Lab Report of CSE464

Lab - 3

Submitted By:

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2022-3-60-057
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Submitted To:

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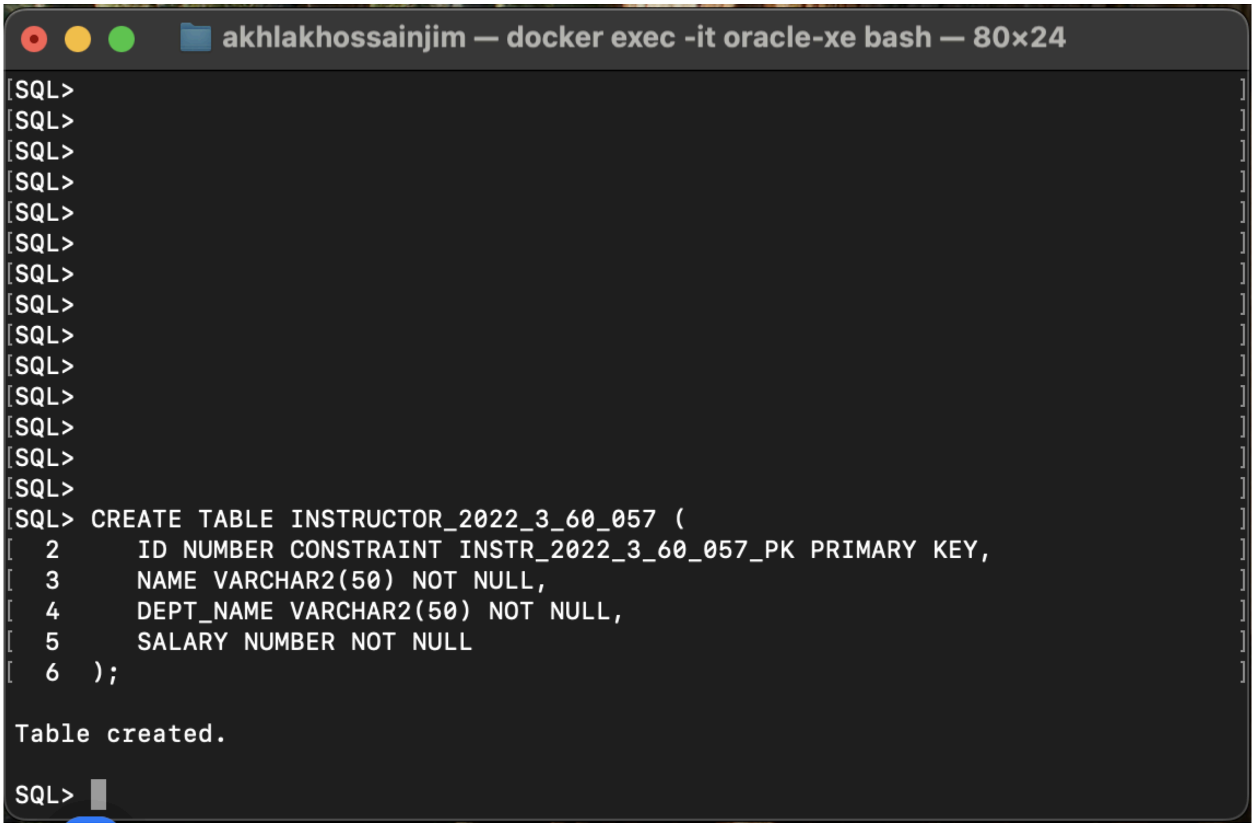
Lab task 1:

