Computer Science 121

Lab 1

In this lab, you will be introduced to Dr. Java, which is the software we will use to create Java programs. Below, we will provide a simple set of instructions on how to write a program in Java. We will then write three different programs.

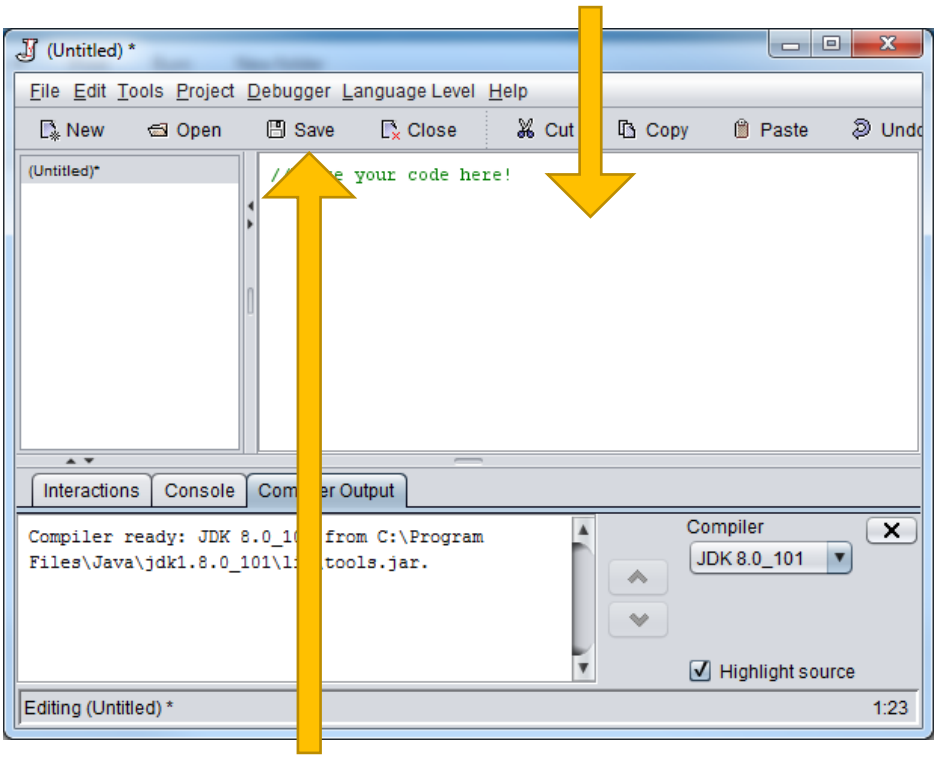
You must complete Q1 and Q2 in the lab and show it to your instructor. If you are done with them, submit in e-campus. After that keep working on Q3. You may submit Q3 in e-campus by next lab, but you need to show it to your instructor to get full grades.

Using Dr. Java

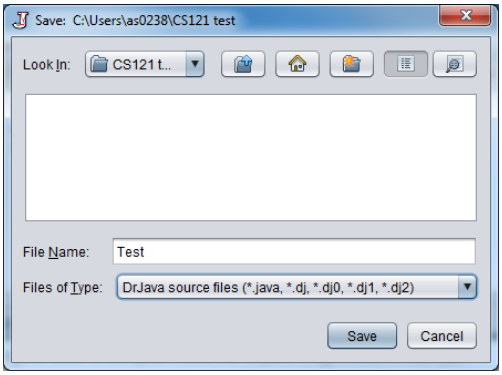
1. On your desktop, you should find a program called DrJava. Double click the icon to open the program.

   (If you cannot find DrJava. You can download and use it as well. To download it, go to http://www.drjava.org/download.shtml and click Download Jar File via HTTP under Current Stable Release. After downloading it, double click it to open and use it.)

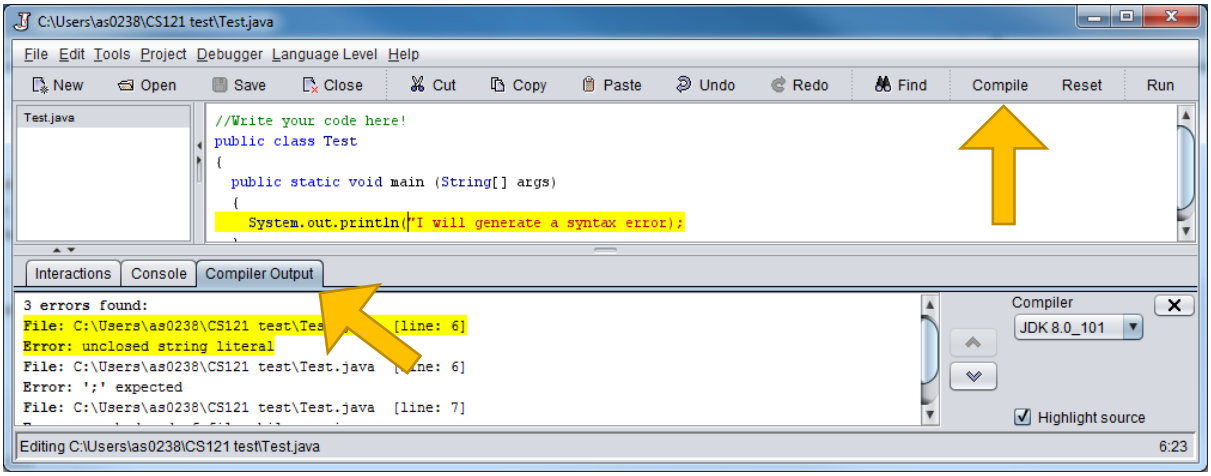
2. You should see a huge piece of white space. This is where you will write your code.



