**Exercise 7: Packages**

Scenario 1: Customer Management

Package Specification:

CREATE OR REPLACE PACKAGE CustomerManagement AS

PROCEDURE AddCustomer(p\_name IN VARCHAR2, p\_email IN VARCHAR2);

PROCEDURE UpdateCustomer(p\_id IN NUMBER, p\_name IN VARCHAR2, p\_email IN VARCHAR2);

FUNCTION GetCustomerBalance(p\_id IN NUMBER) RETURN NUMBER;

END CustomerManagement;

/

Package Body:

CREATE OR REPLACE PACKAGE BODY CustomerManagement AS

PROCEDURE AddCustomer(p\_name IN VARCHAR2, p\_email IN VARCHAR2) IS

BEGIN

INSERT INTO customers (name, email) VALUES (p\_name, p\_email);

END AddCustomer;

PROCEDURE UpdateCustomer(p\_id IN NUMBER, p\_name IN VARCHAR2, p\_email IN VARCHAR2) IS

BEGIN

UPDATE customers SET name = p\_name, email = p\_email WHERE id = p\_id;

END UpdateCustomer;

FUNCTION GetCustomerBalance(p\_id IN NUMBER) RETURN NUMBER IS

v\_balance NUMBER;

BEGIN

SELECT balance INTO v\_balance FROM customer\_accounts WHERE customer\_id = p\_id;

RETURN v\_balance;

END GetCustomerBalance;

END CustomerManagement;

/

Scenario 2: Employee Management

Package Specification:

CREATE OR REPLACE PACKAGE EmployeeManagement AS

PROCEDURE HireEmployee(p\_name IN VARCHAR2, p\_salary IN NUMBER);

PROCEDURE UpdateEmployee(p\_id IN NUMBER, p\_name IN VARCHAR2, p\_salary IN NUMBER);

FUNCTION CalculateAnnualSalary(p\_id IN NUMBER) RETURN NUMBER;

END EmployeeManagement;

/

Package Body:

CREATE OR REPLACE PACKAGE BODY EmployeeManagement AS

PROCEDURE HireEmployee(p\_name IN VARCHAR2, p\_salary IN NUMBER) IS

BEGIN

INSERT INTO employees (name, salary) VALUES (p\_name, p\_salary);

END HireEmployee;

PROCEDURE UpdateEmployee(p\_id IN NUMBER, p\_name IN VARCHAR2, p\_salary IN NUMBER) IS

BEGIN

UPDATE employees SET name = p\_name, salary = p\_salary WHERE id = p\_id;

END UpdateEmployee;

FUNCTION CalculateAnnualSalary(p\_id IN NUMBER) RETURN NUMBER IS

v\_salary NUMBER;

BEGIN

SELECT salary INTO v\_salary FROM employees WHERE id = p\_id;

RETURN v\_salary \* 12;

END CalculateAnnualSalary;

END EmployeeManagement;

/

Scenario 3: Account Operations

Package Specification:

CREATE OR REPLACE PACKAGE AccountOperations AS

PROCEDURE OpenAccount(p\_customer\_id IN NUMBER, p\_initial\_balance IN NUMBER);

PROCEDURE CloseAccount(p\_account\_id IN NUMBER);

FUNCTION GetTotalBalance(p\_customer\_id IN NUMBER) RETURN NUMBER;

END AccountOperations;

/

Package Body:

CREATE OR REPLACE PACKAGE BODY AccountOperations AS

PROCEDURE OpenAccount(p\_customer\_id IN NUMBER, p\_initial\_balance IN NUMBER) IS

BEGIN

INSERT INTO accounts (customer\_id, balance) VALUES (p\_customer\_id, p\_initial\_balance);

END OpenAccount;

PROCEDURE CloseAccount(p\_account\_id IN NUMBER) IS

BEGIN

DELETE FROM accounts WHERE id = p\_account\_id;

END CloseAccount;

FUNCTION GetTotalBalance(p\_customer\_id IN NUMBER) RETURN NUMBER IS

v\_total\_balance NUMBER;

BEGIN

SELECT SUM(balance) INTO v\_total\_balance FROM accounts WHERE customer\_id = p\_customer\_id;

RETURN v\_total\_balance;

END GetTotalBalance;

END AccountOperations;

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