Code:

```
CREATE TABLE INSTRUCTOR_2022_3_60_057 (
  ID NUMBER CONSTRAINT INSTR_2022_3_60_057_PK PRIMARY KEY,
  NAME VARCHAR2(50) NOT NULL,
  DEPT_NAME VARCHAR2(50) NOT NULL,
  SALARY NUMBER NOT NULL
);
```



```
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[SQL>
[SQL>
[SQL> CREATE TABLE INSTRUCTOR_2022_3_60_057 (
[  2      ID NUMBER CONSTRAINT INSTR_2022_3_60_057_PK PRIMARY KEY,
[  3      NAME VARCHAR2(50) NOT NULL,
[  4      DEPT_NAME VARCHAR2(50) NOT NULL,
[  5      SALARY NUMBER NOT NULL
[  6  );

Table created.

SQL> 
```
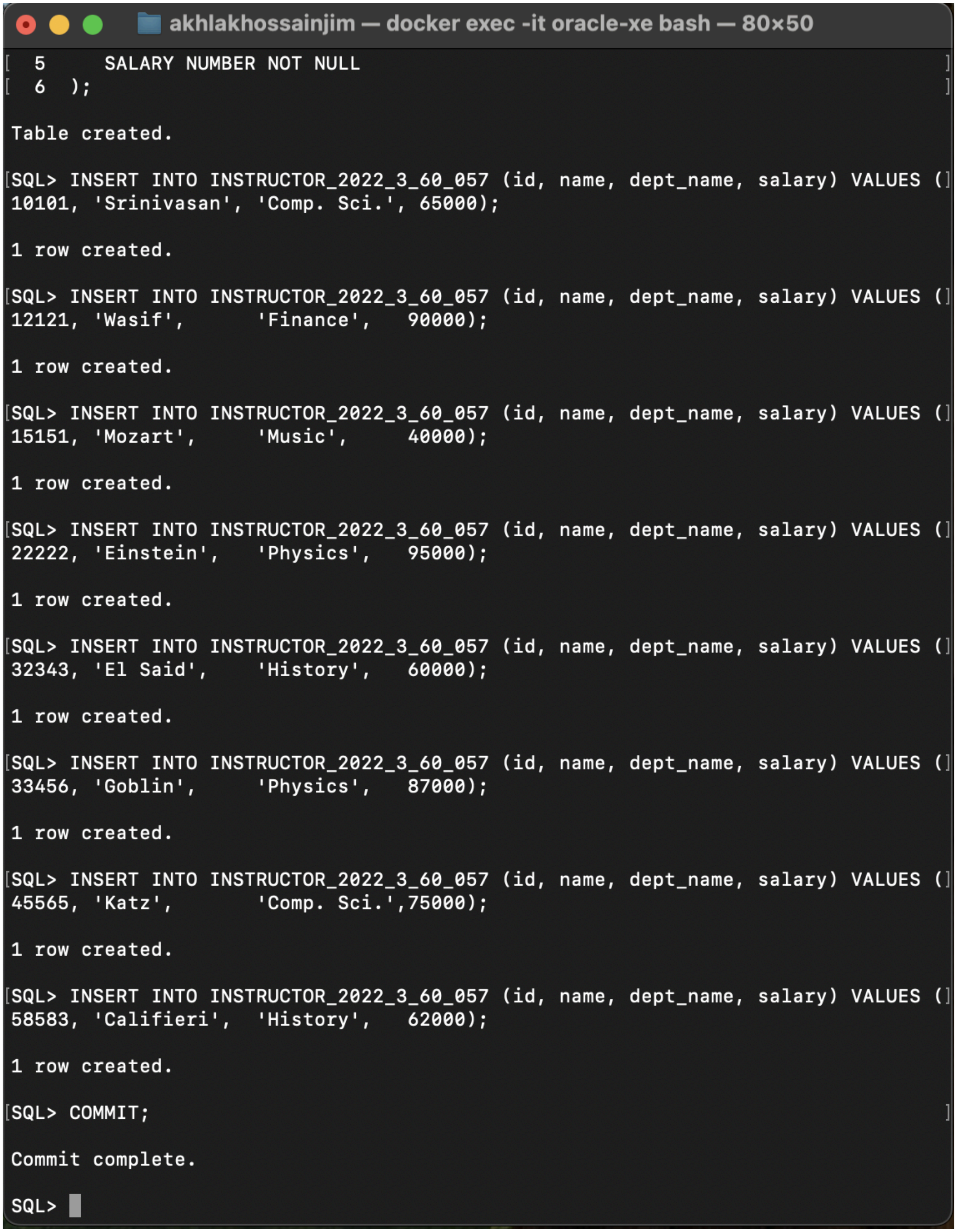

LAB TASK 2:

Insert data:

Code:

```
INSERT INTO INSTRUCTOR_2022_3_60_057 (id, name, dept_name, salary) VALUES
(10101, 'Srinivasan', 'Comp. Sci.', 65000);
INSERT INTO INSTRUCTOR_2022_3_60_057 (id, name, dept_name, salary) VALUES
(12121, 'Wasif',      'Finance',   90000);
INSERT INTO INSTRUCTOR_2022_3_60_057 (id, name, dept_name, salary) VALUES
(15151, 'Mozart',     'Music',     40000);
INSERT INTO INSTRUCTOR_2022_3_60_057 (id, name, dept_name, salary) VALUES
(22222, 'Einstein',   'Physics',   95000);
INSERT INTO INSTRUCTOR_2022_3_60_057 (id, name, dept_name, salary) VALUES
(32343, 'El Said',    'History',   60000);
INSERT INTO INSTRUCTOR_2022_3_60_057 (id, name, dept_name, salary) VALUES
(33456, 'Goblin',     'Physics',   87000);
INSERT INTO INSTRUCTOR_2022_3_60_057 (id, name, dept_name, salary) VALUES
(45565, 'Katz',       'Comp. Sci.',75000);
INSERT INTO INSTRUCTOR_2022_3_60_057 (id, name, dept_name, salary) VALUES
(58583, 'Califieri',  'History',   62000);
COMMIT;
```

