

Term: 2024S FSDM

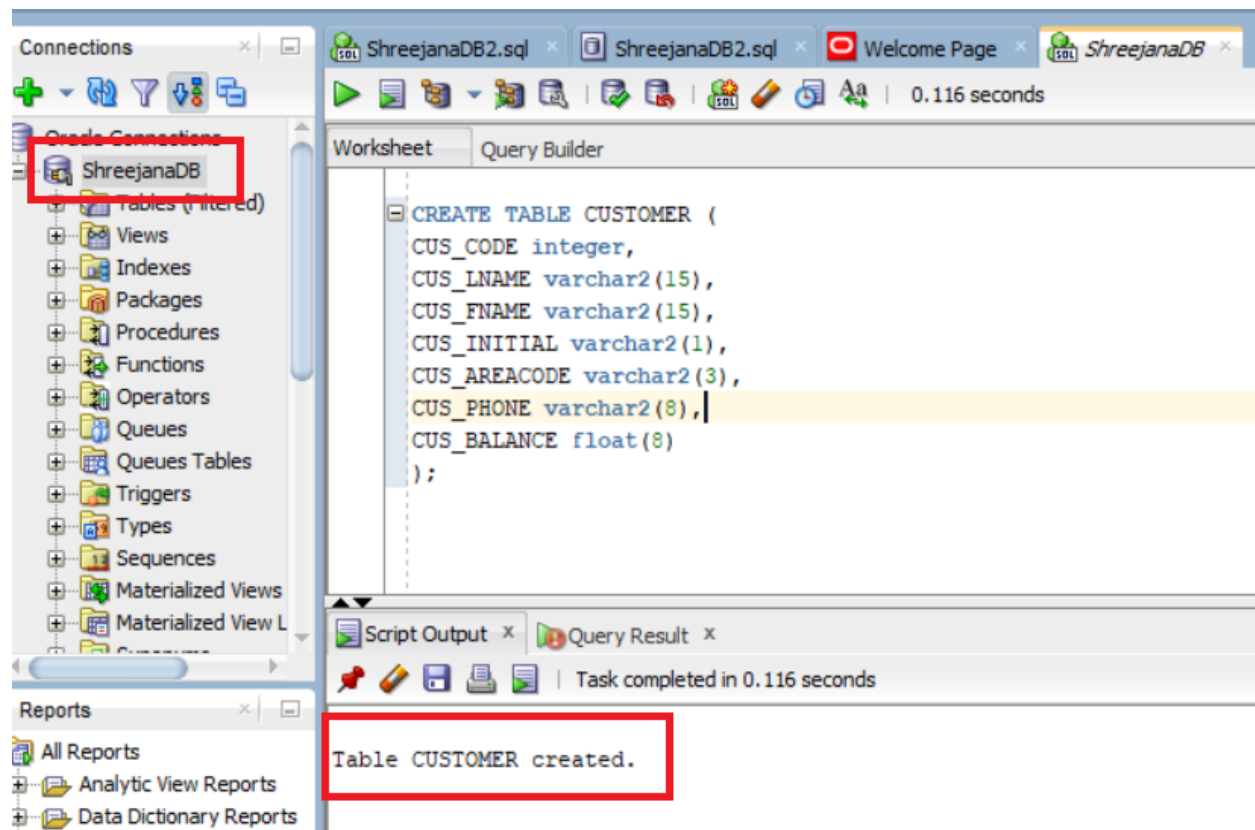
Course: Database Programming

Practical Exercise #2

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1. Customer Table creation



2. Table data insertion

Connections

ShreejanaDB2.sql x ShreejanaDB2.sql x Welcome Page x ShreejanaDB x

0.228 seconds

ShreejanaDB

Worksheet Query Builder

```
INSERT INTO CUSTOMER VALUES('10010','Ramas','Alfred','A','615','844-2573','0');
INSERT INTO CUSTOMER VALUES('10011','Dunne','Leona','K','713','894-1238','0');
INSERT INTO CUSTOMER VALUES('10012','Smith','Kathy','W','615','894-2285','896.54');
INSERT INTO CUSTOMER VALUES('10013','Olowski','Paul','F','615','894-2180','1285.19');
INSERT INTO CUSTOMER VALUES('10014','Orlando','Myron','','615','222-1672','673.21');
INSERT INTO CUSTOMER VALUES('10015','O'Brian','Amy','B','713','442-3381','1014.56');
INSERT INTO CUSTOMER VALUES('10016','Brown','James','G','615','297-1228','0');
INSERT INTO CUSTOMER VALUES('10017','Williams','George','','615','290-2556','0');
INSERT INTO CUSTOMER VALUES('10018','Farriiss','Anne','G','713','382-7185','0');
INSERT INTO CUSTOMER VALUES('10019','Smith','Olette','K','615','297-3809','453.98');
```

Script Output x Query Result x

Task completed in 0.228 seconds

Reports

All Reports

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

1 row inserted.

