EZ-Car Rental Company
Database Analysis and Design Document
Phase 4: Maintenance & Operations Phase (upgrades)

The focus of this document is to define Operations & Maintenance of the Database Application, EZ-Car Rental Company Development Lifecycle. The authentication and authorization of the database is discussed in this document. The following sections describes managing users and database resources. To manage users and resources two new users have been created and assign roles and grant privileges to designated database object such as select, delete and create table.

Requirement #2 –Create a new SCRIPT FILE to store any commands executed

A script file has been created and subsequent sql command to create users, assign roles and gran privilege is saved to that file. The file is included in the final deliverables.

Requirement #3 – Create 2 New Users in the Database

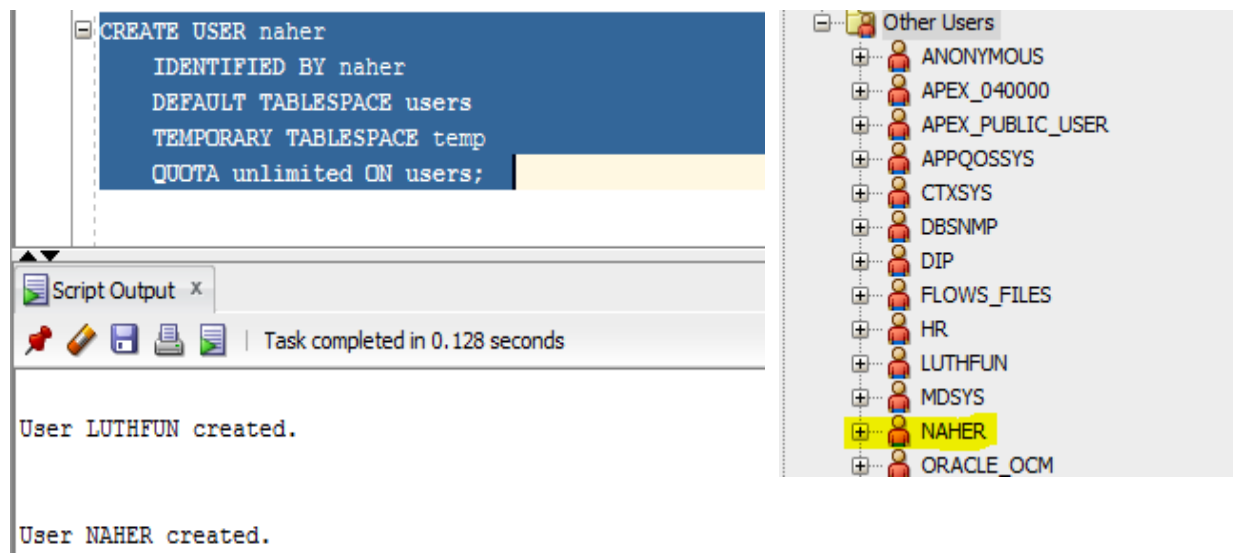**Requirement #3a – Create 2 new user accounts:**

The sql command to create the user is provided in the script file.

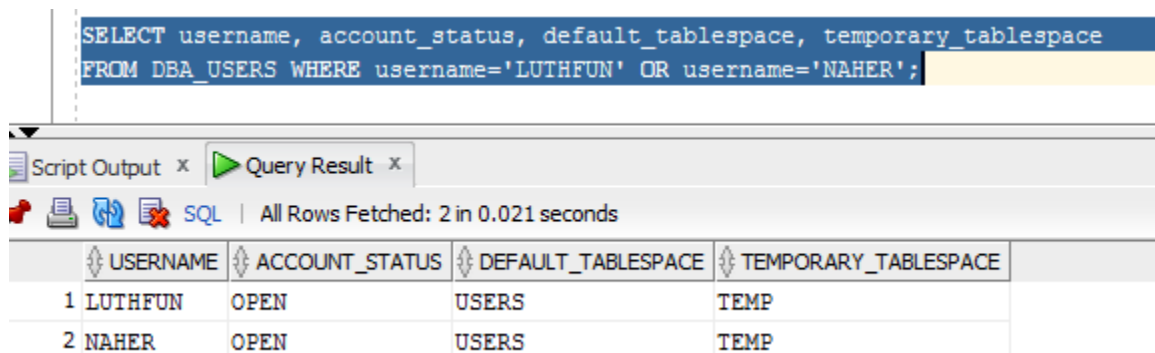**Requirement #3b – Proof of user created:**

