**LOAN CALCULATION CODE I USED AND EXPLANATIONS**

document.getElementById("loanForm").addEventListener("submit", function (event) { event.preventDefault(); calculateLoanPayment(); });

1. **Event Listener on Form Submission**:
   * document.getElementById("loanForm") selects the HTML form element with the ID loanForm.
   * addEventListener("submit", function (event) {...}) attaches an event listener to the form that triggers each time the form is submitted.
   * event.preventDefault(); prevents the default form submission behavior, which would refresh the page. This allows us to handle the form submission entirely with JavaScript.
   * calculateLoanPayment(); calls the function calculateLoanPayment to process the loan calculation.

javascript

Copy code

function calculateLoanPayment() { const loanAmount = parseFloat(document.getElementById("loanAmount").value); const interestRate = parseFloat(document.getElementById("interestRate").value) / 100 / 12; const loanTermMonths = parseInt(document.getElementById("loanTerm").value); const resultDiv = document.getElementById("result"); console.log("Loan Amount (₱):", loanAmount); console.log("Annual Interest Rate (%):", interestRate \* 12 \* 100); console.log("Loan Term (Months):", loanTermMonths); console.log("Monthly Interest Rate (Decimal):", interestRate); }

1. **Function to Calculate Loan Payment**:
   * **Loan Amount**: parseFloat(document.getElementById("loanAmount").value); retrieves the loan amount input from the form, converting it to a floating-point number for calculations.
   * **Interest Rate**: parseFloat(document.getElementById("interestRate").value) / 100 / 12; retrieves the annual interest rate input, converts it to decimal form by dividing by 100, and then further divides by 12 to get the monthly interest rate.
   * **Loan Term**: parseInt(document.getElementById("loanTerm").value); retrieves the loan term in months and converts it to an integer.
   * **Result Div**: const resultDiv = document.getElementById("result"); selects the div where the result will be displayed.
   * **Console Logging**: Logs key values such as loan amount, annual interest rate, loan term, and monthly interest rate. This helps with debugging by displaying input values and calculated interest rate values in the console.

javascript

Copy code

// Inline validation using short-circuiting (isNaN(loanAmount) || loanAmount <= 0) && (resultDiv.textContent = "Please enter a valid loan amount.", console.log("Invalid loan amount.")) || (isNaN(interestRate \* 12 \* 100) || interestRate \* 12 \* 100 <= 0) && (resultDiv.textContent = "Please enter a valid interest rate.", console.log("Invalid interest rate.")) || (isNaN(loanTermMonths) || loanTermMonths <= 0) && (resultDiv.textContent = "Please enter a valid loan term.", console.log("Invalid loan term.")) || displayMonthlyPayment(loanAmount, interestRate, loanTermMonths);

1. **Inline Validation Using Short-Circuiting**:
   * This section checks if any of the values entered are invalid using inline conditionals:
   * isNaN(loanAmount) || loanAmount <= 0: Checks if the loan amount is not a number (isNaN) or if it’s less than or equal to zero.
     + If true, resultDiv.textContent = "Please enter a valid loan amount."; displays an error message in the resultDiv, and console.log("Invalid loan amount."); logs an error in the console.
   * Similarly, isNaN(interestRate \* 12 \* 100) || interestRate \* 12 \* 100 <= 0 validates the interest rate, and isNaN(loanTermMonths) || loanTermMonths <= 0 validates the loan term.
   * If all conditions are valid, displayMonthlyPayment(loanAmount, interestRate, loanTermMonths); is called to calculate and display the monthly payment.

javascript

Copy code

function displayMonthlyPayment(loanAmount, interestRate, loanTermMonths) { const monthlyPayment = interestRate === 0 ? loanAmount / loanTermMonths : (loanAmount \* interestRate \* Math.pow(1 + interestRate, loanTermMonths)) / (Math.pow(1 + interestRate, loanTermMonths) - 1); console.log("Calculated Monthly Payment (₱):", monthlyPayment.toFixed(2)); document.getElementById("result").textContent = `Monthly Payment: ₱${monthlyPayment.toFixed(2)}`; }

1. **Function to Calculate and Display Monthly Payment**:
   * **Calculation Logic**:
     + interestRate === 0 ? loanAmount / loanTermMonths : ... checks if the interest rate is zero. If so, it divides the loan amount by the number of months to get the monthly payment.
     + Otherwise, it calculates the monthly payment using the formula:monthlyPayment=loanAmount×interestRate×(1+interestRate)loanTermMonths(1+interestRate)loanTermMonths−1monthlyPayment=(1+interestRate)loanTermMonths−1loanAmount×interestRate×(1+interestRate)loanTermMonths​
   * **Console Log for Monthly Payment**: Logs the calculated monthly payment in the console, formatted to two decimal places for easier readability.
   * **Display Result**: document.getElementById("result").textContent = ... formats and displays the monthly payment in the resultDiv, showing it as a rounded value to two decimal places.