COMP 305, Lab 1

# Topics

* Classes and packages
* Command line tools (javac and java)
* Java Development Kit (JDK) and Java Runtime Environment (JRE)
* Java Virtual Machine (JVM)

## Step 1. Simple Java App

The purpose of this example is to create a simple Java application and to compile and run it from the command line.



* Open a new folder called **Ex1** in VSCode.

### Ex1 App.java

* Create a file named **App.java** and add the following code:

**public class App {**

**public static void main(String[] args) { System.out.println("App is running");**

**}**

**}**

* Open a **bash** Terminal window in VS Code. Make sure the terminal is open in the **Ex1** folder.
* Type the commands:

**javac App.java** (This will create a new file called **App.class** containing the compiled Java code)

**java App** (This will load the **App** class into a Java Virtual Machine and run the program.)

* Note: the previous two commands can be combined into one.

**java App.java** (This command compiles the Java source file and runs the class file in the JVM.)

## Step 2. Move App.java into a Package



#### Ex1

src

#### App.java

* Continuing from Example 1, create a subfolder (inside **Ex1**) called **src** and move **App.java** into the **src** folder. This can be done from the Terminal window using the following commands:

**mkdir src**

**move App.java src**

* These commands have the effect of creating a Java **package** called **src** and placing the **App.java** inside the package. To complete this step, we need to add the name of the package to **App.java**.

**package src;**

public class App {

public static void main(String[] args) { System.out.println("App is running");

}

}

## Step 3. Separate .java and .class files.

We usually don’t want **.class** files to be created in the same folder as the **.java** files. In this step we will create a separate

**bin** folder to store the **.class** file.



Ex1

src

App.java

### bin

src

### App.class

* Create a new subfolder called **bin** inside the **Ex1** folder. (Don’t create the **src** folder inside **bin**).

**mkdir bin**

* Compile the **App.java** file so that the **App.class** is created in the **bin** folder using the following command:

**javac src/App.java -d bin**

**Note:** The -d keyword specifies the destination for where to save the class file.

* To run the program we need to specify the location of the **bin** folder that holds the **.class** file. This is done with the **-cp** command line flag (stands for class path). Run the program using the following command:

**java -cp bin src.App**

Prerequisites for running Java Applications:

**Java Development Kit**

<https://www.oracle.com/technetwork/java/javase/downloads/jdk8-downloads-2133151.html>

**Visual Studio Code**

<https://code.visualstudio.com/download>

**Set up the PATH variable**- if not already set

It should look like below

Graphical user interface, text, application

Description automatically generated