# Loan EMI Amortization Calculator – Lightning Web Component (LWC)

## Overview

The Loan EMI Amortization Calculator project is built using Salesforce Lightning Web Components (LWC). It allows users to input loan-related data such as Principal, Interest Rate, and Duration, and automatically generates a detailed EMI schedule—helping users understand their monthly payment breakdown.

## Problem Statement

Many customers and financial institutions seek a clear and structured way to understand loan repayments. The need is to visualize a loan amortization schedule showing how the loan balance decreases month by month as payments are made.

## Requirements

* Lightning Web Component with input fields: Name, Principal, Rate, Duration
* Calculate EMI using standard formula
* Generate a dynamic table with month-wise EMI breakdown

## Functional Details

* Develop a responsive Lightning Web Component (LWC) that:
* Takes user input for Principal, Interest Rate, and Duration
* Computes the EMI using a standard formula
* Generates a monthly amortization table
* Displays the EMI breakup (Interest + Principal)
* Resets input and output via a single click

## Execution Guidance

A diagram of a process

AI-generated content may be incorrect.

### Step 1: Object Creation

* Created a custom object named Loan
* Fields include: Name, Principal Amount, Interest Rate, Duration

### Step 2: App Setup

* Created an app named Loan Calculator
* Created a Loan Calculator app page
* Added the custom Loan object to the app for tracking

### Step 3: Component Implementation

* Developed an LWC component named loanCalculator
* The component includes:
* Input form for Name, Principal, Interest Rate, Duration
* On submit, stores the record in the Loan object
* Calculates EMI using the formula:
* EMI = [P × R × (1 + R)^N] / [(1 + R)^N − 1]

Where:  
P = Principal  
R = Monthly Interest Rate  
N = Duration in Months

* Dynamically generates a monthly EMI Amortization Table displaying:
* Month Number
* Starting Balance
* EMI
* Interest Paid
* Principal Paid
* Ending Balance

### Step 4: Reset Functionality

* A Reset button clears all fields and output table.

## UI Screens

EMI Input Form:

A screenshot of a computer

AI-generated content may be incorrect.

Amortization Table Output:

A screenshot of a computer

AI-generated content may be incorrect.

## Users & Personas

|  |  |
| --- | --- |
| Persona | Purpose |
| Customer | View and plan their loan payments monthly |
| Bank Advisor | Demonstrate repayment structure and financial advice |
| Internal Users | Validate loan repayment structure for record keeping |

## Features

* User-friendly input UI
* Accurate EMI calculations
* Dynamic amortization table generation
* Reset functionality

## Tools & Technologies

* Salesforce Lightning Web Components (LWC)
* Apex (optional, if record-saving logic is used)
* JavaScript for EMI logic
* No external libraries or APIs used

**Test Plan**

The system was validated by testing all input fields with valid and invalid data, verifying EMI calculations using known formulas, and ensuring the amortization table displayed accurate month-wise breakdowns. Reset functionality was tested to clear inputs and outputs. The UI was reviewed for responsiveness across devices, and role-based access was checked for different personas. Overall, the component was deployed and tested in a Salesforce sandbox to confirm functionality and performance.

## Conclusion

The Loan EMI Amortization Calculator provides a clear and interactive method for users to estimate their monthly EMIs and understand loan repayment schedules. Leveraging LWC and Apex ensures performance, scalability, and integration within the Salesforce ecosystem.