Database and Management System Lab

Lab Experiment – 14

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B.Tech CSE, SEM-III, B-1

Title: To understand the concepts of function and procedure in PL/SQL.

Objective: Students will be able to implement the PI/SQL programs using function and procedure.

Implement the above experiments of PL/SQL using functions and procedures.

1. Function to Find the Greatest Value

```
CREATE OR REPLACE FUNCTION find_greatest (
  a IN NUMBER,
  b IN NUMBER,
  c IN NUMBER
)
RETURN NUMBER
AS
  greatest_value NUMBER;
BEGIN
  greatest_value := GREATEST(a, b, c);
  RETURN greatest_value;
END;
/
```

```
BEGIN
  DBMS_OUTPUT.PUT_LINE(
    'Greatest Value: ' || find_greatest(10, 20, 15)
  );
END;
/
```

Results | Explain | Describe | Saved SQL | History

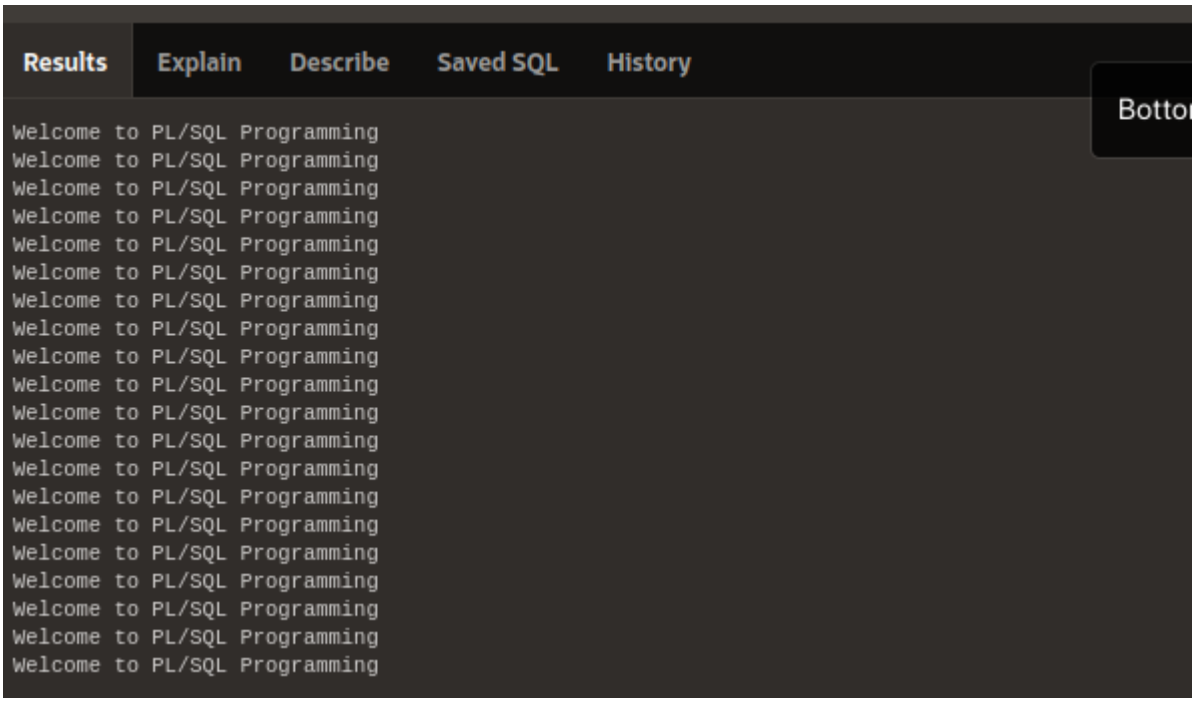
```
Greatest Value: 20

Statement processed.
```

2. Procedure to Display a Welcome Message 20 Times

```
1  CREATE OR REPLACE PROCEDURE display_welcome
2  AS
3  BEGIN
4    FOR i IN 1..20 LOOP
5      DBMS_OUTPUT.PUT_LINE('Welcome to PL/SQL Programming');
6    END LOOP;
7  END;
8  /
```

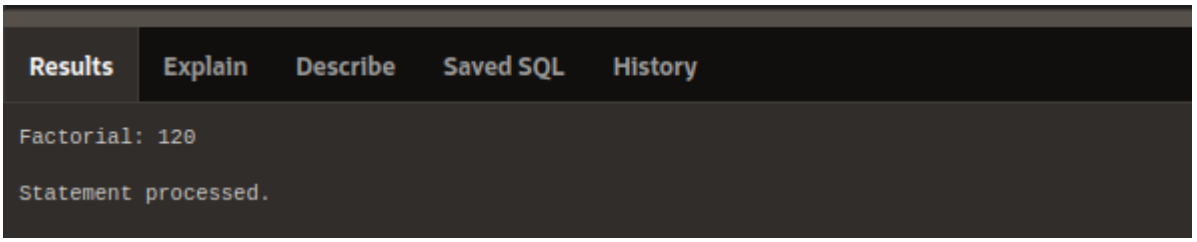
```
1  BEGIN
2    display_welcome;
3  END;
4  /
```



