

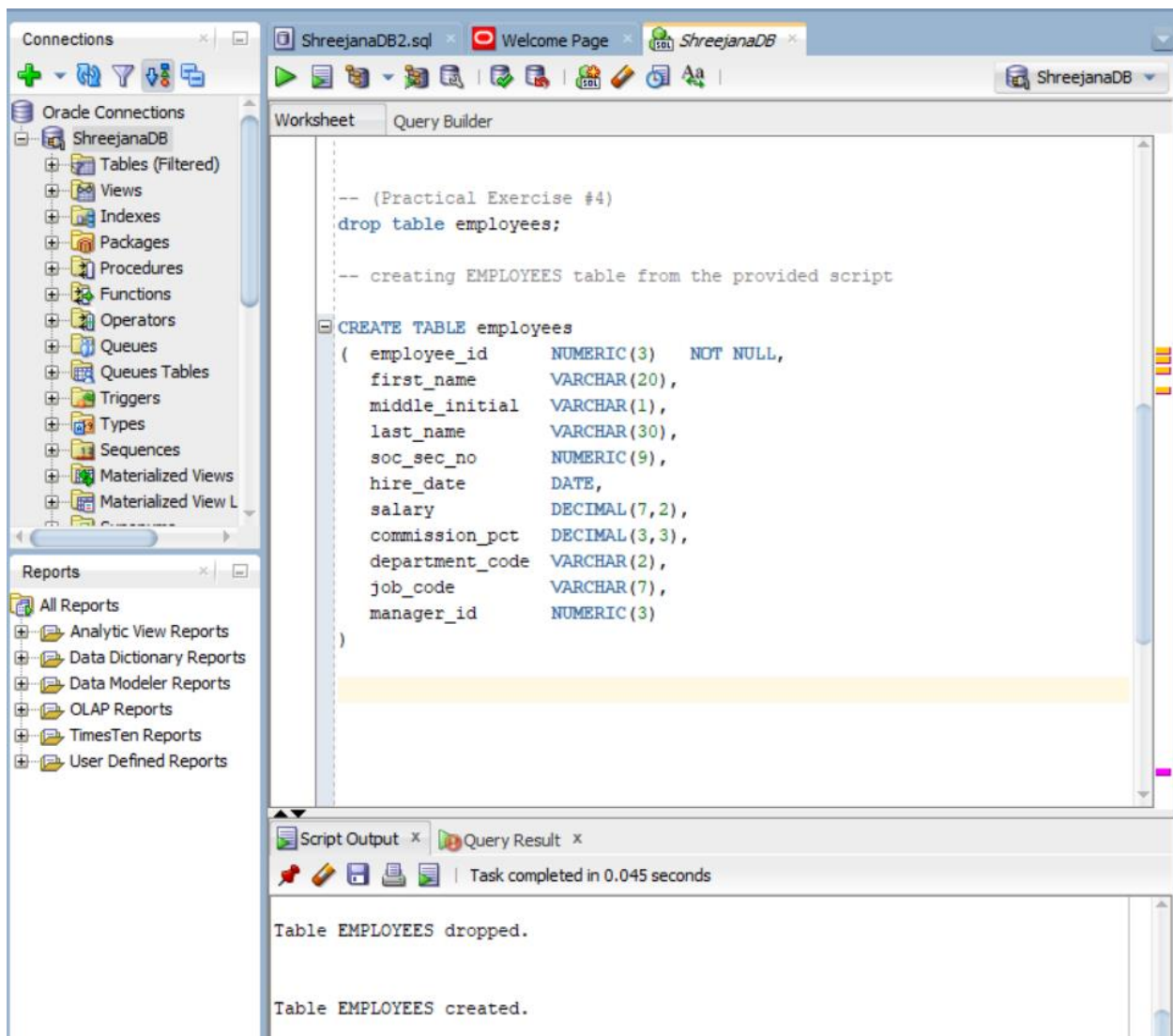
Database Programming

Practical Exercise #4

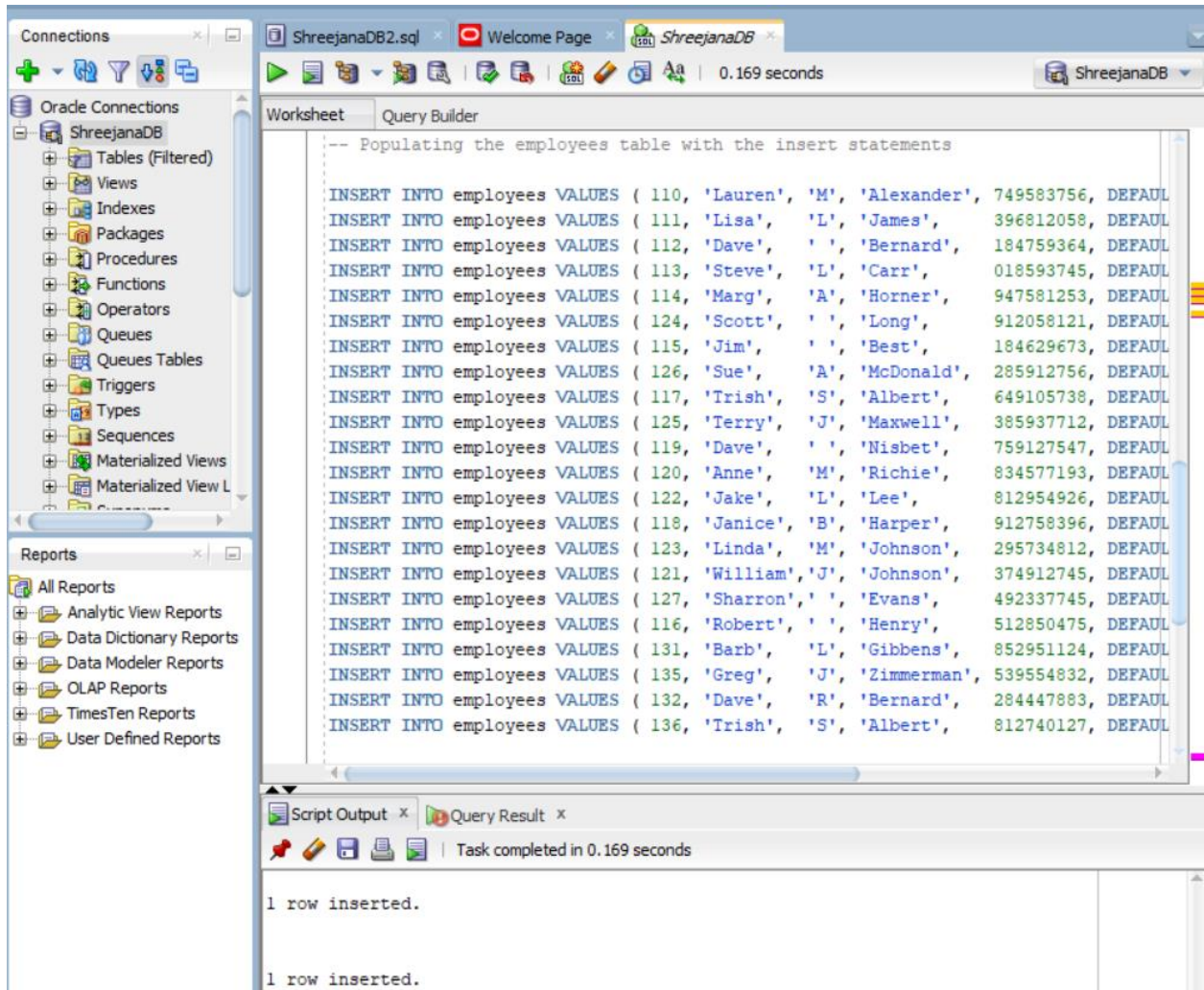
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Table creation



Insertion of data in the employee table



Connections

Oracle Connections

- ShreejanaDB
 - Tables (Filtered)
 - Views
 - Indexes
 - Packages
 - Procedures
 - Functions
 - Operators
 - Queues
 - Queues Tables
 - Triggers
 - Types
 - Sequences
 - Materialized Views
 - Materialized View L

