Lab VI – Classes & Objects

Objectives:

- **To determine the scope of variables in the context of a class**
- **Manipulate private and public**
- **Manipulate mutators and accessors**
- **Overloaded constructors**

Write a program that fills the employee description (name, age, position and salary, and display them.

1. Write a class **Employee** containing the following:

a. private data fields:

i. String representing the **name.**
ii. integer representing the **age**.
iii. string representing the **position**.
iv. double representing the **salary**.
v. **static** double representing the **minimumSalary**, should be initialized to 750000.

b. public constructors and methods:

i. **no-arg constructor** that calls the method **setEmployee** and sets the data fields age to 18 and salary to 750000, name and position to “No info.”.

ii. **Constructor** with **one parameter (name)** that calls the method **setEmployee** and sets the data fields to corresponding values.

iii. **Constructor** with **two parameters (name, age)** that calls the method **setEmployee** and sets the data fields to corresponding values.

iv. **Constructor** with **three parameters (name, age, position)** that calls the method **setEmployee** and sets the data fields to corresponding values.

v. **Constructor** with **four parameters (name, age, position, salary)** that calls the method **setEmployee** and sets the data fields to corresponding values.

vi. Method **setEmployee** that takes four parameters and calls the **mutators** to sets the data fields.

vii. **Mutators** of the data fields (**setName**, **setAge**, **setPosition** and **setSalary**).

1. **setAge** must check the validity of the parameter (>= 18 and <= 64). If the parameter is not valid put it 18.
2. **SetSalary** must check the validity of the parameter (>750,000.00). If the parameter is not valid put it 750,000.00.

viii. **Accessors** of the data fields (**getName**, **getAge**, **getPosition** and **getSalary**).

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ix. **getMinimumSalary** a **static** method to get the minimum salary.

x. **getSalaryAfterTax** should call **getTax** and returns the salary after taxes deduction.

xi. **getTax** that return the tax based on the ranges of salaries.
the rate is as the following ranges:
1. **1 000 L.L. to 500.000 L.L. 2%.**
2. **501.000 L.L. to 750.000 L.L. 4%.**
3. **751.000 L.L. to 1.250.000 L.L. 7%.**
4. **1.251.000 L.L. to 2.500.000 L.L. 11%.**
5. **2.501.000 L.L. to 5.000.000 L.L. 15%.**
6. **Portion over 5.000.000 L.L. 20%.**

2. In main:

a. Display the minimum Salary.

b. Declare an array of 6 references **emp[6]** to **Employee** objects and display them:
- **i.** The first with no-arg constructor.
- **ii.** the second with name = (some name)
- **iii.** the third with name = (some name) and age = 15.
- **iv.** the fourth with name = (some name) and age = 80 and position = (some position).
- **v.** the fifth with name = (some name) and age = 22 and position = (some position) and salary = -5000.
- **vi.** the last one with name = (some name) and age = 50 and position = (some position) and salary = 5000000.

c. Try to **change** the **salary** of the last Employee object to 6000000 and **display** it. **(emp[5].salary)**
Why it is not working?
Repeat the previous step using the **mutator** and **accessor** methods of salary.

d. Give the second employee a raise of 5%.

e. Calculate the total salaries for all employees.

f. Display all employees information.

g. Change the minimum Salary to 400000.

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```
The minimum salary is 750000.0

Name:   No info.
Age:    18
Position: No info.
Salary: 750000.0
Salary after taxes deduction:   720000.0

Name:   Joyce
Age:    18
Position: No info.
Salary: 750000.0
Salary after taxes deduction:   720000.0

Name:   Elias
Age:    37
Position: No info.
Salary: 750000.0
Salary after taxes deduction:   720000.0

Name:   Chadi
Age:    18
Position: Student
Salary: 750000.0
Salary after taxes deduction:   720000.0

Name:   Alex
Age:    22
Position: HR
Salary: 750000.0
Salary after taxes deduction:   720000.0

Name:   Alaa
Age:    18
Position: Consultant
Salary: 5000000.0
Salary after taxes deduction:   4250000.0

Salary: 6000000.0
Salary after taxes deduction:   4800000.0
```

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```
Give second employee a raise of 5%:
Salary of Joyce before raise is: 750000.0
Salary of Joyce after raise is: 787500.0
New Salary after taxes deduction: 732375.0

The total salaries of all emplyees is: 9787500.0

Employee's information is as follow:

|Nb     |Name       |Age      |Position         |         Salary|
|1      |No info.   |18       |No info.         |       750000.0|
|2      |Joyce      |18       |No info.         |       787500.0|
|3      |Elias      |37       |No info.         |       750000.0|
|4      |Chadi      |18       |Student          |       750000.0|
|5      |Alex       |22       |HR               |       750000.0|
|6      |Alaa       |18       |Consultant       |      6000000.0|
                              |Total Salaries   |      9787500.0|
BUILD SUCCESSFUL (total time: 0 seconds)
```