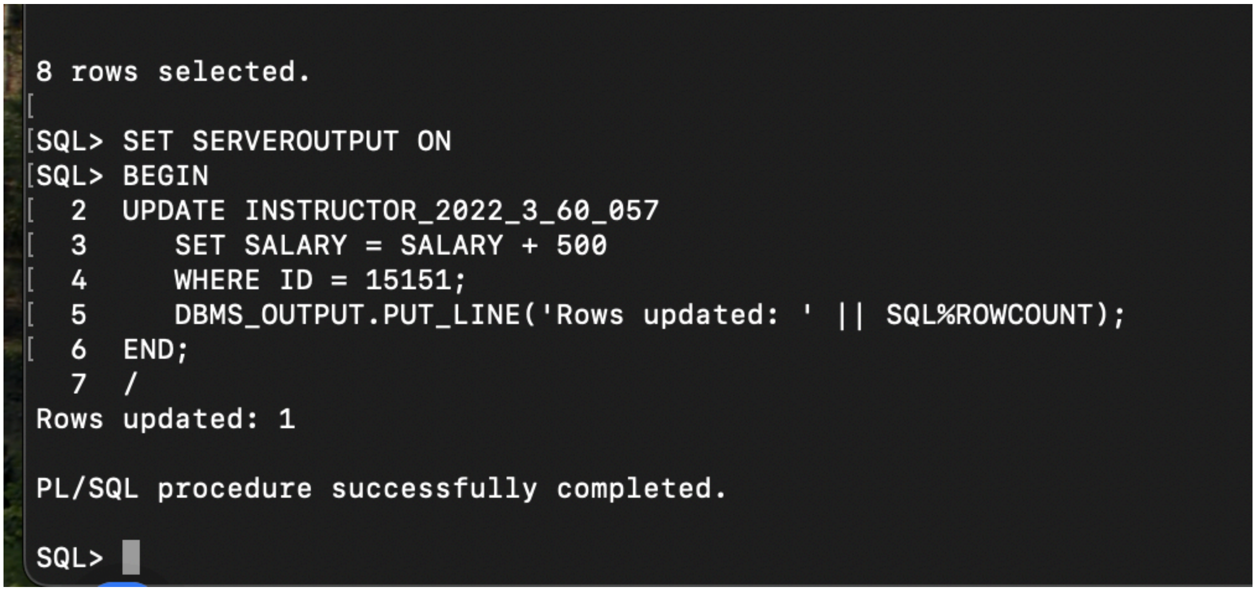


```
[  5     SALARY NUMBER NOT NULL                                                  ]
[  6  );                                                                         ]

 Table created.

[SQL> INSERT INTO INSTRUCTOR_2022_3_60_057 (id, name, dept_name, salary) VALUES (]
 10101, 'Srinivasan', 'Comp. Sci.', 65000);

 1 row created.

[SQL> INSERT INTO INSTRUCTOR_2022_3_60_057 (id, name, dept_name, salary) VALUES (]
 12121, 'Wasif',      'Finance',   90000);

 1 row created.

[SQL> INSERT INTO INSTRUCTOR_2022_3_60_057 (id, name, dept_name, salary) VALUES (]
 15151, 'Mozart',     'Music',     40000);

 1 row created.

[SQL> INSERT INTO INSTRUCTOR_2022_3_60_057 (id, name, dept_name, salary) VALUES (]
 22222, 'Einstein',   'Physics',   95000);

 1 row created.

[SQL> INSERT INTO INSTRUCTOR_2022_3_60_057 (id, name, dept_name, salary) VALUES (]
 32343, 'El Said',    'History',   60000);

 1 row created.

[SQL> INSERT INTO INSTRUCTOR_2022_3_60_057 (id, name, dept_name, salary) VALUES (]
 33456, 'Goblin',     'Physics',   87000);

 1 row created.

[SQL> INSERT INTO INSTRUCTOR_2022_3_60_057 (id, name, dept_name, salary) VALUES (]
 45565, 'Katz',       'Comp. Sci.',75000);

 1 row created.

[SQL> INSERT INTO INSTRUCTOR_2022_3_60_057 (id, name, dept_name, salary) VALUES (]
 58583, 'Califieri',  'History',   62000);

 1 row created.

[SQL> COMMIT;                                                                    ]

 Commit complete.

 SQL> 
```

