

AP Computer Science
Ms. Riley
Summer Assignment 2017



Welcome to AP Computer Science!

The objective of this summer assignment is to ensure that each student has the capability at home to complete Java programming assignments, as well as to familiarize each student with the programming environment and expectations that will be utilized throughout the course. As discussed in the course outline, every student in AP Computer Science must have access to a computer which will be available to complete homework programs and upon which the Java Development Kit is installed and appropriate utilities are configured. Windows-compatible systems are preferred so that you may use Textpad as your programming environment, but other systems may also be used as long as you take responsibility for installing the JDK and choosing and loading a suitable development environment. An older system running Windows Vista or Windows 7 (or later) is completely acceptable; homework programs will not require newer technology or significant amounts of memory or disk space. Chromebooks, tablets, smartphones, etc. are not acceptable. Please see me immediately if this presents a significant hardship.

I recommend that you begin the process early in the summer so that you have time to address any unexpected issues with hardware or configuration. You should aim to complete the installations (steps 1 and 2) by July 31 and the programs (steps 3 and 4) by August 15 in order to allow adequate time for troubleshooting.

The summer assignment will count for 60 points, approximately the same as a chapter test. To receive full credit for the summer assignment, you must perform the following tasks **in the order specified** and upload the specified files to the dropbox in the myDJO AP Computer Science page before the first day of class. Each task is explained in more detail in the attached directions. If you have questions or need help, please email me at kriley@bishopoconnell.org. You may accept help from family members or friends for this assignment.

1. Download and install the Java Software Development Kit (JDK) from Oracle's Java website (15 points)
2. Download and install Textpad (or a suitable alternative for non-Windows systems) (15 points)
3. Type the SummerAssignment1 program into Textpad or your IDE; compile, debug, run, and use PrintScreen or SnippingTool to save an image of your output and the code to a Word file (15 points)
4. Type the SummerAssignment2 program into Textpad or your IDE; compile, debug, run, and use PrintScreen or SnippingTool to save an image of your output and the code to a Word file (15 points)

I will be checking my emails over the summer, albeit not as frequently as during the school year, so please allow a day or two for my response. I am happy to help you troubleshoot any difficulties that you run into during this process; email me at kriley@bishopoconnell.org with any questions.

Step 1: Download and install the Java Software Development Kit (JDK) from Oracle's Java website

Most internet-compatible systems come with the Java Runtime Environment (JRE) pre-installed, but not the Java Software Development Kit (JDK). The JDK is used to develop and compile Java programs, while the JRE, also known as the Java virtual machine, is used to run those programs. In order to write and compile Java programs in AP Computer Science, you will need both the JDK and the JRE and most likely will have to install the JDK on the computer that you plan to use for programming at home.

Even if your system already has a version of the JDK, I recommend that you reinstall it in order to make sure that you have all the latest security updates. Please note that the JDK installation also updates the JRE installation by default.

1: Download the Java Standard Edition Development Kit.

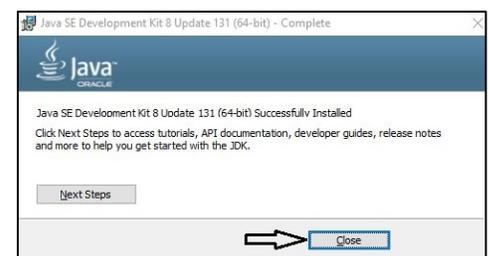
The JDK is available free from the Oracle Technology Network at the following web page:
<http://www.oracle.com/technetwork/java/javase/downloads/index.html>

Open a browser, go to the URL above, and click on "JDK download." You must accept the agreement and then click on the download corresponding to the operating system that you are using. Most students will be using a modern 64-bit Windows PC, and so will choose the "Windows x64" option. Older Windows systems and other operating systems may require one of the other downloads. You may verify your system type by going to "System Information" or its equivalent on the system.

