

Lab 06 – Methods

Objectives

- Problem Solving using methods
- Design algorithms and write Java programs

Preparation

Chapter 6

Details

Exercise 1: [20 marks] (answers.pdf)

- [2 marks]** Run the ScopeOfVariables.java program and report the result. Then remove the comments in line 6, 7, 9, 10, 15 and 16 to check the value of x in different methods. Report the result.
- [3 marks]** What is the value of x after calling update method? Explain why.
- [4 marks]** modify **update** method so that it returns updated value of x and you see the changes on x. To see the result, you also must modify the way you call update method (line 08) accordingly.
- [2 marks]** Comment out line 14 and remove the comment of line 4 and run the program. What happens? Explain why.
- [2 marks]** Comment out line 4 and remove the comment of line 2 and run the program. What is the value of x after calling update method? Explain why.
- [2 marks]** Remove the comment of line 14 and run the program. What is the value of x after calling update method? Which ADD is used (line 2, line 4 or line 14)? Explain why.
- [2 marks]** what are the modifiers in line 2 and line 14?
- [3 marks]** Remove static modifier in line 2 and comment out line 14, then compile and run the code. What happens and why?

```
01 public class ScopeOfVariables {
02     //final static int ADD = 15;
03     public static void main(String []args){
04         //final int ADD = 10;
05         double x = 10;
06         //System.out.print("In main before updating - ");
07         //System.out.println("x = " + x);
08         update(x);
09         //System.out.print("In main after updating - ");
10         //System.out.println("x = " + x);
11     }
12
13     public static void update (double x){
14         final int ADD = 5;
15         //System.out.print("In update before updating - ");
16         //System.out.println("x = " + x);
```

```
17         x += ADD;
18         System.out.print("In update after updating - ");
19         System.out.println("x = " + x);
20     }
21 }
```

Exercise 2: [30 marks] (SumDigits.java)

Write a java program that takes two positive integer numbers ***a*** and ***b***, and prints **boolean true** if the **sum of even digits** of ***a*** and ***b*** are equal, otherwise it will print false.

For example, the result of program for **456**, **1285** will return **true** since 4+6 is equal to 2+8. Also for **123**, **122** it will return **false** since 2 is not equal to 2+2.

Note: You are not allowed to use array or string to answer the question, and you must answer this question using methods, otherwise your solution will not be marked.

Submission

Make a folder containing your source code (.java file) and external documentation (.pdf file), zip the folder and submit the zip file to D2L. Check Lab Guide (section 3) to find out more details about your submission and grading.