LAB TASK 3:

1. CODE: Implicit cursor update salary for id=15151 by +500 and print affected rows:

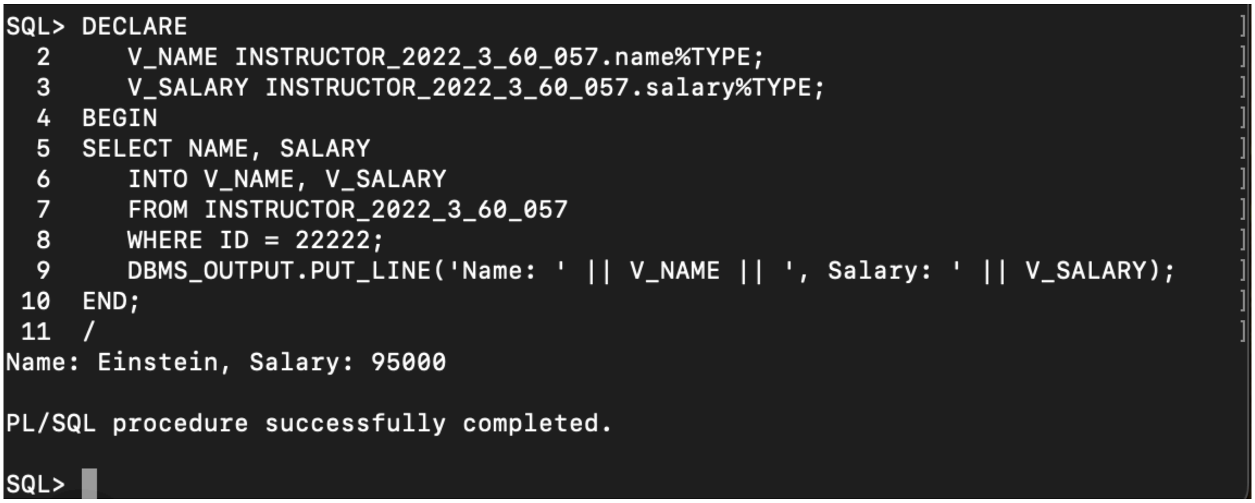
```
SET SERVEROUTPUT ON
BEGIN
UPDATE INSTRUCTOR_2022_3_60_057
  SET SALARY = SALARY + 500
  WHERE ID = 15151;
  DBMS_OUTPUT.PUT_LINE('Rows updated: ' || SQL%ROWCOUNT);
END;
/
```



```

8 rows selected.
[
[SQL> SET SERVEROUTPUT ON
[SQL> BEGIN
[  2  UPDATE INSTRUCTOR_2022_3_60_057
[  3     SET SALARY = SALARY + 500
[  4     WHERE ID = 15151;
[  5     DBMS_OUTPUT.PUT_LINE('Rows updated: ' || SQL%ROWCOUNT);
[  6  END;
   7  /
Rows updated: 1

PL/SQL procedure successfully completed.

SQL> 
```