User 1: The user "luthfun" with password "luthfun" is successfully created. The users table space and temp tablespace is included in the create statement. Unlimited QUOTA is also provided to the user. The following image proofs the created user.
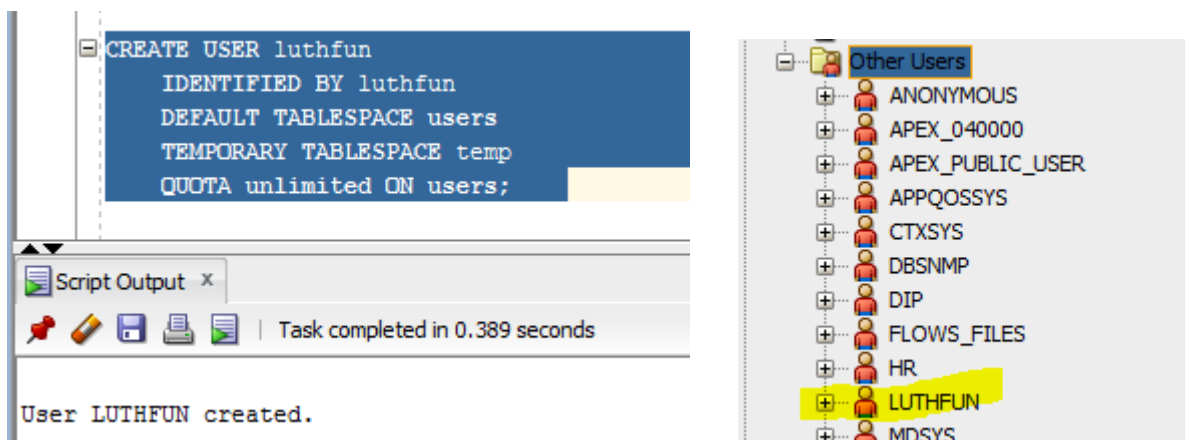
User 2: The user "naher" password "naher" is successfully created. The users table space and temp tablespace is included in the create statement. Unlimited QUOTA is also provided to the user. The following image proofs the created user.

The following query output also verifies the created users exist on the DBA_USRS table.

	USERNAME	ACCOUNT_STATUS	DEFAULT_TABLESPACE	TEMPORARY_TABLESPACE
1	LUTHFUN	OPEN	USERS	TEMP
2	NAHER	OPEN	USERS	TEMP

Requirement #4 – Attempt to Connect to the Database with a New User & Correct any Connectivity Issues:

Requirement #4a – Connect with a new user:

