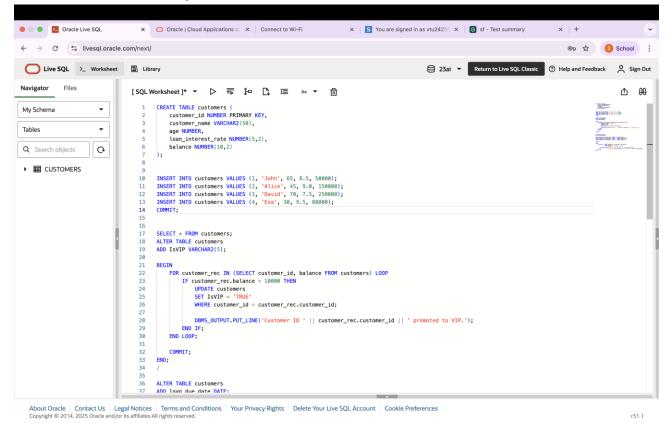# Exercise 1: Control Structures

Tool: oracle LiveSQL

```sql
CREATE TABLE customers (
    customer_id NUMBER PRIMARY KEY,
    customer_name VARCHAR2(50),
    age NUMBER,
    loan_interest_rate NUMBER(5,2),
    balance NUMBER(10,2)
);


INSERT INTO customers VALUES (1, 'John', 65, 8.5, 50000);
INSERT INTO customers VALUES (2, 'Alice', 45, 9.0, 150000);
INSERT INTO customers VALUES (3, 'David', 70, 7.5, 250000);
INSERT INTO customers VALUES (4, 'Eva', 30, 9.5, 80000);
COMMIT;


SELECT * FROM customers;
ALTER TABLE customers
ADD IsVIP VARCHAR2(5);

BEGIN
    FOR customer_rec IN (SELECT customer_id, balance FROM customers) LOOP
        IF customer_rec.balance > 10000 THEN
            UPDATE customers
            SET IsVIP = 'TRUE'
            WHERE customer_id = customer_rec.customer_id;

            DBMS_OUTPUT.PUT_LINE('Customer ID ' || customer_rec.customer_id || ' promoted to VIP.');
        END IF;
    END LOOP;

    COMMIT;
END;
/

ALTER TABLE customers
ADD loan_due_date DATE;
```

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[SQL Worksheet]*

```sql
35
36    ALTER TABLE customers
37    ADD loan_due_date DATE;
38
39    UPDATE customers SET loan_due_date = SYSDATE + 10 WHERE customer_id = 1;
40    UPDATE customers SET loan_due_date = SYSDATE + 40 WHERE customer_id = 2;
41    UPDATE customers SET loan_due_date = SYSDATE + 20 WHERE customer_id = 3;
42    UPDATE customers SET loan_due_date = SYSDATE + 5 WHERE customer_id = 4;
43
44    COMMIT;
45
46    BEGIN
47        FOR loan_rec IN (SELECT customer_id, customer_name, loan_due_date
48                         FROM customers
49                         WHERE loan_due_date <= SYSDATE + 30) LOOP
50
51            DBMS_OUTPUT.PUT_LINE('Reminder: Loan for customer ' || loan_rec.customer_name ||
52                                 ' (ID: ' || loan_rec.customer_id || ') is due on ' || loan_rec.loan_due_date);
53        END LOOP;
54    END;
55    /
56
```

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[SQL Worksheet]*

```sql
1    CREATE TABLE customers (
2        customer_id NUMBER PRIMARY KEY,
3        customer_name VARCHAR2(50),
4        age NUMBER,
5        loan_interest_rate NUMBER(5,2),
6        balance NUMBER(10,2)
7    );
8
9
10   INSERT INTO customers VALUES (1, 'John', 65, 8.5, 50000);
11   INSERT INTO customers VALUES (2, 'Alice', 45, 9.0, 150000);
12   INSERT INTO customers VALUES (3, 'David', 70, 7.5, 250000);
13   INSERT INTO customers VALUES (4, 'Eva', 30, 9.5, 80000);
14   COMMIT;
15
16
17   SELECT * FROM customers;
18   ALTER TABLE customers
19   ADD IsVIP VARCHAR2(5);
20
21   BEGIN
```

Query result   Script output   DBMS output   Explain Plan   SQL history

```
SQL> CREATE TABLE customers (
        customer_id NUMBER PRIMARY KEY,
        customer_name VARCHAR2(50),
        age NUMBER,...
Show more...


Table CUSTOMERS created.

Elapsed: 00:00:00.015
```

