Section 8 Lesson 1: Creating Procedures

Vocabulary

Identify the vocabulary word for each definition below:

	Named PL/SQL blocks that are compiled and stored in the database.
	Unnamed executable PL/SQL blocks that cannot be reused or stored in the database for later use.
	Named PL/SQL blocks that can accept parameters and are compiled and stored in the database.

Try It / Solve It

1. What is the difference between the following two pieces of code?

   ```
   --CODE SAMPLE A
   DECLARE
    v_empid          employees.employee_id%TYPE := 100;
    v_percent_increase NUMBER(2,2) := .05;
   BEGIN
     UPDATE employees
       SET salary = (salary * v_percent_increase) + salary
       WHERE employee_id = v_empid;
   END;

   --CODE SAMPLE B
   CREATE PROCEDURE pay_raise
      (p_empid          employees.employee_id%TYPE,
       p_percent_increase NUMBER)
   IS
   BEGIN
     UPDATE employees
       SET salary = (salary * p_percent_increase) + salary
       WHERE employee_id = p_empid;
   END pay_raise;
   ```

2. In your own words, list the benefits of subprograms.

3. In your own words, describe a stored procedure.

4. The remaining questions in this practice use a copy of the employees table.

   A. Create the copy by executing the following SQL statement:

      CREATE TABLE employees_dup AS SELECT * from employees;

B. Create the following procedure in Application Express:

```
CREATE OR REPLACE PROCEDURE name_change IS
BEGIN
  UPDATE employees_dup
    SET first_name = 'Susan'
    WHERE department_id = 80;
END name_change;
```

C. Save the definition of your procedure in case you need to modify it later. In the "Save SQL" popup, name your saved work "My name change procedure".

D. Execute the procedure by running the following anonymous block:

```
BEGIN
  name_change;
END;
```

E. SELECT from the table to check that the procedure has executed correctly and performed the UPDATE:

5. Create a second procedure named pay_raise which changes the salary of all employees in employees_dup to a new value of 30000. Execute the procedure from an anonymous block, then SELECT from the table to check that the procedure has executed correctly.

6. Retrieve your first name_change procedure by clicking on its name in the Saved SQL window. Modify the code to remove OR REPLACE from the CREATE statement, and introduce a deliberate error into the code, for example by misspelling a keyword: UPDAT employees_dup. Execute your code to recreate the procedure. What happens?

7. Now correct the procedure code by reinserting the OR REPLACE clause and correcting your deliberate spelling error. Execute your code to recreate the procedure. Now what happens?

Extension Exercise

1. Create, save, and execute a procedure which updates the salary of employees in employees_dup according to the following rules:

   - if the employee is in department 80, the new salary must = 1000
   - if the employee is in department 50, the new salary must = 2000
   - if the employee is in any other department, the new salary must = 3000.

   You will need to include three UPDATE statements, one for each of the above rules. In a later lesson you will learn how to avoid this.

   Execute your procedure from an anonymous block and verify that the updates have been performed correctly.