Coding Challenge

Fixed Loan Calculator

Write a fixed rate loan calculator. The app should be able to calculate the monthly payments for the loan and display an amortization schedule.

Input parameters

The user should have the ability to input the loan criteria needed to calculate a loan payment and schedule. Each loan is defined by three parameters:

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

Output

For the loan inputted, the user should be able to click a button which will present them payment and an amortization schedule.

An amortization schedule is a record of monthly payments spanning the entire term of a loan. Each monthly payment is broken down to show the interest and principal for each payment. In addition, the app should show the remaining balance of the loan for that month.

Monthly payments have these details:

- The month (1 corresponding to the 1st month of payment, through the total number of months)
- The Payment paid this month
- The interest paid this month (see below)
- The principal paid this month (see below)
- The Total Interest (see below)
- The remaining loan balance at the end of the month (see below)

Example

Month	Payment	Principal	Interest	Total Interest	Balance
1	186.43	148.93	37.50	37.50	9,851.07
2	183.43	149.49	36.94	74.44	9,701.58
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Necessary Formulas

Every month, for the length of the loan, the same amount will be paid towards the mortgage,

- **Total Monthly Payment** = (amount loaned) * (rate/1200) / (1 – (1 + rate/1200)$^{(-Term)}$)

That money will be paid towards interest first, and the remainder will pay off the balance of the loan

- **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

Judging Criteria

1. Does the app function correctly? Are the values in the schedule correct? Can you enter any loan criteria?

2. Overall Appearance. Is the app self-explanatory? Is it intuitive and easy use?

3. Structure of Code. Is it efficient?

4. Creativity in the overall design and function.