Take your time to develop a careful algorithm and a nice outline prior to any coding.
Provide small useful comments all throughout the program and authorship comment at the start.
Submit your source code to Canvas, follow the submission naming policies.

Sooner or later, you would need a large loan to commit to a large purchase. Now it's time to design a loan calculator!

Interest on a loan is paid on a declining balance, and hence a loan with an interest rate of, say, 14 percent can cost significantly less than 14 percent of the balance.

Write a program that takes a loan amount and interest rate as input and then outputs the monthly payments and balance of the loan until the loan is paid off.

Typically, the monthly payments are calculated using the amortization equation as follows:

$$M = P\ \frac{r\ (1+r)^n}{(1+r)^n - 1}$$

Where:

M = monthly payments

P = the principal loan amount

r = monthly interest rate (annual interest rate / 12) -> *for 10% interest rate it is 0.1/12 per month*

n = number of payments over loan's lifetime (e.g., loan years * 12) -> *2 *12 is 24 month*

Any monthly payment amount more than the interest is credited toward decreasing the balance due.

On a loan of $20,000, the payments would be fixed at $922.90 a month. If the interest rate is 10 percent, then each month the interest is one-twelfth of 10 percent of the remaining balance. The first month, (10 percent of $20,000)/12, or $166.67, would be paid in interest, and the remaining $756.23 would decrease the balance to $19,243.77. The following month the interest would be (10 percent of $19,234.77)/12, and so forth. Create a table that shows the interest and principal portion of the loan for every month as well as total interest up to that point.

Also have the program output the total interest paid over the life of the loan.

Your program should allow the user to repeat this calculation as often as desired.

Your loan calculator should have a user-defined function for amortization with inputs of P,r, n which returns the monthly payment. You may define additional user-defined functions for this program. Or you can simply do the rest of the computations in the main function.

Example Output

Payment	Principal	Interest	Total Interest	Balance
$836.03	$217.28	$618.75	$618.75	$164,782.72
$836.03	$218.10	$617.94	$1,236.69	$164,564.62
$836.03	$218.91	$617.12	$1,853.80	$164,345.71
$836.03	$219.73	$616.30	$2,470.10	$164,125.98
$836.03	$220.56	$615.47	$3,085.57	$163,905.42
$836.03	$221.39	$614.65	$3,700.22	$163,684.03
$836.03	$222.22	$613.82	$4,314.03	$163,461.82
$836.03	$223.05	$612.98	$4,927.01	$163,238.77
$836.03	$223.89	$612.15	$5,539.16	$163,014.88
$836.03	$224.72	$611.31	$6,150.46	$162,790.16
$836.03	$225.57	$610.46	$6,760.93	$162,564.59
$836.03	$226.41	$609.62	$7,370.55	$162,338.18

Source: Investopedia