2. CODE: Use %TYPE variables to select details for id=22222 and print:

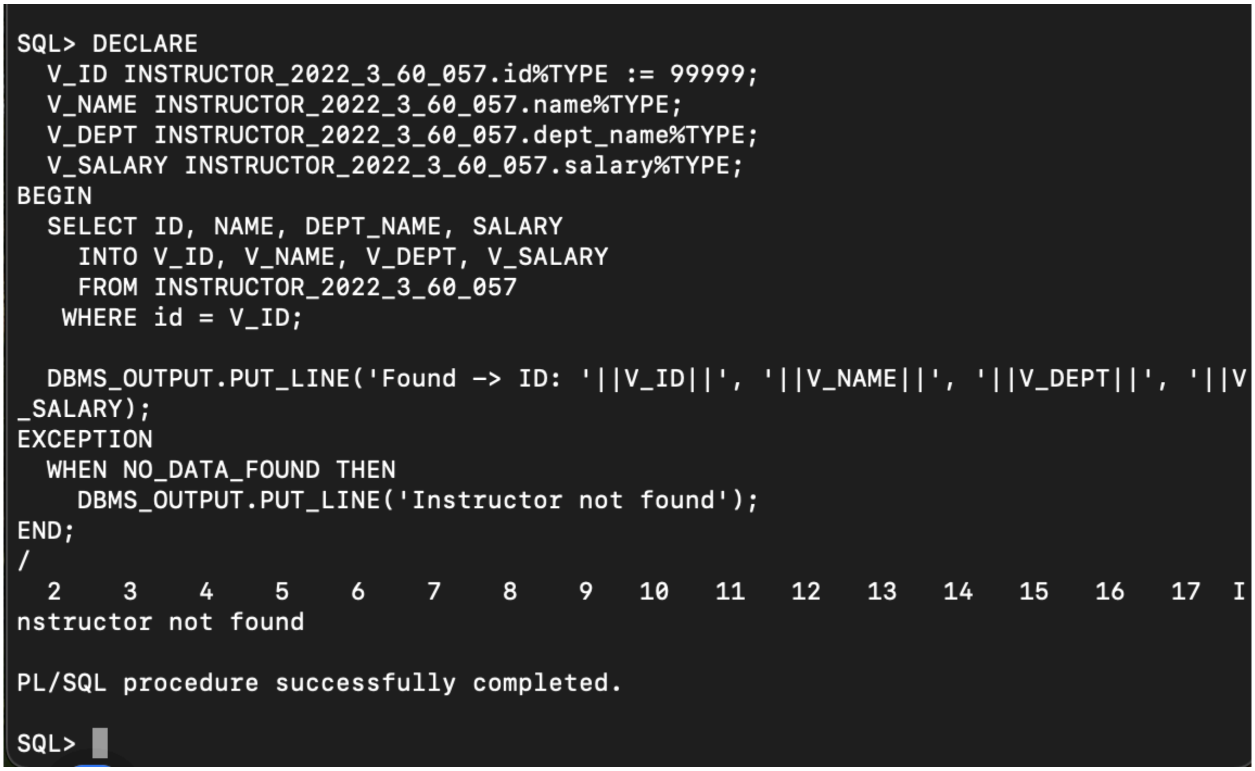
```
DECLARE
  V_NAME INSTRUCTOR_2022_3_60_057.name%TYPE;
  V_SALARY INSTRUCTOR_2022_3_60_057.salary%TYPE;
BEGIN
SELECT NAME, SALARY
  INTO V_NAME, V_SALARY
  FROM INSTRUCTOR_2022_3_60_057
  WHERE ID = 22222;
  DBMS_OUTPUT.PUT_LINE('Name: ' || V_NAME || ', Salary: ' || V_SALARY);
END;
/
```



```
SQL> DECLARE
        V_NAME INSTRUCTOR_2022_3_60_057.name%TYPE;
        V_SALARY INSTRUCTOR_2022_3_60_057.salary%TYPE;
     BEGIN
     SELECT NAME, SALARY
        INTO V_NAME, V_SALARY
        FROM INSTRUCTOR_2022_3_60_057
        WHERE ID = 22222;
        DBMS_OUTPUT.PUT_LINE('Name: ' || V_NAME || ', Salary: ' || V_SALARY);
     END;
     /
Name: Einstein, Salary: 95000

PL/SQL procedure successfully completed.

SQL>
```

