ITEC 120: Principles of Computer Science I

Homework 2

 >>>>>> Due Date: Friday, January. 31st at 10:00PM via Desire2Learn   <<<<<<<

In doing this homework, remember to abide by the RU Honor Code.

Problem 1 - <u>Mortgage loan aid</u> Or <u>Gaming engine component</u>

5 points
Choose either the business or the gaming problem to solve in this assignment. Do not do both.

Business Problem:
You have been hired by Non-toxic Loans Incorporated to determine whether or not they should lend money to a client. A non-toxic loan is one where their monthly mortgage payment is less than or equal to 30% of the monthly income of the customer. You loan money to a customer if the loan is non-toxic. The loan information program provides you with a line of input that contains all the information you need. The format of the line is as follows Name|YearlySalary| MonthlyMortgagePayment. Your job is to write a program that reads in this line of input, performs the appropriate calculations, and prints out Loan money to customer named X or Do not loan money to customer named X.

Two sample inputs that you can use to test your program are as follows:
John|50000|1000
Frank|50000|2000

The output for each of the previous input cases is as follows:
```
Loan money to customer named John
Do not loan money to customer named Frank
```

Gaming Problem:
You have been hired by World of Wyverns Studios to write a part of their next generation game engine. They need you to determine whether or not a monster kills a player after an attack. A player has a certain number of hit points, and as long as they are greater than 0 the player stays alive. The damage from an attack is subtracted from the player's HP. However, it cannot be directly applied. The attack damage is lowered by a certain percentage due to the armor the player is wearing. The game engine will give your program one line of text that contains the HP and Armor of the player and the damage that the monster will deal. The line of text is in the format of HP|Armor|Damage. Your job is to write a program that reads in this line of input, performs the appropriate calculations, and prints out Player survives with X hit points left or Player died with X hit points left.

Two sample inputs that you can use to test your program are as follows:
```
50|.5|99
50|.5|100
```

The output for each of the previous input cases is as follows:
```
Player survives with 0.5 hit points left
Player died with 0.0 hit points left
```

Hints:
1. Write down the method calls necessary to break the line of input into different pieces.
2. Print out your different pieces of input to make sure they are correct.
3. Use the information to calculate the result. Check to make sure it is right.
4. Test your program with multiple inputs.
5. Come see me in office hours if you are having trouble completing this.

After you are finished writing and testing your program, log into Desire2Learn (learn.radford.edu) and submit the java file for the homework 2 assignment under the correct place in the dropbox menu. You may come by my office the next school day after this assignment is due to demonstrate your homework to me. If you choose to come by, I can give you personalized feedback on the assignment. If you haven't gotten the assignment work properly, I can help you fix it.

Grading rubric
2 points – Calculates the right answer
1 point – Compiles
1 point – Breaks the input into different pieces properly
1 point – Uses the right formula for calculating the answer