Attempted to connect database using a new created user – "Luthfun". But the connection fails and it says it fails due to lack of session privilege. The connection command is provided in the script file.
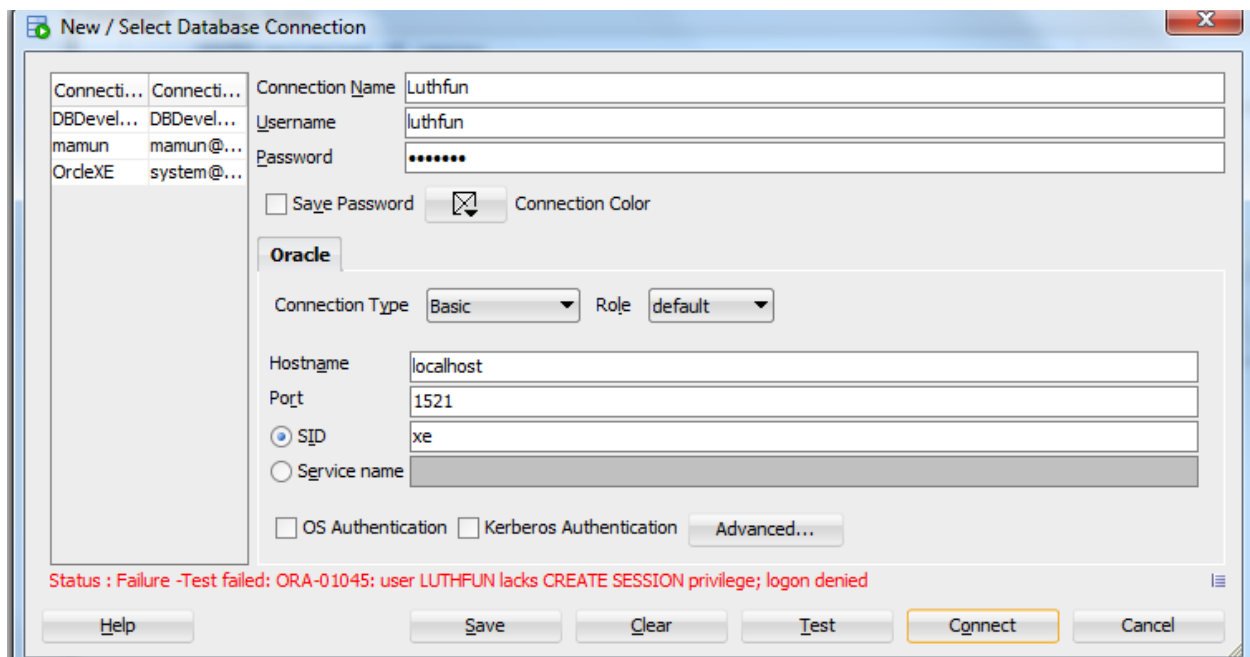
Requirement #4b – Proof of connection fail:

```
--Connect to database using new user
CONNECT LUTHFUN/luthfun;
```

Script Output ×   Query Result ×

📌 🧽 💾 🖨 📋 | Task completed in 1.178 seconds

```
Error starting at line : 22 in command -
  connect ...
Error report -
Connection Failed
  USER        = LUTHFUN
  URL         = jdbc:oracle:thin:@localhost:1521:xe
  Error Message = ORA-01045: user LUTHFUN lacks CREATE SESSION privilege; logon denied
Commit
```

New / Select Database Connection

Connecti...	Connecti...
DBDevel...	DBDevel...
mamun	mamun@...
OrcleXE	system@...

Connection Name: Luthfun
Username: luthfun
Password: •••••••

☐ Save Password   ⬚   Connection Color

Oracle

Connection Type: Basic ▼   Role: default ▼

Hostname: localhost
Port: 1521
◉ SID: xe
○ Service name:

☐ OS Authentication ☐ Kerberos Authentication   Advanced...

Status : Failure -Test failed: ORA-01045: user LUTHFUN lacks CREATE SESSION privilege; logon denied

