Name : Avdhut Pailwan **Roll No. :** BTB22
PRN : 2122000380 **Subject :** Advanced Database Systems Lab

Experiment No. : 6

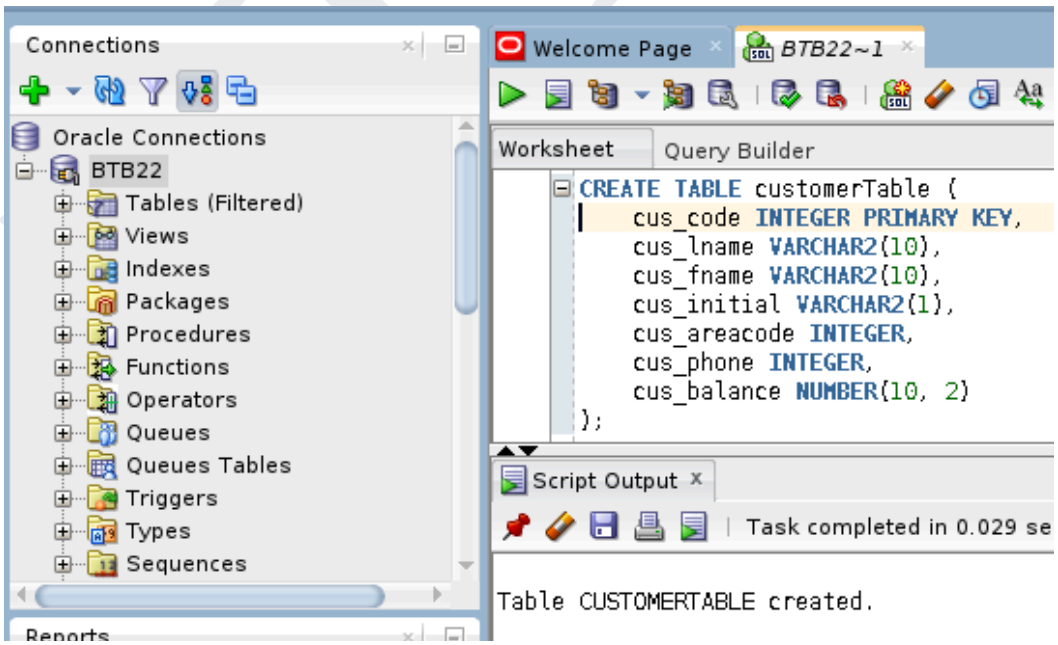
Advanced SQL

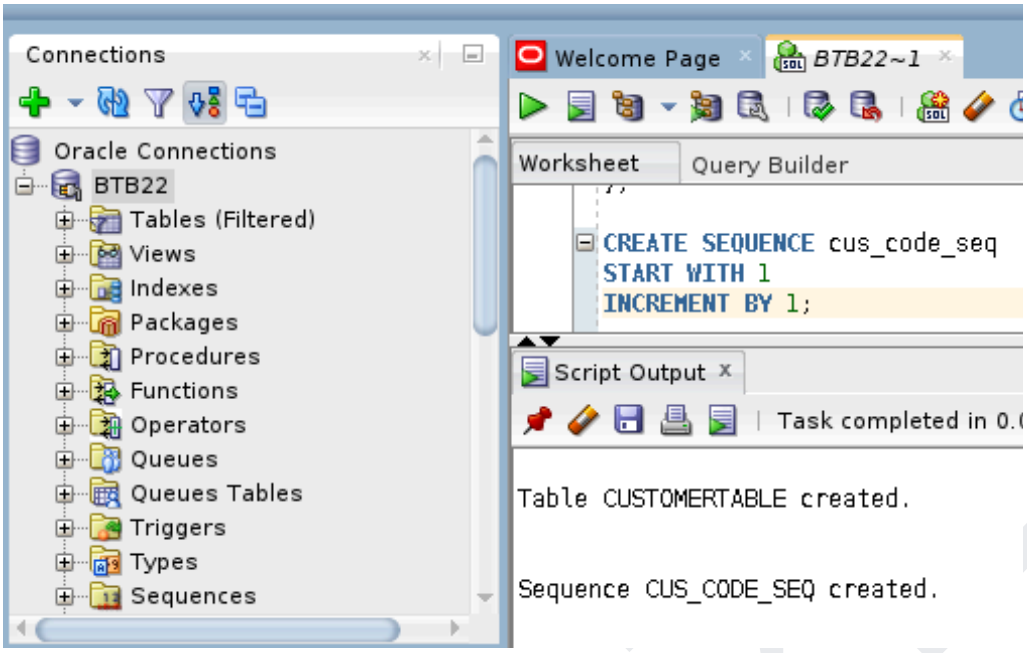
1. Oracle Sequences:

