UNBC Laboratory Assignment
Computer Science 100—Winter 2008

Simple Input and Output in Java

Purpose:

To demonstrate an understanding of basic input and output in JAVA.

Due Date:

The completed lab assignment is due Monday 2008-01-21 *at the beginning of lecture.*

Please hand in complete listings for all of your programs.

`script` and `scriptfix`

Once you have compiled your program and have it running, your lab instructor will show you how to use

- the `script` to record exactly what you have done,
- the `scriptfix` command to clean up your script files, and
- the "`enscript -2rG`" command to print your script file.

Hand in printed script files when you have completed a lab. Please hi-light your name (and *only* your name) before you hand it in.

`javadoc` and Documentation

JAVA programs can contain special comments that start with `/**` and end with `*/`. These comments are recognized by the `javadoc` program and can be used to create HTML documentation automatically.

Until otherwise specified in a lab handout, put a comment that looks like

```
/**
 * This test8 demonstrates simple IO in Java.
 *
 * @author David Casperson
 * @version 2001-09-11
 */
```

right above the

```
public class test8
{
```

```
Fahrenheit temperature to convert? 72.5
72.5 F is exactly 22.5 C.
72.5 F is approximately 21.25 C.
```

Figure 1: Sample I/O for Fahrenheit to Celsius program.

```
Your age in years is: 47.
Your age is 1.48 Gs.
```

Figure 2: Sample I/O for GigaSecond program.

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

lines in each of your programs.

Elsewhere in your programs use //-comments freely to make notes to yourself or to explain tricky code to the lab assistant.

If you work with someone on a laboratory assignment, you **must** *put a //-comment to this effect in your source code.*

Converting Fahrenheit to Celsius

Temperatures measured in degrees Fahrenheit can be converted to temperatures in degrees Celsius using the formula:

$$C = \frac{5(F - 32)}{9}. \tag{1}$$

A simpler approximation that works well for near-room temperatures is

$$C = (F - 30)/2. \tag{2}$$

Write a program that produces output like that shown in Figure 1.

Computing your age in Giga-seconds

Derive the equations necessary, and write a program that asks you for your age in years, and then prints your age in gigaseconds. The input and output should look something like that shown in Figure 2.

Note that if you print your output using a command like

```
System.out.println("Your age is " + ageInGigaSeconds + " Gs.");
```

you are likely to get an output that looks like

```
Your age is 1.48318364736 Gs.
```

To get a nicer format, you need to use a `DecimalFormat` object. To do this

1. Put the line `import java.text.DecimalFormat ;` at the very top of your program.
2. Create a `DecimalFormat` variable with a line like

   ```
   DecimalFormat gsFormat = new DecimalFormat(" 0.00 Gs'.'");
   ```

3. Print your output with a line like

   ```
   System.out.println("Your age is "+gsFormat.format(ageInGigaSeconds));
   ```

Computing Walter Taylor's date of birth.

Write a program to solve the following problem.

Dr Walter Taylor (`http://genealogy.math.ndsu.nodak.edu/id.php?id=28490&fChrono=1`) had a conference held in his honor in August 2004. At the time of the conference Dr Taylor was nearly 2 Gs old. In what year was Dr Taylor born?