Help   Save   Clear   Test   Connect   Cancel

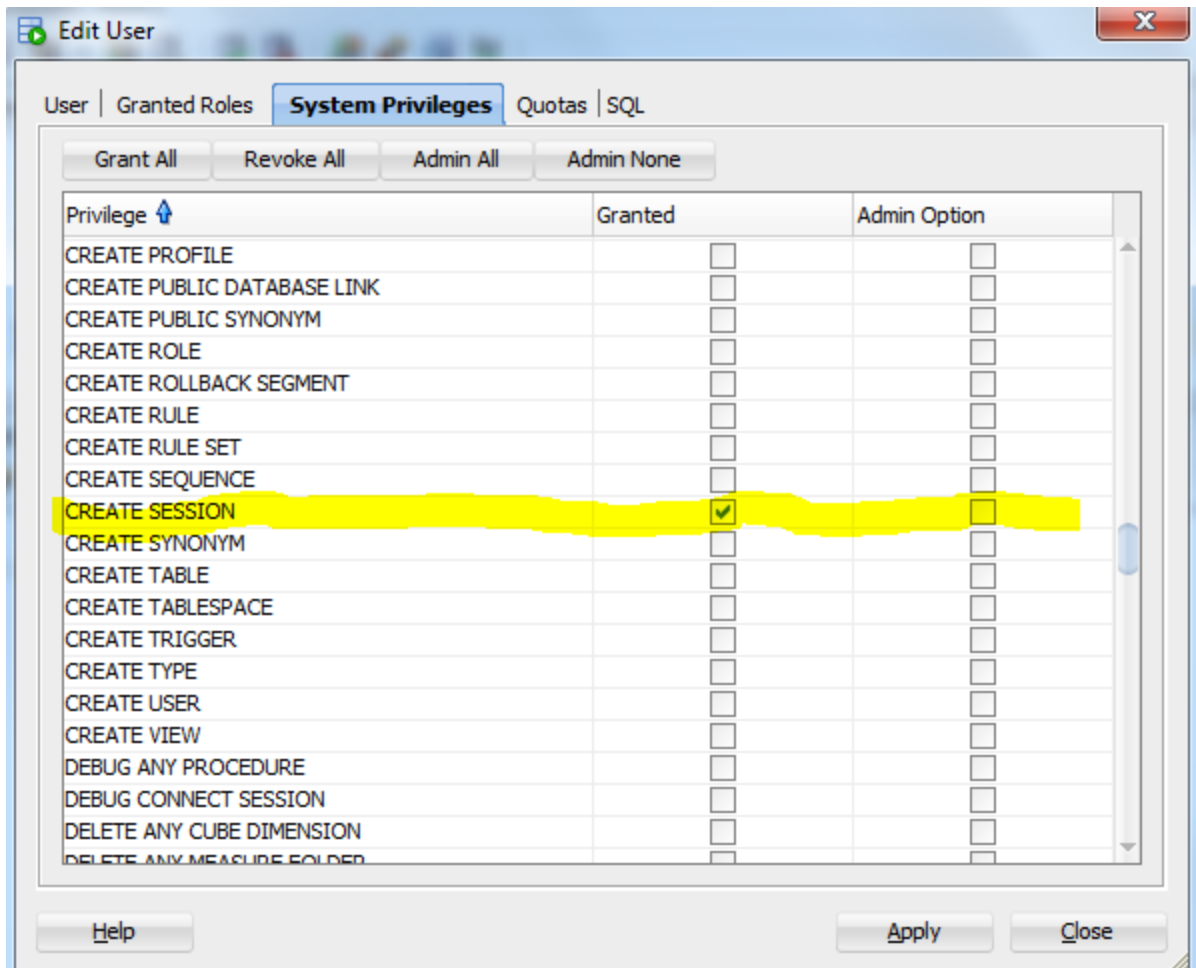**Requirement #4c – Fix the connection fail:**

