

2015

Object Oriented Programming

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Designing Information Assignments for Literacy

Name: Professor Praveen Khethavath

Course Name: Object Oriented Programming

Activity Duration: 1 week

Activity Learning Objectives:

- a. Being able to control the flow of a program is an important skill. It allows the program customize behavior based on user input or data values. This program is designed to get you working with control flows by means of "if" statements.

Description:

In this assignment students will write a program that reads data from the user which is based on the banking scenario I had provided. Students will work on the inputs they received and generate a report after the data is processed. Students will do simple math on the inputs received and needs to format the output according to the requirements.

Materials and Resources

- The students can use any Java compiler and research online for Java programming syntax.

Homework: Programming the credit card usage

Being able to control the flow of a program is an important skill. It allows the program customize behavior based on user input or data values. This program is designed to get you working with control flows by means of "if" statements.

Things you will learn

- If statements
- Nested if statements
- Dealing with Strings and real-valued inputs.
- Handling simple error conditions
- Formatting output

Specification

A credit card company currently has three member levels, Platinum, Gold, and Silver. Each credit card has a different interest rate:

- Platinum member: 1% per month
- Gold member: 2% per month
- Silver member: 3% per month

If Platinum or Gold level customers make a late payment, then their interest rate for the month doubles. For example, if a Platinum member is late, then his interest rate increases from 1% to 2% for the month.

If a Silver level customer is late on a payment, their interest rate does not increase. Instead, they are assessed a flat \$20 penalty for being late.

For this assignment, you will write a program that calculates the minimum payment, which is 2% of the principle plus any interest and fees. You will also need to calculate the percentage of the payment that goes to the principle. This is given by

$$\text{percentToPrinciple} = 100 * (\text{paymentToPrinciple} / \text{totalPayment})$$

Sample Output 1:

Credit Card program by <Your Name>

Please enter a customer name: **Marge Simpson**

Please enter the customer's member level: **Silver**

Please enter the current balance: **500**

Was the payment made late? Yes

=====

Statement

=====

Billing information for Marge Simpson

Customer Level: Silver

Credit Card Balance: \$500.00

Interest rate for late payment: 3% per month

Late fee: \$20.00

Required minimum payment: \$45.00

Amount going to principle: \$10.00

Percent of minimum payment going to principle: 22.2%

Sample Output 2:

Credit Card program by <Your Name>

Please enter a customer name: **Monty Burns**

Please enter the customer's member level: **Platinum**

Please enter the current balance: **5000**

Was the payment made late? No

=====

Statement

=====

Billing information for Monty Burns

Customer Level: Platinum

Credit Card Balance: \$5000.00

Interest rate: 1% per month

Required minimum payment: \$150.00

Amount going to principle: \$100.00

Percent of minimum payment going to principle: 66.7%

Directions

1. Write the CreditCard.java program as specified above. Make sure to ask the user for the four inputs, and format the output as shown in the examples.
2. Format money values so that they start with a \$ and have 2 digits after the decimal point. You can use **System.out.printf** to do this. For percent values, print one digit after the decimal point.
3. If any level is given other than the three levels defined above, the program should generate an error message and exit.
4. Keep in mind that you need to handle 6 cases—3 customer levels, and for each of them, whether the payment was made late. You also need to be able to handle the case where an invalid customer level is entered.

5. Write your program according to the standards in Syllabus and Instructions.
 - Make sure to include the block comment at the top with your name, section number, etc.
 - Make sure that your program prints out a line stating your name when it starts.
 - Also, make sure to indent properly and name variables according to the coding standard.
 - Feel free to start with "Hello.java" or another beginning program.

Things to keep in mind

- You can use `System.out.printf` to make sure that the right number of digits is printed after the decimal point.
- After your program has read in the level, it should use the `.equals` or `.equalsIgnoreCase` method of the `String` class to compare the different customer levels.
- Try to find out how you can use different formatting options available and use appropriate one to match the requirements.