



Summer Assignment for the 2018-2019 School Year

Course: AP Computer Science A

Instructor: Mr. Rivera

Welcome to AP Computer Science A. I am looking forward to an exciting school year of teaching Computer Science with every single one of you. As a college level course, AP Computer Science A is both challenging and rewarding. To get ready for the course, students are asked to complete the following assignments from the website before the first day of school. All work will be checked for a grade and the programs you need to download are required from day 1. Come to class the first day of school with your assignment completed and ready with any questions. I am excited to be working with all of you in the upcoming school year.

Sincerely,
Mr. Rivera

2018-2019 AP Computer Science A:

The objective of this summer assignment is to ensure that each student has the ability to compile and run code on a computer system at home. We will be doing a lot of coding during the school year in class, but there will be times when it is necessary to do work outside of the classroom.

The first half of this assignment is the java compiler setup instructions.

The second half of this assignment is attached. You will need to answer the questions and return the programming section and this cover sheet to your me on the first meeting day of class in September. The summer assignment is equivalent to 3 HW assignments, so it is imperative that the work be done and handed in.

Summer assignments that are not completed and turned in on the first meeting day will count as a 0%.

List of Items Due on the First Meeting Day for AP Computer Science

- This document read and signed by both the student and the parent/guardian.
- Print out of the 4 attached assignment programs.
- A flash drive to save files

By signing below, the student and parents/guardian recognizes that this is a college level course in computer science. AP Computer Science A is a demanding class and success depends on ability, development of prerequisite skills, and a willingness to study. Advanced Placement classes require more study time than the typical high school class and this course runs on an accelerated schedule. The requirements for the AP test are covered prior to the exam that is administered in the first week of May.

A list of those requirements can be found by visiting the College Boards website (http://www.collegeboard.com/student/testing/ap/compsci_a/topic.html?compscia).

Student Name

Date

Student Signature

Parent Signature

Step 1

Download the Java SDK from Oracle's Java website.

<http://www.oracle.com/technetwork/java/index.html>

On the right, there should be a link to **Java SE**.

When you are sent to the download page, there will be a selection of options to choose from:



You want to pick the first download option (Java Platform(JDK)).

Install the JDK on your system.

Mac Setup

The installation information detailed below pertains to PC based systems. There are free compilers to download for **Mac** systems as well.

Here is a list of options for **Mac** based systems:

Eclipse

Emacs - <http://www.gnu.org/software/emacs/>

This is the setup information page for Emacs - (<http://idee.sourceforge.net/>)

PC Setup

Step 2

If you have not done so already, download TextPad.

<http://www.textpad.com>

Install TextPad.

You do not necessarily have to use Textpad as your programming environment. There are a number of free IDEs(*integrated development environment*) that you can use.

Examples of these are Netbeans, BlueJ, Notepad++, and Eclipse.

Since we will be exclusively using TextPad in class, it is recommended that you use the same environment.

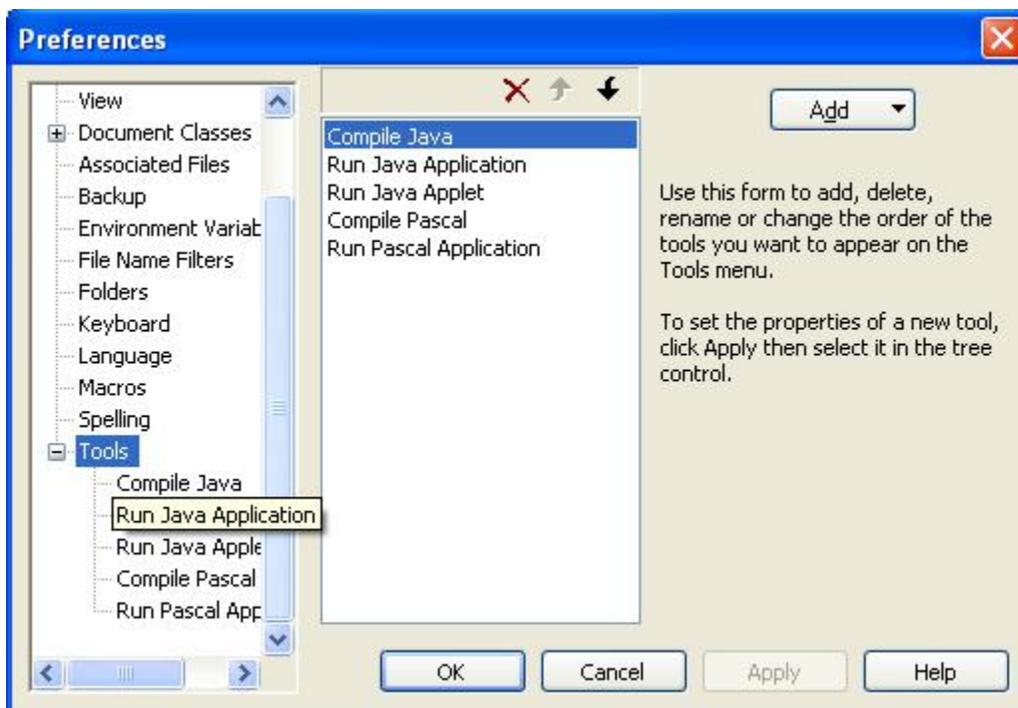
Step 3

Java setup.

