

COM 102 – OBJECT ORIENTED PROGRAMMING POSTLAB #0

Academic Year: Spring 2015-2016

Due Date and Hour: March 7, Monday, 11.59pm (Submission)

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1- Rewrite the program following by using Java language . (40 points)

```
/** This program finds sum of all digits of an integer number specified by user from console.
```

```
Author : your LI
```

```
Date   : February 29,2016
```

```
*/
```

```
#include <stdio.h>
```

```
void main()
```

```
{ // variable declarations
```

```
  int number;
```

```
  int sum;
```

```
  int remainder;
```

```
  // initializations
```

```
  number = 0;
```

```
  sum = 0;
```

```
  remainder = 0;
```

```
  // a message to the user
```

```
  printf("This program finds sum of all digits of an integer number.\n
```

```
        Please, enter an integer: ");
```

```
  scanf("%d",&number);
```

```
  // find each digit and store sum
```

```
  while(number != 0) {
```

```
    remainder = number % 10;
```

```
    sum = sum + remainder;
```

```
    number = number / 10;
```

```
  }
```

```
  // inform user about the result
```

```
  printf("Sum of digits of entered number = %d\n", sum);
```

```
}
```

2- Write a program that calculates the compound interest by using Java. The formula for calculating compound interest(CI) is below.

$$CI = F - P \quad \text{and} \quad F = P \left(1 + \frac{i}{n}\right)^{nt}$$

where F = Future value (value after t time units)

P = Present value

i = Nominal interest rate

n = compounding frequency

t = time in years

Suppose an amount of 1500.00 is deposited in a bank paying an annual interest rate of 4.3%, compounded quarterly. Then the balance after 6 years is found by using the formula above, with P = 1500, i = 4.3% = 0.043, n = 4, and t = 6:

$$F = 1500 \left(1 + \frac{0.043}{4}\right)^{4 \times 6} \approx 1938.84$$

So, the balance after 6 years is approximately 1938.84.

The amount of interest received can be calculated by subtracting the principal from this amount.

$$CI = F - P = 1938.84 - 1500 = 438.84 \quad [1]$$

Note that **t, n, i** and **P** values are taken from the keyboard. **(60 points)**

Sample Output for this program in Eclipse :

```

*****
*****                                     *****
*****                COMPOUND INTEREST CALCULATOR                *****
*****                                     *****
*****
*****
*****
*****

Please enter present value P :
1500

Please enter nominal interest rate i :
0,043

Please enter compounding frequency n :
4

Please enter time t :
6

The calculated compound interest is 438,84 TL

```

This is the result that you should produce

[1] Compound interest. Retrieved from https://en.wikipedia.org/wiki/Compound_interest

Last Access : Feb. 29,2016

NOTES & SUBMISSION RULES :

1. You are **required to add comment properly.** (See Question 1)
2. You are **strongly advised** to obey the good programming practices (like naming conventions, indentations, commenting your codes and so on.) Using good programming practices is graded.
3. You are **required** to send your source code within a zipped file named :
COM102_StudentNumber_YourName_PostLabX.zip
(e.g., COM102_011XXXX_ArzumKarataş_PostLab1.zip
COM102_011XXXX_FeyzaGalip_PostLab1.zip)
4. **Be sure whether you attached your work to the e-mail or not**, because it is your responsibility to sending the work on time and in proper format.
5. You are required to **work alone**. Teamwork is **NOT** allowed and **cheating is strictly punished!**
6. You should **submit** your homework to the address following by **e-mail** on time.
(to com102.2016gediz@gmail.com)
7. **Late submissions** will be graded by using the formula $100 - 10*d^2$ where **d** is the number of **late** submission **days**.