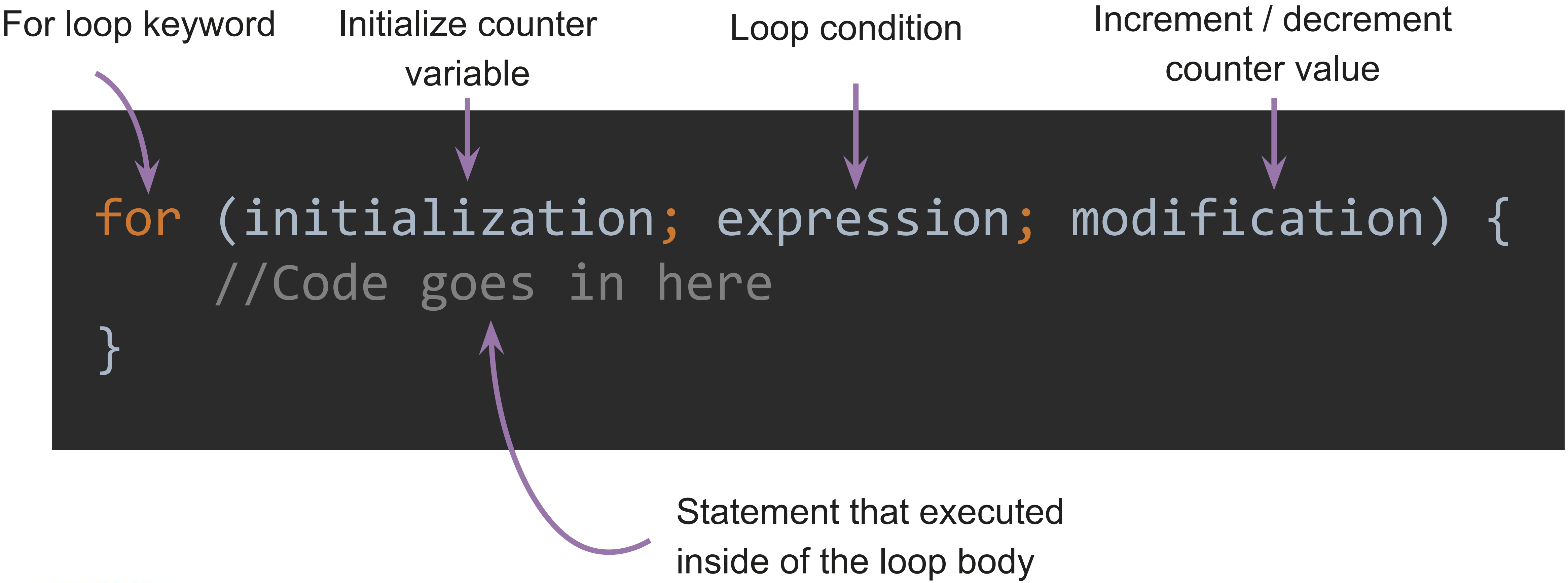
- Boolean expression is evaluated before the first iteration of the loop, hence executed zero or many times

- Usually used when number of iterations are known in advance

FOR LOOP FLOWCART



FOR LOOP SYNTAX



For loop keyword

Initialize counter variable

Loop condition

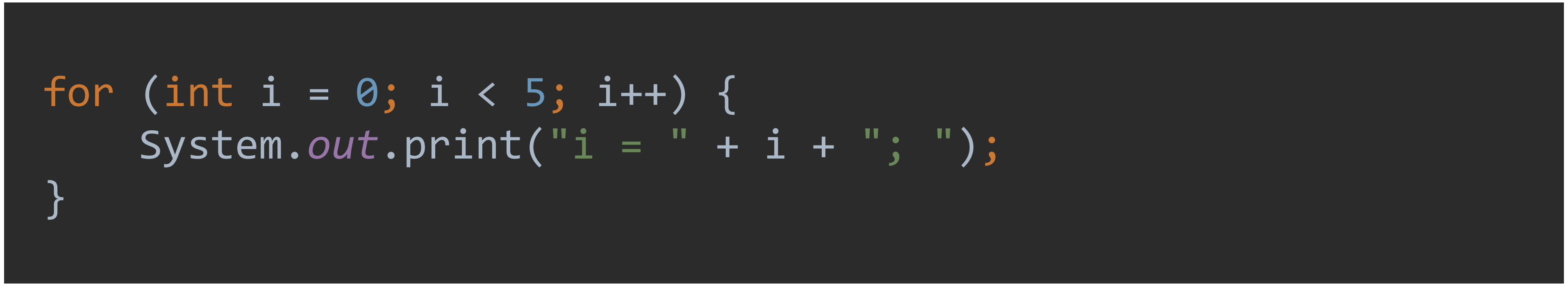
Increment / decrement counter value

```
for (initialization; expression; modification) {
    //Code goes in here
}
```

