Homework I
Assigned in Laboratory I
Due Start of Laboratory II

Please perform the following activities. This assignment is unpledged. You may work with one other person. You are allowed to talk with others, but your work must be your own.

Objective

The objective of this assignment is to practice coding programs that do interactive input and output, and to make sure that you understand how to write simple programs that compute useful things. Good programmers often write small programs to do a short, useful computations.

Problem

Interest on credit card accounts can be quite high. Most credit card companies compute interest on an average daily balance. Here is an algorithm for computing the average daily balance and the monthly interest charge on a credit card.

Step 1. Multiply the net balance shown on the statement by the number of days in the billing cycle.

Step 2. Multiply the net payment received by the number of days the payment was received before the statement date.

Step 3. Subtract the result of the calculation from step 2 from the result of the calculation in step 1.

Step 4. Divide the result of step 3 by the number of days in the billing cycle. This is the average daily balance.

Step 5. Compute the interest charge for the billing period by multiplying the average daily balance by the monthly interest rate.

To illustrate the algorithm, consider the following example. Suppose your credit card statement showed a previous balance of $850. Eleven days before the end of the billing cycle you made a payment of $400. The billing cycle for this month is 31 days, and the monthly interest rate is 1.32%. The calculation of the interest charge is as follows.

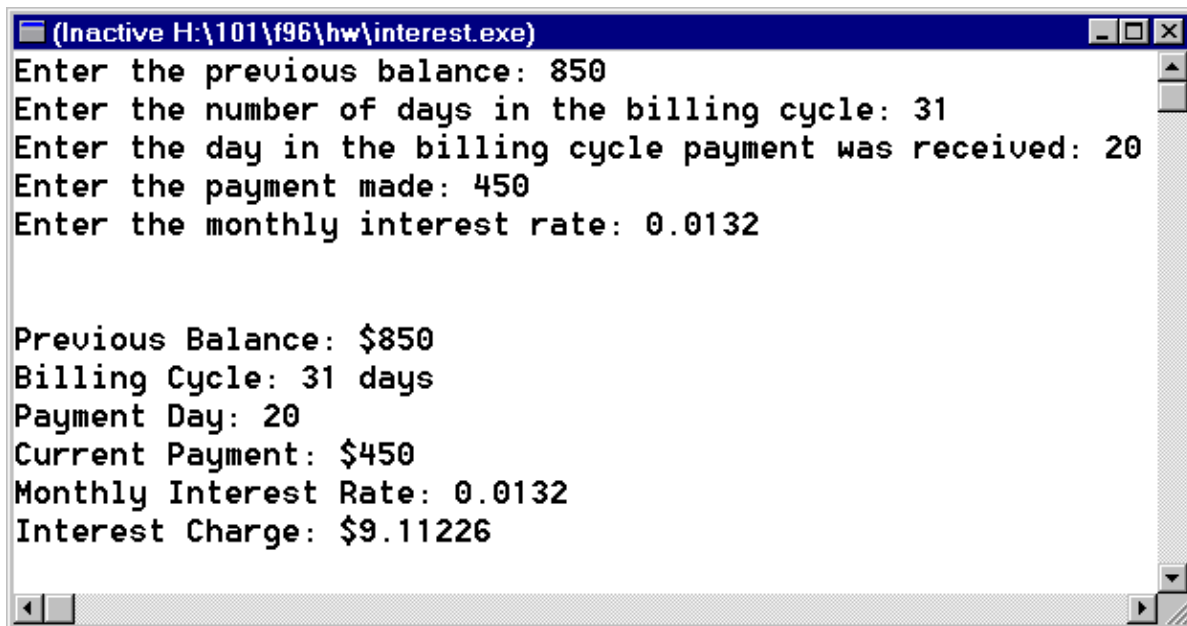*Step 1.* $850 \times 31 = \$26,350$

Step 2. $400 \times 11 = \$4,400$

Step 3. $\$26,350 - \$4,400 = \$21,950$

Step 4. $\$21,950 \div 31 = \$708.06$

Step 5. $\$708.06 \times .0132 = \$9.34$

So the interest charge for this month's bill would be $9.34.

Write a program that computes the monthly interest charge on a credit card account. Your program should prompt for and accept the previous balance, the number of days in the billing cycle, the day of the billing cycle the payment was made, the payment made, and the monthly interest rate. The following illustrates the input and output your program should produce.

```
(Inactive H:\101\f96\hw\interest.exe)
Enter the previous balance: 850
Enter the number of days in the billing cycle: 31
Enter the day in the billing cycle payment was received: 20
Enter the payment made: 450
Enter the monthly interest rate: 0.0132


Previous Balance: $850
Billing Cycle: 31 days
Payment Day: 20
Current Payment: $450
Monthly Interest Rate: 0.0132
Interest Charge: $9.11226
```

Notes

You should submit your program electronically before laboratory II. See your handout for how to do this.

You should also turn in a hardcopy (print out) at the beginning of your laboratory when the program is due. This assignment is due at the beginning of laboratory II.

See the 101 Web page for the grading criteria for this assignment. The URL is:

http://www.cs.virginia.edu/cs101/