Assignment-08

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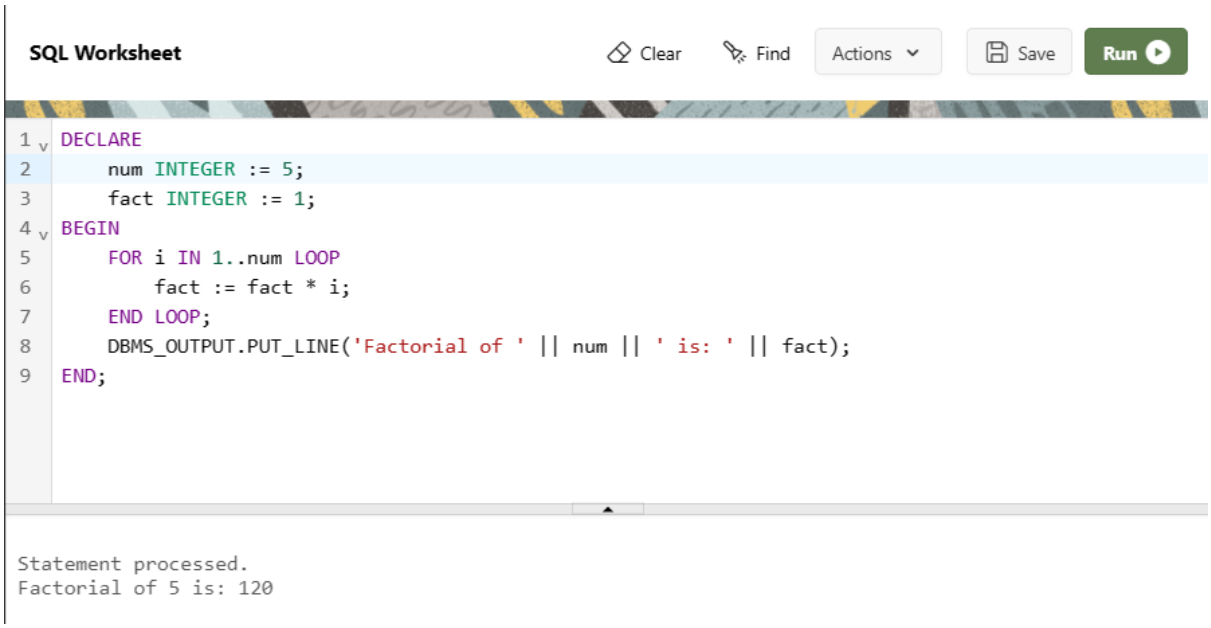
Subject : DBMS

Subject Code : BCSC 0861

1. Write a PL/SQL code block to compute the factorial of a number.



2.Write a PL/SQL code block to determine whether the numb er is prime or not.

```
DECLARE
    num INTEGER := 7;
    is_prime BOOLEAN := TRUE;
BEGIN
    FOR i IN 2..TRUNC(SQRT(num)) LOOP
        IF MOD(num, i) = 0 THEN
            is_prime := FALSE;
            EXIT;
        END IF;
    END LOOP;
    IF is_prime THEN
        DBMS_OUTPUT.PUT_LINE(num || ' is a prime number.');
    ELSE
        DBMS_OUTPUT.PUT_LINE(num || ' is not a prime number.');
    END IF;
END;
```

```
Statement processed.
7 is a prime number.
```

3.Write a PL/SQL code block to display n terms of a fibonacci s eries.

```
DECLARE
    n INTEGER := 42;
    a INTEGER := 0;
    b INTEGER := 1;
    temp INTEGER;
BEGIN
    FOR i IN 1..n LOOP
        DBMS_OUTPUT.PUT(a || ' ');
        temp := a + b;
        a := b;
        b := temp;
    END LOOP;
    DBMS_OUTPUT.NEW_LINE;
END;
```

```
Statement processed.
0 1 1 2 3 5 8 13 21 34 55 89 144 233 377 610 987 1597 2584 4181 6765 10946 17711 28657 46368 75025
121393 196418 317811 514229 832040 1346269 2178309 3524578 5702887 9227465 14930352 24157817 39088169
63245986 102334155 165580141
```

4.Write a PL/SQL code block to display the names and GPA of students from student table using an explicit cursor.

```
DECLARE
    CURSOR student_cursor IS
        SELECT sName, GPA FROM Student;
    sName Student.sName%TYPE;
    GPA Student.GPA%TYPE;
BEGIN
    OPEN student_cursor;
    LOOP
        FETCH student_cursor INTO sName, GPA;
        EXIT WHEN student_cursor%NOTFOUND;
        DBMS_OUTPUT.PUT_LINE('Name: ' || sName || ', GPA: ' || GPA);
    END LOOP;
    CLOSE student_cursor;
END;
```

```
Statement processed.
Name: Amy, GPA: 3.9
Name: Bob, GPA: 3.6
Name: Craig, GPA: 3.5
Name: Doris, GPA: 3.9
Name: Edward, GPA: 2.9
Name: Fay, GPA: 3.8
Name: Gary, GPA: 3.4
Name: Helen, GPA: 3.7
Name: Irene, GPA: 3.9
Name: Jay, GPA: 2.9
Name: Amy, GPA: 3.9
Name: Craig, GPA: 3.4
```

5.Write a PL/SQL code block that displays the names, GPA of students along with the grades of students after calculation from student table using an explicit cursor.

Add a column grade to the student table; update the grades of students to the table after calculation. (The criteria of grade can be considered as grade = A if gpa>3.7; and grade = B, otherwise).

```sql
DECLARE
    CURSOR student_cursor IS
        SELECT sName, GPA FROM Student;
    v_sName Student.sName%TYPE;
    v_GPA Student.GPA%TYPE;
    v_grade CHAR(1);
BEGIN
    OPEN student_cursor;
    LOOP
        FETCH student_cursor INTO v_sName, v_GPA;
        EXIT WHEN student_cursor%NOTFOUND;
        IF v_GPA>3.7 THEN
            v_grade:= 'A';
        ELSE
            v_grade:='B';
        END IF;
        DBMS_OUTPUT.PUT_LINE('Name: ' || V_sName ||', GPA: '|| V_GPA || ', Grade: ' || v_grade);
        UPDATE Student SET GPA= v_GPA WHERE sName= v_sName;
    END LOOP;
    CLOSE student_cursor;
END;
```

```
Statement processed.
Name: Amy, GPA: 3.9, Grade: A
Name: Bob, GPA: 3.6, Grade: B
Name: Craig, GPA: 3.5, Grade: B
Name: Doris, GPA: 3.9, Grade: A
Name: Edward, GPA: 2.9, Grade: B
Name: Fay, GPA: 3.8, Grade: A
Name: Gary, GPA: 3.4, Grade: B
Name: Helen, GPA: 3.7, Grade: B
Name: Irene, GPA: 3.9, Grade: A
Name: Jay, GPA: 2.9, Grade: B
```