**Exercise 1: Control Structures**

**Scenario 1: (Ex1-Scenario1.sql)**

@InitializeData.sql

SET ECHO ON;

SET SERVEROUTPUT ON SIZE UNLIMITED;

*-- Start spooling output to a file*

SPOOL output-Ex1-Scenario1.txt;

*-- Declare a variable for input*

VARIABLE input VARCHAR2(30);

*-- Scenario 1*

*-- Insert sample customers older than 60 years*

INSERT INTO CUSTOMERS (

    CUSTOMERID,

    NAME,

    DOB,

    BALANCE,

    LASTMODIFIED

) VALUES (

    1001,

    'John Doe',

    TO\_DATE('1950-01-01', 'YYYY-MM-DD'),

    5000,

    SYSDATE

);

INSERT INTO CUSTOMERS (

    CUSTOMERID,

    NAME,

    DOB,

    BALANCE,

    LASTMODIFIED

) VALUES (

    1002,

    'Jane Smith',

    TO\_DATE('1955-01-01', 'YYYY-MM-DD'),

    6000,

    SYSDATE

);

*-- Insert loans for these customers*

INSERT INTO LOANS (

    LOANID,

    CUSTOMERID,

    LOANAMOUNT,

    INTERESTRATE,

    STARTDATE,

    ENDDATE

) VALUES (

    2001,

    1001,

    10000,

    5,

    SYSDATE - 100,

    SYSDATE + 365

);

INSERT INTO LOANS (

    LOANID,

    CUSTOMERID,

    LOANAMOUNT,

    INTERESTRATE,

    STARTDATE,

    ENDDATE

) VALUES (

    2002,

    1002,

    15000,

    5,

    SYSDATE - 200,

    SYSDATE + 365

);

*-- Update the interest rate for customers older than 60*

BEGIN

    FOR CUSTOMER\_REC IN (

        SELECT

            CUSTOMERID,

            TRUNC(MONTHS\_BETWEEN(SYSDATE, DOB) / 12) AS AGE

        FROM

            CUSTOMERS

    ) LOOP

        IF CUSTOMER\_REC.AGE > 60 THEN

            UPDATE LOANS

            SET

                INTERESTRATE = INTERESTRATE - 1

            WHERE

                CUSTOMERID = CUSTOMER\_REC.CUSTOMERID;

        END IF;

    END LOOP;

END;

/

*-- Select from loans to see the changes*

SELECT

    \*

FROM

    LOANS;

*-- Stop spooling*

SPOOL OFF;

@DropData.sql

**Scenario 2: (Ex1-Scenario2.sql)**

@InitializeData.sql

SET ECHO ON;

SET SERVEROUTPUT ON SIZE UNLIMITED;

*-- Start spooling output to a file*

SPOOL output-Ex1-Scenario2.txt;

VARIABLE input VARCHAR2(30);

*-- Scenario 2*

*-- Insert sample customers with varying balances*

INSERT INTO CUSTOMERS (

    CUSTOMERID,

    NAME,

    DOB,

    BALANCE,

    LASTMODIFIED

) VALUES (

    1003,

    'Kyle',

    TO\_DATE('1980-01-01', 'YYYY-MM-DD'),

    15000,

    SYSDATE

);

INSERT INTO CUSTOMERS (

    CUSTOMERID,

    NAME,

    DOB,

    BALANCE,

    LASTMODIFIED

) VALUES (

    1004,

    'Zach',

    TO\_DATE('1985-01-01', 'YYYY-MM-DD'),

    8000,

    SYSDATE

);

ALTER TABLE CUSTOMERS

    ADD (

        ISVIP VARCHAR2(5)

    );

BEGIN

    FOR CUSTOMER\_REC IN (

        SELECT

            CUSTOMERID,

            BALANCE

        FROM

            CUSTOMERS

    ) LOOP

        IF CUSTOMER\_REC.BALANCE > 10000 THEN

            UPDATE CUSTOMERS

            SET

                ISVIP='TRUE'

            WHERE

                CUSTOMERID = CUSTOMER\_REC.CUSTOMERID;

        ELSE

            UPDATE CUSTOMERS

            SET

                ISVIP='FALSE'

            WHERE

                CUSTOMERID = CUSTOMER\_REC.CUSTOMERID;

        END IF;

    END LOOP;

END;

/

*-- Select from customers to see the changes*

SELECT

    \*

FROM

    CUSTOMERS;

*-- Stop spooling*

SPOOL OFF

@DropData.sql

**Scenario 3: (Ex1-Scenario3.sql)**

@InitializeData.sql

SET ECHO ON

SET SERVEROUTPUT on SIZE UNLIMITED

SPOOL output-Ex1-Scenario3.txt

VARIABLE input VARCHAR2(30)

*-- Scenario 3*

*-- Insert sample customer*

INSERT INTO CUSTOMERS (

    CUSTOMERID,

    NAME,

    DOB,

    BALANCE,

    LASTMODIFIED

) VALUES (

    1005,

    'Charlie Davis',

    TO\_DATE('1990-01-01', 'YYYY-MM-DD'),

    7000,

    SYSDATE

);

*-- Insert loan for the customer with end date within the next 30 days*

INSERT INTO LOANS (

    LOANID,

    CUSTOMERID,

    LOANAMOUNT,

    INTERESTRATE,

    STARTDATE,

    ENDDATE

) VALUES (

    2003,

    1005,

    20000,

    4,

    SYSDATE - 300,

    SYSDATE + 10

);

BEGIN

    FOR LOAN\_REC IN (

        SELECT

            L.LOANID,

            L.CUSTOMERID,

            C.NAME,

            L.ENDDATE

        FROM

            LOANS     L

            JOIN CUSTOMERS C

            ON L.CUSTOMERID = C.CUSTOMERID

        WHERE

            L.ENDDATE BETWEEN SYSDATE AND SYSDATE + 30

    ) LOOP

        DBMS\_OUTPUT.PUT\_LINE('Reminder: Loan ID '

                             || LOAN\_REC.LOANID

                             || ' for customer '

                             || LOAN\_REC.NAME

                             || ' is due on '

                             || TO\_CHAR(LOAN\_REC.ENDDATE, 'YYYY-MM-DD'));

    END LOOP;

END;

/

SPOOL OFF

@DropData.sql