If you are lucky, the java tools will already be available for compiling and running your code (click on Tools-External Tools: If setup, the Compile Java, Run Java Application, and Run Java Applet commands should be listed). If not, you will need to do the following:

Go to:

Configure-Preferences-Tools



I already have Compile Java tools, but I am going to set up a second set of Compile Java and Run Java Application tools.

At the top right of the pop-up window, click **Add**.

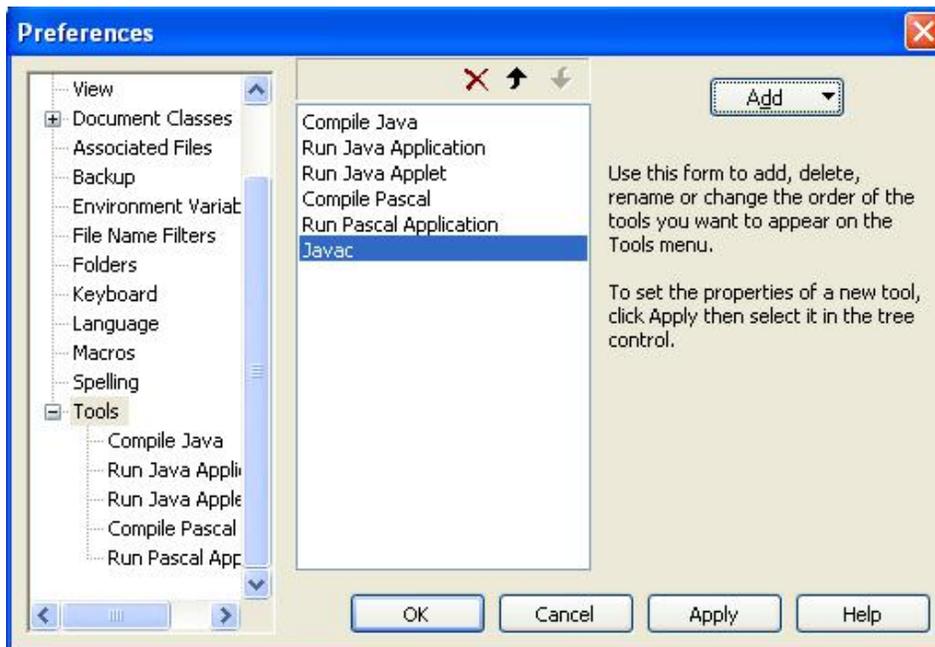
Click Program:

Search the directories of your computer to find the Javac program. It is generally found in:

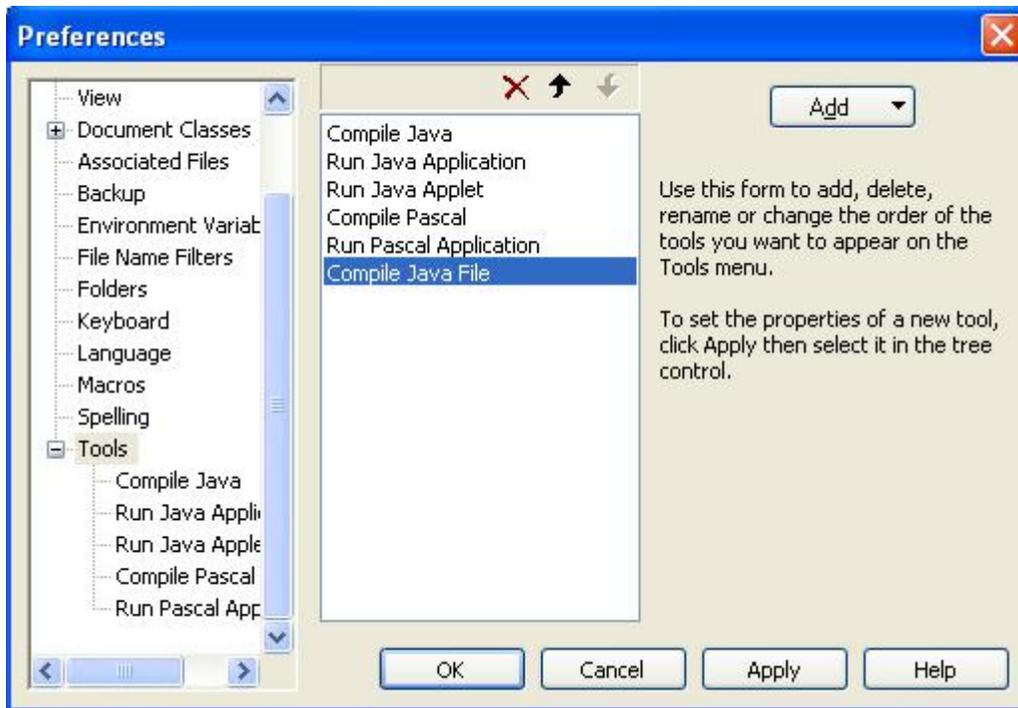
C:\Program Files\Java\((whichever JDK version you installed*))\bin

*– It will look like jdk1.6.0_24

Your window should look like this:

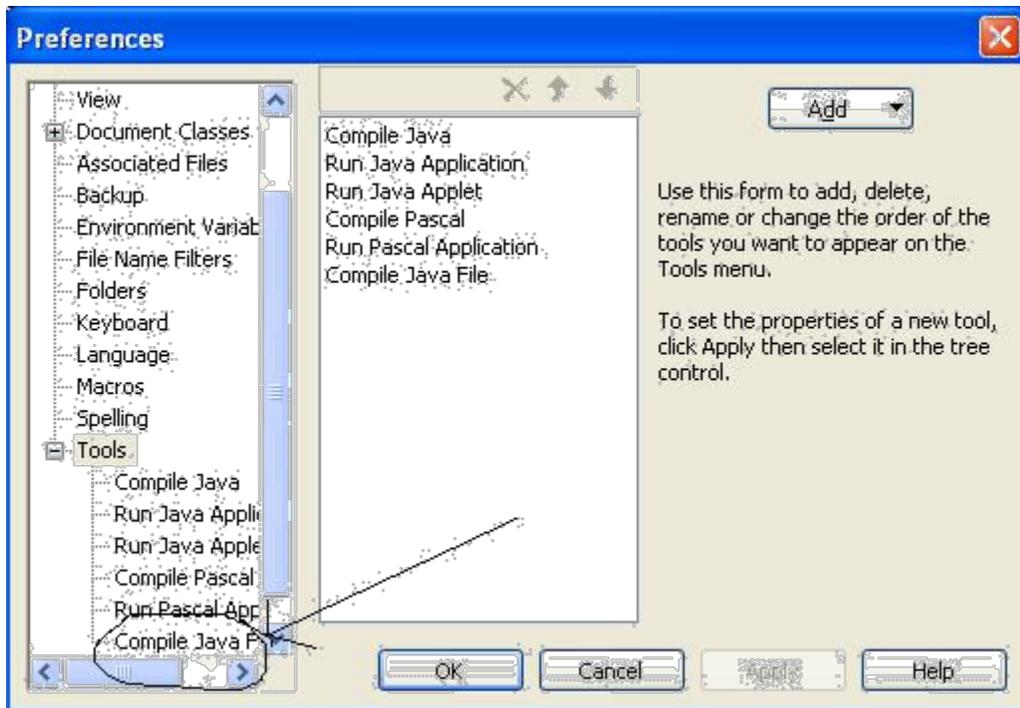


Click on the **Javac.exe** name (just like you would with a file on your machine) and change the tool name:

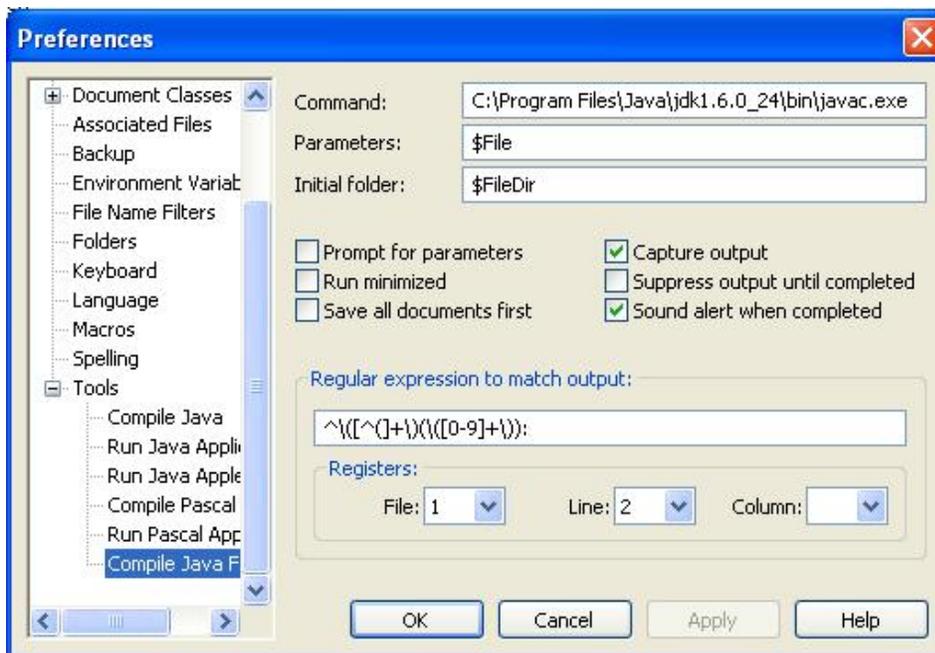


I have changed mine to Compile Java.

Click on Apply (it may have to be clicked twice) so that it shows up in the Tools menu on the left.