3. CODE: Exception handling: try to select id=99999; print “Instructor not found” if no data:

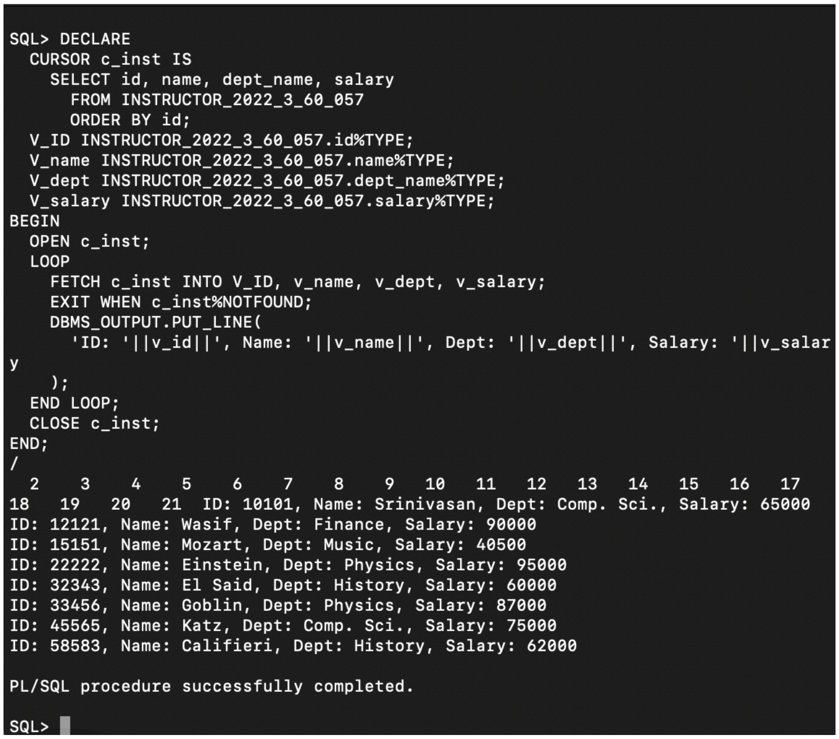
```
DECLARE
  V_ID INSTRUCTOR_2022_3_60_057.id%TYPE := 99999;
  V_NAME INSTRUCTOR_2022_3_60_057.name%TYPE;
  V_DEPT INSTRUCTOR_2022_3_60_057.dept_name%TYPE;
  V_SALARY INSTRUCTOR_2022_3_60_057.salary%TYPE;
BEGIN
  SELECT ID, NAME, DEPT_NAME, SALARY
    INTO V_ID, V_NAME, V_DEPT, V_SALARY
    FROM INSTRUCTOR_2022_3_60_057
   WHERE id = V_ID;

  DBMS_OUTPUT.PUT_LINE('Found -> ID: '||V_ID||', '||V_NAME||', '||V_DEPT||',
'||V_SALARY);
EXCEPTION
  WHEN NO_DATA_FOUND THEN
    DBMS_OUTPUT.PUT_LINE('Instructor not found');
END;
/
```



```
SQL> DECLARE
  V_ID INSTRUCTOR_2022_3_60_057.id%TYPE := 99999;
  V_NAME INSTRUCTOR_2022_3_60_057.name%TYPE;
  V_DEPT INSTRUCTOR_2022_3_60_057.dept_name%TYPE;
  V_SALARY INSTRUCTOR_2022_3_60_057.salary%TYPE;
BEGIN
  SELECT ID, NAME, DEPT_NAME, SALARY
    INTO V_ID, V_NAME, V_DEPT, V_SALARY
    FROM INSTRUCTOR_2022_3_60_057
   WHERE id = V_ID;

  DBMS_OUTPUT.PUT_LINE('Found -> ID: '||V_ID||', '||V_NAME||', '||V_DEPT||', '||V
_SALARY);
EXCEPTION
  WHEN NO_DATA_FOUND THEN
    DBMS_OUTPUT.PUT_LINE('Instructor not found');
END;
/
Instructor not found

PL/SQL procedure successfully completed.

SQL> 
```

