GC01 Programming Exercises 1

Purpose: Some basic programming exercises for becoming familiar with the Java programming tools and writing some simple programs.

Coursework to be handed-in

Deadline: Noon, Friday 9th October 2009

Questions to do: Q1.12

Marking: The question sheet is **binary marked – PASS or FAIL**.

Print out your code, sample output, and any additional documentation you have produced. **Staple the sheets together with a <u>completed</u> coursework cover sheet at the front.**

NOTE: You *must keep all marked work* as it forms a record of your progress. At the end of the course you are required to re-submit all work.

Core questions

Q1.1 Type in the following Java program changing <Your name> to your name and <the date> to the date. Every program you write should start with a comment (the part of the program between /** and */) like this. Compile and run the program.

```
/**
 * <dl>
 * <dt> Purpose:
 * <dd> Simple example program.
 *
 * <dt> Description:
 * <dd> This program prints out the message Hello World.
 * </dl>
 *
 * @author  Your name
 * @version $Date: 2003/09/24 17:22:40 $
 *
 */

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

> *Hints: Use two windows, one for editing and one for typing commands. When you complete some editing, save the file you are working on but do not quit the editor - leave it running for the next lot of editing you need to do. Switch to the other window to issue commands.*

The program must be saved in a file called HelloWorld.java (why?).

Compile the program using javac, run it using java:

```
% javac HelloWorld.java

% java HelloWorld
```

Ask the demonstrator if you need help.

Have you started to organise your filestore? Where did you save the .java file? Choose a good directory structure now.

Q1.2 Modify the program in question 1.1 to print your name on one line and a message on the next line.

> *Hint: You will need to give your program a new name and save it in a new file, otherwise you will overwrite your answer to Q1.1. The name of your program should indicate what the program does. It is also **very important** to update any of the comments in the code. An incorrect or out-of-date comment is worse than no comment at all.*

Q1.3 Change all the `println`'s in your program from 1.2 to `print`'s. Recompile and run the new program. What affect does this have on the output? What is the difference between the `println` and `print` commands?

Q1.4 Read the web page on Simple Drawing in the additional notes section of the GC01 website. Cut and paste the example program into a file of your own and make sure it compiles and runs.

Q1.5 Modify the drawing program to draw a hexagon. Do not forget to change the name of the program and save it to a new file, otherwise your answer to 1.4 will get overwritten.

Hint: More information on drawing can be found in the course text, chapter 4.

Q1.6 Write a drawing program to draw a circle and an oval. (Use the drawArc command.)

Q1.7 Write a drawing program to display your name and the message you used in Q1.2.

Q1.8 Adapt the drawing program to draw a picture of your choice using ten or more drawing commands.

Q1.9 Create a drawing program to draw a simple bar chart with labels on the axes. This will need quite a long list of drawing commands. You only need to draw the outline of the bars.

Additional questions

Q1.10 Write a drawing program to draw filled shapes using fillRect, fillArc and fillOval. Find out about these by looking at the online Java documentation on class Graphics.

Q1.11 Modify your answer to Q1.5 to draw some other regular polygons, such as an octagon or dodecagon.

Hand-in question

Q1.12 Write a drawing program that writes your surname using drawLines and drawArcs.