**1) Stored Procedures**

**Scenario 1: The bank needs to process monthly interest for all savings accounts.**

* + **Question: Write a stored procedure ProcessMonthlyInterest that calculates and updates the balance of all savings accounts by applying an interest rate of 1% to the current balance.**

**Scenario 2: The bank wants to implement a bonus scheme for employees based on their performance.**

* + **Question: Write a stored procedure UpdateEmployeeBonus that updates the salary of employees in a given department by adding a bonus percentage passed as a parameter.**

**Scenario 3: Customers should be able to transfer funds between their accounts.**

* + **Question: Write a stored procedure TransferFunds that transfers a specified amount from one account to another**, checking that the source account has sufficient balance before making the transfer.

i)Scenario 1 –

CREATE OR REPLACE PROCEDURE ProcessMonthlyInterest IS

BEGIN

FOR account IN (SELECT account\_id, balance FROM savings\_accounts FOR UPDATE) LOOP

UPDATE savings\_accounts

SET balance = balance + (balance \* 0.01)

WHERE account\_id = account.account\_id;

END LOOP;

COMMIT;

EXCEPTION

WHEN OTHERS THEN

ROLLBACK;

DBMS\_OUTPUT.PUT\_LINE('Error: An unexpected error occurred while processing monthly interest.');

END;

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ii)Scenario 2-

CREATE OR REPLACE PROCEDURE UpdateEmployeeBonus (

p\_department\_id IN NUMBER,

p\_bonus\_percentage IN NUMBER

) IS

BEGIN

UPDATE employees

SET salary = salary \* (1 + p\_bonus\_percentage / 100)

WHERE department\_id = p\_department\_id;

COMMIT;

EXCEPTION

WHEN OTHERS THEN

ROLLBACK;

DBMS\_OUTPUT.PUT\_LINE('Error: An unexpected error occurred while updating employee bonuses.');

END;

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iii)Scenario 3-

CREATE OR REPLACE PROCEDURE TransferFunds (

p\_from\_account\_id IN NUMBER,

p\_to\_account\_id IN NUMBER,

p\_amount IN NUMBER

) IS

v\_balance NUMBER;

insufficient\_funds EXCEPTION;

BEGIN

-- Check balance of the source account

SELECT balance INTO v\_balance FROM accounts WHERE account\_id = p\_from\_account\_id FOR UPDATE;

IF v\_balance < p\_amount THEN

RAISE insufficient\_funds;

ELSE

-- Deduct the amount from the source account

UPDATE accounts

SET balance = balance - p\_amount

WHERE account\_id = p\_from\_account\_id;

-- Add the amount to the destination account

UPDATE accounts

SET balance = balance + p\_amount

WHERE account\_id = p\_to\_account\_id;

COMMIT;

END IF;

EXCEPTION

WHEN insufficient\_funds THEN

ROLLBACK;

DBMS\_OUTPUT.PUT\_LINE('Error: Insufficient funds in the source account.');

WHEN OTHERS THEN

ROLLBACK;

DBMS\_OUTPUT.PUT\_LINE('Error: An unexpected error occurred during the transfer.');

END;

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