Product / File Description	File Size	Download
Linux ARM 32 Hard Float ABI	77.87 MB	jdk-8u131-linux-arm32-vfp-hflt.tar.gz
Linux ARM 64 Hard Float ABI	74.81 MB	jdk-8u131-linux-arm64-vfp-hflt.tar.gz
Linux x86	164.66 MB	jdk-8u131-linux-i586.rpm
Linux x86	179.39 MB	jdk-8u131-linux-i586.tar.gz
Linux x64	162.11 MB	jdk-8u131-linux-x64.rpm
Linux x64	176.95 MB	jdk-8u131-linux-x64.tar.gz
Mac OS X	226.57 MB	jdk-8u131-macosx-x64.dmg
Solaris SPARC 64-bit	139.79 MB	jdk-8u131-solaris-sparcv9.tar.Z
Solaris SPARC 64-bit	99.13 MB	jdk-8u131-solaris-sparcv9.tar.gz
Solaris x64	140.51 MB	jdk-8u131-solaris-x64.tar.Z
Solaris x64	96.96 MB	jdk-8u131-solaris-x64.tar.gz
Windows x86	191.22 MB	jdk-8u131-windows-i586.exe
Windows x64	198.03 MB	jdk-8u131-windows-x64.exe

When the download is complete, open the folder containing the download and launch the executable that will install the JDK on your system. You may be asked if it may make changes to your device; answer "Yes."

2. Accept the defaults for standard components and destination folder during the installation. When you get to the final screen, click "Close."



3. You may check the list of installed programs on your operating system to verify that the JDK has been installed on your system. If the JDK has been installed correctly, you will see "Java SE Development Kit" listed among the installed applications.

To receive credit for this part of the assignment, you must take a screenshot of the list of installed programs on your system, showing that the JDK has been installed. You can get a list of installed programs by searching for "Apps and Features" or "Programs and Features" in Windows, or check your system documentation for details on how to do this on your system. Paste the screenshot into a Word document with your name on it and upload the document to the "Part 1 Install JDK" folder.

Step 2: Download and install Textpad

TextPad is a shareware editor that includes syntax highlighting and menu commands to compile and run Java applications and applets. If you are using a Windows system for your assignments, please install Textpad. If you are not using a Windows system, you should install BlueJ or another similar editor which will allow you to edit and compile Java programs.

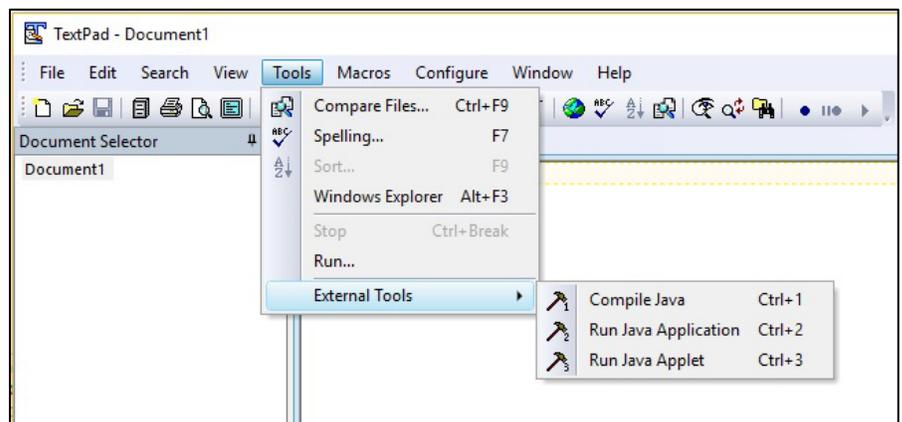
Instructions for installing and configuring Textpad:

1. Before installing Textpad, make sure that you have successfully installed the JDK (see previous instructions). If the JDK is not installed before installing Textpad, it will not automatically configure the Textpad tools.
2. Go to the following address on your browser: <http://www.textpad.com> . Click on the "Downloads" tab. Under "Textpad 8 Downloads," in the row labeled "English," click on the link for 64-bit (or 32-bit, if you have a much older, 32-bit system) to download the installation zip file.

