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CIS-5

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**Loan Repayment Calculator**

Write a C++ program to generate a table with the repayment of a loan.

The monthly repayment formula is:

R = P 1/2 ((1+i/12)^12y)/(1+i/12)^12y-1))

Variables in the formula:

R = Calculated monthly repayment

P = Principal amount of the loan

Y = Number of years of the loan

i = yearly interest rate in decimal (i.e. 1.37% be represented as 0.0137)

Break down formula into various chunks:

float p1 = (interest / 12);

float p2 = (1 + p1);

float p3 = (12 \* years);

float p4 = pow(p2,p3);

float payment = principal \* p1 \* ( p4 / (p4-1));

**Steps:**

1. Declare necessary variables
2. Declare function prototypes
   1. Kitty Cat Test – Input Validation
3. Output initial program instructions/opening statement:
   1. “Welcome to this simple loan repayment calculator. This will ask you for the principal amount of a loan and the starting interest rate. This will output a series of tables that showcase the monthly payments in an increasing set of interest rates based on your input. The payments will be divided into increments of 5 years.
4. Prompt the user for the principal amount of their loan with input validation checks:
   1. Enter the starting loan in this format (e.g. 1250.37 for $1250.37):
5. Store the value into the principal variable
6. Prompt the user for the starting yearly interest rate with input validation checks
   1. Enter the starting interest rate in this format (e.g. 0.0475 for 4.75%):
7. Store the value into the interest variable
8. Perform calculations with broken down formula
   1. float p1 = (interest / 12);
   2. float p2 = (1 + p1);
   3. float p3 = (12 \* years);
   4. float p4 = pow(p2,p3);
   5. float payment = principal \* p1 \* ( p4 / (p4-1));
9. Use For Loop to output results into table format
10. Prompt the user if they want to start again and re-enter new data
11. If user declines, exit the program.