**Exercise 4: Functions**

**Scenario 1:** Calculate the age of customers for eligibility checks.

**Question:** Write a function CalculateAge that takes a customer's date of birth as input and returns their age in years.

CREATE OR REPLACE FUNCTION CalculateAge (

p\_dob IN DATE

) RETURN NUMBER IS

v\_age NUMBER;

BEGIN

SELECT FLOOR(MONTHS\_BETWEEN(SYSDATE, p\_dob) / 12)

INTO v\_age

FROM dual;

RETURN v\_age;

END CalculateAge;

**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.

CREATE OR REPLACE FUNCTION CalculateMonthlyInstallment (

p\_loan\_amount IN NUMBER,

p\_annual\_interest\_rate IN NUMBER,

p\_duration\_years IN NUMBER

) RETURN NUMBER IS

v\_monthly\_rate NUMBER;

v\_number\_of\_installments NUMBER;

v\_monthly\_installment NUMBER;

BEGIN

v\_monthly\_rate := p\_annual\_interest\_rate / 100 / 12;

v\_number\_of\_installments := p\_duration\_years \* 12;

IF v\_monthly\_rate = 0 THEN

v\_monthly\_installment := p\_loan\_amount / v\_number\_of\_installments;

ELSE

v\_monthly\_installment := p\_loan\_amount \* v\_monthly\_rate \* POWER(1 + v\_monthly\_rate, v\_number\_of\_installments) / (POWER(1 + v\_monthly\_rate, v\_number\_of\_installments) - 1);

END IF;

RETURN v\_monthly\_installment;

END CalculateMonthlyInstallment;

**Scenario 3:** Check if a customer has sufficient balance before making a transaction.

**Question:** Write a function **HasSufficientBalance** that takes an account ID and an amount as input and returns a boolean indicating whether the account has at least the specified amount.

CREATE OR REPLACE FUNCTION HasSufficientBalance (

p\_account\_id IN NUMBER,

p\_amount IN NUMBER

) RETURN BOOLEAN IS

v\_balance NUMBER;

BEGIN

SELECT Balance INTO v\_balance

FROM Accounts

WHERE AccountID = p\_account\_id;

IF v\_balance >= p\_amount THEN

RETURN TRUE;

ELSE

RETURN FALSE;

END IF;

EXCEPTION

WHEN NO\_DATA\_FOUND THEN

RETURN FALSE;

WHEN OTHERS THEN

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

RETURN FALSE;

END HasSufficientBalance;