

Java Programming

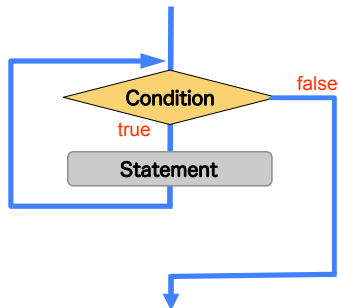
— Basics of Java Programming: Loops (while statement) —

Waseda University

Loop (while statement)

while statement

```
while (condition) {  
    statement  
}
```



- When there is something to perform repeatedly while a certain condition is satisfied, it's often used.
- Since condition is checked at first, there is a case where statement is never performed.

Example (while statement)

```
int sum = 0;
sum = sum + 1;
sum = sum + 2;
...
sum = sum + 1000;
```

- You have to repeat to calculate “sum = sum + i” 1000 times while increasing the variable i.



```
int i = 1, sum = 0;
while (i <= 1000) {
    sum += i;
    i++;
}
```

Example program (while statement)

SampleWhile.java

```
public class SampleWhile {
    public static void main (String[] args) {
        int i, n, sum;
        i=1;
        n = 1000;
        sum = 0;
        while (i <= n) {
            sum += i;
            i++;
        }
        System.out.println(" Sum from 1 to " + n + " is " + sum);
    }
}
```

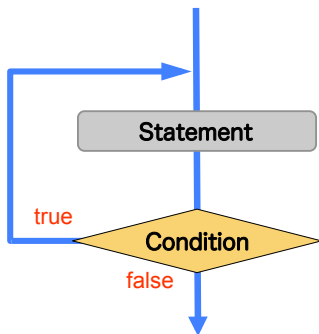
[Result]

Sum from 1 to 1000 is 500500

Loop (do-while statement)

do-while 文

```
do {  
    statement  
} while (condition);
```



Example (do-while statement)

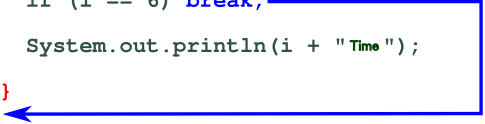
Example...

```
int i = 1, sum = 0;
do {
    sum += i;
    i++;
} while (i <= n);
```

break statement

SampleBreak.java

```
public class SampleBreak {  
    public static void main(String[] args) {  
        for (int i=1; i<=10; i++) {  
            if (i == 6) break;  
            System.out.println(i + "Time");  
        }  
    }  
}
```



[Results]


1Time
2Time
3Time
4Time
5Time

- You can use the break statement in switch, for, while, do-while statements.
- The break statement breaks out of the loop and the switch.
- In case of the above example, when i is 6, it breaks out of the for statement.

continue statement

SampleContinue.java

```
public class SampleContinue {  
    public static void main(String[] args) {  
  
        for (int i=1; i<=10; i++) {  
            if (i%3 == 0) continue;  
            System.out.println(i + "Time");  
        }  
    }  
}
```



[Results]

1Time

2Time

4Time

5Time

7Time

8Time

10Time

- You can use the continue statement in the loop statement (for, while and do-while).
- When it is encountered, it ends the current iteration and program control goes to the end of the loop body.
- In case of the above example, when i is the multiple of 3, it breaks out of an iteration.

Force-quit command on a terminal

Ctrl + **C** : force-quit a program

[How to use] Hold down the **Ctrl** key and press the **C** key

- To run a program that excuses the incorrect loop, there is a case that the program doesn't end.
- In such cases, it is called the **infinite loop**.
- If the program doesn't end, you can use the force-quit command.