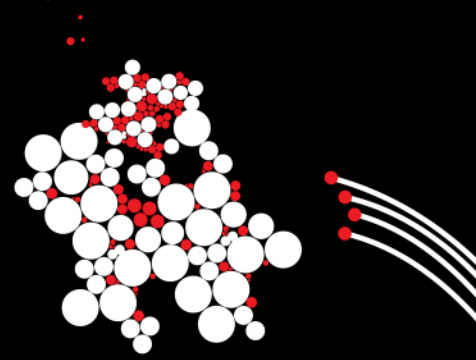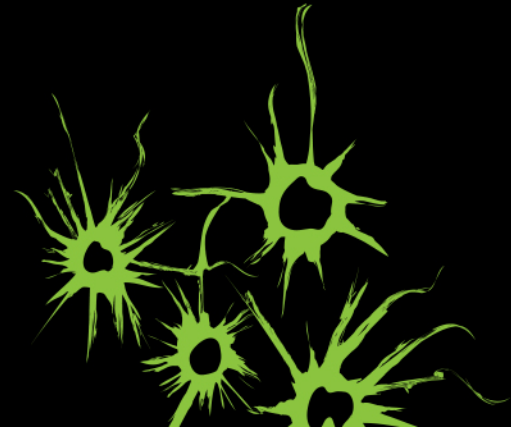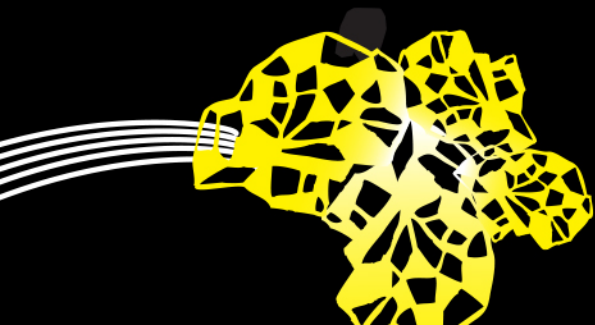# UNIVERSITY OF TWENTE.

From Python to Java

Topic of Software Systems (TCS module 2)

Lecturer: Marieke Huisman

MODULE 1 PREREQUISITES

- Week 2: Algorithms (Python)

  - Lists

  - Searching, sorting

- Week 4: Functional Programming (Haskell)

  - Types

  - Recursion

Haskell Curry
1900-1982

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'HELLO WORLD' IN PYTHON

File: hello.py

Usage

```
hello.py — source (git: master)
1  # Here comes the command
2  print("Hello World")
3

Line:      1   Pyt...⌄   Soft Tabs:   4 ⌄   ⚙ ⌄              ⌄  ●
```
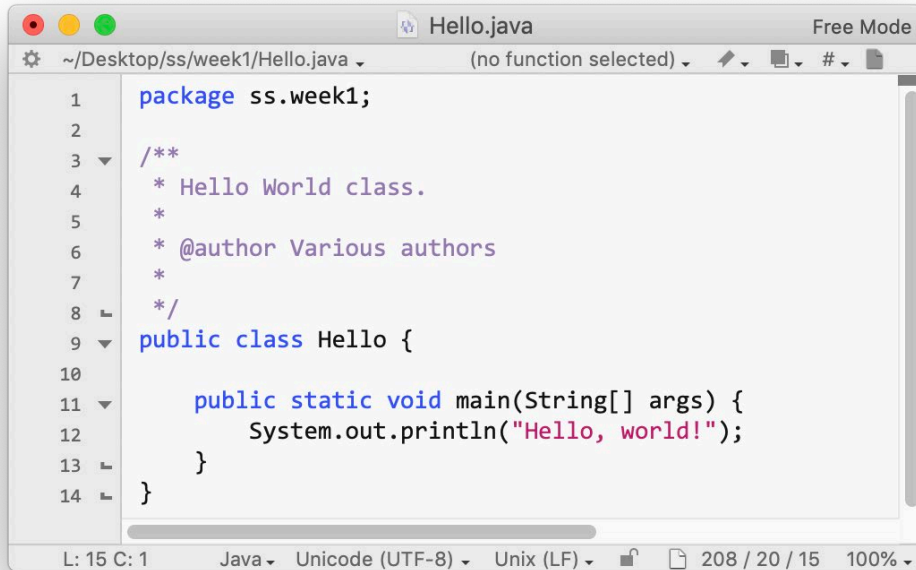
```
source — -zsh — 46×10
[software systems > python hello.py
Hello World
software systems > ▯
```

