THE UNIVERSITY OF MELBOURNE

Workshop 3 （week4）

COMP90041 Programming and software development

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if-else

demo2

```
if (Boolean_Expression)
  Yes_Statement
else
  No_Statement
```

Switch

- `switch` statement chooses one of several cases based on an `int`, `short`, `byte`, or `char` value
- As of Java 7, it can also be a `String`: more useful
- Form:

```
switch (expr) {
  case value1:
    statements...
    break;
  :
  case valuen:
    statements...
    break;
}
```

demo2

Write a program that takes one command line argument

which should be N, S, E, or W

if the input is N,
print out 0,
if it is S,
print out 90.
if it is E
print out 180.
if it is W,
print out 270.

output "wrong input"

Quiz

```
static String testmethod(int n)
{
      String r = "none";

      switch (n)
      {

      case 1: r = "one";
      case 2: r = "two";
      case 3: r = "three";

      }

      return r;
}
```

What string will return?

A. one
B. two
C. three
D. none

testmethod(1) c

testmethod(2)c

testmethod(8) d

While vs Do While

While vs Do While

while loop

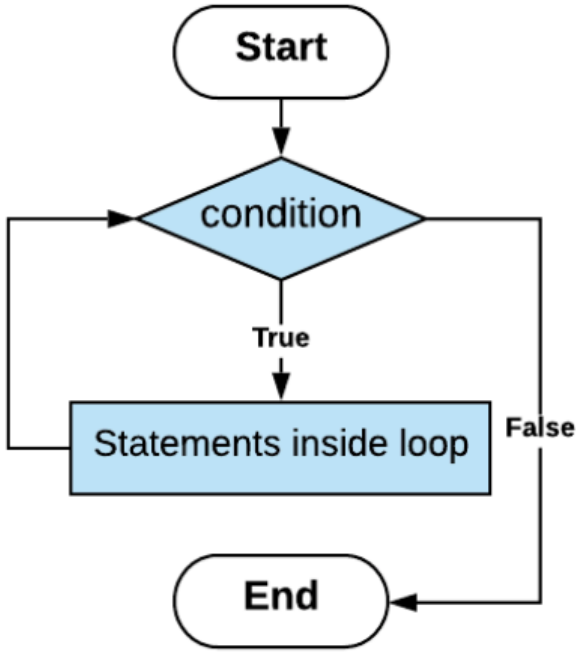
```
while (Boolean_Expression) {
      Statement 1;
      Statement 2;
      :
      Statement last;
}
```

do-while loop

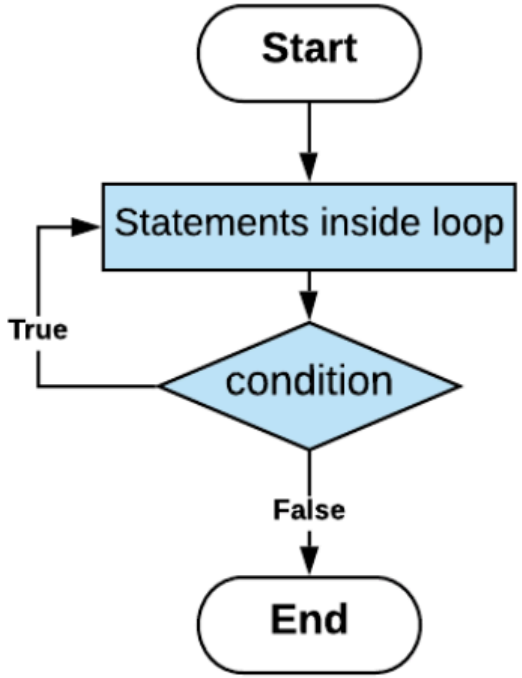
```
do {
      Statement 1;
      Statement 2;
      :
      Statement last;
} while (Boolean_Expression);
```

While vs Do While

while loop



do-while loop



- `while` executes *`Statement`* zero or more times
- `do while` executes *`Statement`* one or more times