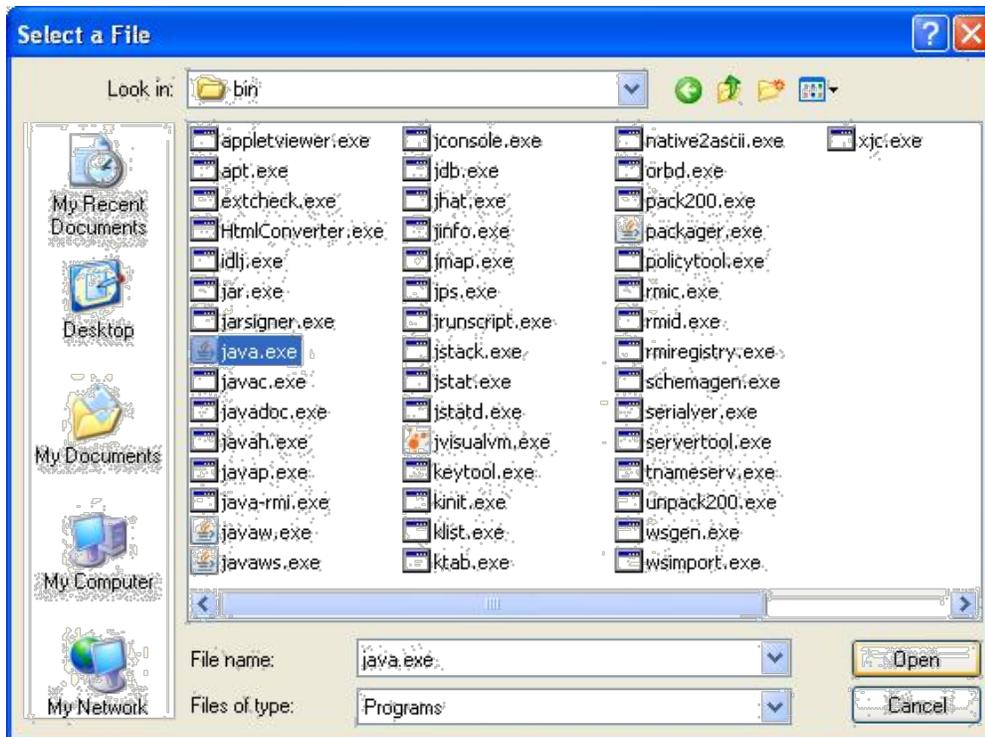


If you click the “Compile Java File” option on the menu, you should have a window that looks like the following:

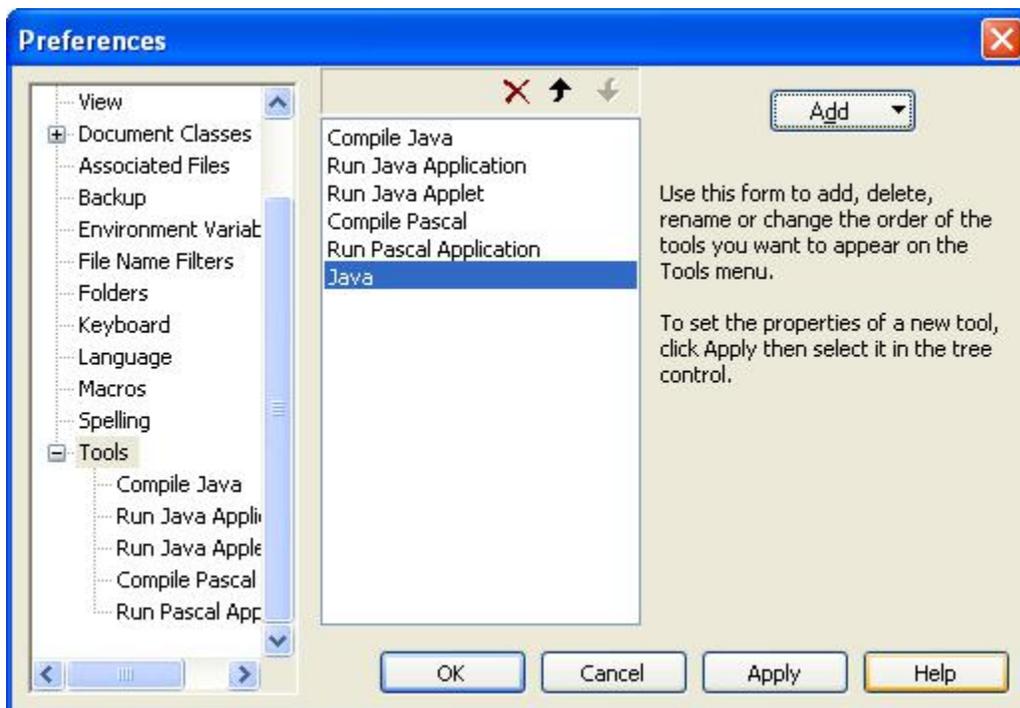


We will now repeat the process, but to add the Run Java Application Tool.

