

## Lab 1 - Compile and Run

Due by your 3rd lab.  
(during the lab)

### Introduction

The goal of this lab is to ensure you have a viable development environment setup and can get around using the command line. If you do not have access to Blackboard yet, you can still complete this lab.

### 1 Install the Java SDK (Software Development Kit)

The Java SDK comes in two parts. The JDK (Java Development Kit) and the JRE (Java Runtime Environment), but the JDK includes a JRE so there is only one thing to install.

1. Visit <http://www.oracle.com/technetwork/java/javase/downloads/jdk8-downloads-2133151.html>
2. Download the JDK (roughly 200MB).
3. Install what you downloaded, carefully remembering where you install it.

### 2 Set your PATH variable (Windows only)

In Windows, you have to update your Path environment variable such that the SDK commands can be found when using the command line. To edit your Path either:

- Go in My Computer > Properties > Advanced > Environment Variables > Path
- or type **Path** in the **Search** field.

Add the location of the bin folder of the JDK installation for the PATH variable in System Variables. The following is a typical value for the PATH variable:

```
C:\WINDOWS\system32;C:\WINDOWS;C:\Program Files\Java\jdk1.7.0\bin
```

### 3 Verify your SDK

1. Open a command line window by either:
  - Going into Start -> Run -> type **cmd**
  - or typing the Windows + R keys, then type **cmd**
  - or typing **Command Prompt** in the **Search** field.
  - or going into Start Menu -> Programs -> System Tools -> Command Prompt
2. Type **javac -version** and confirm your command with the Enter key.
3. Example output:

```
C:\Users\fluxrider>javac -version  
javac 1.8.0_111
```

4. If you made a mistake setting your path or installing the JDK you will get:

```
'javac' is not recognized as an internal or external command,  
operable program or batch file.
```

5. Type **java -version** and confirm your command with the Enter key.

6. Example output:

```
C:\Users\fluxrider>java -version
java version "1.8.0_121"
Java(TM) SE Runtime Environment (build 1.8.0_121-b13)
Java HotSpot(TM) 64-Bit Server VM (build 25.121-b13, mixed mode)
```

### 3.1 Common Issues

- You will need to close and re-open any command line window for the Path to update after changing it.

## 4 Compile and Run a simple program

1. Open a Plain Text Editor.

- Do not use Microsoft Word or other rich text editors, those are not for plain text.
- Notepad++ is a popular choice on Windows. The default Notepad causes encoding issues.
- TextWrangler is viable on macOS. The default text editor on macOS won't work well because it auto curls quotes.
- gedit is fine on Linux.

2. Write the following program **exactly** and save your text file as TestProgram.java

```
public class TestProgram {

    public static void main(String [] args) {
        System.out.println("Everything seems to be in order.");
    }

}
```

3. Open a command line window and move to the directory (i.e. folder) where you have saved your TestProgram.java file.

- The current directory is always displayed.
- **cd ..** brings you back by one directory.
- **cd "My Documents"** moved you forward if the "My Documents" folder is in the current directory.
- **dir** lists the files and folders that are in the current directory.

4. Run **javac TestProgram.java**. There should be no output. If that is not the case, read the error message and try to fix the problem.

5. Run **java TestProgram**. The expected output should be:

```
[mydocuments]$ javac TestProgram.java

[mydocuments]$ java TestProgram
Everything seems to be in order.
```

## What to demonstrate

- Simply show to the lab instructor the output when you run **java TestProgram**.