Reports

- All Reports
 - Analytic View Reports
 - Data Dictionary Reports
 - Data Modeler Reports
 - OLAP Reports
 - TimesTen Reports
 - User Defined Reports

ShreejanaDB2.sql Welcome Page ShreejanaDB

Worksheet Query Builder

```
select * from employees;
```

Script Output x Query Result x

SQL | All Rows Fetched: 22 in 0.007 seconds

| | EMPLOYEE_ID | FIRST_NAME | MIDDLE_INITIAL | LAST_NAME | SOC_SEC_NO | HIRE_DATE | SALARY |
|----|-------------|------------|----------------|-----------|------------|-----------|--------|
| 1 | 110 | Lauren | M | Alexander | 749583756 | (null) | 45000 |
| 2 | 111 | Lisa | L | James | 396812058 | (null) | 65000 |
| 3 | 112 | Dave | | Bernard | 184759364 | (null) | 60000 |
| 4 | 113 | Steve | L | Carr | 18593745 | (null) | 55000 |
| 5 | 114 | Marg | A | Horner | 947581253 | (null) | 45000 |
| 6 | 124 | Scott | | Long | 912058121 | (null) | 35000 |
| 7 | 115 | Jim | | Best | 184629673 | (null) | 24000 |
| 8 | 126 | Sue | A | McDonald | 285912756 | (null) | 36000 |
| 9 | 117 | Trish | S | Albert | 649105738 | (null) | 18000 |
| 10 | 125 | Terry | J | Maxwell | 385937712 | (null) | 22000 |
| 11 | 119 | Dave | | Nisbet | 759127547 | (null) | 39000 |
| 12 | 120 | Anne | M | Richie | 834577193 | (null) | 40000 |
| 13 | 122 | Jake | L | Lee | 812954926 | (null) | 45000 |
| 14 | 118 | Janice | B | Harper | 912758396 | (null) | 29000 |
| 15 | 123 | Linda | M | Johnson | 295734812 | (null) | 24000 |
| 16 | 121 | William | J | Johnson | 374912745 | (null) | 31000 |
| 17 | 127 | Sharron | | Evans | 492337745 | (null) | 29000 |
| 18 | 116 | Robert | | Henry | 512850475 | (null) | 37000 |
| 19 | 131 | Barb | L | Gibbens | 852951124 | (null) | 29000 |
| 20 | 135 | Greg | J | Zimmerman | 539554832 | (null) | 31500 |
| 21 | 132 | Dave | R | Bernard | 284447883 | (null) | 24000 |
| 22 | 133 | Dave | R | Bernard | 284447883 | (null) | 24000 |

QUESTION 1

The screenshot displays the Oracle SQL Developer interface. On the left, the 'Connections' pane shows 'ShreejanaDB' selected under 'Oracle Connections'. The 'Reports' pane is also visible. The main window shows a SQL script in the 'Worksheet' tab. The script is titled 'QUESTION 1' and contains a PL/SQL block that declares a cursor, opens it, fetches rows, and displays the output. A callout box highlights the 'Use of Basic PL/SQL Cursor to fetch the employee information and displaying the output'.

```
-- QUESTION 1
--
-- (a) PL/SQL Cursor to retrieve the following information.
-- * Fetch row number, Employee Id, First Name of the employees
-- * Select all the employees with Employee_no < 115
-- * Use the complete cycle of declaring, opening, fetching, and closing a
--   cursor, including use of cursor attributes.

set SERVEROUTPUT ON

DECLARE
-- Cursor declaration
CURSOR emp_cursor_0321 IS
  SELECT employee_id, first_name
  FROM employees
  WHERE employee_id < 115;
  v_emp_record_0321      emp_cursor_0321%ROWTYPE;

BEGIN
-- Open the cursor created above
OPEN emp_cursor_0321;
LOOP
  -- Fetch current row from cursor into v_emp_record_0321
  FETCH emp_cursor_0321 INTO v_emp_record_0321;
  -- Test for end of the cursor using %NOTFOUND
  EXIT WHEN emp_cursor_0321%NOTFOUND;
  DBMS_OUTPUT.PUT_LINE('Just FETCHED row '
    || emp_cursor_0321%ROWCOUNT || ' - Employee ID: '
    || v_emp_record_0321.employee_id || ' - First Name: '
    || v_emp_record_0321.first_name);
END LOOP;
CLOSE emp_cursor_0321; -- Close Cursor
END;
```