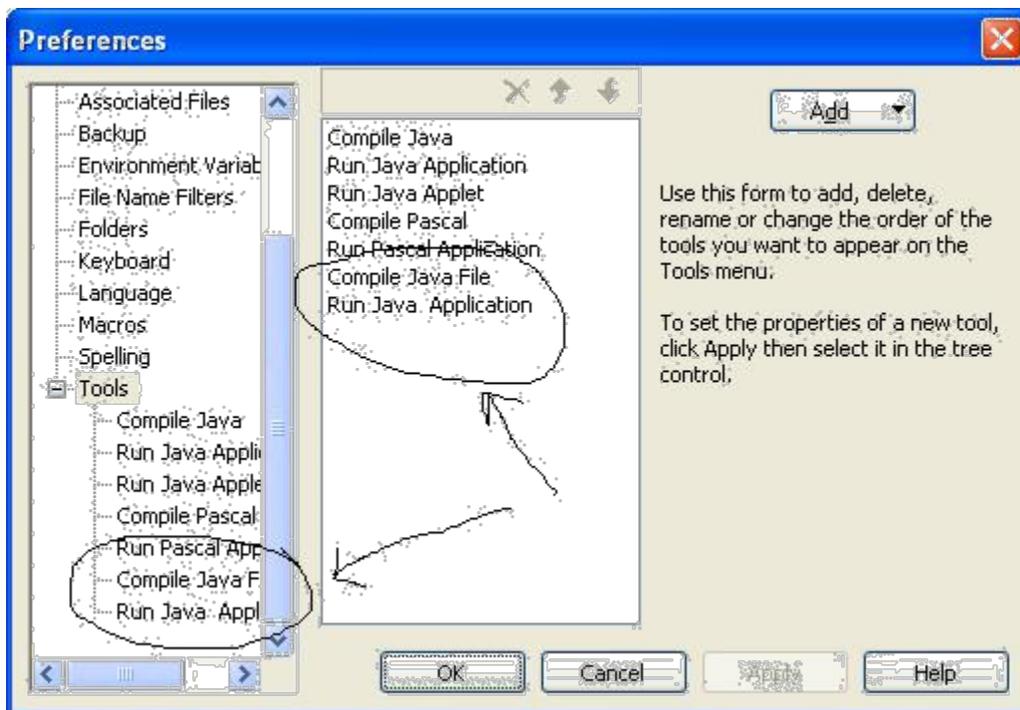
Click Add-Program and find the **java.exe** file.



Your window should look like the following:

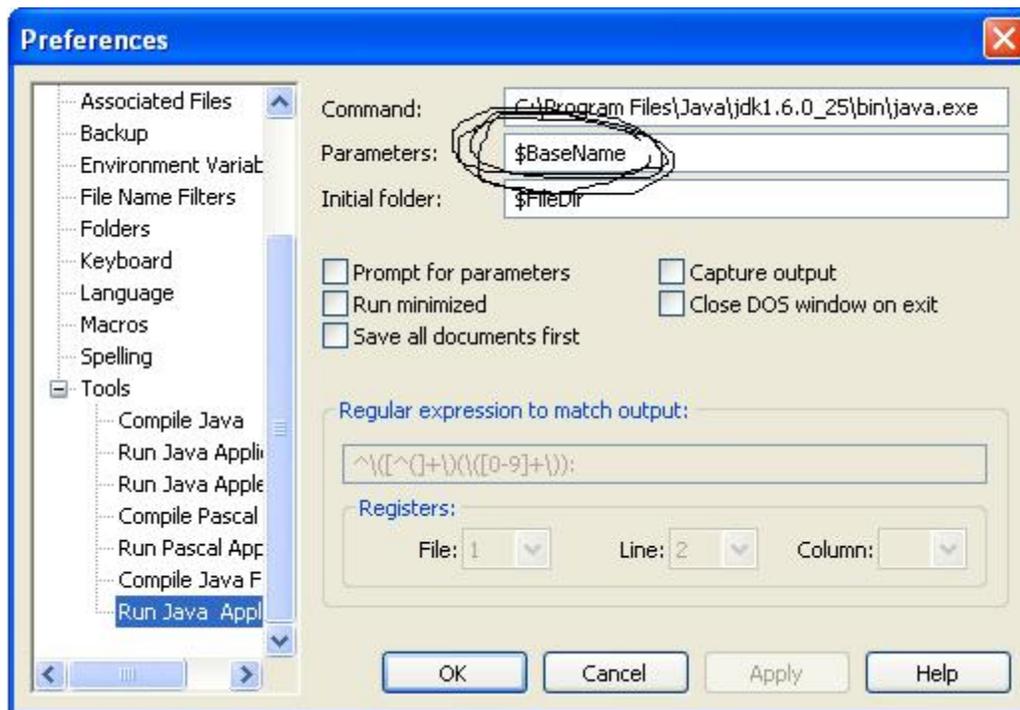


Click on the Java command that is highlighted and rename it to Run Java Application. You should now have the tools added to your computer.



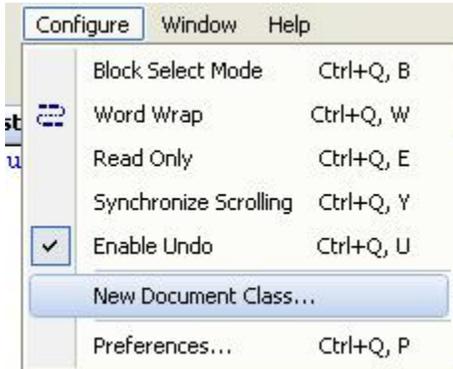
Click on the newly created Run Java Application Tool that is listed in the menu on the left. You need to uncheck the **Capture Output**, **Close Dos window on exit**, and **Sound Alert When Completed** Options.

Make sure to change the Parameters: setting to **\$BaseName**. Your window should look like the following.



