The formula requires you to first calculate the loan's **true outstanding principal** from the information you receive.

⚙️ The Dynamic Payoff Formula

The final calculation uses this formula:

$$\text{Total Payoff Amount} = P + \left(P \times \frac{R}{365} \times D \right)$$

- **P:** The true **Outstanding Principal** of the loan.
- **R:** The **Annual Interest Rate** for that specific loan (as a decimal).
- **D:** The number of **Days** since the last payment was made.

📝 Step-by-Step Implementation

To use this formula for any loan, follow these automated steps when you receive the balance inquiry from the ESS.

Step 1: Calculate Original Loan Details

First, determine the loan's original principal and term using the `Initial Balance` and `Monthly Amount` provided by the ESS.

- **Tenure (in months):** `Initial Balance / Monthly Amount`
- **Original Principal:** Use a financial formula or library to find the principal based on the tenure, monthly payment, and the loan's interest rate.

Step 2: Calculate Current Outstanding Principal (P)

Determine how many payments have been made and what the remaining principal is.

- **Payments Made:** `(Initial Balance - Remaining Balance) / Monthly Amount`
- **Current Outstanding Principal (P):** Using the `Original Principal` and `Payments Made`, calculate the current principal balance. This is the most crucial step.

Step 3: Apply the Payoff Formula

With the correct **Outstanding Principal (P)**, apply the dynamic formula.

- Fetch the loan's specific **Annual Interest Rate (R)**.
- Calculate the **Days Since Last Payment (D)**.
- Compute the **Total Payoff Amount**.

This final amount is what you send back to the ESS. This single, dynamic process will work for every loan you receive.