**Exercise 1: Control Structures**

**Customers table**

CREATE TABLE customers (

customer\_id NUMBER PRIMARY KEY,

name VARCHAR2(50),

age NUMBER,

balance NUMBER,

interest\_rate NUMBER, -- as percentage (e.g., 7.5)

IsVIP VARCHAR2(5)

);

**Loans table**

CREATE TABLE loans (

loan\_id NUMBER PRIMARY KEY,

customer\_id NUMBER REFERENCES customers(customer\_id),

due\_date DATE

);

**Insert into customers**

INSERT INTO customers VALUES (101, 'John', 65, 15000, 7.5, 'FALSE');

INSERT INTO customers VALUES (102, 'Alice', 55, 8000, 8.0, 'FALSE');

INSERT INTO customers VALUES (103, 'Bob', 70, 11000, 6.5, 'FALSE');

**Insert into loans**

INSERT INTO loans VALUES (301, 101, SYSDATE + 10); -- Due soon

INSERT INTO loans VALUES (302, 102, SYSDATE + 45); -- Due later

INSERT INTO loans VALUES (303, 103, SYSDATE + 5); -- Due soon

COMMIT;

**Scenario 1: Interest Discount for Age > 60**

BEGIN

DBMS\_OUTPUT.PUT\_LINE('Applying 1% discount for customers above age 60...');

FOR rec IN (SELECT customer\_id, age FROM customers WHERE age > 60) LOOP

UPDATE customers

SET interest\_rate = interest\_rate - 1

WHERE customer\_id = rec.customer\_id;

DBMS\_OUTPUT.PUT\_LINE('Discount applied for Customer ID: ' || rec.customer\_id);

END LOOP;

COMMIT;

END;

### Output

**Before Execution:**

| **customer\_id** | **age** | **interest\_rate** |
| --- | --- | --- |
| 101 | 65 | 7.5 |
| 102 | 55 | 8.0 |
| 103 | 70 | 6.5 |

**After Execution:**

| **customer\_id** | **age** | **interest\_rate** |
| --- | --- | --- |
| 101 | 65 | 6.5 |
| 102 | 55 | 8.0 |
| 103 | 70 | 5.5 |

**Console Output:**

Applying 1% discount for customers above age 60...

Discount applied for Customer ID: 101

Discount applied for Customer ID: 103

**Scenario 2: VIP Status Based on Balance > $10,000**

BEGIN

DBMS\_OUTPUT.PUT\_LINE('Promoting customers with balance over $10,000 to VIP...');

FOR rec IN (SELECT customer\_id FROM customers WHERE balance > 10000) LOOP

UPDATE customers

SET IsVIP = 'TRUE'

WHERE customer\_id = rec.customer\_id;

DBMS\_OUTPUT.PUT\_LINE('VIP status set for Customer ID: ' || rec.customer\_id);

END LOOP;

COMMIT;

END;

/

### **Output**

****Before Execution:****

| **customer\_id** | **balance** | **IsVIP** |
| --- | --- | --- |
| 101 | 15000 | FALSE |
| 102 | 8000 | FALSE |
| 103 | 11000 | FALSE |

****After Execution:****

| **customer\_id** | **balance** | **IsVIP** |
| --- | --- | --- |
| 101 | 15000 | TRUE |
| 102 | 8000 | FALSE |
| 103 | 11000 | TRUE |

****Console Output:****

Promoting customers with balance over $10,000 to VIP...

VIP status set for Customer ID: 101

VIP status set for Customer ID: 103

## Scenario 3: Loan Due Reminders (Next 30 Days)

### PL/SQL Block

BEGIN

DBMS\_OUTPUT.PUT\_LINE('Sending reminders for loans due in next 30 days...');

FOR rec IN (

SELECT customer\_id, loan\_id, due\_date

FROM loans

WHERE due\_date BETWEEN SYSDATE AND SYSDATE + 30

) LOOP

DBMS\_OUTPUT.PUT\_LINE('Reminder: Loan ' || rec.loan\_id || ' for Customer ' ||

rec.customer\_id || ' is due on ' ||

TO\_CHAR(rec.due\_date, 'DD-MON-YYYY'));

END LOOP;

END;/

### **Output**

****Loan Table:****

| **loan\_id** | **customer\_id** | **due\_date** |
| --- | --- | --- |
| 301 | 101 | SYSDATE + 10 |
| 302 | 102 | SYSDATE + 45 |
| 303 | 103 | SYSDATE + 5 |

****Console Output:****

Sending reminders for loans due in next 30 days..

.Reminder: Loan 301 for Customer 101 is due on 07-JUL-2025

Reminder: Loan 303 for Customer 103 is due on 02-JUL-2025