**Exercise 1: Control Structures**

**Code:**

CREATE TABLE customers (

    customer\_id INT PRIMARY KEY,

    name VARCHAR(50),

    age INT,

    balance DECIMAL(10,2),

    isVIP BOOLEAN DEFAULT FALSE

);

CREATE TABLE loans (

    loan\_id INT PRIMARY KEY,

    customer\_id INT,

    due\_date DATE,

    interest\_rate DECIMAL(5,2),

    FOREIGN KEY (customer\_id) REFERENCES customers(customer\_id)

);

INSERT INTO customers VALUES

(1, 'Niladri', 21, 12000.00, FALSE),

(2, 'Debarati', 42, 8000.00, FALSE),

(3, 'Agniswar', 70, 5000.00, FALSE),

(4, 'Arko', 64, 15000.00, FALSE);

INSERT INTO loans VALUES

(101, 1, CURDATE() + INTERVAL 15 DAY, 5.5),

(102, 2, CURDATE() + INTERVAL 40 DAY, 6.0),

(103, 3, CURDATE() + INTERVAL 25 DAY, 5.8),

(104, 4, CURDATE() + INTERVAL 10 DAY, 6.2);

UPDATE loans l

JOIN customers c ON l.customer\_id = c.customer\_id

SET l.interest\_rate = l.interest\_rate - 1.0

WHERE c.age > 60;

UPDATE customers

SET isVIP = TRUE

WHERE balance > 10000;

SELECT

    c.name,

    l.loan\_id,

    l.due\_date,

    CONCAT('Reminder: Dear ', c.name, ', your loan #', l.loan\_id, ' is due on ', l.due\_date) AS reminder\_message

FROM loans l

JOIN customers c ON l.customer\_id = c.customer\_id

WHERE l.due\_date BETWEEN CURDATE() AND CURDATE() + INTERVAL 30 DAY;

SELECT \* FROM customers;

SELECT \* FROM loans;

**Output:**

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**Exercise 3: Stored Procedures**

**Code:**

CREATE PROCEDURE ProcessMonthlyInterest()

BEGIN

    UPDATE savings\_accounts

    SET balance = balance \* 1.01;

END

CREATE PROCEDURE UpdateEmployeeBonus(IN dept\_id INT, IN bonus\_percent DECIMAL(5,2))

BEGIN

    UPDATE employees

    SET salary = salary + (salary \* bonus\_percent / 100)

    WHERE department\_id = dept\_id;

END

CREATE PROCEDURE TransferFunds(

    IN from\_account INT,

    IN to\_account INT,

    IN amount DECIMAL(10,2)

)

BEGIN

    DECLARE from\_balance DECIMAL(10,2);

    SELECT balance INTO from\_balance

    FROM accounts

    WHERE account\_id = from\_account;

    IF from\_balance >= amount THEN

        UPDATE accounts

        SET balance = balance - amount

        WHERE account\_id = from\_account;

        UPDATE accounts

        SET balance = balance + amount

        WHERE account\_id = to\_account;

    ELSE

        SIGNAL SQLSTATE '45000'

        SET MESSAGE\_TEXT = 'Insufficient funds';

    END IF;

END

CREATE TABLE savings\_accounts (

    account\_id INT PRIMARY KEY,

    customer\_name VARCHAR(100),

    balance DECIMAL(10,2)

);

CREATE TABLE employees (

    employee\_id INT PRIMARY KEY,

    name VARCHAR(100),

    department\_id INT,

    salary DECIMAL(10,2)

);

CREATE TABLE accounts (

    account\_id INT PRIMARY KEY,

    account\_holder VARCHAR(100),

    balance DECIMAL(10,2)

);

INSERT INTO savings\_accounts (account\_id, customer\_name, balance) VALUES

(101, 'Ram', 10000.00),

(102, 'Shyam', 5000.00),

(103, 'Madhu', 7500.00);

INSERT INTO employees (employee\_id, name, department\_id, salary) VALUES

(1, 'Anita', 1, 50000.00),

(2, 'Raj', 1, 52000.00),

(3, 'Sneha', 2, 48000.00),

(4, 'Rahul', 2, 51000.00);

INSERT INTO accounts (account\_id, account\_holder, balance) VALUES

(1001, 'Niladri', 8000.00),

(1002, 'Debarati', 4000.00),

(1003, 'Agniswar', 6000.00);

CALL ProcessMonthlyInterest();

CALL UpdateEmployeeBonus(2, 10);

CALL TransferFunds(1001, 1002, 1000.00);

SELECT \* FROM savings\_accounts;

SELECT \* FROM employees;

SELECT \* FROM accounts;

**Output:**

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