



Apex Institute of Technology

Computer Science & Engineering

Experiment 4

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AIM: This experiment focuses on the implementation of conditional control statements in PL/SQL (PL/pgSQL) such as IF-ELSE, IF-ELSIF-ELSE, ELSIF Ladder, and CASE statements. These constructs are used to control the flow of execution based on logical conditions and demonstrate decision-making capabilities in PL/SQL.

OBJECTIVES:

- To understand conditional control statements in PL/SQL.
- To implement IF-ELSE, IF-ELSIF-ELSE, ELSIF ladder, and CASE statements.
- To analyze decision-making logic in PL/SQL programs.
- To gain hands-on experience using Oracle Free SQL.

SOFTWARE REQUIREMENTS:

- Oracle FreeSQL
- PL/SQL

PROCEDURE/STEPS:

1. Start the system and log in.
2. Open Oracle Free SQL / Oracle Live SQL.
3. Enable output using SET SERVEROUTPUT ON.
4. Write the PL/SQL program in the worksheet.
5. Execute the program.



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6. Observe the output.
7. Save the work and take screenshots.

PRACTICAL/EXPERIMENTAL STEPS:

1. Start the Oracle FreeSQL environment.
2. Program 1: IF-ELSE Statement

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



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The screenshot shows a SQL Worksheet interface. The script area contains the following PL/SQL code:

```
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;
```

The output tab shows the results of running the script. It includes the elapsed time, the SQL command, the output from DBMS_OUTPUT, and a message indicating successful completion.

Query result	Script output	DBMS output	Explain Plan	SQL history
Elapsed: 00:00:00.006	SQL> DECLARE num NUMBER := 5; BEGIN IF num > 0 THEN... Show more...	The number 5 is Positive PL/SQL procedure successfully completed. Elapsed: 00:00:00.004		

3. Program 2: IF–ELSIF–ELSE Statement

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



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

END IF;

END;
```

A screenshot of the Oracle SQL Worksheet interface. The top section shows a PL/SQL block with code for determining a grade based on marks. The bottom section shows the execution results, including the SQL command, the PL/SQL procedure output (Grade: B), and the completion message.

4. Program 3: ELSIF Ladder

```
DECLARE
    marks NUMBER := 68;
BEGIN
    IF marks >= 85 THEN
        DBMS_OUTPUT.PUT_LINE('Performance: Excellent');
    ELSIF marks >= 70 THEN
        DBMS_OUTPUT.PUT_LINE('Performance: Very Good');
```



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```
ELSIF marks >= 55 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;
```

```
[ SQL Worksheet ]* ▶ ⏴ ⏵ ⏷ Aa ⏹
```

```
1  DECLARE
2    marks NUMBER := 68;
3  BEGIN
4    IF marks >= 85 THEN
5      DBMS_OUTPUT.PUT_LINE('Performance: Excellent');
6    ELSIF marks >= 70 THEN
7      DBMS_OUTPUT.PUT_LINE('Performance: Very Good');
8    ELSIF marks >= 55 THEN
9      DBMS_OUTPUT.PUT_LINE('Performance: Good');
10   ELSIF marks >= 40 THEN
11     DBMS_OUTPUT.PUT_LINE('Performance: Average');
12   ELSE
13     DBMS_OUTPUT.PUT_LINE('Performance: Poor');
14   END IF;
15 END;
```

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

Elapsed: 00:00:00.006

```
SQL> DECLARE
      marks NUMBER := 68;
    BEGIN
      IF marks >= 85 THEN...
Show more...
```

Performance: Good

PL/SQL procedure successfully completed.

Elapsed: 00:00:00.008

5. Program 4: CASE Statement

```
DECLARE  
    day_no NUMBER := 3;  
  
    day_name VARCHAR2(20);
```



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BEGIN

```
day_name := CASE day_no
    WHEN 1 THEN 'Sunday'
    WHEN 2 THEN 'Monday'
    WHEN 3 THEN 'Tuesday'
    WHEN 4 THEN 'Wednesday'
    WHEN 5 THEN 'Thursday'
    WHEN 6 THEN 'Friday'
    WHEN 7 THEN 'Saturday'
    ELSE 'Invalid Day Number'
END;
```

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



The screenshot shows a PL/SQL worksheet interface. The code in the editor is:

```
1  DECLARE
2      day_no NUMBER := 3;
3      day_name VARCHAR2(20);
4  BEGIN
5      day_name := CASE day_no
6          WHEN 1 THEN 'Sunday'
7          WHEN 2 THEN 'Monday'
8          WHEN 3 THEN 'Tuesday'
9          WHEN 4 THEN 'Wednesday'
10         WHEN 5 THEN 'Thursday'
11         WHEN 6 THEN 'Friday'
12         WHEN 7 THEN 'Saturday'
13     ELSE 'Invalid Day Number';
14 END;
```

The tabs at the bottom are: Query result, Script output (selected), DBMS output, Explain Plan, and SQL history. The output window shows the execution results:

```
Elapsed: 00:00:00.008
SQL> DECLARE
      day_no NUMBER := 3;
      day_name VARCHAR2(20);
BEGIN...
Show more...
Day: Tuesday
PL/SQL procedure successfully completed.
Elapsed: 00:00:00.006
```

I/O ANALYSIS:

Input:

- Integer number
- Student Marks
- Day number (1-7)

Output:

- Message indicating positive or non-positive number
- Student grade
- Performance status
- Day name

LEARNING OUTCOMES:

- Understood conditional control statements in PL/SQL.
- Learned to implement IF-ELSE, IF-ELSIF-ELSE, ELSIF ladder, and CASE statements.
- Gained practical experience executing PL/SQL programs in Oracle Free SQL.



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- Developed logical decision-making skills using conditions.
- Learned to display output using DBMS_OUTPUT.PUT_LINE.