

# **Monday - Week 1**

## Course Introduction

# About Me - Craig

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# About You

- Name
- Past qualification and/or industry experience
- Anything else you wish to share (optional)

# Course Outline

- 4 weeks of Java
- 4 weeks of JavaScript
- 4 weeks of case project
- Full outline document



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## Java Installation

# Getting the JDK

- Navigate to:  
<https://www.oracle.com/technetwork/java/javase/downloads/jdk8-downloads-2133151.html>
- (Search for JDK)

Java SE Development Kit 8u191		
You must accept the <a href="#">Oracle Binary Code License Agreement for Java SE</a> to download this software.		
<input type="radio"/> Accept License Agreement <input checked="" type="radio"/> Decline License Agreement		
Product / File Description	File Size	Download
Linux ARM 32 Hard Float ABI	72.97 MB	<a href="#">jdk-8u191-linux-arm32-vfp-hflt.tar.gz</a>
Linux ARM 64 Hard Float ABI	69.92 MB	<a href="#">jdk-8u191-linux-arm64-vfp-hflt.tar.gz</a>
Linux x86	170.89 MB	<a href="#">jdk-8u191-linux-i586.rpm</a>
Linux x86	185.69 MB	<a href="#">jdk-8u191-linux-i586.tar.gz</a>
Linux x64	167.99 MB	<a href="#">jdk-8u191-linux-x64.rpm</a>
Linux x64	182.87 MB	<a href="#">jdk-8u191-linux-x64.tar.gz</a>
Mac OS X x64	245.92 MB	<a href="#">jdk-8u191-macosx-x64.dmg</a>
Solaris SPARC 64-bit (SVR4 package)	133.04 MB	<a href="#">jdk-8u191-solaris-sparcv9.tar.Z</a>
Solaris SPARC 64-bit	94.28 MB	<a href="#">jdk-8u191-solaris-sparcv9.tar.gz</a>
Solaris x64 (SVR4 package)	134.04 MB	<a href="#">jdk-8u191-solaris-x64.tar.Z</a>
Solaris x64	92.13 MB	<a href="#">jdk-8u191-solaris-x64.tar.gz</a>
Windows x86	197.34 MB	<a href="#">jdk-8u191-windows-i586.exe</a>
Windows x64	207.22 MB	<a href="#">jdk-8u191-windows-x64.exe</a>





# Checking it's installed

- Open Terminal/Console
- Run:  
\$ java -version
- java version "1.8.0\_191"



```
1. craig@Tessier.local (172.27.2.69) - byobu (tmux)
craig@Tessier:~$ java -version
java version "1.8.0_191"
Java(TM) SE Runtime Environment (build 1.8.0_191-b12)
Java HotSpot(TM) 64-Bit Server VM (build 25.191-b12, mixed mode)
craig@Tessier:~$
```

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## JVM Overview



# JVM

- Java Virtual Machine
  - Runs precompiled Bytecode
  - Platform independent
  - Each host must have their own implementation
- Has some inherent verification/security
- Garbage collection etc.

# Bytecode

- Not fully complied
- But really close to machine code
- Stored in .class files
- Can be executed:  
\$ java program
- Don't include the .class when we run these files

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## Compiler Overview

# Compilers in one slide

- The compiler turns the 'readable' source code into machine ready code
- As stated before Java uses byte code which is compatible across system architectures
- Compiler theory is really fun, but WAY beyond what we will cover in the course

# Single source compilation (in Java)

- Write your program as a java file
- Save it as a program.java file
- Run :  
\$ javac program.java
- If successful you can run it with:  
\$ java program

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## Hello World



# Hands-on Time!





# Hello World

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

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## Tasks



# An Optional start...

- Work through Exercises 1 to 4 of Learn Java the Hard Way
- There is not submission requirement, but please contact me if you encounter any problems

# A note on tasks ...

- I try to design flexible specifications
- Feel free to experiment and hand in interesting solutions
- I will usually award “extra” marks for very creative solutions
- I may give optional requirements, these are only bonus marks.



# Task 1: Superficial Task for your first day!

- Write a console application that can be run using a command similar to this:
- `$ java example`
- The program must:
  - Display a console message which both greets me
  - and tells me your name
- Submit both the source code and Bytecode on moodle

## Task 2: A less Superficial Task

- Write a console application that can be run using a command similar to this:
- `$ java example XZY`
- It must then print a message *like* this:
  - “Hello XYZ, your name is 3 characters long and starts with a X.”
- Submit both the source code and Bytecode on moodle