**Question – 2**

Scenario 2: The bank needs to compute the monthly installment for a loan.

* Question: Write a function CalculateMonthlyInstallment that takes the loan amount, interest rate, and loan duration in years as input and returns the monthly installment amount.

PL/SQL Code –

CREATE OR REPLACE FUNCTION CalculateMonthlyInstallment (

p\_LoanAmount IN NUMBER,

p\_AnnualInterestRate IN NUMBER,

p\_LoanDurationYears IN NUMBER

) RETURN NUMBER

IS

v\_MonthlyInterestRate NUMBER;

v\_LoanDurationMonths NUMBER;

v\_MonthlyInstallment NUMBER;

BEGIN

-- Convert annual interest rate to monthly interest rate

v\_MonthlyInterestRate := p\_AnnualInterestRate / 12 / 100;

-- Convert years to months

v\_LoanDurationMonths := p\_LoanDurationYears \* 12;

-- Calculate the monthly installment using the EMI formula

IF v\_MonthlyInterestRate = 0 THEN

v\_MonthlyInstallment := p\_LoanAmount / v\_LoanDurationMonths;

ELSE

v\_MonthlyInstallment := p\_LoanAmount \* v\_MonthlyInterestRate \* POWER((1 + v\_MonthlyInterestRate), v\_LoanDurationMonths) /

(POWER((1 + v\_MonthlyInterestRate), v\_LoanDurationMonths) - 1);

END IF;

RETURN v\_MonthlyInstallment;

EXCEPTION

WHEN OTHERS THEN

DBMS\_OUTPUT.PUT\_LINE('Error: ' || SQLERRM);

RETURN NULL;

END CalculateMonthlyInstallment;

/

-- ON THE SERVEROUTPUT TO SEE THE OUTPUT

SET SERVEROUT ON;

--TAKE THE DATA FROM THE LOANS TABLE

DECLARE

CURSOR loan\_cursor IS

SELECT LOANID, LOANAMOUNT, INTERESTRATE, STARTDATE, ENDDATE

FROM Loans;

v\_LOANID Loans.LOANID%TYPE;

v\_LoanAmount Loans.LOANAMOUNT%TYPE;

v\_InterestRate Loans.INTERESTRATE%TYPE;

v\_StartDate Loans.STARTDATE%TYPE;

v\_EndDate Loans.ENDDATE%TYPE;

v\_LoanDurationYears NUMBER;

v\_MonthlyInstallment NUMBER;

BEGIN

OPEN loan\_cursor;

LOOP

FETCH loan\_cursor INTO v\_LOANID, v\_LoanAmount, v\_InterestRate, v\_StartDate, v\_EndDate;

EXIT WHEN loan\_cursor%NOTFOUND;

-- Calculate loan duration in years

v\_LoanDurationYears := MONTHS\_BETWEEN(v\_EndDate, v\_StartDate) / 12;

-- Calculate monthly installment using the function

v\_MonthlyInstallment := CalculateMonthlyInstallment(v\_LoanAmount, v\_InterestRate, v\_LoanDurationYears);

-- Display loan details and calculated monthly installment with 2 decimal places

DBMS\_OUTPUT.PUT\_LINE('Loan ID: ' || v\_LOANID ||

', Loan Amount: ' || v\_LoanAmount ||

', Annual Interest Rate: ' || v\_InterestRate || '%' ||

', Loan Duration: ' || ROUND(v\_LoanDurationYears, 2) || ' years' ||

', Monthly Installment: ' || TO\_CHAR(v\_MonthlyInstallment, '9999999999.99'));

END LOOP;

-- Close the cursor

CLOSE loan\_cursor;

END;

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