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[SQL Worksheet]*

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```sql
1   CREATE TABLE customers (
2       customer_id NUMBER PRIMARY KEY,
3       customer_name VARCHAR2(50),
4       age NUMBER,
5       loan_interest_rate NUMBER(5,2),
6       balance NUMBER(10,2)
7   );
8
9
10  INSERT INTO customers VALUES (1, 'John', 65, 8.5, 50000);
11  INSERT INTO customers VALUES (2, 'Alice', 45, 9.0, 150000);
12  INSERT INTO customers VALUES (3, 'David', 70, 7.5, 250000);
13  INSERT INTO customers VALUES (4, 'Eva', 30, 9.5, 80000);
14  COMMIT;
15
16
17  SELECT * FROM customers;
18  ALTER TABLE customers
19  ADD IsVIP VARCHAR2(5);
20
21  BEGIN
```

Query result | Script output | DBMS output | Explain Plan | SQL history

Download ▾ Execution time: 0.001 seconds

	CUSTOMER_ID	CUSTOMER_NAME	AGE	LOAN_INTEREST_R	BALANCE
1	1	John	65	8.5	50000
2	2	Alice	45	9	150000
3	3	David	70	7.5	250000
4	4	Eva	30	9.5	80000

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[SQL Worksheet]*

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```sql
11      INSERT INTO customers VALUES (2, 'Alice', 45, 9.0, 150000);
12      INSERT INTO customers VALUES (3, 'David', 70, 7.5, 250000);
13      INSERT INTO customers VALUES (4, 'Eva', 30, 9.5, 80000);
14      COMMIT;
15
16
17      SELECT * FROM customers;
18      ALTER TABLE customers
19      ADD IsVIP VARCHAR2(5);
20
21      BEGIN
22          FOR customer_rec IN (SELECT customer_id, balance FROM customers) LOOP
23              IF customer_rec.balance > 10000 THEN
24                  UPDATE customers
25                  SET IsVIP = 'TRUE'
26                  WHERE customer_id = customer_rec.customer_id;
27
28                  DBMS_OUTPUT.PUT_LINE('Customer ID ' || customer_rec.customer_id || ' promoted to VIP.');
29              END IF;
30          END LOOP;
31
```

Query result | Script output | DBMS output | Explain Plan | SQL history

```
SQL> ALTER TABLE customers
    ADD IsVIP VARCHAR2(5)


Table CUSTOMERS altered.

Elapsed: 00:00:00.028

SQL> BEGIN
```

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[SQL Worksheet]*

```
17    SELECT * FROM customers;
18    ALTER TABLE customers
19    ADD IsVIP VARCHAR2(5);
20
21    BEGIN
22      FOR customer_rec IN (SELECT customer_id, balance FROM customers) LOOP
23        IF customer_rec.balance > 10000 THEN
24          UPDATE customers
25          SET IsVIP = 'TRUE'
26          WHERE customer_id = customer_rec.customer_id;
27
28          DBMS_OUTPUT.PUT_LINE('Customer ID ' || customer_rec.customer_id ||' promoted to VIP.');
29        END IF;
30      END LOOP;
31
32      COMMIT;
33    END;
34    /
35
36    ALTER TABLE customers
37    ADD loan_due_date DATE;
```

Query result | Script output | DBMS output | Explain Plan | SQL history

Elapsed: 00:00:00.001

SQL> ALTER TABLE customers
      ADD IsVIP VARCHAR2(5)

Table CUSTOMERS altered.

Elapsed: 00:00:00.028

---

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[SQL Worksheet]*

```
29        END IF;
30      END LOOP;
31
32      COMMIT;
33    END;
34    /
35
36    ALTER TABLE customers
37    ADD loan_due_date DATE;
38
39    UPDATE customers SET loan_due_date = SYSDATE + 10 WHERE customer_id = 1;
40    UPDATE customers SET loan_due_date = SYSDATE + 40 WHERE customer_id = 2;
41    UPDATE customers SET loan_due_date = SYSDATE + 20 WHERE customer_id = 3;
42    UPDATE customers SET loan_due_date = SYSDATE + 5 WHERE customer_id = 4;
43
44    COMMIT;
45
46    BEGIN
47      FOR loan_rec IN (SELECT customer_id, customer_name, loan_due_date
48                       FROM customers
```

Query result | Script output | DBMS output | Explain Plan | SQL history

Customer ID 2 promoted to VIP.
Customer ID 3 promoted to VIP.
Customer ID 4 promoted to VIP.

Reminder: Loan for customer John (ID: 1) is due on 06-JUL-25
Reminder: Loan for customer David (ID: 3) is due on 16-JUL-25
Reminder: Loan for customer Eva (ID: 4) is due on 01-JUL-25

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[SQL Worksheet]*

```
38
39    UPDATE customers SET loan_due_date = SYSDATE + 10 WHERE customer_id = 1;
40    UPDATE customers SET loan_due_date = SYSDATE + 40 WHERE customer_id = 2;
41    UPDATE customers SET loan_due_date = SYSDATE + 20 WHERE customer_id = 3;
42    UPDATE customers SET loan_due_date = SYSDATE + 5 WHERE customer_id = 4;
43
44    COMMIT;
45
46    BEGIN
47        FOR loan_rec IN (SELECT customer_id, customer_name, loan_due_date
48                         FROM customers
49                         WHERE loan_due_date <= SYSDATE + 30) LOOP
50
51            DBMS_OUTPUT.PUT_LINE('Reminder: Loan for customer ' || loan_rec.customer_name ||
52                                 ' (ID: ' || loan_rec.customer_id || ') is due on ' || loan_rec.loan_due_date);
53        END LOOP;
54    END;
55    /
56
```

Query result   Script output   DBMS output   Explain Plan   SQL history

Customer ID 2 promoted to VIP.
Customer ID 3 promoted to VIP.
Customer ID 4 promoted to VIP.

Reminder: Loan for customer John (ID: 1) is due on 06-JUL-25
Reminder: Loan for customer David (ID: 3) is due on 16-JUL-25
Reminder: Loan for customer Eva (ID: 4) is due on 01-JUL-25