4. CODE: Explicit cursor: fetch and print all instructors (declare, open, loop fetch, close):

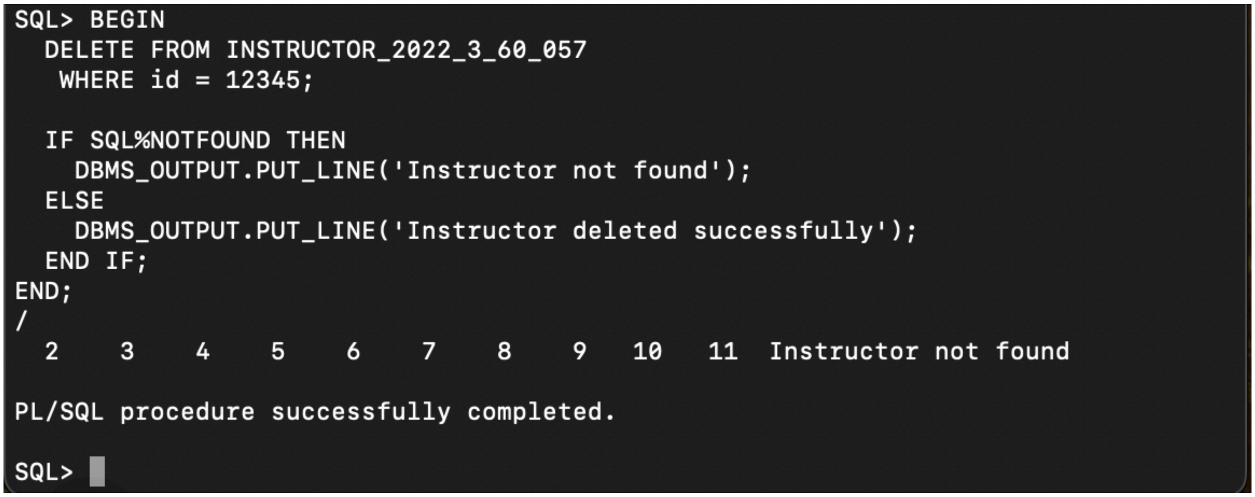
```
DECLARE
  CURSOR c_inst IS
    SELECT id, name, dept_name, salary
      FROM INSTRUCTOR_2022_3_60_057
      ORDER BY id;
  V_ID INSTRUCTOR_2022_3_60_057.id%TYPE;
  V_name INSTRUCTOR_2022_3_60_057.name%TYPE;
  V_dept INSTRUCTOR_2022_3_60_057.dept_name%TYPE;
  V_salary INSTRUCTOR_2022_3_60_057.salary%TYPE;
BEGIN
  OPEN c_inst;
  LOOP
    FETCH c_inst INTO V_ID, v_name, v_dept, v_salary;
    EXIT WHEN c_inst%NOTFOUND;
    DBMS_OUTPUT.PUT_LINE(
      'ID: '||v_id||', Name: '||v_name||', Dept: '||v_dept||', Salary:
'||v_salary
    );
  END LOOP;
  CLOSE c_inst;
END;
/
```



```
SQL> DECLARE
  CURSOR c_inst IS
    SELECT id, name, dept_name, salary
      FROM INSTRUCTOR_2022_3_60_057
      ORDER BY id;
  V_ID INSTRUCTOR_2022_3_60_057.id%TYPE;
  V_name INSTRUCTOR_2022_3_60_057.name%TYPE;
  V_dept INSTRUCTOR_2022_3_60_057.dept_name%TYPE;
  V_salary INSTRUCTOR_2022_3_60_057.salary%TYPE;
BEGIN
  OPEN c_inst;
  LOOP
    FETCH c_inst INTO V_ID, v_name, v_dept, v_salary;
    EXIT WHEN c_inst%NOTFOUND;
    DBMS_OUTPUT.PUT_LINE(
      'ID: '||v_id||', Name: '||v_name||', Dept: '||v_dept||', Salary: '||v_salar
y
    );
  END LOOP;
  CLOSE c_inst;
END;
/
ID: 10101, Name: Srinivasan, Dept: Comp. Sci., Salary: 65000
ID: 12121, Name: Wasif, Dept: Finance, Salary: 90000
ID: 15151, Name: Mozart, Dept: Music, Salary: 40500
ID: 22222, Name: Einstein, Dept: Physics, Salary: 95000
ID: 32343, Name: El Said, Dept: History, Salary: 60000
ID: 33456, Name: Goblin, Dept: Physics, Salary: 87000
ID: 45565, Name: Katz, Dept: Comp. Sci., Salary: 75000
ID: 58583, Name: Califieri, Dept: History, Salary: 62000

PL/SQL procedure successfully completed.

SQL>
```

