The University of Melbourne

School of Computing and Information Systems

# COMP90041 Programming and Software Development

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Workshop Instructions

## Introduction to Java programming

1.Write a program that reads two floating point numbers and print their sum, difference, and product.

2.Write a program that reads the radius of a sphere and prints its volume and surface area. Use the following formulas, where r represents the radius:

(a) Volume $= \frac{4}{3}\pi r^3$

(b) Surface Area $= 4\pi r^2$

3. Write a program that calculates the total wages based on the number of hours worked. The wages are calculated at a rate of 8.25 per hour for hours less than 40 and at the rate of 1.5 the standard rate for any hours greater than 40. Number of hours is a command line argument to the program.

*If no clues, you may read the following hints*

1. Hints for Problem 1:
   - program syntax

```
public class FloatPointCalculation {
    public static void main (String[] args) {
    }
}
```

   - reading from keyboard

```
import java.util.Scanner;
Scanner scanner = new Scanner(System.in);
```

   - float point numbers

```
float numberA;
float numberB;
```

2. Hints for Problem 2:
   - radius

```
double radius;
```

   - $\pi$ value and cubic $r^3$ value

```
import java.lang.Math;
double pi = Math.PI;
double cubic = Math.pow(r, 3);
```

3. Hints for Problem 3:
   - calculating wages

```
if (hours < 40) {
     wages = hours * 8.25
} else {
     wages = 40 * 8.25 + (hours – 40) * 8.25 * 1.5;
}
```

   - parsing command line arguments

```
public static void main(String[] args) {
     int hours = Integer.parseInt(args[0]);
}
```

   - running with command line arguments, you may choose either of following two ways:
     (a) cd to your .class directory and enter command line:
         java WageCaculator 45
         replace WageCaculator with your class name

     (b) in Eclipse: Select "Run Configurations ..." (or "Debug Configurations ...") in "Run" menu, then create a new Java application configuration, finally in the "Arguments" tab of the created configuration, input the 45 in "Program arguments" box and click Run.