3. Function to Find the Factorial of a Number

```
CREATE OR REPLACE FUNCTION find_factorial (
  n IN NUMBER
)
RETURN NUMBER
AS
  factorial NUMBER := 1;
BEGIN
  FOR i IN 1..n LOOP
    factorial := factorial * i;
  END LOOP;
  RETURN factorial;
END;
/
```

```
BEGIN
  DBMS_OUTPUT.PUT_LINE('Factorial: ' || find_factorial(5));
END;
/
```



4. Procedure to Generate Fibonacci Series

```sql
CREATE OR REPLACE PROCEDURE generate_fibonacci (
  n IN NUMBER
)
AS
  a NUMBER := 0;
  b NUMBER := 1;
  temp NUMBER;
BEGIN
  DBMS_OUTPUT.PUT_LINE('Fibonacci Series:');
  DBMS_OUTPUT.PUT_LINE(a);
  DBMS_OUTPUT.PUT_LINE(b);

  FOR i IN 3..n LOOP
    temp := a + b;
    DBMS_OUTPUT.PUT_LINE(temp);
    a := b;
    b := temp;
  END LOOP;
END;
/
```

```sql
BEGIN
  generate_fibonacci(10);
END;
/
```

Results | Explain | Describe | Saved SQL | History

```
Fibonacci Series:
0
1
1
2
3
5
8
13
21
34

Statement processed.
```

5. Function to Find the Sum of First N Numbers

```
CREATE OR REPLACE FUNCTION find_sum (
  n IN NUMBER
)
RETURN NUMBER
AS
  total NUMBER := 0;
BEGIN
  FOR i IN 1..n LOOP
    total := total + i;
  END LOOP;
  RETURN total;
END;
/
```

```
BEGIN
  DBMS_OUTPUT.PUT_LINE(
    'Sum of first 10 numbers: ' || find_sum(10)
  );
END;
/
```

```
Sum of first 10 numbers: 55

Statement processed.
```

Database and Management System Lab

Lab Experiment – 15

Name: Shubhojit Mitra

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B.Tech CSE, SEM-III, B-1

Title: To understand the concepts of implicit and explicit cursor.

Objective: Students will be able to implement the concept of implicit and explicit
cursor.

1. Implicit Cursor to update salaries

```
DECLARE
    v_count NUMBER;
BEGIN
    UPDATE EMPLOYEES
    SET SALARY = SALARY * 1.1;

    v_count := SQL%ROWCOUNT;

    IF v_count > 0 THEN
        DBMS_OUTPUT.PUT_LINE(
            v_count || ' records have been updated.'
        );
    ELSE
        DBMS_OUTPUT.PUT_LINE('No Change');
    END IF;
    COMMIT;
END;
/
```

2. Explicit cursor to fetch employee detail

```
DECLARE
    CURSOR emp_cursor IS
        SELECT employee_id, first_name, last_name, salary
        FROM EMPLOYEES;
    emp_record emp_cursor%ROWTYPE;
BEGIN
    OPEN emp_cursor;
    LOOP
        FETCH emp_cursor INTO emp_record;
        EXIT WHEN emp_cursor%NOTFOUND;
        DBMS_OUTPUT.PUT_LINE('Employee ID: ' || emp_record.employee_id ||
                             ', Name: ' || emp_record.first_name || ' ' ||
                            emp_record.last_name ||
                            ', Salary: ' || emp_record.salary);
    END LOOP;
    CLOSE emp_cursor;
END;
/
```

Results | Explain | Describe | Saved SQL | History

```
Employee ID: 1, Name: John Doe, Salary: 2200
Employee ID: 2, Name: Jane Smith, Salary: 3080
Employee ID: 3, Name: Mike Johnson, Salary: 3300
Employee ID: 4, Name: Sarah Williams, Salary: 2530
Employee ID: 5, Name: Robert Brown, Salary: 3850

Statement processed.
```

3. Explicit Cursor to insert high salary records into TEMP_EMP

```
DECLARE
    CURSOR high_salary_cursor IS
        SELECT employee_id, last_name, salary
        FROM EMPLOYEES
        WHERE salary > 2500;
BEGIN
    DELETE FROM TEMP_EMP;

    FOR emp_record IN high_salary_cursor LOOP
        INSERT INTO TEMP_EMP (employee_id, last_name, salary)
        VALUES (emp_record.employee_id, emp_record.last_name, emp_record.sal
    END LOOP;

    COMMIT;
    DBMS_OUTPUT.PUT_LINE('High salary records inserted into TEMP_EMP');
END;
/
```

Results | Explain | Describe | Saved SQL | History

```
High salary records inserted into TEMP_EMP

1 row(s) inserted.
```

```
SELECT * FROM TEMP_EMP;
```

Results | Explain | Describe | Saved SQL | History

EMPLOYEE_ID	LAST_NAME	SALARY
2	Smith	3080
3	Johnson	3300
4	Williams	2530
5	Brown	3850