Statement that executed inside of the loop body

FOR LOOP EXAMPLE

Code



```java
for (int i = 0; i < 5; i++) {
    System.out.print("i = " + i + "; ");
}
```

Console Output

```
i = 0; i = 1; i = 2; i = 3; i = 4;
Process finished with exit code 0
```

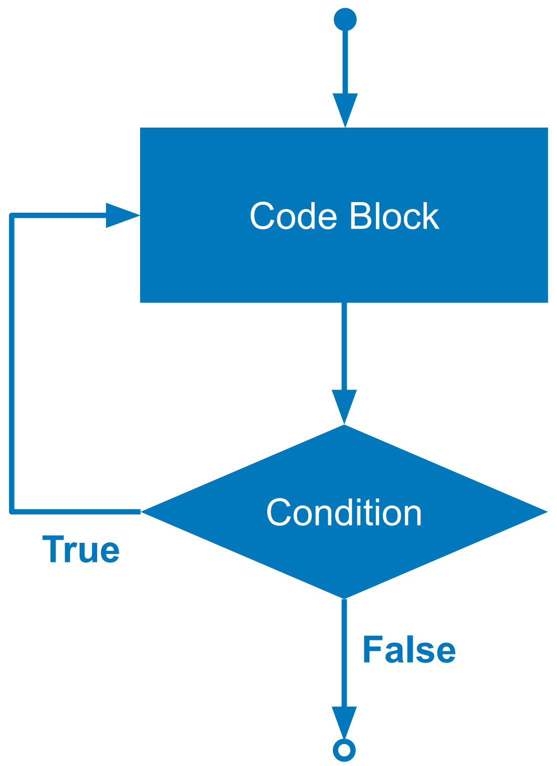
DO WHILE LOOP

- Repeats a statement or block of statements while its controlling Boolean expression is true

