**Exercise 4: Functions**

**Task:** 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 DATE) RETURN NUMBER IS

v\_age NUMBER;

BEGIN

-- Calculate age based on the difference between current date and date of birth

v\_age := FLOOR(MONTHS\_BETWEEN(SYSDATE, p\_dob) / 12);

RETURN v\_age;

END CalculateAge;

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**Task:** 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 NUMBER,

p\_interest\_rate NUMBER,

p\_duration\_years NUMBER

) RETURN NUMBER IS

v\_monthly\_rate NUMBER;

v\_number\_of\_payments NUMBER;

v\_monthly\_installment NUMBER;

BEGIN

v\_monthly\_rate := p\_interest\_rate / 1200; -- Convert annual interest rate to monthly and percentage to decimal

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

-- Calculate monthly installment using the formula for fixed-rate mortgages

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

(POWER(1 + v\_monthly\_rate, v\_number\_of\_payments) - 1);

RETURN v\_monthly\_installment;

END CalculateMonthlyInstallment;

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**Task:** 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 NUMBER,

p\_amount NUMBER

) RETURN BOOLEAN IS

v\_balance NUMBER;

BEGIN

-- Fetch the balance for the given account ID

SELECT Balance INTO v\_balance

FROM Accounts

WHERE AccountID = p\_account\_id;

-- Return TRUE if balance is greater than or equal to the amount, FALSE otherwise

RETURN v\_balance >= p\_amount;

EXCEPTION

WHEN NO\_DATA\_FOUND THEN

-- Account does not exist

RETURN FALSE;

WHEN OTHERS THEN

-- Handle unexpected errors

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

RETURN FALSE;

END HasSufficientBalance;

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