**FOP 1 – Lab 2 Worksheet**

**PART A**

1. Type, compile and run all the programs from the lecture notes (this can be done at home).
2. Write a program *MyName* that declares and initialises a variable that stores your name; then use print statement to output the value of that variable in the following format:

**My name is: Aurelia Power.**

Save it into a file called *MyName.java*, compile it and then run it.

1. Write another program called *MyDetails2;* the program should declare and initialise 3 variables that store the name, the group number, and the county where you live. Then use print statements to output the values of those variables in the following format:

**My name is Aurelia Power.**

**I am in group 7.**

**I live in Meath.**

Save it into a file called *MyDetails2.java*, compile it and then run it.

1. Write another program called *MyShop;* assuming that your shop only has 2 types of products: pads and pens, the program should declare and initialise variables to store the following: the number of pads in stock, the number of pens in stock, the price for a pad, the price for a pen, and the total value of the entire stock. Then use print statements to output the value of those variables, as well the total value of pads and the total value of pens; for instance, if my shop has 344 pads and 700 pens, and a pad costs 0.90, and a pen costs 0.25, the program should output the following:

**My shop has 344 pads, each pad costing 0.90 euro.**

**My shop has 700 pens, each pen costing 0.25 euro.**

**The total value of pads is 309.60 euro.**

**The total value of pads is 175 euro.**

**The total value of the entire stock is 484.60 euro.**

Save it into a file called *MyShop.java*, compile it and then run it.

1. Write another program called *Distance;* the program should declare and initialise 4 variables that store three different distances that a runner did on 3 different occasions, and the total distance, respectively. Then use print statements to output the values of those variables, as well as the average distance; for instance, if the runner did 30.4 km the first time, 23.0 km the second time, and 25.7 km the third time, the program should output:

**First distance: 30.4 km.**

**Second distance 23.0 km.**

**Third distance: 25.5 km.**

**Total distance: 78.9 km.**

**Average distance: 26.3 km.**

Save it into a file called *Distance.java*, compile it and then run it.

**PART B**

1. How many types of comments does Java have? Describe each one of them.

Traditional comments can span over several lines while End-of-line comments cannot span over several lines. Javadoc comments can also span over several lines and are the most ideal when programming.

1. **What is wrong with the following class declarations (for each explain all errors)?**

public Class MyFirst Program {} = The word class has a capital c

Public class Demo {} = The word public has a capital p

public class HelloDemo{}

public class FOP!{}

1. **What is wrong with the following statements (for each explain all errors)?**

System.out.println();

System.out.println(“hello); There’s no closing inverved commas

System,.out.printl(“java”); It doesn’t say prinln

System.out.print”I love java coffee”); It doesn’t have an opening brace

1. **Which of the following statements will compile?**

System.out.println(3\*20); yes

System.out.println(“A”); no

System.out.println(‘Halloween is coming’); no

System.out.println(“java ” + “is ”+ “the best coffee”); no

System.out.println(‘a’); yes

1. **Write beside each value what data type applies to it best?**

77 = int

25.0 = Double

False = String

‘\*’ = Char

“Brendan” = String

-12345 = float

2000000000000000000000000000000000000000000000000000000000000000000 = Long

1. How do you declare a variable in Java? To declare a variable in Java the datatype has to be followed by the variable name. eg double 1.4
2. How do you initialise a variable in Java. After the declaration is made it has to be followed by two forward slashes
3. What will each of the following statements output?

System.out.println(7);  **7**

System.out.println(23.5); **23.5**

System.out.println(-12); **-12**

System.out.println(7 + 3); **10**

System.out.println(12 \* 2); **24**

System.out.println(-12 / 3); **4**

1. For each of the following scenarios, declare variables that have appropriate datatypes and meaningful names:

* a person’s age = **int**
* the number of seats on a bus = **int**
* the number of students in a lecture hall = **int**
* the price of beer = **double**
* the group number that you are in for lab sessions = **int**
* the alpha grade you get in your assignments, e.g. your got an A or you got B = **char**

1. What data types can hold integer values and what data types can hold real numbers? **Int holds integer values and float hold real** **numbers**
2. Explain which, if any, of the following would result in a compiler error:

int x = 75.5; 75.5 isn’t an integer so it won’t compile

String string = “string”; string is a reserved word and can therefore not be used and wont compile

char grade = A; The letter A needs to be enclosed in single quotation marks and won’t compile

String a = ‘a’;The letter A is a char not a string and won’t compile

double value = 27.7; Needs to be enclosed in double quotation marks and won’t compile

1. Do the following statements compile?

Int x, y; No

String s = “ ”; No

integer h = 10; No

final int SIZE = 8.3; No

char c = ‘hello’; No

1. What is wrong with the following variable declaration?

int ounces­-per-­liter = ­28.35 , litre is misspelled

1. Declare and initialize two variables, unitPrice and quantity, to contain the unit price of a single bottle and the number of bottles purchased. Use reasonable initial values.

int Quantity; //declare

String message; //declare

noQuantity= 16; // initialise

System.out.println ("there are " + noQuantity

+ " bottles in store") ;

double Unit price ; //declare

String message; //declare

noUnitprice= 16; // initialise

System.out.println ("the unit price is " +

+ " 1.2") ;

1. What is wrong with this statement?

double canVolume = 0.355; /\*­Liters in a 12-ounce can­// Litres is misspelled and can is spelt in lowercase

1. What are the values of the following variables after executing all the code?

int a = 9; 9

int j = 10; 10

double d = 7.7; 7.7

a = a+ 20; a+20

j = 2; 2

d = d -10; d-10

a = j + 7; j+7