

## **Laboratory work 3 (PL/SQL)**

In SQL Developer, we can create PL/SQL blocks. A PL/SQL block is a sequence of statements that Oracle Database executes. This tutorial is important when studying the Object-Relational DBs.

### **1- Run the following PL/SQL blocks**

#### **Step 1: Create a PL/SQL Block**

```
BEGIN
  DBMS_OUTPUT.PUT_LINE('Hello, PL/SQL!');
END;
```

#### **Step 2: Declaring Variables**

```
DECLARE
  my_variable NUMBER;
BEGIN
  my_variable := 10;
  DBMS_OUTPUT.PUT_LINE('The value of my_variable is ' || my_variable);
END;
```

#### **Step 3: Conditional Statements (IF-THEN-ELSE)**

```
DECLARE
  num NUMBER := 15;
BEGIN
  IF num > 10 THEN
    DBMS_OUTPUT.PUT_LINE('The number is greater than 10');
  ELSE
    DBMS_OUTPUT.PUT_LINE('The number is not greater than 10');
  END IF;
END;
```

#### **Step 4: Loops (FOR Loop)**

```
DECLARE
  i NUMBER;
BEGIN
  FOR i IN 1..5 LOOP
    DBMS_OUTPUT.PUT_LINE('Iteration ' || i);
  END LOOP;
END;
```

**Step 5: Procedures**

```
CREATE OR REPLACE PROCEDURE greet(name IN VARCHAR2) AS
BEGIN
  DBMS_OUTPUT.PUT_LINE('Hello, ' || name);
END;
```

**Step 6: Functions**

-- Function

```
CREATE OR REPLACE FUNCTION add_numbers(a NUMBER, b NUMBER) RETURN
NUMBER AS
  result NUMBER;
BEGIN
  result := a + b;
  RETURN result;
END;
```

**2- Working with table and SQL**

**a-** Create this table and insert one line:

```
CREATE TABLE Person (
  id NUMBER PRIMARY KEY,
  fname VARCHAR2(50),
  lname VARCHAR2(50),
  bod DATE,
  gender VARCHAR2(10)
);
INSERT INTO Person (id, fname, lname, bod, gender)
VALUES (1, Ahmed, 'Said', TO_DATE('1990-01-15', 'YYYY-MM-DD'), 'Male');
```

**b-** Define the following function:

```
CREATE OR REPLACE FUNCTION calculate_age(p_id IN NUMBER) RETURN
NUMBER IS
  v_birthdate DATE;
  v_age NUMBER;
BEGIN
  SELECT bod INTO v_birthdate FROM Person WHERE id = p_id;
  v_age := FLOOR(MONTHS_BETWEEN(SYSDATE, v_birthdate) / 12);
  RETURN v_age;
END calculate_age;
```

**c-** Use the function within SQL statement

```
SELECT id, fname, lname, calculate_age(id) AS age
FROM Person
WHERE id = 1;
```