1 row inserted.

1 row inserted.

1 row inserted.

1 row inserted.

1 row inserted.

3. Making copy of CUSTOMER table

The screenshot shows the SQL Developer interface. On the left, the 'Connections' pane is open, and 'ShreejanaDB' is selected. The main window displays a SQL script in the 'Query Builder' tab. The script is as follows:

```
-- Making a copy of a table CUSTOMER with table name CUSTOMER_0321  
CREATE TABLE CUSTOMER_0321 AS SELECT * FROM CUSTOMER;
```

Below the script, the 'Script Output' pane shows the message: 'Table CUSTOMER_0321 created.' The execution time is 0.069 seconds.

The screenshot shows the 'Query Result' pane displaying the data of the newly created table, CUSTOMER_0321. The data is as follows:

	CUS_CODE	CUS_LNAME	CUS_FNAME	CUS_INITIAL	CUS_AREACODE	CUS_PHONE	CUS_BALANCE
1	10010	Ramas	Alfred	A	615	844-2573	0
2	10011	Dunne	Leona	K	713	894-1238	0
3	10012	Smith	Kathy	W	615	894-2285	897
4	10013	Olowski	Paul	F	615	894-2180	1290
5	10014	Orlando	Myron	(null)	615	222-1672	673
6	10015	O'Brian	Amy	B	713	442-3381	1010
7	10016	Brown	James	G	615	297-1228	0
8	10017	Williams	George	(null)	615	290-2556	0
9	10018	Farriss	Anne	G	713	382-7185	0
10	10019	Smith	Olette	K	615	297-3809	454

4. Write a PL/SQL script to demonstrate the use of %TYPE, SELECT INTO using where clause, and display output.

Code block:

```
SET SERVEROUTPUT ON; -- used to print the output in the console
```

```
DECLARE
```

```
-- variable declaration
```

```
    v_cus_firstname customer_0321.cus_fname%TYPE;
```

```
    v_cus_lastname customer_0321.cus_lname%TYPE;
```

```
    v_cus_balance customer_0321.cus_balance%TYPE;
```

```
BEGIN
```

```
-- use of select, into and where clause
```

```
    SELECT cus_fname, cus_lname, cus_balance
```

```
    INTO v_cus_firstname, v_cus_lastname, v_cus_balance
```

```
    FROM customer_0321
```

```
    WHERE cus_ = 10013;
```

```
-- displaying the retrived output
```

```
    DBMS_OUTPUT.PUT_LINE(v_cus_firstname || ' ' || v_cus_lastname ||  
                          ' has ' || v_cus_balance || ' balance.');
```

```
END;
```

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

Worksheet

Query Builder

```
SET SERVEROUTPUT ON; -- used to print the output in the console

DECLARE
-- variable declaration
v_cus_firstname customer_0321.cus_fname%TYPE;
v_cus_lastname customer_0321.cus_lname%TYPE;
v_cus_balance customer_0321.cus_balance%TYPE;
BEGIN
-- use of select, into and where clause
SELECT cus_fname, cus_lname, cus_balance
INTO v_cus_firstname, v_cus_lastname, v_cus_balance
FROM customer_0321
WHERE cus_code = 10013;
-- displaying the retrived output
DBMS_OUTPUT.PUT_LINE(v_cus_firstname || ' ' || v_cus_lastname ||
' has ' || v_cus_balance || ' balance.');
```

END;

Script Output x Query Result x

Task completed in 0.073 seconds

Paul Olowski has 1290 balance.

PL/SQL procedure successfully completed.

5. Write a PL/SQL script to demonstrate the error “ no data found”.

Code block:

DECLARE

-- variable declaration

 v_cus_firstname customer_0321.cus_fname%TYPE;

 v_cus_lastname customer_0321.cus_lname%TYPE;

 v_cus_balance customer_0321.cus_balance%TYPE;

BEGIN

-- use of select, into and where clause

 SELECT cus_fname, cus_lname, cus_balance

 INTO v_cus_firstname, v_cus_lastname, v_cus_balance

 FROM customer_0321

 WHERE cus_ = 10020;

-- displaying the retrived output

 DBMS_OUTPUT.PUT_LINE(v_cus_firstname || ' ' || v_cus_lastname ||
 ' has ' || v_cus_balance || ' balance.');

END;