Consider table customer with primary key(cus_code)

Field Type	Data Type
cus_code	Integer
cus_lname	varchar2(10)
cus_fname	varchar2(10)
cus_initial	varchar2(1)
cus_areacode	INTEGER
cus_phone	INTEGER
cus_balance)	number(10,2

1. Create sequence on cus_code
2. Display user sequences
3. Insert values into customer using created sequence
4. Display customer records

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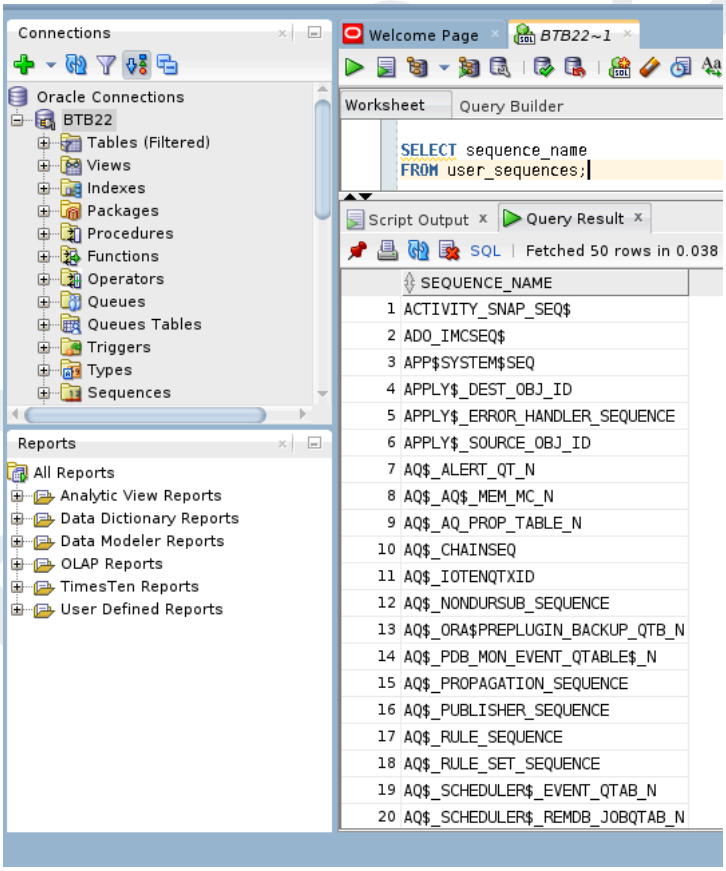
Worksheet
Query Builder
CREATE SEQUENCE cus_code_seq
START WITH 1
INCREMENT BY 1;
Script Output
Task completed in 0.
Table CUSTOMERTABLE created.
Sequence CUS_CODE_SEQ created.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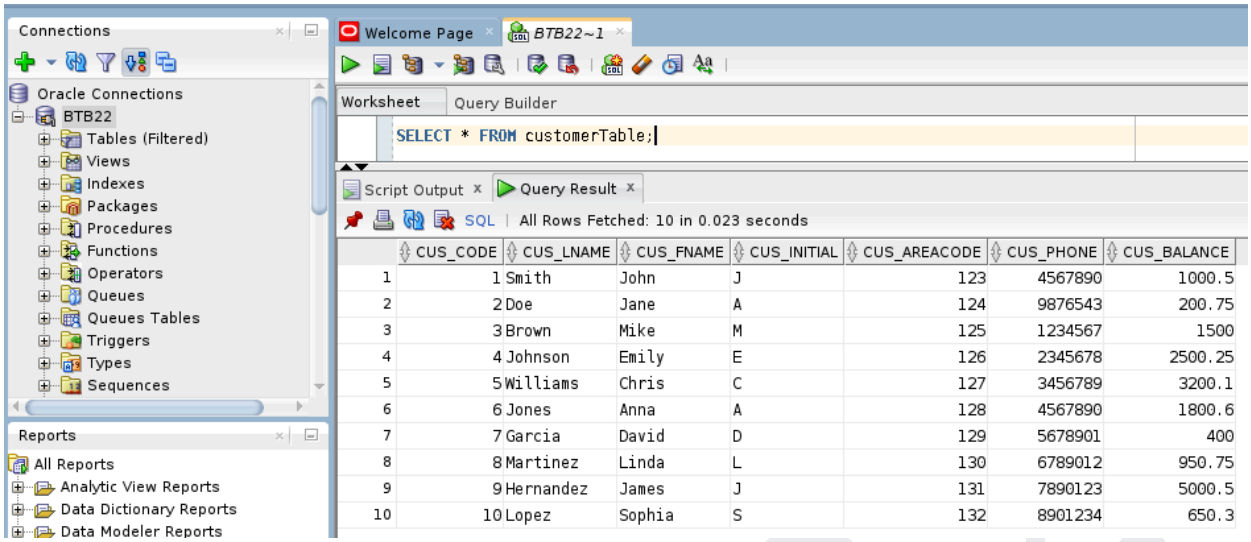
Worksheet
Query Builder
SELECT sequence_name
FROM user_sequences;
Script Output
Query Result
SQL | Fetched 50 rows in 0.038
SEQUENCE_NAME
1 ACTIVITY_SNAP_SEQ$
2 ADO_IMCSEQ$
3 APP$SYSTEM$SEQ
4 APPLY$_DEST_OBJ_ID
5 APPLY$_ERROR_HANDLER_SEQUENCE
6 APPLY$_SOURCE_OBJ_ID
7 AQ$_ALERT_QT_N
8 AQ$_AQ$_MEM_MC_N
9 AQ$_AQ_PROP_TABLE_N
10 AQ$_CHAINSEQ
11 AQ$_IOTENQTXID
12 AQ$_NONDURSUB_SEQUENCE
13 AQ$_ORA$PREPLUGIN_BACKUP_QTB_N
14 AQ$_PDB_MON_EVENT_QTABLE$_N
15 AQ$_PROPAGATION_SEQUENCE
16 AQ$_PUBLISHER_SEQUENCE
17 AQ$_RULE_SEQUENCE
18 AQ$_RULE_SET_SEQUENCE
19 AQ$_SCHEDULER$_EVENT_QTAB_N
20 AQ$_SCHEDULER$_REMDB_JOBQTAB_N



