

CODING CHALLENGE

MORTGAGE LOAN CALCULATOR



DESCRIPTION

Write a mortgage loan calculator application that takes in three parameters:

1. The amount of money loaned in dollars (balance)
2. The time over which the loan will be repaid, in months (term)
3. The percentage rate at which interest will accrue on the loan (rate)

The output should include the following:

1. The month (1 corresponding to the 1st month of payment, through the total number of months)
2. The payment amount
3. The principal paid this month
4. The interest paid this month
5. The total interest paid to date
6. The remaining loan balance at the end of the month

| Month | Payment | Principal | Interest | Total Interest | Balance |
|-------|---------|-----------|----------|----------------|----------|
| 1 | 471.78 | 367.61 | 104.17 | 104.17 | 24632.39 |
| 2 | 471.78 | 369.16 | 102.63 | 206.80 | 24263.24 |
| 3 | 471.78 | 370.68 | 101.10 | 307.90 | 23892.56 |
| 4 | 471.78 | 372.23 | 99.55 | 407.45 | 23520.33 |
| 5 | 471.78 | 373.70 | 98.08 | 505.53 | 23146.63 |
| 6 | 471.78 | 375.24 | 96.54 | 602.07 | 22771.39 |

FORMULAS USED

Total Monthly Payment = $(\text{amount loaned}) * (\text{rate}/1200) / (1 - (1 + \text{rate}/1200)^{(-\text{Number of Months})})$

Remaining Balance before the very first month equals the amount of the loan.

Interest Payment = Previous Remaining Balance * rate/1200

Principal Payment = Total Monthly Payment - Interest Payment

At end each month, **Remaining Balance** = Previous Remaining Balance - principal payments