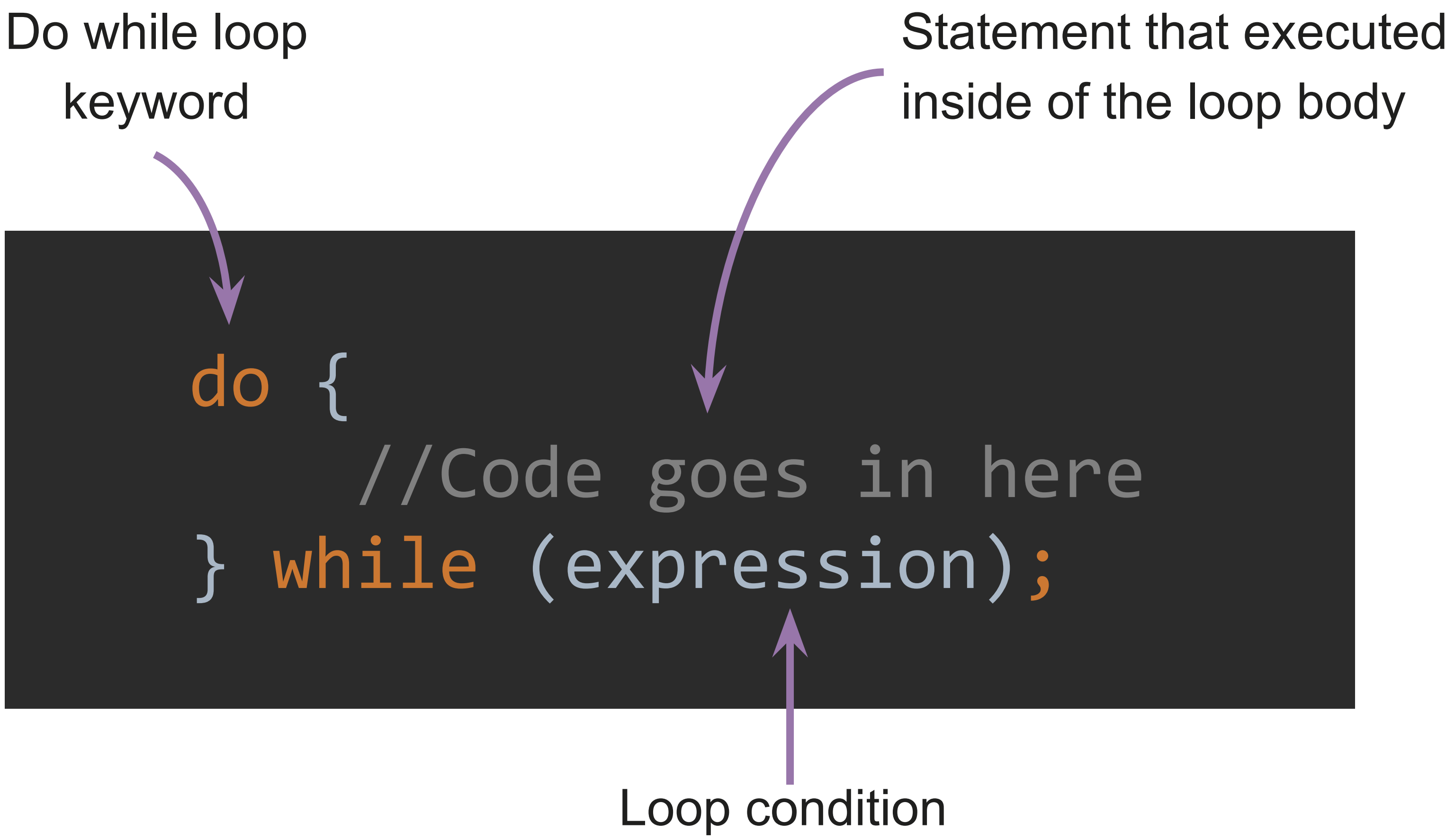
- Boolean expression is evaluated after the first iteration of the loop, hence executed one or many times

- Usually used when number of iterations are known in advance

DO WHILE LOOP FLOWCART



DO WHILE LOOP SYNTAX



Do while loop keyword

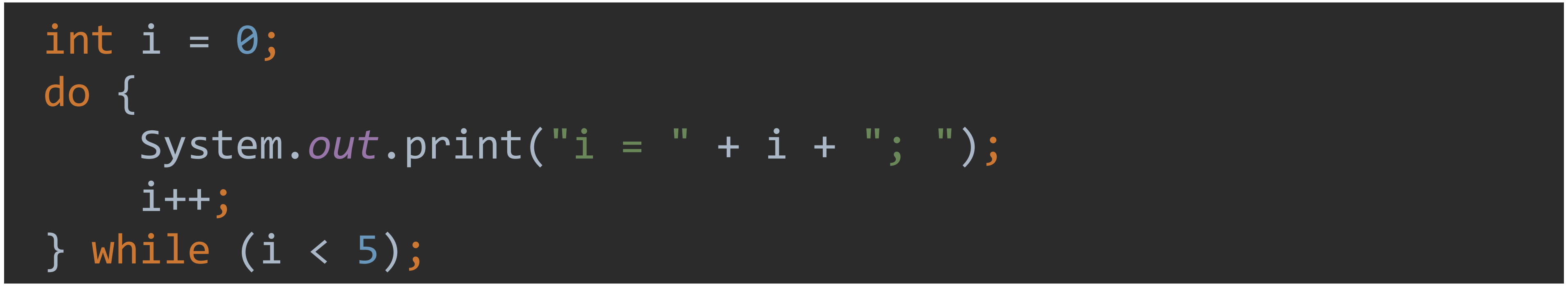
Statement that executed inside of the loop body

```
do {
    //Code goes in here
} while (expression);
```