Code :

```
CREATE TABLE customerTable (
    cus_code INTEGER PRIMARY KEY,
    cus_lname VARCHAR2(10),
    cus_fname VARCHAR2(10),
    cus_initial VARCHAR2(1),
    cus_areacode INTEGER,
    cus_phone INTEGER,
    cus_balance NUMBER(10, 2)
);

CREATE SEQUENCE cus_code_seq
START WITH 1
INCREMENT BY 1;

SELECT sequence_name
FROM user_sequences;

INSERT INTO customerTable (cus_code, cus_lname, cus_fname,
cus_initial, cus_areacode, cus_phone, cus_balance)
VALUES (cus_code_seq.NEXTVAL, 'Smith', 'John', 'J', 123, 4567890,
1000.50);

INSERT INTO customerTable (cus_code, cus_lname, cus_fname,
cus_initial, cus_areacode, cus_phone, cus_balance)
```

```
VALUES (cus_code_seq.NEXTVAL, 'Doe', 'Jane', 'A', 124, 9876543,
200.75);


INSERT INTO customerTable (cus_code, cus_lname, cus_fname,
cus_initial, cus_areacode, cus_phone, cus_balance)
VALUES (cus_code_seq.NEXTVAL, 'Brown', 'Mike', 'M', 125, 1234567,
1500.00);

INSERT INTO customerTable (cus_code, cus_lname, cus_fname,
cus_initial, cus_areacode, cus_phone, cus_balance)
VALUES (cus_code_seq.NEXTVAL, 'Johnson', 'Emily', 'E', 126, 2345678,
2500.25);

INSERT INTO customerTable (cus_code, cus_lname, cus_fname,
cus_initial, cus_areacode, cus_phone, cus_balance)
VALUES (cus_code_seq.NEXTVAL, 'Williams', 'Chris', 'C', 127, 3456789,
3200.10);

INSERT INTO customerTable (cus_code, cus_lname, cus_fname,
cus_initial, cus_areacode, cus_phone, cus_balance)
VALUES (cus_code_seq.NEXTVAL, 'Jones', 'Anna', 'A', 128, 4567890,
1800.60);

INSERT INTO customerTable (cus_code, cus_lname, cus_fname,
cus_initial, cus_areacode, cus_phone, cus_balance)
VALUES (cus_code_seq.NEXTVAL, 'Garcia', 'David', 'D', 129, 5678901,
400.00);

INSERT INTO customerTable (cus_code, cus_lname, cus_fname,
cus_initial, cus_areacode, cus_phone, cus_balance)
VALUES (cus_code_seq.NEXTVAL, 'Martinez', 'Linda', 'L', 130, 6789012,
950.75);

INSERT INTO customerTable (cus_code, cus_lname, cus_fname,
cus_initial, cus_areacode, cus_phone, cus_balance)
VALUES (cus_code_seq.NEXTVAL, 'Hernandez', 'James', 'J', 131,
7890123, 5000.50);
```

```
INSERT INTO customerTable (cus_code, cus_lname, cus_fname,
cus_initial, cus_areacode, cus_phone, cus_balance)
VALUES (cus_code_seq.NEXTVAL, 'Lopez', 'Sophia', 'S', 132, 8901234,
650.30);

SELECT * FROM customerTable;
```