Add Java Syntax Highlighting

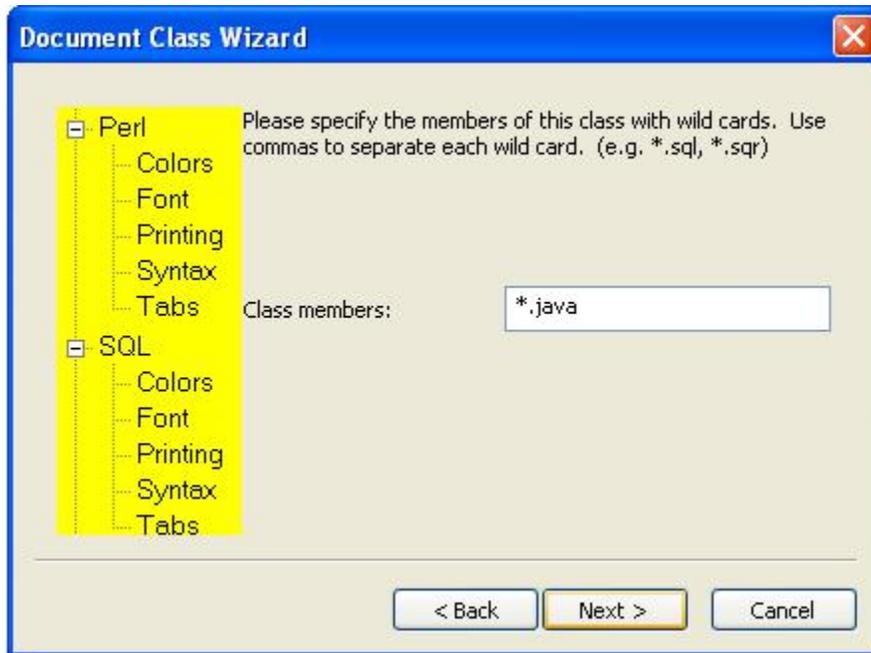
Click on Configure-New Document Class



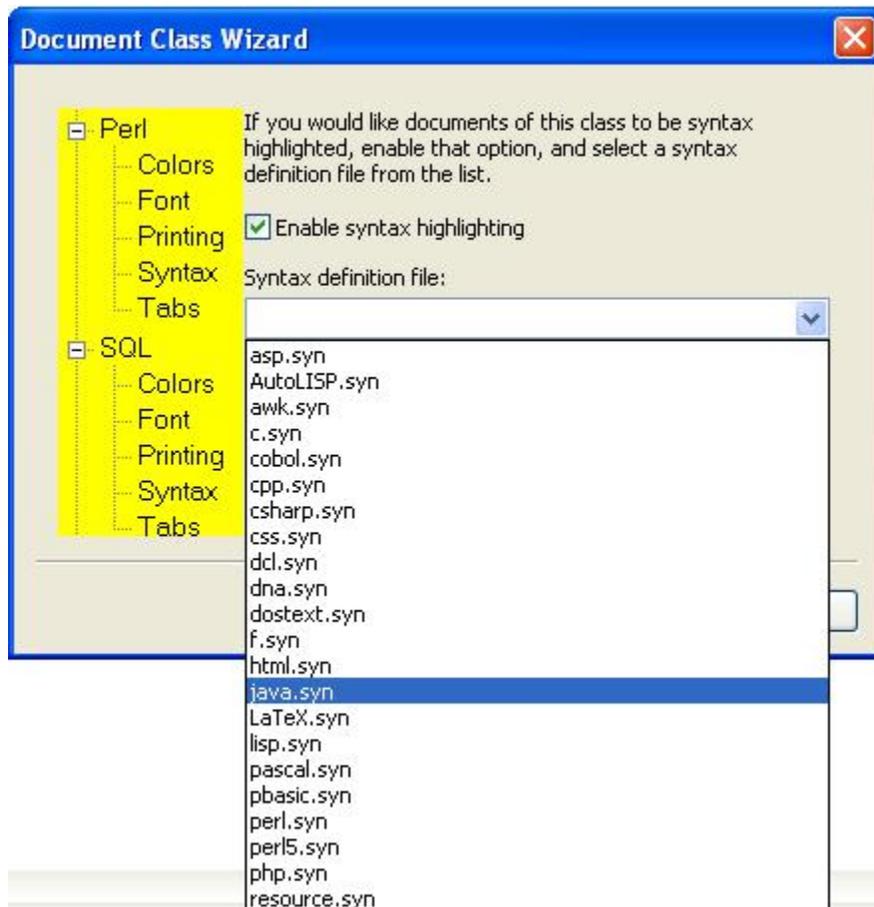
Type in the word Java in the text field and click on **Next >**.



In the text field labeled **Class members:** , type in ***.java** and click **Next >**.

