**Exercise 1: Control Structures**

**Scenario 1:** The bank wants to apply a discount to loan interest rates for customers above 60 years old.

* + **Question:** Write a PL/SQL block that loops through all customers, checks their age, and if they are above 60, apply a 1% discount to their current loan interest rates.

**Create Sample tables:**

CREATE TABLE customers (

customer\_id NUMBER PRIMARY KEY,

customer\_name VARCHAR2(50),

age NUMBER

);

CREATE TABLE loans (

loan\_id NUMBER PRIMARY KEY,

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

interest\_rate NUMBER

);

**Insert sample values:**

INSERT INTO customers VALUES (1, 'Ravi', 65);

INSERT INTO customers VALUES (2, 'Anu', 45);

INSERT INTO loans VALUES (101, 1, 7.5);

INSERT INTO loans VALUES (102, 2, 8.0);

COMMIT;

**PL/SQL Control Structure**

BEGIN

FOR customer\_rec IN (

SELECT l.loan\_id, l.interest\_rate

FROM customers c

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

WHERE c.age > 60

)

LOOP

UPDATE loans

SET interest\_rate = customer\_rec.interest\_rate - 1

WHERE loan\_id = customer\_rec.loan\_id;

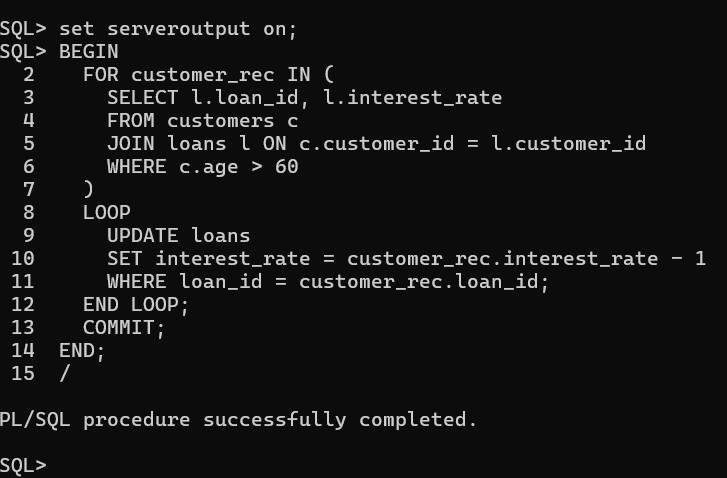
END LOOP;

COMMIT;

END;

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**Output:**



**Scenario 2:** A customer can be promoted to VIP status based on their balance.

* + **Question:** Write a PL/SQL block that iterates through all customers and sets a flag IsVIP to TRUE for those with a balance over $10,000.

**Alter the above table:**

ALTER TABLE customers ADD (balance NUMBER);

ALTER TABLE customers ADD (isVIP VARCHAR2(5));

**Update the Content:**

UPDATE customers SET balance = 8000 WHERE customer\_id = 1;

UPDATE customers SET balance = 15000 WHERE customer\_id = 2;

UPDATE customers SET balance = 12000 WHERE customer\_id = 3;

UPDATE customers SET isVIP = 'FALSE';

**PL/SQL Structure**

BEGIN

FOR cust IN (SELECT customer\_id, balance FROM customers)

LOOP

IF cust.balance > 10000 THEN

UPDATE customers

SET isVIP = 'TRUE'

WHERE customer\_id = cust.customer\_id;

END IF;

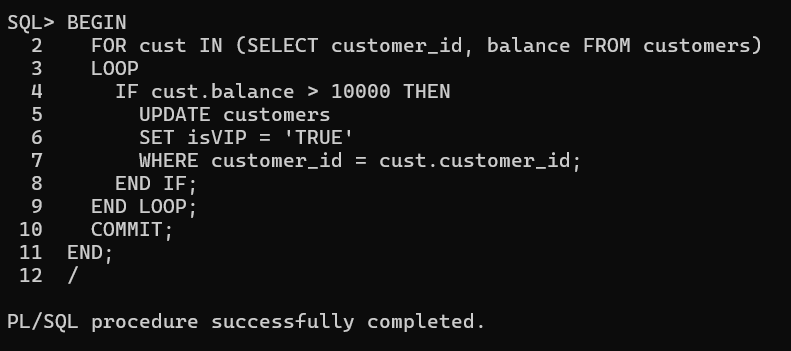
END LOOP;

COMMIT;

END;

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**Output:**



**Scenario 3:** The bank wants to send reminders to customers whose loans are due within the next 30 days.

* + **Question:** Write a PL/SQL block that fetches all loans due in the next 30 days and prints a reminder message for each customer.

**Alter and update the tables:**

ALTER TABLE loans ADD (due\_date DATE);

UPDATE loans SET due\_date = SYSDATE + 10 WHERE loan\_id = 101;

UPDATE loans SET due\_date = SYSDATE + 40 WHERE loan\_id = 102;

UPDATE loans SET due\_date = SYSDATE + 25 WHERE loan\_id = 103;

**PL/SQL Structure:**

BEGIN

FOR loan\_rec IN (

SELECT c.customer\_name, l.due\_date

FROM loans l

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

WHERE l.due\_date BETWEEN SYSDATE AND SYSDATE + 30

)

LOOP

DBMS\_OUTPUT.PUT\_LINE('Reminder: Loan for customer ' || loan\_rec.customer\_name ||

' is due on ' || TO\_CHAR(loan\_rec.due\_date, 'DD-MON-YYYY'));

END LOOP;

END;

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**Output:**