Loop condition

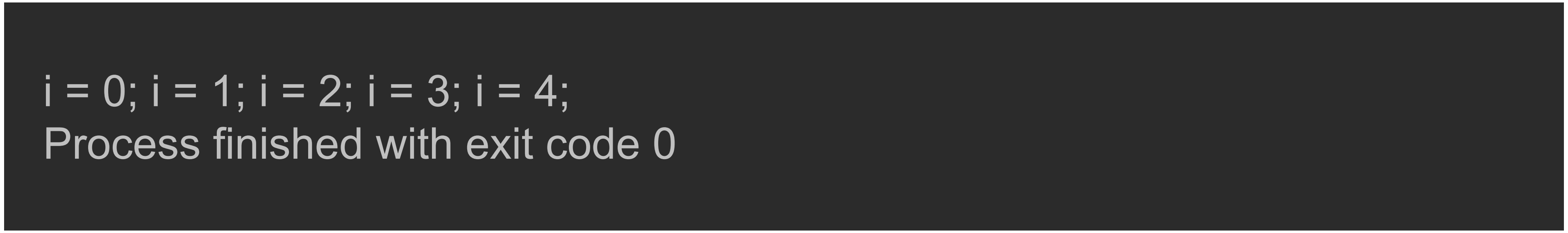
DO WHILE LOOP EXAMPLE

Code



```java
int i = 0;
do {
    System.out.print("i = " + i + "; ");
    i++;
} while (i < 5);
```

Console Output



```
i = 0; i = 1; i = 2; i = 3; i = 4;
Process finished with exit code 0
```

BRANCHING LOOP STATEMENTS

BRANCHING STATEMENTS IN LOOPS

- Branching statements are used to change normal flow of execution based on some condition

- Branching statements available in loops:

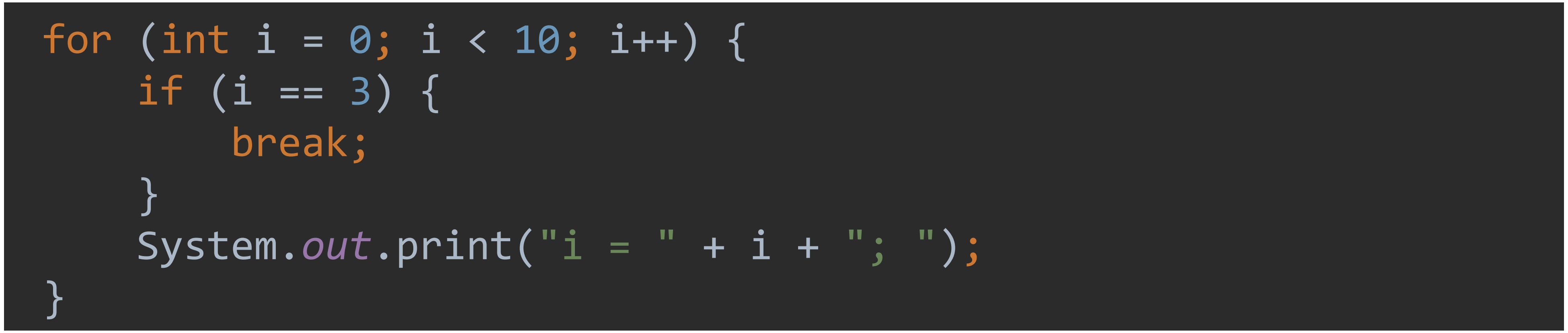
1. break
2. continue

BREAK STATEMENT

- Terminates the innermost for, while, do...while statement
- When the break statement encountered, the loop is immediately terminated and the program control resumes at the next statement following the loop

BREAK STATEMENT EXAMPLE

Code



```
for (int i = 0; i < 10; i++) {
    if (i == 3) {
        break;
    }
    System.out.print("i = " + i + "; ");
}
```