2. **Trigger:**

Consider Student Report table, in which student marks assessment is recorded. In such schema, create a trigger so that the total and percentage of specified marks is automatically inserted whenever a record is inserting. Initial insert 0 for total and per attributes. Maximum marks should be 20 for each subject

Field | Type | Null | Key |

+------+-----+---------+----------------+

| tid | int(4) | NO | PRI |

| name | varchar(30) | YES |

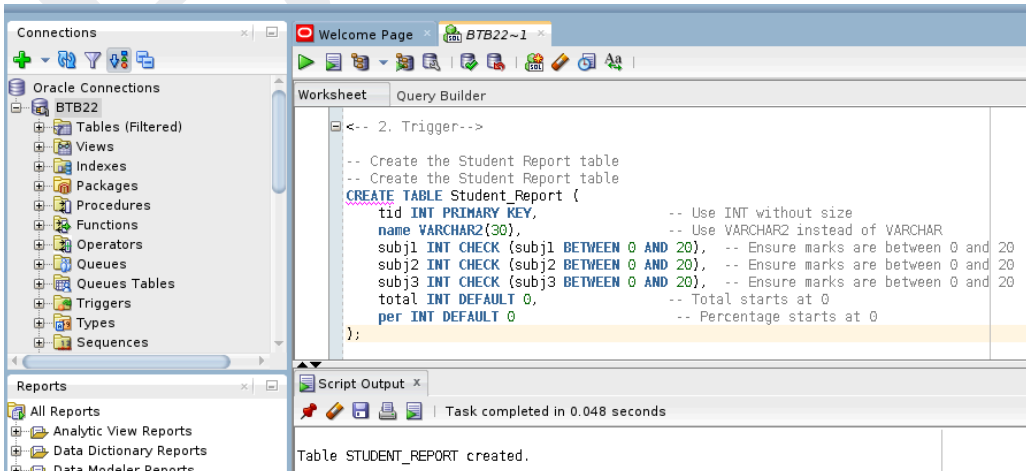
| subj1 | int(2) | YES |

