
The University of Melbourne
School of Computing and Information Systems
COMP90041 Programming and Software Development

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Semester 1, 2021, Week 3

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

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

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;`
- π 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.