



Apex Institute of Technology Computer Science & Engineering

Experiment 4

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Management System

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AIM: 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.

OBJECTIVES:

- To understand and implement decision-making statements in PL/SQL.
- To use **IF-ELSE** statement for basic conditional execution.
- To use **IF-ELSIF-ELSE** for multiple condition checking.
- To implement **ELSIF ladder** for performance evaluation.
- To apply **CASE statements** for selecting output based on choices.

SOFTWARE REQUIREMENTS:

Oracle FreeSQL

PRACTICAL/EXPERIMENT STEPS:



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1. Start the PostgreSQL environment using pgAdmin.
2. Open the Query Tool to execute PL/SQL blocks.
3. Write programs using conditional statements such as IF-ELSE, ELSIF ladder, and CASE.
4. Execute the blocks and verify the output.
5. Observe how decision-making is performed inside PL/SQL.
6. Analyze the result for each conditional structure.

1. Problem Statement – IF-ELSE Statement

1. **Program:**
2. Write a PL/SQL program to check whether a given number is positive or non-positive using the IF-ELSE statement.

```
1  DECLARE
2  ... num NUMBER := -5;
3  BEGIN
4  ...   IF num > 0 THEN
5  ...     DBMS_OUTPUT.PUT_LINE('The number ' || num || ' is Positive.');
6  ...   ELSE
7  ...     DBMS_OUTPUT.PUT_LINE('The number ' || num || ' is Non-Positive.');
8  ...   END IF;
9  END;
10 /
11
```

OUTPUT:

The number -5

The number -5 is Non-Positive.

PL/SQL procedure successfully completed.

Elapsed: 00:00:00.006

is Non-Positive.



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2. Problem Statement – IF–ELSIF–ELSE Statement

Program:

Write a PL/SQL program to evaluate the grade of a student based on marks.

```
1  DECLARE
2      marks NUMBER := 82;
3  BEGIN
4      IF marks >= 90 THEN
5          DBMS_OUTPUT.PUT_LINE('Grade: A+');
6      ELSIF marks >= 75 THEN
7          DBMS_OUTPUT.PUT_LINE('Grade: A');
8      ELSIF marks >= 60 THEN
9          DBMS_OUTPUT.PUT_LINE('Grade: B');
10     ELSIF marks >= 40 THEN
11         DBMS_OUTPUT.PUT_LINE('Grade: C');
12     ELSE
13         DBMS_OUTPUT.PUT_LINE('Grade: Fail');
14     END IF;
15 END;
16 /
17
```

Output:-

```
Grade: A

PL/SQL procedure successfully completed.

Elapsed: 00:00:00.007
```

3. ELSIF Ladder

Program: Determine performance status based on marks



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```
1  DECLARE
2      marks NUMBER := 82;
3  BEGIN
4      IF marks >= 90 THEN
5          DBMS_OUTPUT.PUT_LINE('Grade: A+');
6      ELSIF marks >= 75 THEN
7          DBMS_OUTPUT.PUT_LINE('Grade: A');
8      ELSIF marks >= 60 THEN
9          DBMS_OUTPUT.PUT_LINE('Grade: B');
10     ELSIF marks >= 40 THEN
11         DBMS_OUTPUT.PUT_LINE('Grade: C');
12     ELSE
13         DBMS_OUTPUT.PUT_LINE('Grade: Fail');
14     END IF;
15 END;
16 /
17
```

Output:-

Grade: A

PL/SQL procedure successfully completed.

Elapsed: 00:00:00.007

4. CASE Statement

Program: Display day name based on day number



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```
1  DECLARE
2      day_num NUMBER := 4;
3      day_name VARCHAR2(20);
4  BEGIN
5      day_name :=
6          CASE day_num
7              WHEN 1 THEN 'Monday'
8              WHEN 2 THEN 'Tuesday'
9              WHEN 3 THEN 'Wednesday'
10             WHEN 4 THEN 'Thursday'
11             WHEN 5 THEN 'Friday'
12             WHEN 6 THEN 'Saturday'
13             WHEN 7 THEN 'Sunday'
14             ELSE 'Invalid Day Number'
15         END;
16
17     DBMS_OUTPUT.PUT_LINE('Day is: ' || day_name);
18 END;
```

Output:-

```
Day is: Thursday

PL/SQL procedure successfully completed.

Elapsed: 00:00:00.007
```

CODE:

1. IF-ELSE Statement

Program: Check whether a number is positive or non-positive

CODE (Oracle PL/SQL)

DECLARE

num NUMBER := -5;

BEGIN

IF num > 0 THEN



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```
DBMS_OUTPUT.PUT_LINE('The number ' || num || ' is Positive.');?>
ELSE
    DBMS_OUTPUT.PUT_LINE('The number ' || num || ' is Non-Positive.');?>
END IF;
END;
/
```

2. IF–ELSIF–ELSE Statement

Program: Evaluate grade of a student based on marks

CODE (Oracle PL/SQL)

```
DECLARE
```

```
    marks NUMBER := 82;
```

```
BEGIN
```

```
    IF marks >= 90 THEN
```

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

```
    ELSIF marks >= 75 THEN
```

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

```
    ELSIF marks >= 60 THEN
```

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

```
    ELSIF marks >= 40 THEN
```

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

```
    ELSE
```

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



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```
END IF;  
END;  
/
```

3. ELSIF Ladder

Program: Determine performance status based on marks

CODE (Oracle PL/SQL)

```
DECLARE
```

```
    marks NUMBER := 55;
```

```
BEGIN
```

```
    IF marks >= 90 THEN
```

```
        DBMS_OUTPUT.PUT_LINE('Performance: Excellent');
```

```
    ELSIF marks >= 75 THEN
```

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

```
    ELSIF marks >= 60 THEN
```

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

```
    ELSIF marks >= 40 THEN
```

```
        DBMS_OUTPUT.PUT_LINE('Performance: Average');
```

```
    ELSE
```

```
        DBMS_OUTPUT.PUT_LINE('Performance: Poor');
```

```
    END IF;
```

```
END;
```

```
/
```



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4. CASE Statement

Program: Display day name based on day number

CODE (Oracle PL/SQL)

DECLARE

```
day_num NUMBER := 4;  
day_name VARCHAR2(20);
```

BEGIN

```
    day_name :=
```

```
        CASE day_num  
            WHEN 1 THEN 'Monday'  
            WHEN 2 THEN 'Tuesday'  
            WHEN 3 THEN 'Wednesday'  
            WHEN 4 THEN 'Thursday'  
            WHEN 5 THEN 'Friday'  
            WHEN 6 THEN 'Saturday'  
            WHEN 7 THEN 'Sunday'  
            ELSE 'Invalid Day Number'
```

```
        END;
```

```
        DBMS_OUTPUT.PUT_LINE('Day is: ' || day_name);
```

```
    END;
```

```
/
```



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I/O ANALYSIS:

This experiment demonstrates the use of conditional control structures in PL/SQL. The programs implement decision-making using:

- IF–ELSE for basic conditions
- IF–ELSIF–ELSE for grading system
- ELSIF ladder for performance evaluation
- CASE statement for day selection

These control statements help in managing the execution flow based on logical conditions.

LEARNING OUTCOMES:

1. Understand the working of conditional statements in PL/SQL.
2. Learn to implement IF–ELSE and IF–ELSIF–ELSE constructs.
3. Gain knowledge of ELSIF ladder for multiple decision paths.
4. Learn the use of CASE statements for selection-based execution.
5. Develop confidence in writing PL/SQL decision-making blocks.