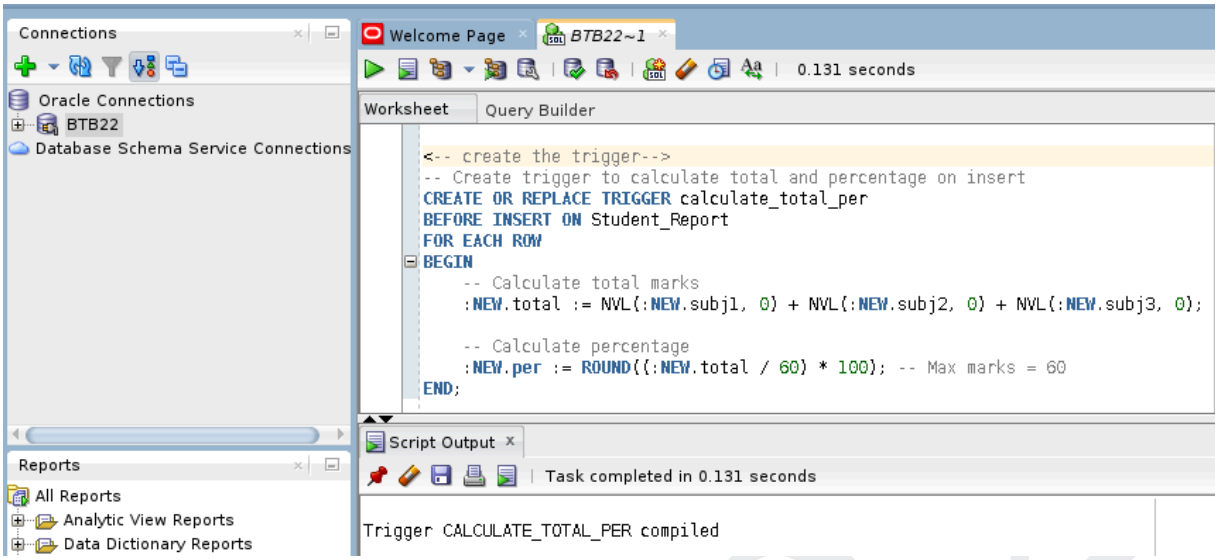
| subj2 | int(2) | YES |

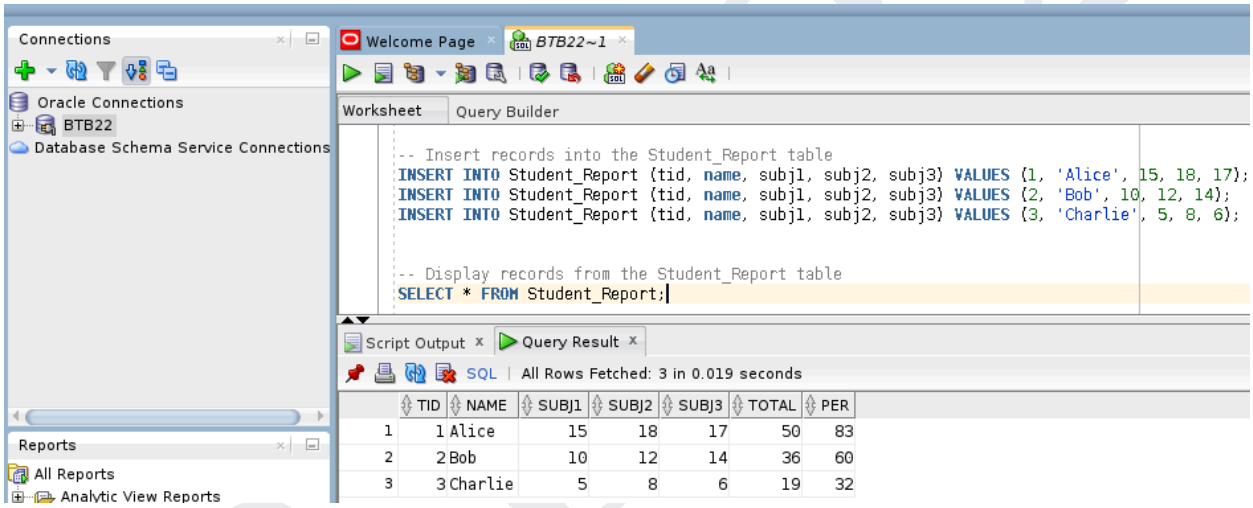
| subj3 | int(2) | YES |

| total | int(3) | YES |

| per | int(3) | YES |







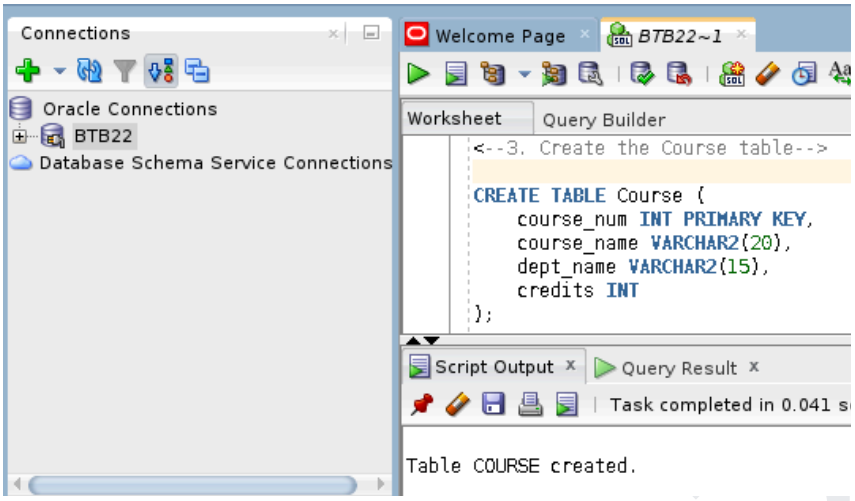
3. Procedure and Cursor:

Consider Course Table with course_num as primary key.

Field Type	Data Type
course_num	Integer
course_name	varchar2(20)
dept_name	varchar2(15)
credits	Integer

i) Write a procedure which includes cursors: Find course_name and credits where course name starts with ‘C’

