

## Title

Printing Payments and Calculating Total Expenditure.

## Background Context

It is a program that prints out the payment plan for a house.

## Program Specifications

Ask the user to input the amount owed on the house, the interest rate of the loan as a percent per year, and the monthly payment value. Your program should print a chart with a row for each monthly payment. The columns of the chart should be the month (this should be a number), the amount of the payment, and the amount owed after the payment is made. All the numbers in the second column should be the same except for possibly the last value. Also, your program should detect if the monthly payment is too small to ever pay off the loan. If this is the case, simply output an error message instead of the chart.

### **Function details:**

Your chart should print out three pieces of information for each month: the month number starting at 1, the payment value printed to 2 decimal places in dollars, and the amount still owed, printed to 2 decimal places in dollars. Each value should be separated by either one or two tabs (“\t”). Create headers for each column of the chart.

Calculation explanation:

- If the annual interest rate is 12%, the monthly rate is 1%. Thus, the interest accrued in the first month is  $\$10000 \times .01 = \$100$  and the loan value is  $\$10,100$  right before payment.
- After the payment, the amount owed is  $\$10100 - \$500 = \$9600$ .
- After the second month, the value owed is  $\$9600 + \$9600 \times .01 = \$9696$ .
- After making the payment,  $\$9196.00$  is owed.
- In month 22,  $\$711.37$  is owed.
- After the  $\$500$  payment,  $\$211.37$  is owed.
- BUT, after the end of month 23,  $\$213.48$  is owed due to the interest on the  $\$211.37$  for one month, which is about  $\$2.11$ . Thus, the last payment has to be  $\$213.48$  and not  $\$211.37$

### **Expectation of User interface:**

```
What is the value left on the mortgage?
10000
What is the annual interest rate of the loan, in percent?
12
What is the monthly payment?
500
```

```
Month    Payment    Amount Owed
1         500.00     9600.00
2         500.00     9196.00
3         500.00     8787.96
...
22        500.00     211.37
23        213.48      0
```