Since every attempt failed because of lack of the create session privilege to users, we need to grant to users the create session privilege.

```
-- Grant CREATE SESSION privilege to luthfun
GRANT CREATE SESSION TO luthfun;
```
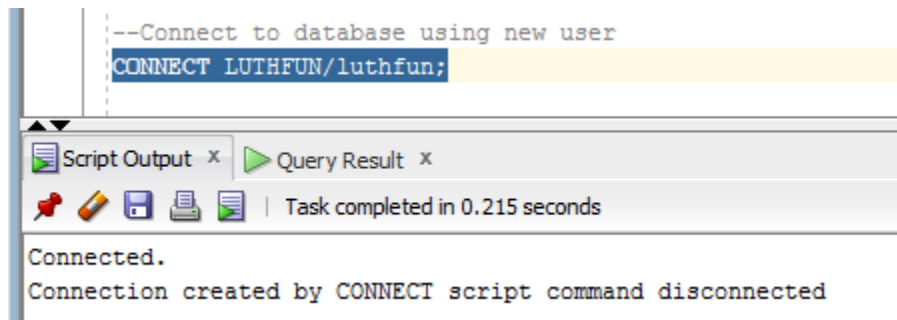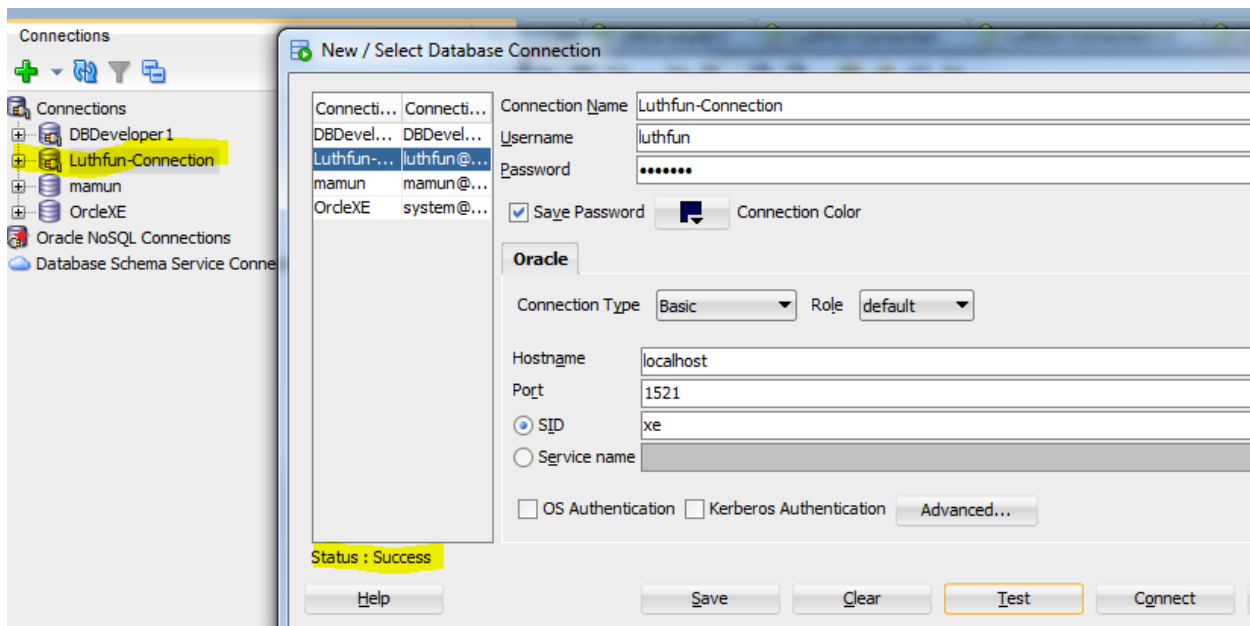
Script Output ×   Query Result ×

📌 🧽 💾 🖨 📋 | Task completed in 2.26 seconds

```
Grant succeeded.
```

Requirement #4d – Proof of fixed connection & user can connect successfully:
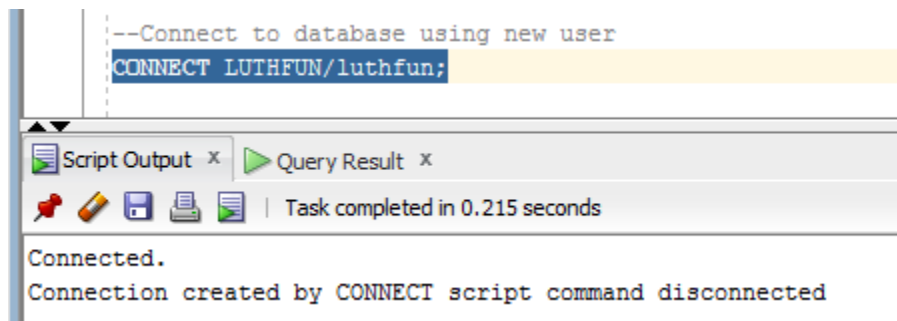
## Requirement #5 – Attempt to Execute a SELECT Statement as a new user

Requirement #5a – Connect using new user:

Connected to the database using the new user – "luthfun"