'HELLO WORLD' IN JAVA

File: ss\week1\Hello.java

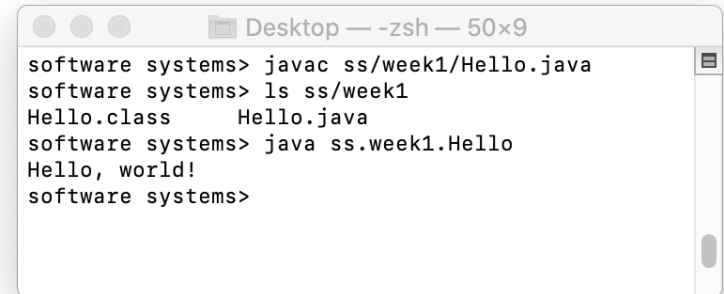Usage

```java
package ss.week1;

/**
 * Hello World class.
 *
 * @author Various authors
 *
 */
public class Hello {

    public static void main(String[] args) {
        System.out.println("Hello, world!");
    }
}
```

```
software systems> javac ss/week1/Hello.java
software systems> ls ss/week1
Hello.class    Hello.java
software systems> java ss.week1.Hello
Hello, world!
software systems>
```

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LINEAR SEARCH IN PYTHON VS. JAVA
SPOT THE DIFFERENCES!

Python

```python
def linear(data, value):
    """Return index of value in data """
    i = 0
    while i <len(data) and data[i]!= value:
        i = i + 1
    if i == len(data):
        return - 1
    else:
        return i
```
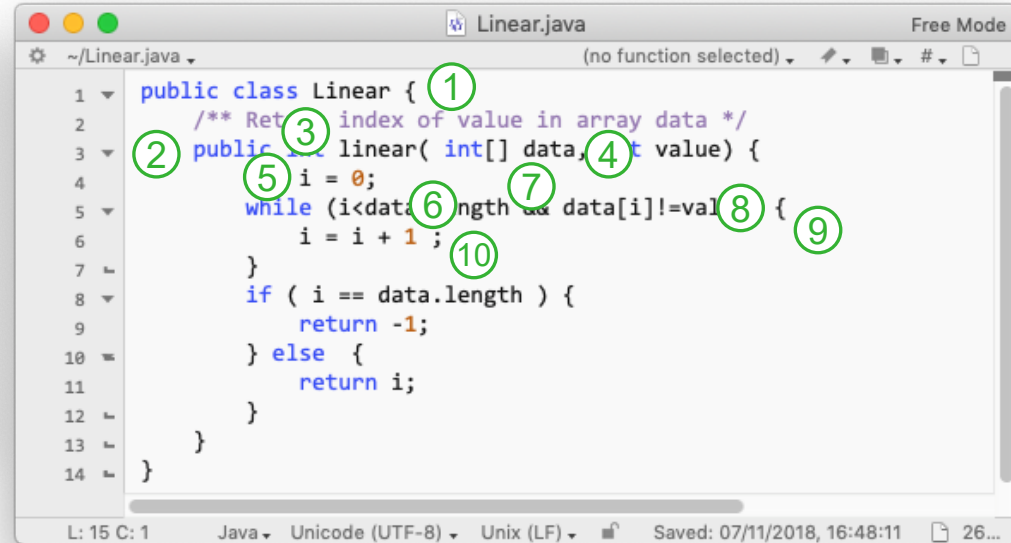
linear.py — source (git: master)

Line: 8:10   Pyt... ⌃   Soft Tabs: 4 ⌄   ⚙ ⌃   linear(data, value) ⌃   ●

Java

Linear.java   Free Mode

~/Linear.java ⌄   (no function selected) ⌄   ✎ ⌄   ▣ ⌄   # ⌄   ▢

```java
public class Linear {
    /** Return index of value in array data */
    public int linear( int[] data, int value) {
        i = 0;
        while (i<data.length && data[i]!=value) {
            i = i + 1 ;
        }
        if ( i == data.length ) {
            return -1;
        } else  {
            return i;
        }
    }
}
```

L: 15 C: 1   Java ⌄   Unicode (UTF-8) ⌄   Unix (LF) ⌄   🔓   Saved: 07/11/2018, 16:48:11   ▢   26...

Conceptually the same!

od

DIFFERENCES

1. Surrounding class declaration

2. Visibility modifiers (public, private)

3-5. Explicit data types (return, method arguments and local variables)

6. length as an attribute instead of a method

7. && instead of and

8. () condition delimitation instead of :

9. {} block delimitation instead of indentation

10. ; statement separators instead of newline

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