



Student Name: Bhavya
Branch: CSE(AI & ML)
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Subject Name: Database Management System

UID: 24BAI70791
Section/Group: 24AIT_KRG-1/G2
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Experiment – 4

1. Aim of the Session

To design and implement PL/SQL programs utilizing conditional control statements such as IF–ELSE, ELSIF, ELSIF ladder, and CASE constructs in order to control the flow of execution based on logical conditions and to analyze decision-making capabilities in PL/SQL blocks.

2. Software Requirements

Database Management System: Oracle Database

Database Administration Tool: Oracle SQL Developer

3. Objectives

- To understand conditional control statements in PL/SQL.
- To implement IF–ELSE statements in PL/SQL blocks.
- To implement IF–ELSIF–ELSE ladder.
- To use CASE statements for decision making.
- To analyze program execution based on conditions.

4. Procedure of the Experiment

1. Open Oracle SQL Developer / Oracle Live SQL.

2. Enable output using the command: `SET SERVEROUTPUT ON;`
3. Write the required PL/SQL block using conditional statements.
4. Compile and execute the program.
5. Observe the output displayed using `DBMS_OUTPUT.PUT_LINE.`
6. Modify input values to verify different conditions.

5. Practical / Experiment Steps

Program 1: IF–ELSE Statement

```
DECLARE
    num NUMBER := -5;
BEGIN
    IF num > 0 THEN
        DBMS_OUTPUT.PUT_LINE('The number is Positive');
    ELSE
        DBMS_OUTPUT.PUT_LINE('The number is Non-Positive');
    END IF;
END;
```

/

Program 2: IF–ELSIF–ELSE Statement

```
DECLARE
    marks NUMBER := 78;
BEGIN
    IF marks >= 90 THEN
```



```
DBMS_OUTPUT.PUT_LINE('Grade: A');

ELSIF marks >= 75 THEN

    DBMS_OUTPUT.PUT_LINE('Grade: B');

ELSIF marks >= 60 THEN

    DBMS_OUTPUT.PUT_LINE('Grade: C');

ELSE

    DBMS_OUTPUT.PUT_LINE('Grade: Fail');

END IF;

END;
```

Program 3: ELSIF Ladder (Performance Status)

```
DECLARE

    marks NUMBER := 65;

BEGIN

    IF marks >= 85 THEN

        DBMS_OUTPUT.PUT_LINE('Performance: Excellent');

    ELSIF marks >= 70 THEN

        DBMS_OUTPUT.PUT_LINE('Performance: Very Good');

    ELSIF marks >= 50 THEN

        DBMS_OUTPUT.PUT_LINE('Performance: Good');

    ELSE

        DBMS_OUTPUT.PUT_LINE('Performance: Poor');

    END IF;

END;
```



Program 4: CASE Statement (Day Name)

DECLARE

 day_no NUMBER := 3;

BEGIN

 CASE day_no

 WHEN 1 THEN DBMS_OUTPUT.PUT_LINE('Monday');

 WHEN 2 THEN DBMS_OUTPUT.PUT_LINE('Tuesday');

 WHEN 3 THEN DBMS_OUTPUT.PUT_LINE('Wednesday');

 WHEN 4 THEN DBMS_OUTPUT.PUT_LINE('Thursday');

 WHEN 5 THEN DBMS_OUTPUT.PUT_LINE('Friday');

 WHEN 6 THEN DBMS_OUTPUT.PUT_LINE('Saturday');

 WHEN 7 THEN DBMS_OUTPUT.PUT_LINE('Sunday');

 ELSE

 DBMS_OUTPUT.PUT_LINE('Invalid Day Number');

END CASE;

END;

/

6. Input / Output Details and Screenshot

Program (Input):

Program 1: IF-ELSE Statement

A screenshot of a SQL Worksheet interface. The code is as follows:

```
[ SQL Worksheet ]* ▶ ⏷ ⏸ ⏹ ⏺ ⏻ Aa ⏻ ⏹ ⏻
1 SET SERVEROUTPUT ON;
2
3 DECLARE
4     num NUMBER := -5;
5 BEGIN
6     IF num > 0 THEN
7         DBMS_OUTPUT.PUT_LINE('The number is Positive');
8     ELSE
9         DBMS_OUTPUT.PUT_LINE('The number is Non-Positive');
10    END IF;
11 END;
12 /
13 |
```

The code uses the IF-THEN-ELSE construct to check if a variable 'num' is positive or non-positive and prints the result using the DBMS_OUTPUT.PUT_LINE function.