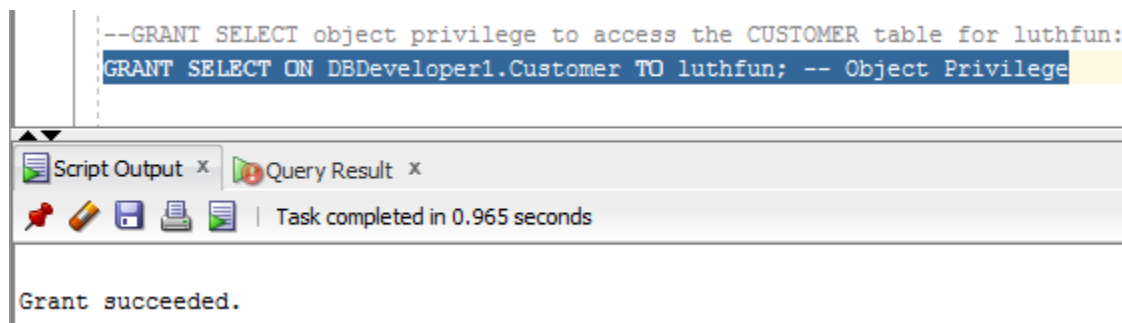**Requirement #5b – Execute a SELECT statement on a table of choice & show result**:

A select statement on CUSTOMER table of DBDeveloper1 schema was executed but an error was occurred. It says that table or view does not exist. The bellow image displays the execution error.
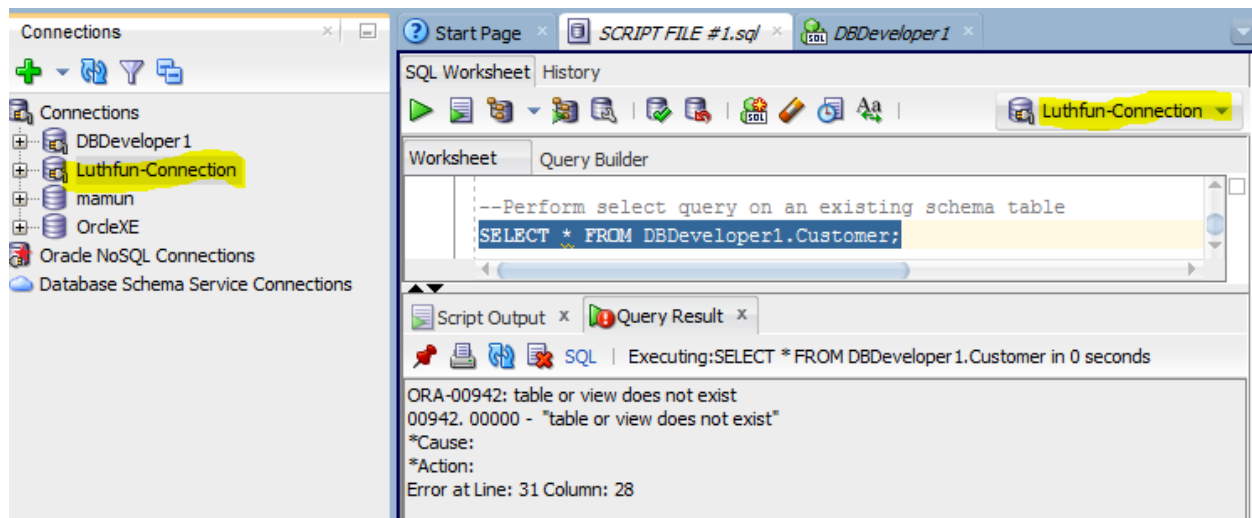
Requirement #5c – Fix the problem of execution fail:

The user "luthfun" does not have the additional privileges to be able to perform SELECT operations on that table. So, we need to grant SELECT and SELECT Any table privilege to "Luthfun." Therefore, we need to Connect the database as DBDeveloper1 Admin account to be able to GRANT privileges.

GRANT SELECT object privilege to access the CUSTOMER table for luthfun:

