

- Web page → lectures
- Lec 3 recording from diff course
- Waitlist - check email!

Java programming

source code - more precise/detailed than pseudocode

→ Editor or programming environment
- Eclipse

→ Compile program → Java byte code
Java virtual machine (JVM)

javac ProgramName → Byte code

java ProgramName → Execute

ProgramName.java → ProgramName.class (byte code)

Everything in Java lives inside a class

(L4-2)

public class Welcome ↗ name of class
↓

public static void main (String[] args) {
(don't worry)

System.out.println ("Welcome to COMP250");

}

↑
call to a library

}

main → always the main program that executes
→ always inside a class

Comments:

// Input/output vars

// Internal vars

// Side effects - modify something in addition to returning a result

Variables of basic types

L4-3

int, float/double, char, boolean
(true/false)

Variables have

- type (what can it hold?) → compiler (memory)
- name → refer to var
- value (what does it hold?)

int i = 1;

1

initialise at the beginning! Java complains

int j = 5;

j = i;

1 Assignment by value
0

double x = 0;

x = j;

1
x holds a double

0.1 * 10¹
↑ part here ↑ exponent

0.003 → 0.3 * 10⁻²
↑

i = x; // i int, x double

more specific more general type

gen type = specific typ ok

spec type = gen type not ok

i = (int)x; // type cast; explicit conversion

Conditionals

switch... case

(L4-L)

// Test if a point is inside a circle or not

if (condition) {

// code on true branch

} else {

// code on false branch

}

$\leq$

$==$
equality comparison

$!=$
inequality

public class TestIf {

public static void main (String[] args) {

// Circle variables

double x=1, y=2, r=1;

// Point

double a=1.5, b=0.7;

if ($(a-x)*(a-x) + (b-y)*(b-y) \leq r*r$) {

// inside

System.out.println("The point " + a + " " + b + " is inside");

convert number to a string
+ means concatenate

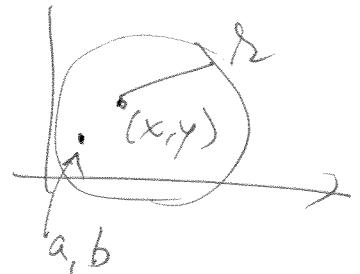
} else {

}

}

}

boolean
result



Loops

(4-5)

for loop → array processing

Example: print an array ~~of~~ (triangle) of *

~ {
*
**

:
}

Two indices

row

how many stars on
this row

```
public class TestFor {
```

```
    public static void main (String[] args) {
```

```
        int n=10; // how many rows
```

```
        for (int i=1; i<=n; i++) {
```

start condition end condition every time, add 1

```
            for (int j=1; j<=i; j++) {
```

```
                System.out.print ("*");
```

```
            }
```

```
            System.out.println ("");
```

```
        }
```

```
        System.out.println (i);
```

```
    }
```

```
}
```