User Interface:	Online Help/Spelling:	Version/Date:	Download:
English	English/ American, British & Canadian	8.1.2 07-Mar-2017	64-bit 32-bit
French	French/ French	8.1.2 10-Mar-2017	64-bit 32-bit
German	German/ German (old & reform)	8.1.2 10-Mar-2017	64-bit 32-bit
Dutch	English/ Dutch	8.1.2 10-Mar-2017	64-bit 32-bit
Italian	Italian	8.1.2 10-Mar-2017	64-bit 32-bit
Spanish	Spanish	8.1.2 10-Mar-2017	64-bit 32-bit
Portuguese	Portuguese	8.1.2 10-Mar-2017	64-bit 32-bit
Japanese	Japanese/ American	8.1.2 10-Mar-2017	64-bit 32-bit
Korean	English/ American	8.1.2 10-Mar-2017	64-bit 32-bit

3. When the download is complete, double-click on the downloaded zip file and select "Extract All." Accept the default extract settings.
4. Double-click on the "setup.exe" file that appears in the new extracted file directory in order to launch Textpad setup. You may be asked for a name and a company; type in whatever you wish. You may be asked if it may make changes to your device; answer "Yes." You may be asked if it may install/update Textpad; answer "Yes." Accept the defaults for all installation questions.

5. After the installation is complete, open the Textpad program. Click on the "Tools" tab and then "External Tools." A secondary menu should appear with the following options: Compile Java, Run Java Application, and Run Java Applet. If this secondary menu does not appear, Textpad did not find the JDK; un-install Textpad, re-install JDK, and then re-install Textpad. If you continue to have problems, please email me and I can help you troubleshoot the problem.



To receive credit for this part of the assignment, you must take a screenshot of the Textpad window showing External tools, as shown above. Paste the screenshot into a Word document with your name on it and upload the document to the "Part 2 Install Textpad" folder.

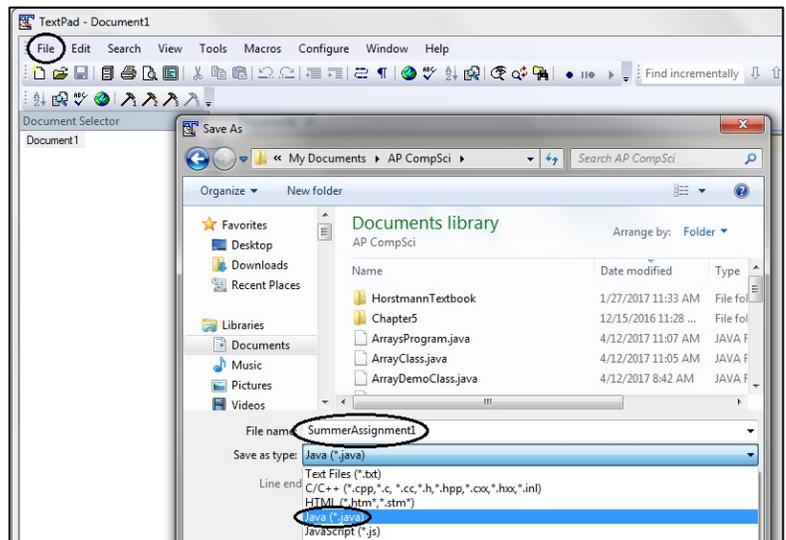
Step 3: Type SummerAssignment1 program into Textpad or your IDE; compile, debug, and run

The Summer Assignment 1 program will allow you to test your JDK and Textpad installations with a simple Java program. This will also give you an opportunity to compile, debug, and run an actual Java program. Please take special note of the following:

- Before beginning to type, save the file as SummerAssignment1.java. The use of the .java extension enables Textpad to recognize Java syntax and color code / indent appropriately.
- Before the executable code, you will insert a block comment identifying yourself as the author, the name of the assignment, and the date. A block comment is distinguished from executable code by the characters `/*` to begin the comment and `*/` to end the comment.
- The first line of executable code in the file is the header, `public class SummerAssignment1.` Note that this is exactly the same as the name of the file; the name of the file and the public class must be identical, including upper and lower case.
- Type in the code *exactly* as written. Semicolons, curly braces (`{` or `}`), capitalization, and spaces are all significant in java programming.

Instructions for SummerAssignment1:

1. Open Textpad
2. Click on the File tab and choose "Save As..."
3. In the File name box, type "SummerAssignment1"
4. In "Save as type," choose Java (*.java)
5. Type the code *exactly* as it appears below, except replace both instances of "your name here" with your own first and last name, and replace "insert date" with the actual date. Textpad will automatically use colored characters for different syntactical elements; if your code doesn't look like this, check for missing quotes or punctuation.

