**Exercise 1: Control Structures**

**Scenario 1:**

DECLARE

CURSOR cust\_cursor IS

SELECT CustomerID, (TRUNC(MONTHS\_BETWEEN(SYSDATE, DOB) / 12)) AS Age

FROM Customers;

v\_customer\_id Customers.CustomerID%TYPE;

v\_age NUMBER;

BEGIN

FOR cust\_rec IN cust\_cursor LOOP

v\_customer\_id := cust\_rec.CustomerID;

v\_age := cust\_rec.Age;

IF v\_age > 60 THEN

UPDATE Loans

SET InterestRate = InterestRate - 1

WHERE CustomerID = v\_customer\_id

AND InterestRate > 1;

END IF;

END LOOP;

COMMIT;

END;

**Output:**

| **LoanID** | **CustomerID** | **LoanAmount** | **InterestRate** | **StartDate** | **EndDate** |
| --- | --- | --- | --- | --- | --- |
| **1** | **1** | **5000** | **5** | **2024-08-07** | **2029-08-07** |
| **2** | **2** | **7000** | **6** | **2024-08-07** | **2029-08-07** |

**Scenario 2:**

ALTER TABLE Customers

ADD IsVIP CHAR(1) DEFAULT 'N';

DECLARE

CURSOR cust\_cursor IS

SELECT CustomerID, Balance

FROM Customers;

v\_customer\_id Customers.CustomerID%TYPE;

v\_balance NUMBER;

BEGIN

FOR cust\_rec IN cust\_cursor LOOP

v\_customer\_id := cust\_rec.CustomerID;

v\_balance := cust\_rec.Balance;

IF v\_balance > 10000 THEN

UPDATE Customers

SET IsVIP = 'Y'

WHERE CustomerID = v\_customer\_id;

END IF;

END LOOP;

COMMIT;

END;

**Output:**

**Before Running PL/SQL Block:**

| CustomerID | Name | Balance | IsVIP |
| --- | --- | --- | --- |
| 1 | John Doe | 1000 | N |
| 2 | Jane Smith | 15000 | N |

**After Running PL/SQL Block:**

| CustomerID | Name | Balance | IsVIP |
| --- | --- | --- | --- |
| 1 | John Doe | 1000 | N |
| 2 | Jane Smith | 15000 | Y |
|  |  |  |  |

**Scenario 3:**

DECLARE

CURSOR loan\_cursor IS

SELECT L.CustomerID, C.Name, L.LoanID, L.EndDate

FROM Loans L

JOIN Customers C ON L.CustomerID = C.CustomerID

WHERE L.EndDate BETWEEN SYSDATE AND SYSDATE + 30;

v\_customer\_id Customers.CustomerID%TYPE;

v\_name Customers.Name%TYPE;

v\_loan\_id Loans.LoanID%TYPE;

v\_end\_date Loans.EndDate%TYPE;

BEGIN

FOR loan\_rec IN loan\_cursor LOOP

v\_customer\_id := loan\_rec.CustomerID;

v\_name := loan\_rec.Name;

v\_loan\_id := loan\_rec.LoanID;

v\_end\_date := loan\_rec.EndDate;

DBMS\_OUTPUT.PUT\_LINE('Reminder: Dear ' || v\_name || ', your loan (ID: ' || v\_loan\_id || ') is due on ' || TO\_CHAR(v\_end\_date, 'YYYY-MM-DD') || '. Please ensure timely payment.');

END LOOP;

END;