Database Programming with PL/SQL
2-6: Nested Blocks and Variable Scope
Practice Activities

Vocabulary

Identify the vocabulary word for each definition below.

qualifier	A name given to a block of code which allows access to the variables that have scope, but are not visible.
variable scope	Consists of all the blocks in which the variable is either local (the declaring block) or global (nested blocks within the declaring block) .
variable visibility	The portion of the program where the variable can be accessed without using a qualifier.

Try It / Solve It

1. Evaluate the PL/SQL block below and determine the value of each of the following variables according to the rules of scoping.

```
DECLARE
  weight          NUMBER(3) := 600;
  message         VARCHAR2(255) := 'Product 10012';
BEGIN

  DECLARE
    weight          NUMBER(3) := 1;
    message         VARCHAR2(255) := 'Product 11001';
    new_locn        VARCHAR2(50) := 'Europe';
  BEGIN
    weight := weight + 1;
    new_locn := 'Western ' || new_locn;
    -- Position 1 --
  END;

  weight := weight + 1;
  message := message || ' is in stock';
  -- Position 2 --
END;
```

A. The value of weight at position 1 is: 2

B. The value of new_locn at position 1 is: Western Europe

C. The value of weight at position 2 is: 601

D. The value of message at position 2 is: Product 10012 is in stock

E. The value of new_locn at position 2 is: new_locn is not visible at position 2

2. Enter and run the following PL/SQL block, which contains a nested block. Look at the output and answer the questions.

```
DECLARE
  v_employee_id  employees.employee_id%TYPE;
  v_job                    employees.job_id%TYPE;
BEGIN
  SELECT employee_id, job_id INTO v_employee_id,  v_job
    FROM employees
    WHERE employee_id = 100;

  DECLARE
    v_employee_id         employees.employee_id%TYPE;
    v_job                    employees.job_id%TYPE;
  BEGIN
    SELECT employee_id, job_id INTO v_employee_id, v_job
      FROM employees
      WHERE employee_id = 103;
    DBMS_OUTPUT.PUT_LINE(v_employee_id || ' is a(n) ' || v_job);
  END;

  DBMS_OUTPUT.PUT_LINE(v_employee_id || ' is a(n) ' || v_job);
END;
```

A. Why does the inner block display the job_id of employee 103, not employee 100?

Because v_employee_id is assigned the job_ib of empleyee 103 in the inner scope.

B. Why does the outer block display the job_id of employee 100, not employee 103?

Because v_employee_id is assigned the job_ib of empleyee 100 in the outer scope.

C. Modify the code to display the details of e

```
<<outer>>
DECLARE
  v_employee_id employees.employee_id%TYPE;
  v_job employees.job_id%TYPE;
BEGIN
  SELECT employee_id, job_id INTO v_employee_id, v_job
  FROM employees
  WHERE employee_id = 100;
  DECLARE
    v_employee_id employees.employee_id%TYPE;
    v_job employees.job_id%TYPE;
  BEGIN
    SELECT employee_id, job_id INTO v_employee_id, v_job
    FROM employees
    WHERE employee_id = 103;
    DBMS_OUTPUT.PUT_LINE(outer.v_employee_id || ' is a(n) ' || v_job);
  END;
  DBMS_OUTPUT.PUT_LINE(v_employee_id || ' is a(n) ' || v_job);
END;
```


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