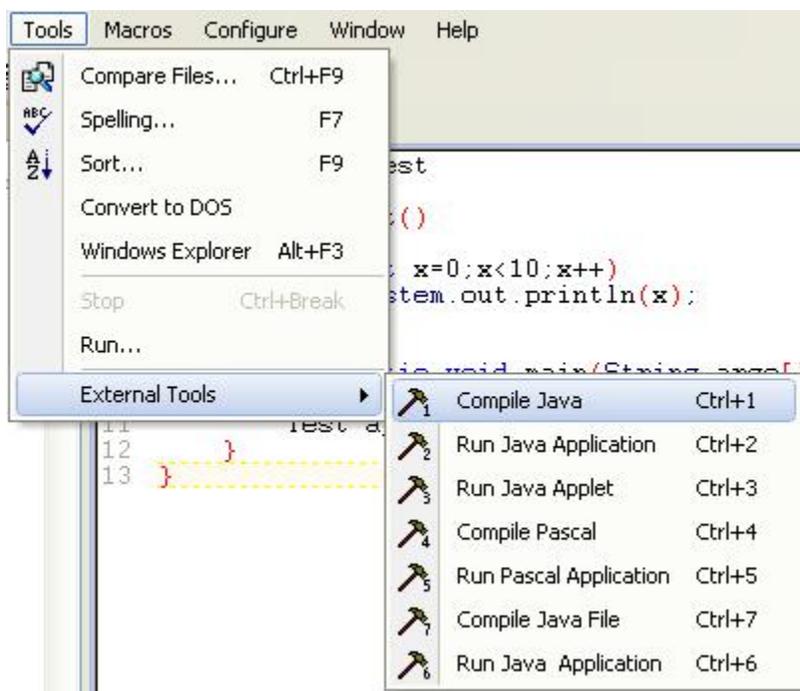


Click the check box to enable syntax highlighting and in the drop down menu select java.syn.

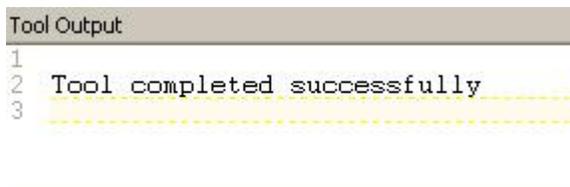


At this point, you should be able to compile your programs and run them from the tools menu.

After you type in a program, click on Tools-External Tools-Compile Java.



After compiling, you should get a compile message at the bottom that looks like the following.



Once you receive this message, you can click on Tools-External Tools-Run Java Application and your program will run.

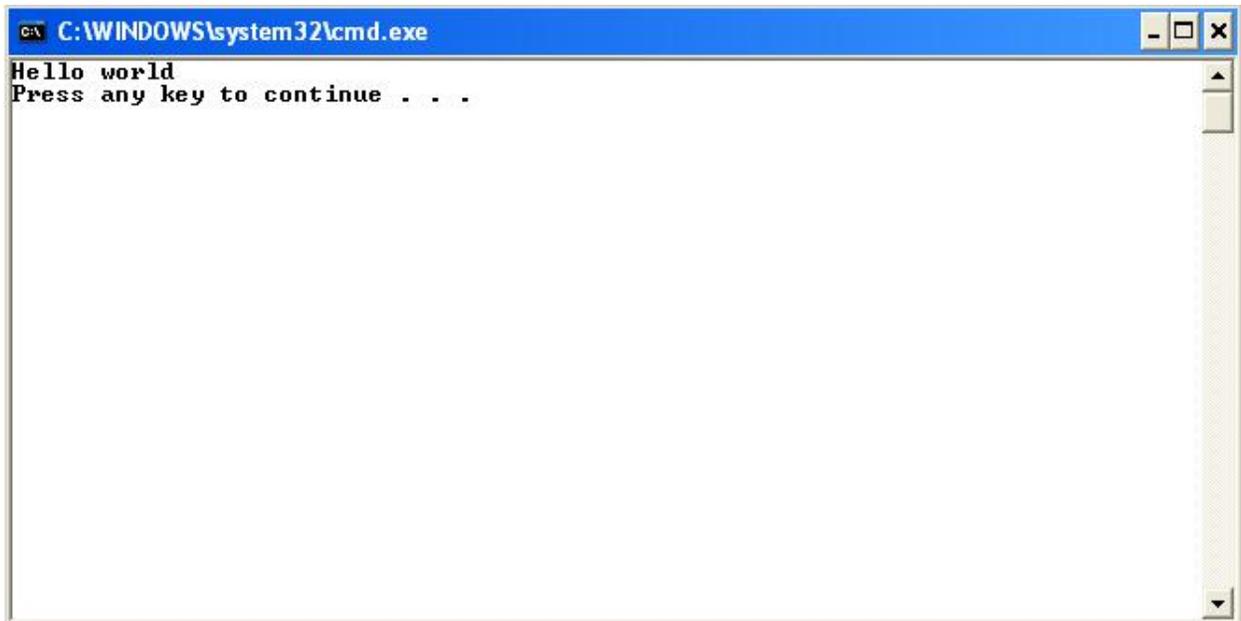
Assignment:

1. Type in the following program. Compile and run the program. When the program opens, press the Print Scrn button on your keyboard. This will take a "snapshot" of what is on your screen at the moment (think of it as a copy the screen, like you would press copy when you highlight text in Word.) Paste the image into a word document and print out the display.

```
public class SummerAssignmentProgram1
{
    public SummerAssignmentProgram1()
    {
        System.out.println("Hello world");
    }

    public static void main(String args[])
    {
        SummerAssignmentProgram1 app=new SummerAssignmentProgram1();
    }
}
```

When finished, your code should look like the following:

