Dalarna University

Introduction to Object-oriented Programming 7.5 ECTS-credits

Examination

Course Module 1 (CM1)

Innehåll

Part 2:2 Programming Exercises [PEx]

Remember - if not already done - to complete the first part in the exam, the Multiple Choice Questions. You will find them in Learn on the course web site.

- All exercises are solved individually and independentently by you.

  Also read: Beware of plagiarism

- All code must be commented
- Hand in the Netbeans project(s) as a **zip-file** (that means with the *extension* **.zip** in this context) named according to this example:

  YourUserName_ExamModule_1.zip

  in Learn

What's needed to pass ?

- To pass this part of the exam with ...
  - grade G:
    - all exercises marked **[G]** must work when the teacher test run them in Netbeans
  - grade VG:
    - all exercises marked **[G]** ***and*** **[VG]** must work when the teacher test run them in Netbeans

Beware of plagiarism

Plagiarism can be defined as the deliberate use of words and ideas and works that belong to somebody else that one presents as one's own.

[G] Exercise 1

Write a program that calculates the BMI (Body Mass Index) for a user.

Let the program ask the user for needed input:

- the weight (in kg)
- the height (in cm)

Display the BMI value on the screen with a message.

- The message depends on the BMI index, if the person is:
  - underweight
  - normal weight
  - overweight
    or
  - has obesity

Use Math and it's pow() method in the exercise as well as Decimalformat to format the answer with two decimals.

BMI index
Under weight: < 18.5
Normal weight: 18.5 - 24.99
Over weight: 25.0 - 29.99
Obesity: BMI of 30 or greater

Formula: BMI = weight / (height * height)

Use *JOptionPane dialogs* in the exercise.

[G] Exercise 2

A car's miles-per-gallon (MPG) can be calculated according to this formula:

MPG = Miles driven / Gallons of gas used

Write a program that *asks the user for the number of miles driven and the gallons of gas used*.
It should then *calculate the MPG for the car and display the MPG for the user in the output window*.

Use the *Scanner class* for user inputs in the exercise. (No JOptionPane dialogs)

[G] Exercise 3

Write a program that asks the user to enter the names of three different countries and then displays them sorted in ascending order.

For example if the user entered :
Norway
Sweden
Germany

the program should then display :
Germany
Norway
Sweden

Note: It *must be possible to enter other* countries than theese.

Use *JOptionPane dialogs* in the exercise

[G] Exercise 4

Write a program that let the user input five numbers and then determines and prints

- the number of negative numbers
- the number of positive number

and

- the number of zeros

[VG] Exercise 5

A bank charges a base fee of $15 per month, **plus** the following check fees for a commercial checking account :

$0,10	**For less than 15 checks**
$0,08	**For 15 - 29 checks**
$0,06	**For 30 - 49 checks**
$0,04	**For 50 or more checks**

Write a program that asks for the number of checks written for the month. The program should then

- calculate and display the bank's service fees for the month

For instance, a number of 27 checks will be :
0.08 * 13 (for the checks 15-27) and 0.10 * 14 (for the first 14 checks) plus the base fee of $15 = $17,44

Good Luck !