While vs Do While

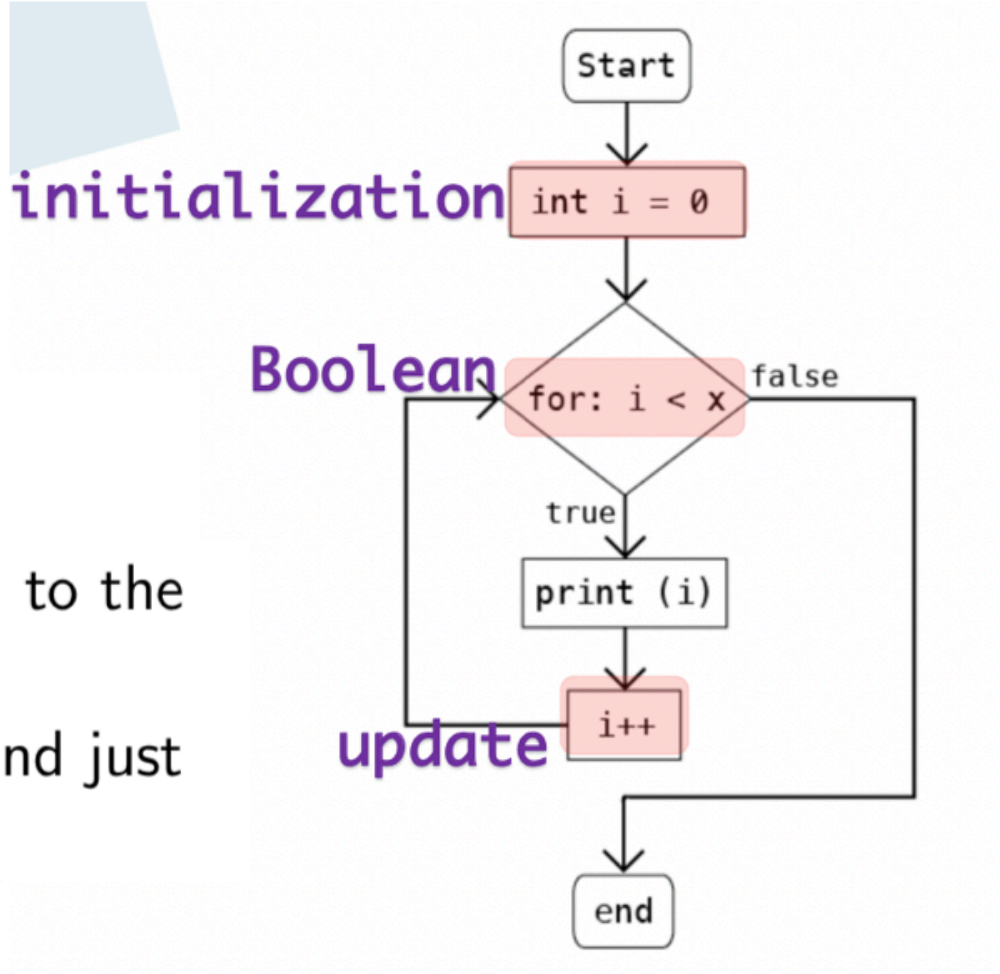
```java
public class demo3 {
    public static void main(String[] args) {
        int x = 3, y = 0;
        do {
            y++;
            x--;
        } while (x < 0);
        System.out.println(y);
    }
```

```java
public class demo3 {
    public static void main(String[] args) {
        int x = 3, y = 0;
        while (x < 0){
            y++;
            x--;
        }
        System.out.println(y);
    }
```

What will this print?

For

```java
public void printNumbers(int x){
    for (int i = 0; i < x; i++){
        System.out.println(i);
    }
}
```



- Variables declared in *init* part are scoped to the `for`: not available after the loop
- But you can declare variable before loop, and just initialise it in the *init* part

demo4

break & continue

- Inside a `for`, `while` or `do while` loop, a `break` terminates the (innermost) loop immediately
- This is useful inside an `if` inside a loop
- A `continue` statement immediately returns to the top of the innermost loop and continues from there

```
for (int i = 0; i < 10; i++) {
  if (i == 4) {
    break;
  }
  System.out.println(i);
}
```

```
for (int i = 0; i < 10; i++) {
  if (i == 4) {
    continue;
  }
  System.out.println(i);
}
```

== VS equals

= = can correctly test two values of a primitive type

However, when applied to two objects such as objects of the String class, == tests to see if they are stored in the same memory location, not whether or not they have the same value

Do not use = = with Strings!!

```
public class Demo5 {
    public static void main(String[] args) {
        String s1 = new String( original: "abc");
        String s2 = new String( original: "abc");
        System.out.println(s1 ==s2);

    }
```

demo5

== VS equals

```
public class Demo5 {
    public static void main(String[] args) {
        String s1 = new String( original: "abc");
        String s2 = new String( original: "abc");
        System.out.println(s1 ==s2);

    }
```

```
String s1 = "abc";
String s2 = "abc";
System.out.println(s1 == s2);
```

demo5

use equals!

In order to test two strings to see if they have equal values, use the method equals, or equalsIgnoreCase

demo5

Q1

reads in temperatures (in Celsius) for five days, that is, from Monday to Friday and plots a histogram showing the temperatures. The name of your class should be Temperatures.

```
Please enter temperature for Monday: 25
Please enter temperature for Tuesday: 33
Please enter temperature for Wednesday: 26
Please enter temperature for Thursday: 28
Please enter temperature for Friday: 20

Histogram of Temperatures
-------------------------
Monday      | **************************
Tuesday     | *********************************
Wednesday   | **************************
Thursday    | ****************************
Friday      | ********************
```

Q2

implement the following warning and fines in the program based on the corresponding conditions:

	Condition	*Message(s)*
1	> 60 and <65	Warning
2	>60 and <65 and drunk	Warning + Take a shower
3	65 to <= 70	$5 fine for each km/hr over 60 km/hr
4	65 to <= 70 and drunk	$7 fine for each km/hr over 60 km/hr + Take a shower
5	> 70	$10 fine for each km/hr over 60 km/hr
6	> 70 and drunk	$15 fine for each km/hr over 60 km/hr Spend the day/night in cell until become sober

60 range1 65 range2 70 range3

Q2

Sample Run 1

```
Please enter speed: 64
Is the driver drunk? ('Y' for drunk, 'N' otherwise): N

**************************************************
Warning
--------------------------------------------------
You have a fine of $0.0
**************************************************
```

message

fine

Sample Run 2

```
Please enter speed: 64
Is the driver drunk? ('Y' for drunk, 'N' otherwise): Y

**************************************************
Warning + Take a shower
--------------------------------------------------
You have a fine of $0.0
**************************************************
```

message

fine

Thank you