Marmara University – Faculty of Engineering – Department of Computer Engineering

# Spring 2021 – CSE1241 Computer Programming I
# Homework #1

Due: 10.11.2021.Wed 23.59

**1)** [33 pts] Write a program that prompts the user to enter the distance to drive, the fuel efficiency of the car in miles per gallon, and the price per gallon, and displays the cost of the trip.

Sample Run:

```
Enter the driving distance: 900.5
Enter miles per gallon: 25.5
Enter price per gallon: 3.55
The cost of driving is $125.36
```

**2)** [33 pts] Write a program that converts a date that is given in days to "*Year: <years>, Mount: <mounts>, Day: <days>*" format.

- 1 year consists of 365 days, 12 mounts.
- 1 mount consists of 31 days.
- Be sure your program works correctly. Test your program on several different values.

Sample Run 1:

```
Number of days: 100
Year: 0, Mount: 3, Day: 7.
```

Sample Run 2:

```
Number of days: 366
Year: 1, Mount: 0, Day: 1.
```

Sample Run 3:

```
Number of days: 397
Year: 1, Mount: 1, Day: 1.
```

**3)** [34 pts] Write a program that will calculate the compound monthly interest. The program asks user to enter the values for

**a)** initial principal in TL/USD, etc. (p),

**b)** annual interest rate percentage (r),

**c)** number of time periods in months (t),

and calculates the corresponding

**d)** monthly interest rate percentage (r/12),

**e)** total compound interest amount in TL/USD, etc. (i),

**f)** final balance amount in TL/USD, etc. (f)

using the following formulae.

$$i = f - p \qquad\qquad f = p * \left(1 + \frac{r}{1200}\right)^{t}$$

- Be sure your program works correctly. Test your program on several different values.
- Print output values using at most 2 digits after the decimal point.

Sample Run 1:

```
Enter initial principal amount: 10000
Enter annual interest rate (e.g. 9.45): 10
Enter number of time periods in months: 12

Initial principal amount: 10000.0
Monthly interest rate: 0.83
Total compound interest amount: 1047.13
Final balance amount: 11047.13
```

Sample Run 2:

```
Enter initial principal amount: 5000
Enter annual interest rate (e.g. 9.45): 12
Enter number of time periods in months: 2

Initial principal amount: 5000.0
Monthly interest rate: 1.0
Total compound interest amount: 100.5
Final balance amount: 5100.5
```

Sample Run 3:

```
Enter initial principal amount: 7000
Enter annual interest rate (e.g. 9.45): 8.25
Enter number of time periods in months: 18

Initial principal amount: 7000.0
Monthly interest rate: 0.68
Total compound interest amount: 918.77
Final balance amount: 7918.77
```

**IMPORTANT NOTES**

**1)** Write a comment at the beginning of each program to explain the purpose of the program. Write your name and student ID as a comment. Include necessary comments to explain your actions.

**2)** Select meaningful names for your variables.

**3)** You are allowed to use the materials that you have learned in lectures and labs. Do not use the ones that you have not learned in the course.

**4)** The outputs of your programs must be the same as the sample runs above.

**5)** Please be sure that your programs run properly on any computer.

**6)** Since only selected parts will be graded, send a complete solution for the homework; otherwise, you may get a zero-grade based on our evaluation.

**7)** Please zip all your files into a single zip file using file naming convention StudentID_HW1.zip, e.g., 150120123_HW1.zip. Your zip file should contain the followings:

- **a)** Java source code for Problem 1 (HW1_StudentID_P1.java)
- **b)** Java class file for Problem 1 (HW1_StudentID_P1.class
- **c)** Java source code for Problem 2 (HW1_StudentID_P2.java)
- **d)** Java class file for Problem 2 (HW1_StudentID_P2.class
- **e)** Java source code for Problem 3 (HW1_StudentID_P3.java)
- **f)** Java class file for Problem 3 (HW1_StudentID_P3.class)

**8)** Submit your zip file to http://ues.marmara.edu.tr before deadline.

**9)** You are responsible for making sure you are turning in the right file, and that it is not corrupted in anyway. We will not allow resubmissions if you turn in the wrong file, even if you can prove that you have not modified the file after the deadline.

**10)** Each student should submit his/her own homework. You can discuss with your peers about the homework, but you are not allowed to exchange codes or pseudocodes. This also applies to material found on the web. If some submitted homework assignments are found to be identical or suspected to be identical, all involved parties will get a grade of ZERO from all homework. You should submit your own work. In case of any forms of cheating or copying, both giver and receiver are equally culpable and suffer equal penalties. All types of plagiarism will result in FF grade from the course.

**11)** No late submission will be accepted.