5. CODE: Delete instructor with id=12345; use SQL%NOTFOUND to print message:

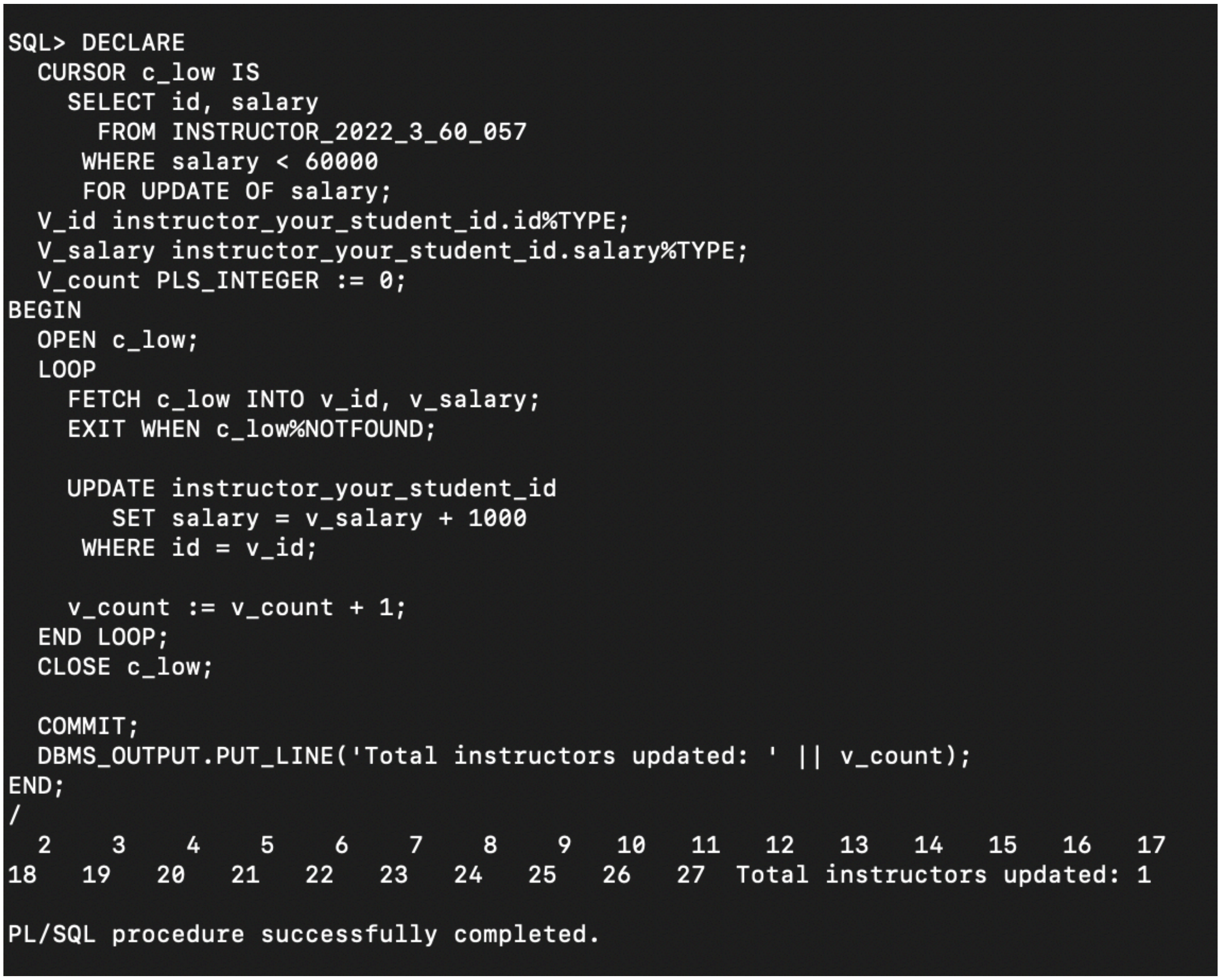
```
BEGIN
  DELETE FROM INSTRUCTOR_2022_3_60_057
   WHERE id = 12345;

  IF SQL%NOTFOUND THEN
    DBMS_OUTPUT.PUT_LINE('Instructor not found');
  ELSE
    DBMS_OUTPUT.PUT_LINE('Instructor deleted successfully');
  END IF;
END;
/
```



```
SQL> BEGIN
  DELETE FROM INSTRUCTOR_2022_3_60_057
   WHERE id = 12345;

  IF SQL%NOTFOUND THEN
    DBMS_OUTPUT.PUT_LINE('Instructor not found');
  ELSE
    DBMS_OUTPUT.PUT_LINE('Instructor deleted successfully');
  END IF;
END;
/
  2    3    4    5    6    7    8    9   10   11  Instructor not found

PL/SQL procedure successfully completed.

SQL> 
```

6. CODE: Delete instructor with id=12345; use SQL%NOTFOUND to print message:

```
DECLARE
  CURSOR c_low IS
    SELECT id, salary
      FROM INSTRUCTOR_2022_3_60_057
     WHERE salary < 60000
     FOR UPDATE OF salary;
  V_id instructor_your_student_id.id%TYPE;
  V_salary instructor_your_student_id.salary%TYPE;
  V_count PLS_INTEGER := 0;
BEGIN
  OPEN c_low;
  LOOP
    FETCH c_low INTO v_id, v_salary;
    EXIT WHEN c_low%NOTFOUND;

    UPDATE instructor_your_student_id
       SET salary = v_salary + 1000
     WHERE id = v_id;

    v_count := v_count + 1;
  END LOOP;
  CLOSE c_low;

  COMMIT;
  DBMS_OUTPUT.PUT_LINE('Total instructors updated: ' || v_count);
END;
/
```



```
SQL> DECLARE
  CURSOR c_low IS
    SELECT id, salary
      FROM INSTRUCTOR_2022_3_60_057
     WHERE salary < 60000
     FOR UPDATE OF salary;
  V_id instructor_your_student_id.id%TYPE;
  V_salary instructor_your_student_id.salary%TYPE;
  V_count PLS_INTEGER := 0;
BEGIN
  OPEN c_low;
  LOOP
    FETCH c_low INTO v_id, v_salary;
    EXIT WHEN c_low%NOTFOUND;

    UPDATE instructor_your_student_id
       SET salary = v_salary + 1000
     WHERE id = v_id;

    v_count := v_count + 1;
  END LOOP;
  CLOSE c_low;

  COMMIT;
  DBMS_OUTPUT.PUT_LINE('Total instructors updated: ' || v_count);
END;
/
  2    3    4    5    6    7    8    9   10   11   12   13   14   15   16   17
18   19   20   21   22   23   24   25   26   27  Total instructors updated: 1

PL/SQL procedure successfully completed.
```