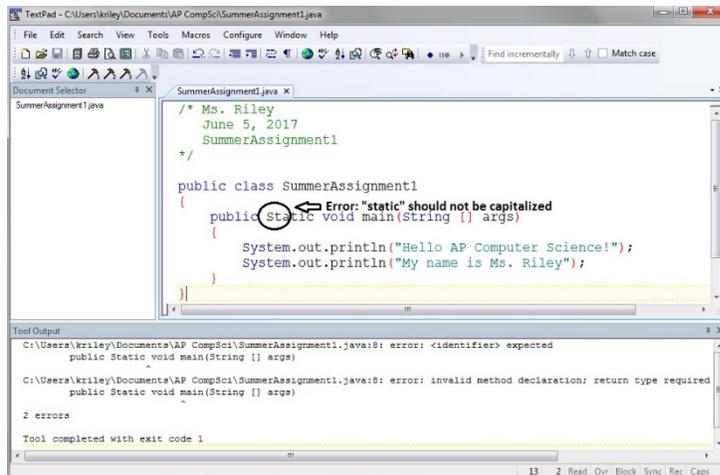
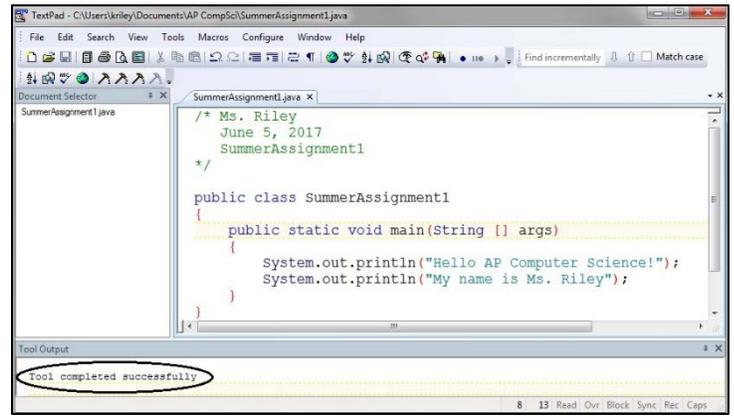


```
SummerAssignment1.java * X
/* your name here
   insert date
   SummerAssignment1
*/

public class SummerAssignment1
{
    public static void main(String [] args)
    {
        System.out.println("Hello AP Computer Science!");
        System.out.println("My name is your name here");
    }
}
```

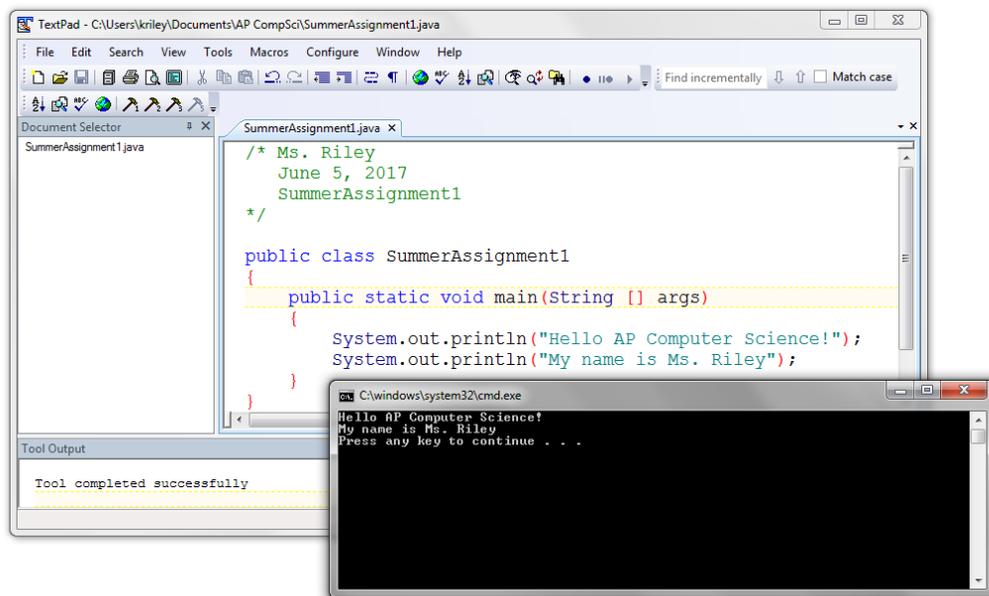
6. When you have finished typing in the code exactly as written, save the file, and then click on Tools -> External Tools -> Compile Java .