output

The screenshot displays the Oracle SQL Developer interface. On the left, the 'Connections' pane shows 'ShreejanaDB' selected. The main workspace is in 'Query Builder' mode, showing a PL/SQL procedure named 'QUESTION 1'. The procedure declares a cursor 'emp_cursor' to select employee IDs and first names where the employee ID is less than 115. It then uses a loop to fetch each row into a variable 'v_emp_record' and prints the result using 'DBMS_OUTPUT.PUT_LINE'. The 'Script Output' pane at the bottom shows the execution results, which are highlighted with a red box. The output consists of five lines, each stating 'Just FETCHED row X - Employee ID: Y - First Name: Z'. The procedure completed successfully in 0.055 seconds.

```
-- QUESTION 1
-- (a) PL/SQL Cursor to retrieve the following information.
-- * Fetch row number, Employee Id, First Name of the employees
-- * Select all the employees with Employee_no < 115
-- * Use the complete cycle of declaring, opening, fetching, and closing a
--   cursor, including use of cursor attributes.

set SERVEROUTPUT ON

DECLARE
    CURSOR emp_cursor IS
        SELECT employee_id, first_name
        FROM employees
        WHERE employee_id < 115;
    v_emp_record      emp_cursor%ROWTYPE;

BEGIN
    OPEN emp_cursor;
    LOOP
        FETCH emp_cursor INTO v_emp_record;
        EXIT WHEN emp_cursor%NOTFOUND;
        DBMS_OUTPUT.PUT_LINE('Just FETCHED row '
```

Task completed in 0.055 seconds

Just FETCHED row 1 - Employee ID: 110 - First Name: Lauren
Just FETCHED row 2 - Employee ID: 111 - First Name: Lisa
Just FETCHED row 3 - Employee ID: 112 - First Name: Dave
Just FETCHED row 4 - Employee ID: 113 - First Name: Steve
Just FETCHED row 5 - Employee ID: 114 - First Name: Marg

PL/SQL procedure successfully completed.

QUESTION 2

The screenshot displays the Oracle SQL Developer interface. On the left, the 'Connections' pane shows 'ShreejanaDB' selected. The main workspace is titled 'ShreejanaDB2.sql' and contains a PL/SQL procedure named 'QUESTION 2'. The procedure uses a cursor for loop to fetch data from the 'employees' table where 'employee_id' is less than 115. The output is displayed in the 'Script Output' pane at the bottom.

```
-- QUESTION 2
-- Modification to above program to use the CURSOR FOR LOOP to achieve 4
-- the same output

DECLARE
    CURSOR emp_cursor_0321 IS
        SELECT employee_id, first_name
        FROM employees
        WHERE employee_id < 115;
BEGIN
    FOR v_emp_record IN emp_cursor_0321
    LOOP
        DBMS_OUTPUT.PUT_LINE('Just FETCHED row '
            || emp_cursor_0321%ROWCOUNT || ' - Employee ID: '
            || v_emp_record.employee_id || ' - First Name: '
            || v_emp_record.first_name);
    END LOOP;
END;
```

Used Cursor for loop to fetch the employees data

Task completed in 0.049 seconds

Just FETCHED row 1 - Employee ID: 110 - First Name: Lauren
Just FETCHED row 2 - Employee ID: 111 - First Name: Lisa
Just FETCHED row 3 - Employee ID: 112 - First Name: Dave
Just FETCHED row 4 - Employee ID: 113 - First Name: Steve
Just FETCHED row 5 - Employee ID: 114 - First Name: Marg

PL/SQL procedure successfully completed.