海大資工 Java程式設計課程

SOSEL
Service-Oriented Software Engineering Lab

Fall

2017

Homework 1-1

- Create a class called Employee that includes three pieces of information as instance variables—a first name (type String), a last name (type String) and a monthly salary (type double).
  - Your class should have a constructor that initializes the three instance variables.
  - Provide a set and a get method for each instance variable. If the monthly salary is not positive, set it to 0.0.
- Write a test application named EmployeeTest that demonstrates class Employee's capabilities.
  - Create two Employee objects and display the yearly salary for each Employee. Then give each Employee a 10% raise and display each Employee's yearly salary again.

Problem Solving Tips

- 1. Class Employee should declare three instance variables.
- 2. The constructor must declare three parameters, one for each instance variable. The value for the salary should be validated to ensure it is not negative.
- 3. Declare a public set and get method for each instance variable.
  - The set methods should not return values and should each specify a parameter of a type that matches the corresponding instance variable (String for first name and last name, double for the salary).
  - The get methods should receive no parameters and should specify a return type that matches the corresponding instance variable.

Example


```
Employee 1: Bob Jones; Yearly Salary: 34500.00
Employee 2: Susan Baker; Yearly Salary: 37809.00
Increasing employee salaries by 10%
Employee 1: Bob Jones; Yearly Salary: 37950.00
Employee 2: Susan Baker; Yearly Salary: 41589.90
```

Homework 1-2

- Drivers are concerned with the mileage their automobiles get. One driver has kept track of several tankfuls (油箱) of gasoline (汽油) by recording the miles (英哩) driven and liter (加侖) used for each tankful.
- Develop a Java application that will input the miles driven and gallons used (both as integers) for each tankful.
- The program should calculate and display the miles per gallon obtained for each tankful and print the combined miles per gallon obtained for all tankfuls up to this point.
  - All averaging calculations should produce floating-point results.
- Use class **Scanner** and **sentinel-controlled** repetition to obtain the data from the user.

Example


```
Enter miles (-1 to quit): 350
Enter gallons: 18
MPG this tankful: 19.44
Total MPG: 19.44
Enter miles (-1 to quit): 475
Enter gallons: 16
MPG this tankful: 29.69
Total MPG: 24.26
Enter miles (-1 to quit): -1
```

Homework 1-3

- ("The Twelve Days of Christmas" Song) Write an application that uses repetition and switch statements to print the song "The Twelve Days of Christmas."
  - One switch statement should be used to print the day (i.e., "First," "Second," etc.).
  - A separate switch statement should be used to print the remainder of each verse.
  - It is forbidden to use array!
  - Visit the Web site www.12days.com/library/carols/12daysofxmas.htm and https://www.youtube.com/watch?v=UGtAa3klQNk for the complete lyrics of the song.

Problem Solving Tips

- For this example you will need two switch statements.
  - Both switch statements should appear inside a for loop that will iterate through the twelve days.
  - You will have one string to which more text is added during every iteration of the loop. The string will be displayed after the loop terminates.

Example

On the first day of Christmas, my true love gave to me:

a Partridge in a pear tree.

On the second day of Christmas, my true love gave to me:

Two turtle doves, and

a Partridge in a pear tree.

On the third day of Christmas, my true love gave to me:

Three French hens,

Two turtle doves, and

a Partridge in a pear tree.

作業要求

- 命名都要符合CamelCase style
- 類別都要設定package，名稱為ntou.cs.java2017.你的英文名字
- 類別內要有註解，至少要簡述此類別與每個方法
- 每題都要有兩個類別，一個為主要類別，一個為測試類別(只包含main)
  - 1-1類別名稱: Employ以及EmployTest
  - 1-2類別名稱: GasMeter以及GasMeterTest
  - 1-3類別名稱: Twelve.java及TwelveTest.java
- 請繳交電子檔 ，電子檔包含.java檔與.class檔(上傳至TronClass) 。
- 屍體(無法compile或執行)不計分。
- 相同版本分數平均。