If your code is correct, you will see the message, "Tool completed successfully" in the Tool Output pane. If you see an error message instead, there is a mistake in your program. Find the mistake, correct it, and repeat step 6 until you get the "Tool completed successfully" message.



Note that the error messages generated by the compiler are sometimes misleading; small typos such as improper capitalization can confuse the compiler so that the entire program is misinterpreted.

7. Once your code compiles correctly, click on Tools -> External Tools -> Run Java Application. If the program runs correctly, a command window should appear with the words: "Hello AP Computer Science" followed by "My name is <your name>" and "Press any key to continue..." If so, congratulations! If not, or if you get an error when you run the program, find your mistake, recompile, and rerun.



To receive credit for this part of the assignment, you must take a screenshot of the Textpad window showing your code as well as the command window with the correct program output, as shown directly above. Paste the screenshot into a Word document with your name on it and upload the document to the "Part 3 Install SummerAssignment1" folder.

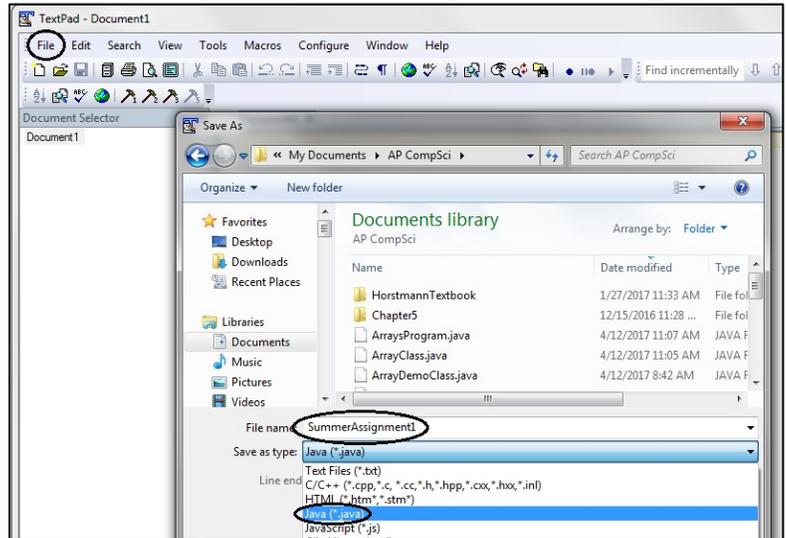
Step 4: Type SummerAssignment2 program into Textpad or your IDE; compile, debug, and run

The Summer Assignment 1 program will give you additional practice compiling, debugging, and running another Java program. This program will also demonstrate how to programmatically interrogate the operating system and identify your system.

Type in the code *exactly* as written.

Instructions for SummerAssignment2:

1. Open Textpad
2. Click on the File tab and choose "Save As..."
3. In the File name box, type "SummerAssignment2"
4. In "Save as type," choose Java (*.java)
5. Type the code *exactly* as it appears below, except replace both instances of "your name here" with your own first and last name, and replace "insert date" with the actual date. Textpad will automatically use colored characters for different syntactical elements; if your code doesn't look like this, check for missing quotes or punctuation.



```
SummerAssignment2.java x
/* your name here
   SummerAssignment2
   AP Computer Science
   insert date
*/

public class SummerAssignment2
{
    public static void main(String [] args)
    {
        System.out.println("My name is Student Name");
        System.out.print("Java Version: ");
        System.out.println(System.getProperty("java.version"));
        System.out.print("OS: ");
        System.out.println(System.getProperty("os.name"));
        System.out.print("Processor: ");
        System.out.println(System.getProperty("os.arch"));
        System.out.print("OS Version: ");
        System.out.println(System.getProperty("os.version"));
        System.out.print("User: ");
        System.out.println(System.getProperty("user.name"));
    }
}
```

- When you have finished typing in the code exactly as written, save the file, and then click on Tools -> External Tools -> Compile Java .