GRANT SELECT ANY TABLE system privilege to luthfun:
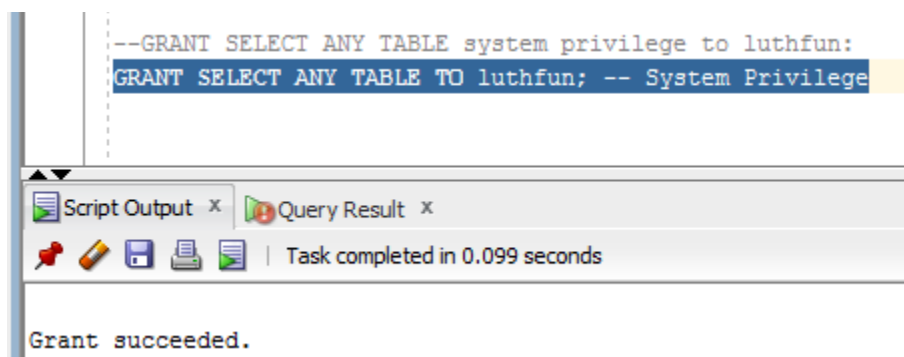
Requirement #5d – Proof that the problem was fixed and we can execute SELECT statement:
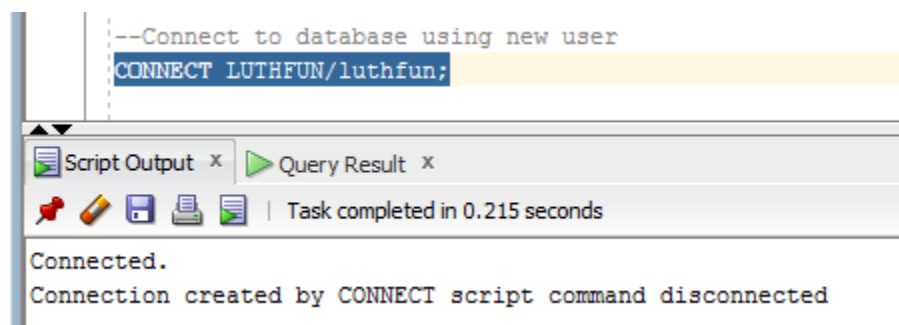
The SELECT statement was executed successfully from the user "Luthfun" connection. The bellow image shows that the SELECT statement was successfully executed and data are returned from the query.
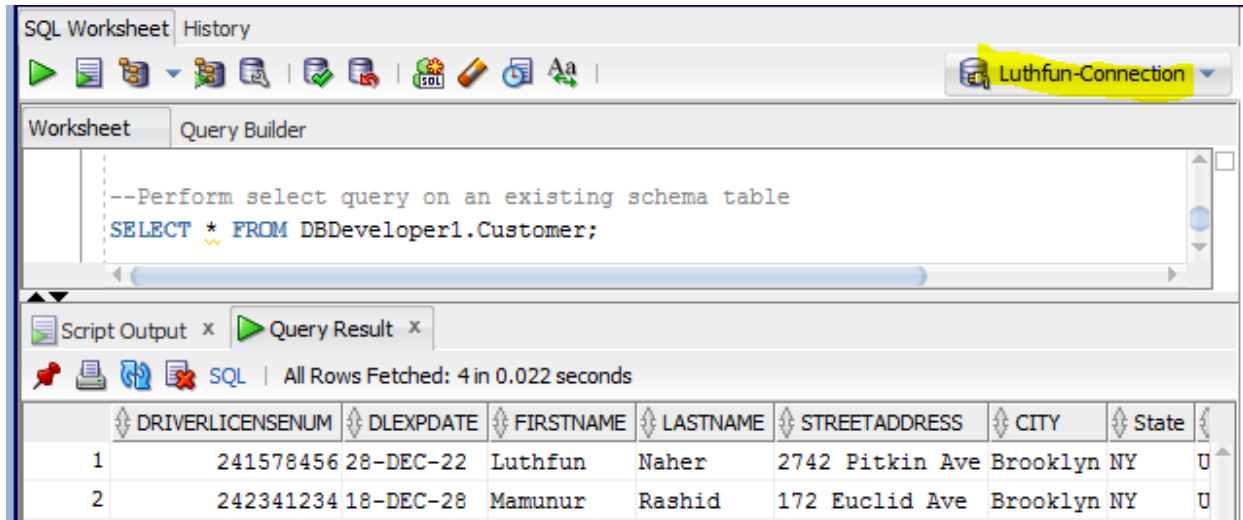
Requirement #6 – Attempt to Execute a DELETE Statement as a new user

Requirement #6a – Connect using new user:
Connected to the database using the new user – "luthfun"

