

MAT 335E Programming Algorithms

Lab-4 / CRN : 10611

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1 Question 1

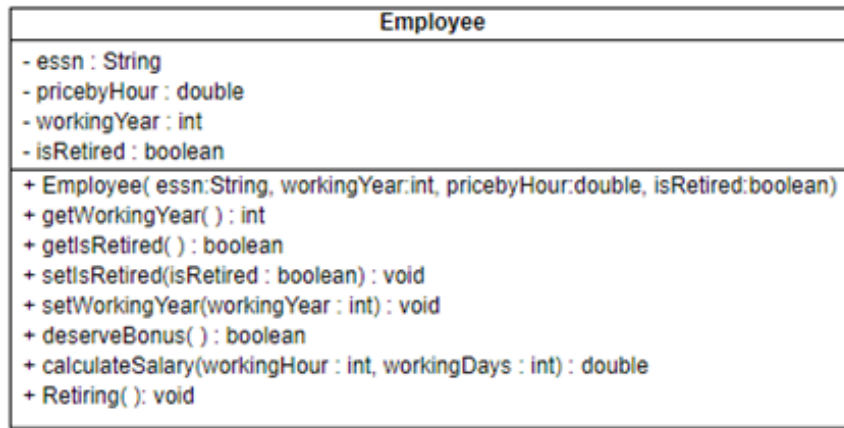


Figure 1: UML Class Diagram of Employee

UML diagram and method description of Employee class are given below. Write a source code of the given class.

- **deserveBonus()**: In order to deserve bonus, the employee must have worked 10 years or more and must not retire.
- **calculateSalary()**: Multiplying the total working hours by the hourly wage. (Daily working hours are the same for each day.)
- **Retiring()**: Employees with a working year of 20 or more must be retired. This method must be triggered by `setWorkingYear`.

Write a source code of `TestEmployee` class which includes main method. You must make the followings in main method.

- Create an object so that the members `workingYear` and `isRetired` are 14 and `False`, respectively. Other parameters(`essn`, `pricebyHour`) can be determined by you.
- Use `deserveBonus` and `calculateSalary` method for this object.
- Use the `setWorkingYear` method to set the working year to 21.
- Control the value of `isRetired` instance variable.

2 Question 2

Write a source code of class **Clip** taking into account the following steps:

- Members that store bullet capacity of the clip and the current number of bullets in clip.
- A constructor that takes those members as parameters.
- A method for firing a bullet from the clip.
- A method for filling the clip.

Write a source code of class **TestClip** that includes main method. You must make the followings in main method:

- Create an object from Clip Class.
- Use firing and filling method for this object.
- Print current bullet numbers of clip to the screen at the end of firing.