ii) Write a procedure which includes cursors: Find course names from ‘CSE’ department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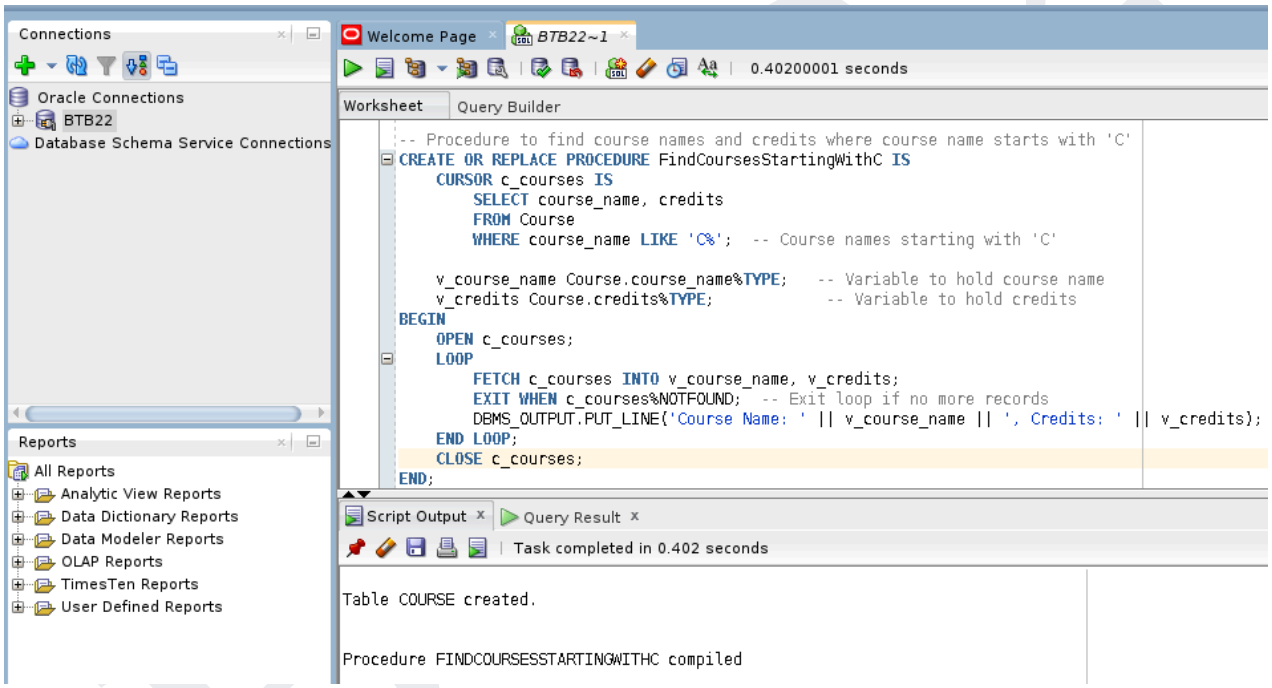
Worksheet
Query Builder
<--3. Create the Course table-->
CREATE TABLE Course (
course_num INT PRIMARY KEY,
course_name VARCHAR2(20),
dept_name VARCHAR2(15),
credits INT
);
Script Output
Query Result
Task completed in 0.041 s
Table COURSE created.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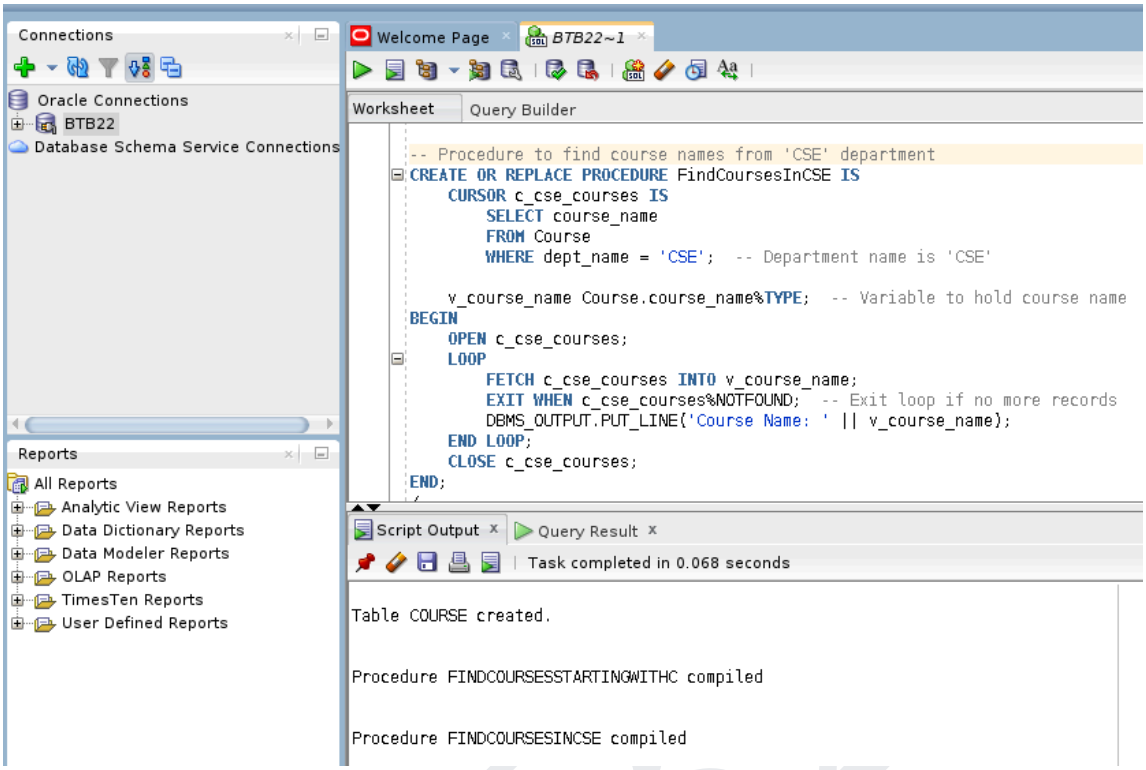
0.40200001 seconds
Worksheet
Query Builder
-- Procedure to find course names and credits where course name starts with 'C'
CREATE OR REPLACE PROCEDURE FindCoursesStartingWithC IS
CURSOR c_courses IS
SELECT course_name, credits
FROM Course
WHERE course_name LIKE 'C%'; -- Course names starting with 'C'