3. When you save your program, note that the file type is .java.



4. Whenever you want to test your code, you first need to compile it. This reads your .java file and creates a new file of type .class.



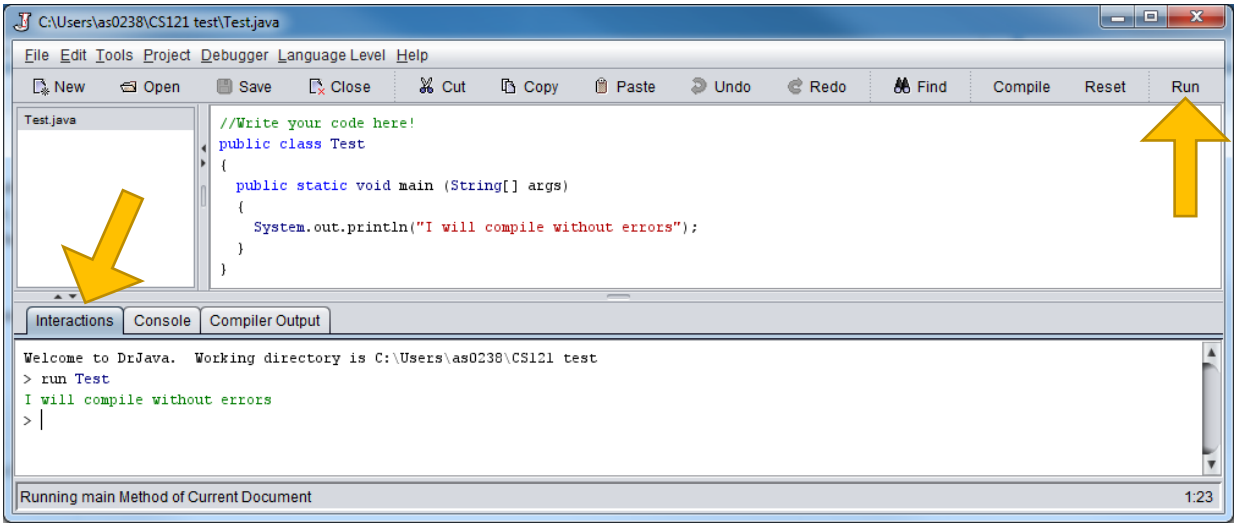
(a) To compile your code, click on the Compile button on the right side.

(b) If everything went smoothly, you should see "Compilation completed." in the Compiler Output tab at the bottom.

(c) If there is a syntax error, an error message will be reported in the Compiler Output tab, and the line with the error will be highlighted in your code. You cannot run your program until all compile errors are fixed.

(d) If you get a compile error, you may need to ask help from your lab instructor to find the cause of the error (at least until you're comfortable programming on your own).

5. To run your program (assuming no compile errors), click the Run button on the right side. The results of your program will be displayed in the Interactions tab at the bottom.



Q1. Hello World (10 Points)

We will walk through the first program, where you will display the message “Hello World!” as the output.
Start by adding the following code:

```
public class Hello
{

}
```

As we will discuss in class, everything in Java is organized by *classes*. Every Java program you write will start with this format, except the name of the class won’t be Hello. Note that the name of the class (i.e., what is directly to the right of class) must match the name of your Java file. Otherwise, the compiler will produce an error.
Inside the curly braces (i.e, { and }), enter the following code:

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

    }
```

This is the *main method*. All Java programs must have a main method, for it tells the computer where to start when executing the program. Do not worry about all the keywords. We will discuss them soon enough.
Inside these curly braces, enter the following code:

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

System.out.prinln() is a method that lets us display whatever is inside the parentheses. Note that when displaying text, it must be surrounded by double quotes.
If you entered the code correctly, your program should look like this:

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

If so, compile your program, and run it. The Interactions window should now say Hello World!

Show it to your instructor and move on to next question.

Q2. Flag Display (40 pts)

The next program will be done on your own. Create a new Java program and name the class Flag. For this program, you will display the American flag as shown below:

```
**********==========
**********==========
**********==========
**********==========
==========
==========
==========
```

Note that there are 40 stars instead of 50. That is fine. Use the System.out.println() method to help with printing one line at a time.

Hint: Use to print the first two lines.

System.out.println("**********==========");

System.out.println("**********==========");

When you are done, show your output to the lab instructor. Upload the final file in e-campus.

Q3. Initials (50 pts)

The next program will be a bit more challenging. The program will display **your initials** in a different manner. Using an approach similar to the previous program, you are asked to write a program that displays **your initials** in the following manner:

```
WW     WW   VV          VV
WW     WW    VV        VV
WW WW WW      VV     VV
WWW   WWW       VV  VV
WW     WW         VVV
```

The tricky part of this program is to get the spacing correct. You may need to write a little bit of the program, run it, and see what happens. This is very common when writing programs.

When you are done, show your output to the lab instructor. Upload the final file in e-campus.