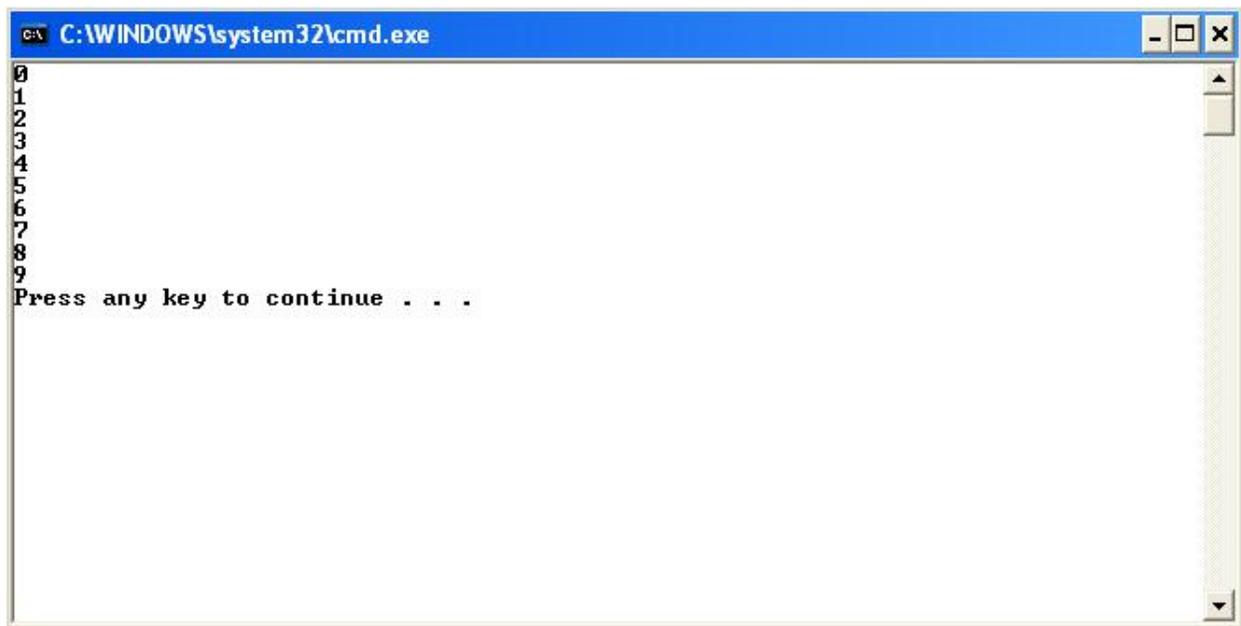


The image shows a screenshot of a Windows command prompt window. The title bar at the top reads "C:\WINDOWS\system32\cmd.exe". The window content displays the output of the Java program: "Hello world" followed by "Press any key to continue . . ." on the next line. The cursor is positioned at the end of the second line. The window has standard Windows window controls (minimize, maximize, close) in the top right corner.

```
2. public class SummerAssignmentProgram2
{
    public SummerAssignmentProgram2()
    {
        for(int x=0;x<10;x++)
            System.out.println(x);
    }

    public static void main(String args[])
    {
        SummerAssignmentProgram2 app=new SummerAssignmentProgram2();
    }
}
```

When finished, your code should look like the following:



The screenshot shows a Windows command prompt window titled "C:\WINDOWS\system32\cmd.exe". The window displays the output of the Java program, which is a list of integers from 0 to 9, one per line. Below the list, the text "Press any key to continue . . ." is displayed. The window has a blue title bar and standard Windows window controls (minimize, maximize, close) in the top right corner.

```
C:\WINDOWS\system32\cmd.exe
0
1
2
3
4
5
6
7
8
9
Press any key to continue . . .
```

3. Using the code from above as a template, write a program, in the simplest way possible, that will output the following. You are allowed no loops when you write the program.

```
*  
**  
***  
****  
*****
```

4. Rewrite the program above, but you are limited to the following two output statements. You are only allowed the following two output statements:

```
System.out.print('*');           //usable only once  
System.out.println();           //usable only once
```

Your code must use 2 loops and cannot have any other output statements than the two listed above. You can have no more than the two output statements that are shown above.

Important things to keep in mind:

1. Syntax is important!!! Java is a case sensitive language, so a variable defined as XXYY is different from XyXy.
2. The `//` are your way of commenting lines in your programs.
3. Unlike Pascal, Strings use double quotes not single quotes.
4. The braces `{` and `}` are the equivalent of begin and end in Pascal.
5. For now, the only changes in code should take place in the area between the two braces shown below.

```
public class SummerAssignmentProgram3
{
    public SummerAssignmentProgram3()
    {
        //Put Your Code Here! Don't change anything else.
    }

    public static void main(String args[])
    {
        SummerAssignmentProgram3 app=new SummerAssignmentProgram3();
    }
}
```

6. Here is an example of a nested for-loop structure. The word **for** and **int** must be all lower case. **int** is a variable type and is shorthand for Integer.

```
for(int x=0; x< 100; x++)
{
    for(int y=0;y<100;y++)
    {

    }
}
```

7. You will only need semi-colons at the end of your `System.out.println()` or `System.out.print()` lines of code.