Program 2: IF–ELSIF–ELSE Statement

```
[ SQL Worksheet ]* ▾ ▷ ⌂ ⌁ ⌂ ⌂
1   SET SERVEROUTPUT ON;
2
3   DECLARE
4       marks NUMBER := 78;
5   BEGIN
6       IF marks >= 90 THEN
7           DBMS_OUTPUT.PUT_LINE('Grade: A');
8       ELSIF marks >= 75 THEN
9           DBMS_OUTPUT.PUT_LINE('Grade: B');
10      ELSIF marks >= 60 THEN
11          DBMS_OUTPUT.PUT_LINE('Grade: C');
12      ELSE
13          DBMS_OUTPUT.PUT_LINE('Grade: Fail');
14      END IF;
15  END;
16 /
17
```

Program 3: ELSIF Ladder

```
[ SQL Worksheet ]* ▾ ▷ ⏪ ⏴ ⏵ Aa ▾
1   SET SERVEROUTPUT ON;
2
3   DECLARE
4       marks NUMBER := 65;
5   BEGIN
6       IF marks >= 85 THEN
7           DBMS_OUTPUT.PUT_LINE('Performance: Excellent');
8       ELSIF marks >= 70 THEN
9           DBMS_OUTPUT.PUT_LINE('Performance: Very Good');
10      ELSIF marks >= 50 THEN
11          DBMS_OUTPUT.PUT_LINE('Performance: Good');
12      ELSE
13          DBMS_OUTPUT.PUT_LINE('Performance: Poor');
14      END IF;
15  END;
16 /
17
```

Program 4: CASE Statement

```
[ SQL Worksheet ]* ▾ ▷ ⏪ ⏴ ⏵ Aa ▾
1   SET SERVEROUTPUT ON;
2   DECLARE
3       day_no NUMBER := 3;
4   BEGIN
5       CASE day_no
6           WHEN 1 THEN DBMS_OUTPUT.PUT_LINE('Monday');
7           WHEN 2 THEN DBMS_OUTPUT.PUT_LINE('Tuesday');
8           WHEN 3 THEN DBMS_OUTPUT.PUT_LINE('Wednesday');
9           WHEN 4 THEN DBMS_OUTPUT.PUT_LINE('Thursday');
10          WHEN 5 THEN DBMS_OUTPUT.PUT_LINE('Friday');
11          WHEN 6 THEN DBMS_OUTPUT.PUT_LINE('Saturday');
12          WHEN 7 THEN DBMS_OUTPUT.PUT_LINE('Sunday');
13          ELSE
14              DBMS_OUTPUT.PUT_LINE('Invalid Day Number');
15      END CASE;
16  END;
```



Output:

Program 1: IF–ELSE Statement

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

trash download

The number is Non-Positive

PL/SQL procedure successfully completed.

Elapsed: 00:00:00.004

Program 2: IF–ELSIF–ELSE Statement

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

trash download

Grade: B

PL/SQL procedure successfully completed.

Elapsed: 00:00:00.006

Program 3: ELSIF Ladder

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

trash download

Performance: Good

PL/SQL procedure successfully completed.

Elapsed: 00:00:00.006

Program 4: CASE Statement

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

trash download

Wednesday

PL/SQL procedure successfully completed.

Elapsed: 00:00:00.011



7. Learning Outcome

- Learned how to use IF–ELSE, ELSIF ladder, and CASE statements in PL/SQL.
- Understood decision-making using conditional control structures.
- Gained practical knowledge of writing PL/SQL blocks.
- Improved understanding of logical flow control in database programming.