Experiment 3: Basic Structure of PL/SQL Block

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1. Aim of the Session

The aim of this practical is to **design and implement a simple PL/SQL program** that demonstrates the **basic structure of a PL/SQL block**. The program includes a **declaration section** to define variables and an **execution section** to perform operations using those variables and display the results.

Purpose of the Practical:

- To understand the structure of a PL/SQL block
- To learn how to declare variables in PL/SQL
- To perform arithmetic operations using PL/SQL
- To display output using built-in PL/SQL output statements

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2. Objective of the Session

The specific objectives of this experiment are:

- Understand the components of a PL/SQL block
- Learn the use of DECLARE, BEGIN, and END sections
- Define and use variables in PL/SQL
- Perform simple arithmetic operations
- Display results using DBMS_OUTPUT.PUT_LINE

Upon completion, students will be able to:

- Write basic PL/SQL programs
- Use variables and assignments correctly
- Execute PL/SQL blocks in Oracle environment
- Display output from PL/SQL programs

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3. Practical / Experiment Description

This experiment demonstrates the **basic structure of a PL/SQL block**, which consists of:

1. **Declaration Section** – Used to declare variables
2. **Execution Section** – Used to write executable statements
3. **Output Statements** – Used to display results

The program calculates the **sum of two numbers** and displays the input values and the result.

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4. Procedure of the Practical

Follow the steps given below to execute the experiment:

(i) Start the System and Open DBMS

- Power on the system
- Open Oracle SQL Plus / SQL Developer
- Connect using valid database credentials

(ii) Enable Output Display

```
SET SERVEROUTPUT ON;
```

This command enables output display for PL/SQL programs.

(iii) Write the PL/SQL Program

```
DECLARE
   num1 NUMBER := 10;
   num2 NUMBER := 20;
   sum_result NUMBER;
BEGIN
   sum_result := num1 + num2;
```

```
    DBMS_OUTPUT.PUT_LINE('Number 1: ' || num1);
    DBMS_OUTPUT.PUT_LINE('Number 2: ' || num2);
    DBMS_OUTPUT.PUT_LINE('Sum: ' || sum_result);
END;
/
```

(iv) Execute the Program

- Run the program using /
- Observe the output in the output window

(v) Verify the Result

- Ensure that the values of both numbers and their sum are displayed correctly

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5. Input / Output Analysis

Inputs Provided:

- num1 = 10
- num2 = 20

Operations Performed:

- Addition of two numbers using PL/SQL

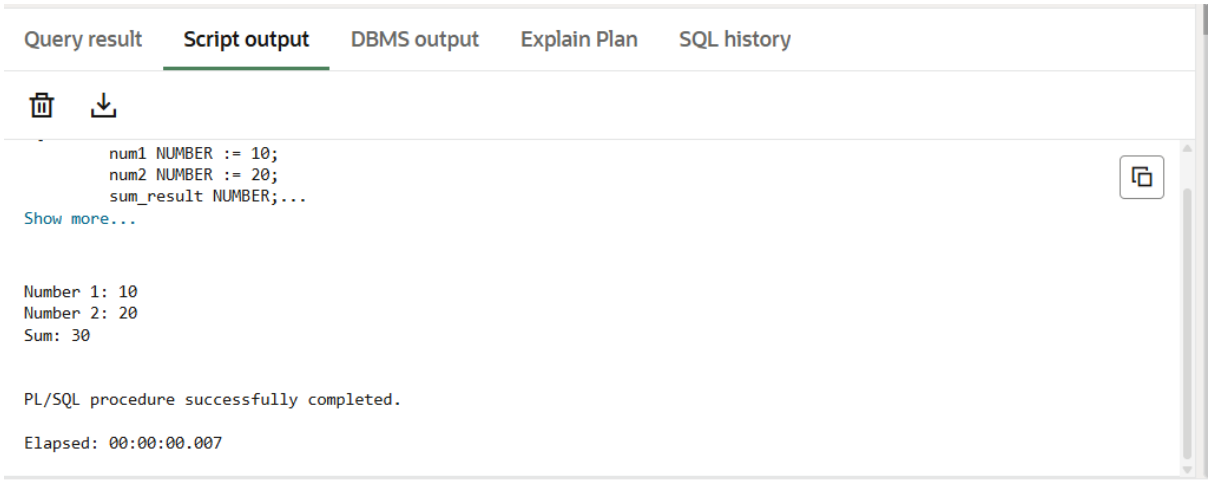
Output Generated:

Number 1: 10

Number 2: 20

Sum: 30

SCREENSHOTS OF THE OUTPUT ARE BELOW:



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6. Learning Outcomes

Concepts Understood:

- Structure of PL/SQL block
- Variable declaration in PL/SQL
- Execution flow of PL/SQL programs
- Output handling using DBMS_OUTPUT

Skills Developed:

- Writing basic PL/SQL programs
- Performing arithmetic operations in PL/SQL
- Using Oracle built-in packages
- Debugging simple PL/SQL errors

Practical Exposure Gained:

- Hands-on experience with PL/SQL syntax
- Understanding procedural extensions of SQL
- Executing PL/SQL blocks in Oracle environment

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7. Result

Thus, a simple PL/SQL program demonstrating the **basic structure of a PL/SQL block** was successfully designed, executed, and the output was displayed.