Console Output

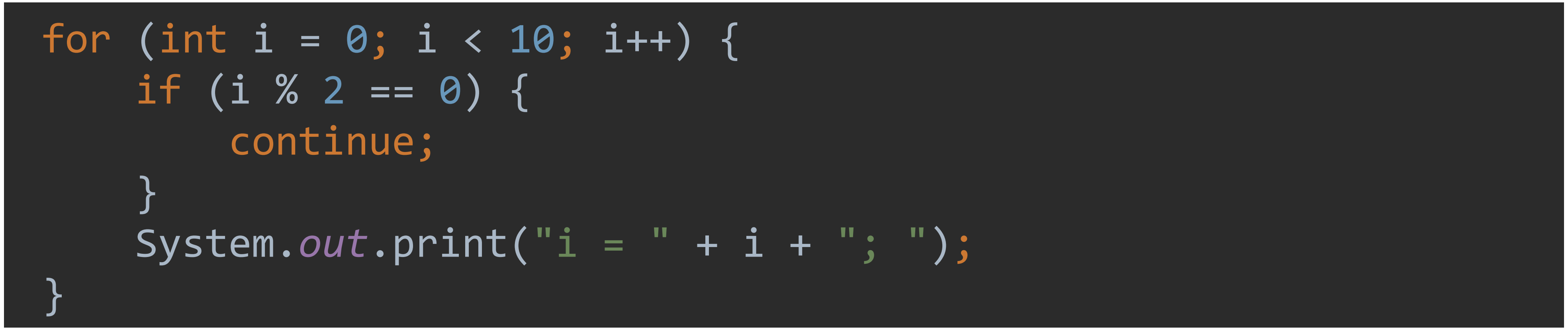
```
i = 0; i = 1; i = 2;
Process finished with exit code 0
```

CONTINUE STATEMENT

- In a for loop, the continue keyword causes control to immediately jump to the modification statement
- In a while or do...while loop, causes control to immediately jump to the Boolean expression

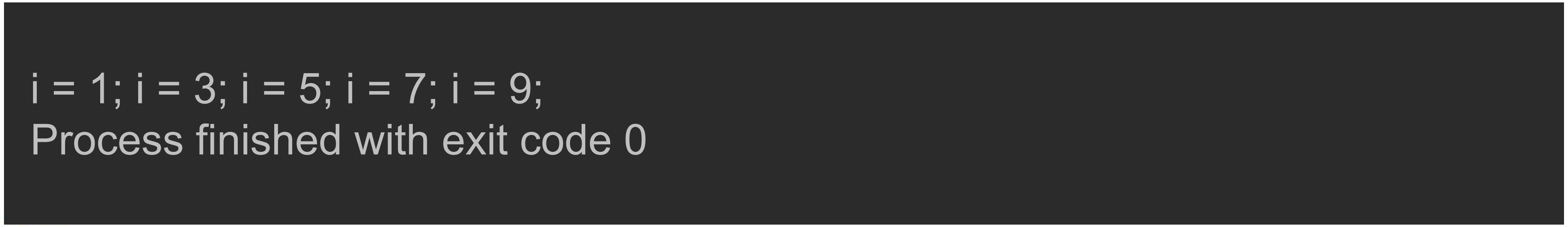
CONTINUE STATEMENT EXAMPLE

Code



```
for (int i = 0; i < 10; i++) {
    if (i % 2 == 0) {
        continue;
    }
    System.out.print("i = " + i + "; ");
}
```

Console Output



```
i = 1; i = 3; i = 5; i = 7; i = 9;
Process finished with exit code 0
```

REFERENCES

BYRON'S WORKS
POETRY
POULTRY·BOOK
WARD LOCK
DAVID COPPERFIELD
THE OLD CURIOSITY SHOP
A CHILD'S HISTORY OF ENGLAND
THE EARTHLY PARADISE
WILLIAM MORRIS
VOL·III
VANITY FAIR
THACKERAY
THE ARTHUR RACKHAM FAIRY BOOK
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DON QUIXOTE
CERVANTES
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SHELLEY'S POETICAL WORKS
THE SON OF TARZAN
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REFERENCES

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- https://docs.oracle.com/javase/tutorial/java/nutsandbolts/branch.html

QUESTIONS?

THANK YOU!