EXERCISE 06: COMPUTER MATH



Application Development



# Name: <your name goes here>

**Purpose**: The purpose of this assignment is to give you practice creating from scratch a very simple program in Eclipse, and allow you to explore the limits of integer and real values in Java.

Perform each of the following activities. If you have questions, issues, or doubts, please ask for help and do not just guess!

1. Be sure the file name of this document starts with your School ID which is followed by a single blank and that is followed by “Exercise06.doc”.
2. Be sure you have replaced the “<your name goes here>” (including the “<” and the “>”) with your name.
3. Start Eclipse.
4. Create a new project named “YourID Exercise06”. Do this by using the “File” menu and select the “New” / “Java Project” option, fill in the “Project name:” textbox with the name using your YourID followed by a space and then “Exercise06”, and then click the “Finish” button.
5. In the Package Explorer window, click on the “+” or the triangle to the immediate left of the icon to the left of the Exercise06 project you just created so you can see the “src” folder. When you can see the “src” folder, click on its icon.
6. Create a new package named “exercise06” in the “src” folder. Do this by using the “File” menu and select the “New” / “Package” option, fill in the “Name:” textbox with “exercise06”, and then click on the “Finish” button.
7. Create a new class named “Exercise06” in the “exercise06” package. Do this by using the “File” menu and select the “New” / “Class” option, fill in the “Name:” textbox with “Exercise06”, and then click on the “Finish” button.
8. You should now see the following in an edit window in the middle of the Eclipse window:

**package** exercise06;

**public** **class** Exercise06 {

}

1. In the line immediately below the “package” line, insert a block comment with your name as the program author and the name of this program. (Recall, block comments start with a “/\*” and end with a “\*/”.)
2. Between the “{“ and “}” braces following the public class line, insert the following code:

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

**float** result = 3.4028235E38F;

System.*out*.println(result);

result \*= 2;

System.*out*.println(result);

}

1. Macintosh HD:Users:LRCarter:Documents:  iCarnegie : Software Engineering:Software Development Program (SDP):Java Programming:Applications Development:Exercises:Graphics:SaveIcon.tifClick on the save icon ( ) to save the changes you have made.
2. Macintosh HD:Users:LRCarter:Documents:  iCarnegie : Software Engineering:Software Development Program (SDP):Java Programming:Applications Development:Exercises:Graphics:GoIcon.tifClick on the run icon ( ) and specify in the space below what the output was in the Console window:
3. We see the output we expect for the first value. Why do we **not** see two times this value on the second line, as this is what the code tells the computer to do?
4. In the space provided below, describe what happens if you try to insert the digit “9” just to the left of the “E” in the following line and why what you see makes sense:

**float** result = 3.4028235E38F;

When I replace the “35” before the “E” with a “39”, Eclipse:

This makes sense because:

1. Change this same line so it is now looks like the following:

**float** result = 3.4028233005E38F;

1. Macintosh HD:Users:LRCarter:Documents:  iCarnegie : Software Engineering:Software Development Program (SDP):Java Programming:Applications Development:Exercises:Graphics:GoIcon.tifClick on the save icon (Macintosh HD:Users:LRCarter:Documents:  iCarnegie : Software Engineering:Software Development Program (SDP):Java Programming:Applications Development:Exercises:Graphics:SaveIcon.tif ) to save the changes you have made, then click on the run icon ( ), and then specify in the space below what the output was in the Console window:
2. From what you have read, why does the output you see make sense to you?
3. Now replace the code between the “{“ and “}” braces following the public class line, with the following code:

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

**int** result = 2147483647;

System.*out*.println(result);

result += 1;

System.*out*.println(result);

}

1. Macintosh HD:Users:LRCarter:Documents:  iCarnegie : Software Engineering:Software Development Program (SDP):Java Programming:Applications Development:Exercises:Graphics:GoIcon.tifClick on the save icon (Macintosh HD:Users:LRCarter:Documents:  iCarnegie : Software Engineering:Software Development Program (SDP):Java Programming:Applications Development:Exercises:Graphics:SaveIcon.tif ) to save the changes you have made, then click on the run icon ( ), and then specify in the space below what the output was in the Console window:
2. From what you have read, why does the output you see make sense to you?

1. This is the end of the exercise. Save your work and upload this exercise to the LMS following the instructions given in Exercises 1 and 2. (I’m assuming you have changed the name at the top of this document and properly renamed the document to start with your School ID before you did anything else, **because** you followed the instructions in steps one and two, right?)