



Faculty of Engineering and Technology
Electrical and Computer Engineering Department
Linux Laboratory, ENCS313

To Do #4: Python-Part2

Time: 120 minutes

Read the entire description carefully!

A company pays its employees on a monthly basis. The company has two types of employees: FullTimeEmployee who are paid a fixed monthly salary regardless of the number of hours worked and PartTimeEmployee who are paid by the hour.

Use a base class Employee to represent a generic employee. The classes FullTimeEmployee and PartTimeEmployee derive directly from Employee Class. The Employee class constructor takes firstName, lastName and ID as argument. Build setter and getter for each field (setFirstName, setLastName, etc.). The Employee class has a method called printInfo that prints the basic information (firstName, lastName and ID). Additionally, the Employee class has an abstract method called earnings. We cannot calculate the earnings for a generic employee -we first must know the specific Employee type before calculating the earnings. So, each derived class overrides earnings with an appropriate implementation.

The FullTimeEmployee constructor takes firstName, lastName and ID and monthlySalary as argument. Use setter and getter to set and get the monthlySalary. The derived class should pass firstName, lastName and ID to Employee class constructor to initialize the basic information. The earnings method returns the monthlySalary. The printInfo method displays "Employee Type: Full Time" and then prints the basic information. You should call the function printInfo from the base class to print the basic information (firstName, lastName and ID).

The PartTimeEmployee also derives from class Employee. It takes firstName, lastName, ID, hourlyWage, and Hours. Use getter and setter to set and get the hourlyWage and Hours. The derived class should pass firstName, lastName and ID to Employee class constructor to initialize the basic information. Implement the earnings function (hourlyWage*Hours). The printInfo method displays "Employee Type: Part Time" and then prints the basic information. You should call the function printInfo from the base class to print the basic information (firstName, lastName and ID).

In the setters, check if the arguments are valid.

1. firstName and Lastname should contain only letters
2. ID should contain only digits
3. Salary is a positive number between 500 and 10000
4. hourlyWage should be between 2 and 20
5. hours between 0 and 150

Implement also code to test the usage of the classes.

Run five examples to show that the program works correctly. One run should include your first name, last name and university ID. Another run should include your first name with a digit inside it (e.g., use Ah7mad instead of Ahmad)

if you feel that there is something missing or incorrect, you can assume anything that in your opinion is correct! Please explain your assumption.

If you see that there are different approaches to implement something, use the one that you prefer.

Submit a pdf file that contains screenshots of the runs and the code as a text file