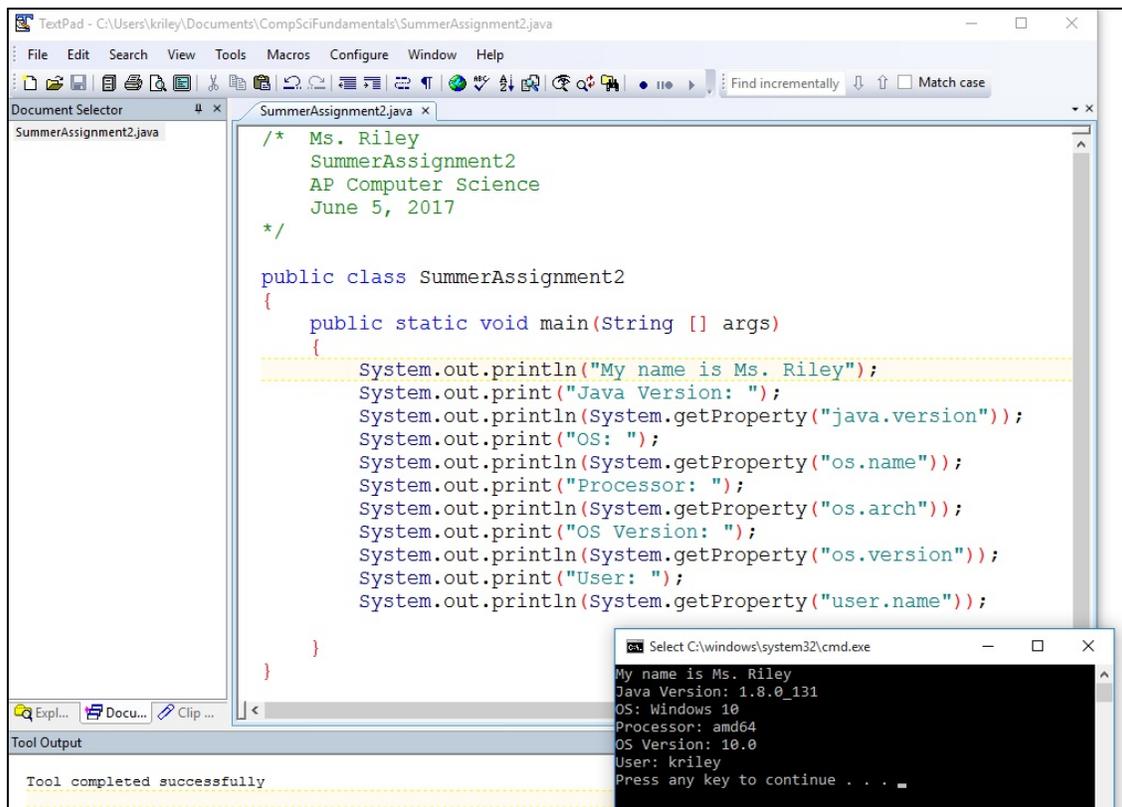
If your code is correct, you will see the message, "Tool completed successfully" in the Tool Output pane. If you see an error message instead, there is a mistake in your program. Find the mistake, correct it, and repeat step 6 until you get the "Tool completed successfully" message.

Remember that the error messages generated by the compiler are sometimes misleading; small typos such as improper capitalization can confuse the compiler so that the entire program is misinterpreted.

- Once your code compiles correctly, click on Tools -> External Tools -> Run Java Application. If the program runs correctly, a command window should appear displaying output similar to the following:

```
My name is Ms. Riley
Java Version: 1.8.0_131
OS: Windows 10
Processor: amd64
OS Version: 10.0
User: kriley
Press any key to continue . . .
```

- If your output looks similar to the above, congratulations! If not, or if you get an error when you run the program, find your mistake, recompile, and rerun until you are satisfied with the results.



To receive credit for this part of the assignment, you must take a screenshot of the Textpad window showing your code as well as the command window with the correct program output, as shown directly above. Paste the screenshot into a Word document with your name on it and upload the document to the "Part 4 Install SummerAssignment1" folder.