v_course_name Course.course_name%TYPE; -- Variable to hold course name
v_credits Course.credits%TYPE; -- Variable to hold credits
BEGIN
OPEN c_courses;
LOOP
FETCH c_courses INTO v_course_name, v_credits;
EXIT WHEN c_courses%NOTFOUND; -- Exit loop if no more records
DBMS_OUTPUT.PUT_LINE('Course Name: ' || v_course_name || ', Credits: ' || v_credits);
END LOOP;
CLOSE c_courses;
END;
Script Output
Query Result
Task completed in 0.402 seconds
Table COURSE created.
Procedure FINDCOURSESSTARTINGWITHC compiled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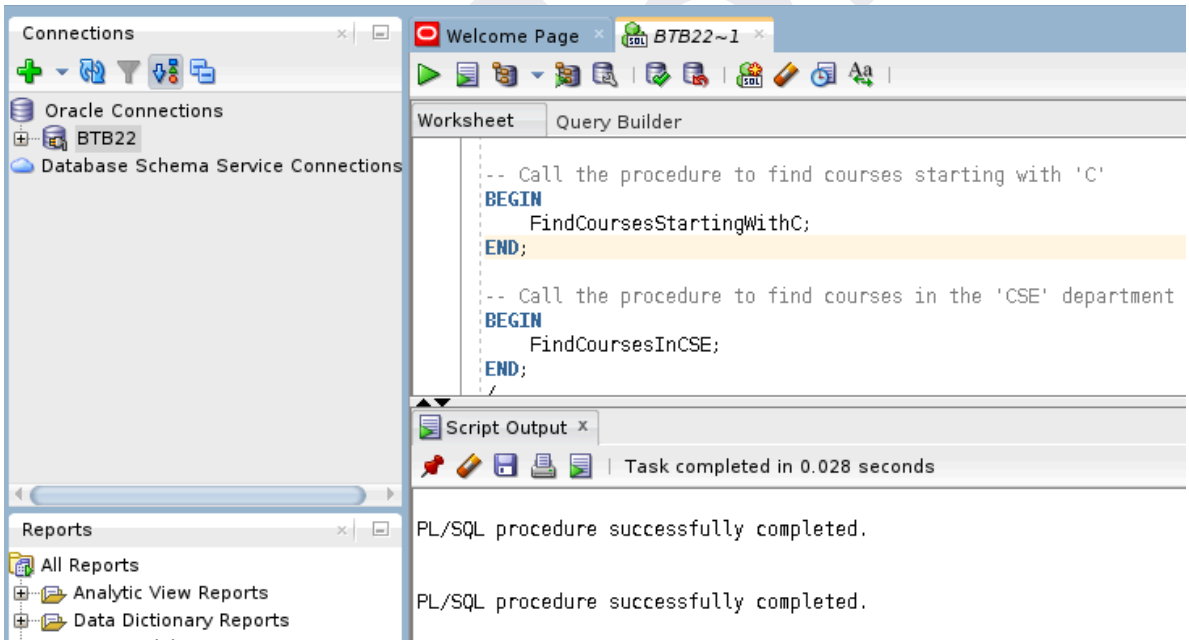
Worksheet
Query Builder
-- Procedure to find course names from 'CSE' department
CREATE OR REPLACE PROCEDURE FindCoursesInCSE IS
CURSOR c_cse_courses IS
SELECT course_name
FROM Course
WHERE dept_name = 'CSE'; -- Department name is 'CSE'
v_course_name Course.course_name%TYPE; -- Variable to hold course name
BEGIN
OPEN c_cse_courses;
LOOP
FETCH c_cse_courses INTO v_course_name;
EXIT WHEN c_cse_courses%NOTFOUND; -- Exit loop if no more records
DBMS_OUTPUT.PUT_LINE('Course Name: ' || v_course_name);
END LOOP;
CLOSE c_cse_courses;
END;
Script Output
Query Result
Task completed in 0.068 seconds
Table COURSE created.
Procedure FINDCOURSESSTARTINGWITHC compiled
Procedure FINDCOURSESINCSE compiled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Worksheet
Query Builder
-- Call the procedure to find courses starting with 'C'
BEGIN
FindCoursesStartingWithC;
END;
-- Call the procedure to find courses in the 'CSE' department
BEGIN
FindCoursesInCSE;
END;
Script Output
Task completed in 0.028 seconds
PL/SQL procedure successfully completed.
PL/SQL procedure successfully completed.