The screenshot displays the Oracle SQL Developer interface. On the left, the 'Connections' pane shows 'ShreejanaDB' selected. The main window is in 'Query Builder' mode, showing a PL/SQL script. The script declares variables for customer information and attempts to select data from the 'customer_0321' table where 'cus_code' is 10020. The script uses 'DBMS_OUTPUT.PUT_LINE' to display the results. The 'Script Output' pane at the bottom shows the error report.

```
DECLARE
-- variable declaration
v_cus_firstname customer_0321.cus_fname%TYPE;
v_cus_lastname customer_0321.cus_lname%TYPE;
v_cus_balance customer_0321.cus_balance%TYPE;
BEGIN
-- use of select, into and where clause
SELECT cus_fname, cus_lname, cus_balance
INTO v_cus_firstname, v_cus_lastname, v_cus_balance
FROM customer_0321
WHERE cus_code = 10020;
-- displaying the retrived output
DBMS_OUTPUT.PUT_LINE(v_cus_firstname || ' ' || v_cus_lastname ||
' has ' || v_cus_balance || ' balance.');
```

Demonstrating the error "no data found" by using the code to retrieve the customer information with customer code 10020.

Task completed in 0.142 seconds

```
WHERE cus_code = 10020;
-- displaying the retrived output
DBMS_OUTPUT.PUT_LINE(v_cus_firstname || ' ' || v_cus_lastname ||
' has ' || v_cus_balance || ' balance.');
```

Error report -
ORA-01403: no data found
ORA-06512: at line 8
01403. 00000 - "no data found"
*Cause: No data was found from the objects.
*Action: There was no data from the objects which may be due to end of fetch.

6. Write a PL/SQL script to demonstrate the error “ multiple rows returned”.

Code block:

```
DECLARE
```

```
-- variable declaration
```

```
    v_cus_balance customer_0321.cus_balance%TYPE;
```

```
BEGIN
```

```
    SELECT cus_balance
```

```
    INTO v_cus_balance
```

```
    FROM customer_0321;
```

```
-- displaying the retrived output
```

```
    DBMS_OUTPUT.PUT_LINE('Balance is: ' || v_cus_balance);
```

```
END;
```


The screenshot displays the Oracle SQL Developer interface. On the left, the 'Connections' pane shows 'ShreejanaDB' selected. The main window is divided into a 'Worksheet' and a 'Query Builder' tab. The 'Worksheet' tab contains a PL/SQL script:

```
DECLARE
-- variable declaration
v_cus_balance customer_0321.cus_balance%TYPE;
BEGIN
SELECT cus_balance
INTO v_cus_balance
FROM customer_0321;
-- displaying the retrived output

DBMS_OUTPUT.PUT_LINE('Balance is: ' || v_cus_balance);
END;
```

A red box highlights the script, with a text overlay stating: "Demonstrating the use of 'multiple rows returned' error as we are fetching whole cus_balance column and trying to return those multiple values in v_cus_balance variable using PL/SQL."

Below the script, the 'Script Output' pane shows the execution results, including the error report:

```
SELECT cus_balance
INTO v_cus_balance
FROM customer_0321;
-- displaying the retrived output

DBMS_OUTPUT.PUT_LINE('Balance is: ' || v_cus_balance);
END;
```

Error report -
ORA-01422: exact fetch returns more than requested number of rows
ORA-06512: at line 6
01422. 00000 - "exact fetch returns more than requested number of rows"
*Cause: The number specified in exact fetch is less than the rows returned.
*Action: Rewrite the query or change number of rows requested

7. Write a PL/SQL script to demonstrate the use of group function.

Code block:

```
DECLARE
```

```
-- variable declaration
```

```
    v_cus_balance NUMBER(10, 2);
```

```
BEGIN
```

```
    SELECT SUM(cus_balance) -- group function
```

```
    INTO v_cus_balance
```

```
    FROM customer_0321;
```

```
-- displaying the retrived output
```

```
    DBMS_OUTPUT.PUT_LINE('The total Balance of all customers is: '
```

```
                        || v_cus_balance);
```

```
END;
```

Connections

- Oracle Connections
 - ShreejanaDB**
 - Tables (Filtered)
 - Views
 - Indexes
 - Packages
 - Procedures
 - Functions
 - Operators
 - Queues
 - Queues Tables
 - Triggers
 - Types
 - Sequences
 - Materialized Views
 - Materialized View I

Reports

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

Worksheet | **Query Builder**

```
DECLARE
-- variable declaration
  v_cus_balance NUMBER(10, 2);
BEGIN
  SELECT SUM(cus_balance) -- group function
  INTO v_cus_balance
  FROM customer_0321;
-- displaying the retrived output

  DBMS_OUTPUT.PUT_LINE('The total Balance of all customers is: '
    || v_cus_balance);
END;
```

Script Output x | **Query Result** x

Task completed in 0.066 seconds

The total Balance of all customers is: 4324

PL/SQL procedure successfully completed.

Making use of group function (SUM) to return a value from customer_0321 table.