Requirement #6b – Execute a DELETE statement on a table of choice & show result:

A delete statement on CUSTOMER table of DBDeveloper1 schema was executed but an error was occurred. It says the user has insufficient privilege. The bellow image displays the execution error.

```
--Perform delete operation on an existing schema table
DELETE FROM DBDeveloper1.Customer WHERE DRIVERLICENSENUM = '241578456'
```

Query Result × Script Output ×

Task completed in 0.846 seconds

```
Error starting at line : 40 in command -
DELETE FROM DBDeveloper1.Customer WHERE DRIVERLICENSENUM = '241578456'
Error at Command Line : 40 Column : 26
Error report -
SQL Error: ORA-01031: insufficient privileges
01031. 00000 -  "insufficient privileges"
*Cause:    An attempt was made to perform a database operation without
           the necessary privileges.
*Action:   Ask your database administrator or designated security
           administrator to grant you the necessary privileges
```

Requirement #6c – Fix the problem of execution fail:

The user "luthfun" does not have the additional privileges to be able to perform DELETE operations on that table. So, we need to grant DELETE and DELETE Any table privilege to "luthfun." So, we need to connect the database as DBDeveloper1 Admin account to be able to GRANT privileges.

GRANT DELETE object privilege to delete the CUSTOMER table for luthfun:

```
-- Grant OBJECT privilege to single user
GRANT DELETE ON DBDeveloper1.Customer TO luthfun; -- Object Privilege
```

Script Output × Query Result ×

Task completed in 0.913 seconds

```
Grant succeeded.
```

GRANT DELETE ANY TABLE system privilege to luthfun:

```
-- Grant SYSTEM privilege to single user
GRANT DELETE ANY TABLE TO luthfun; -- System Privilege
```
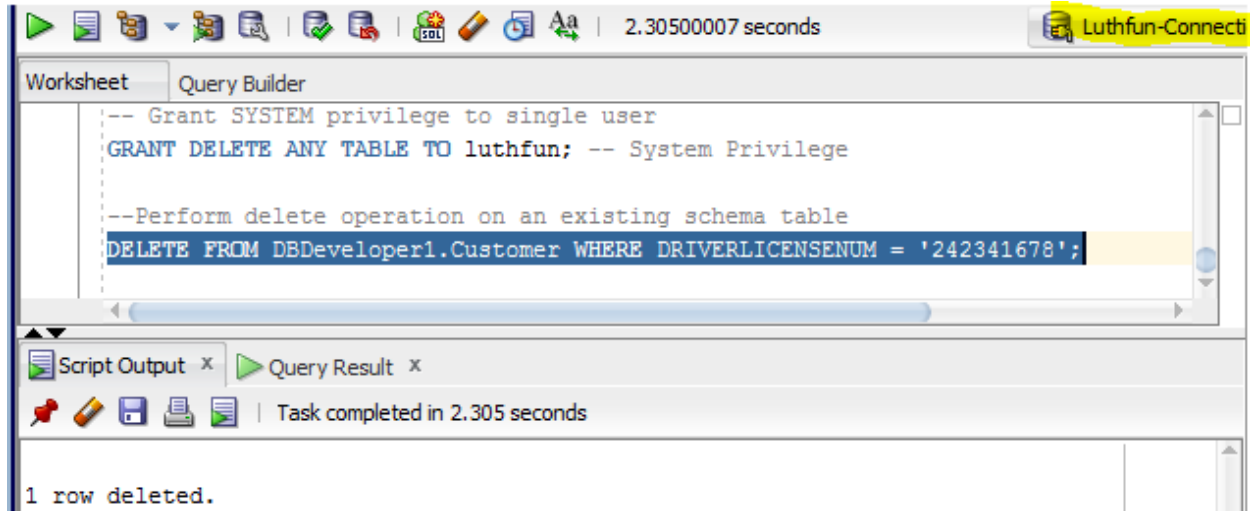
Script Output × Query Result ×

Task completed in 0.193 seconds

```
Grant succeeded.
```

Requirement #6d – Proof that the problem was fixed, and we can execute DELETE statement:
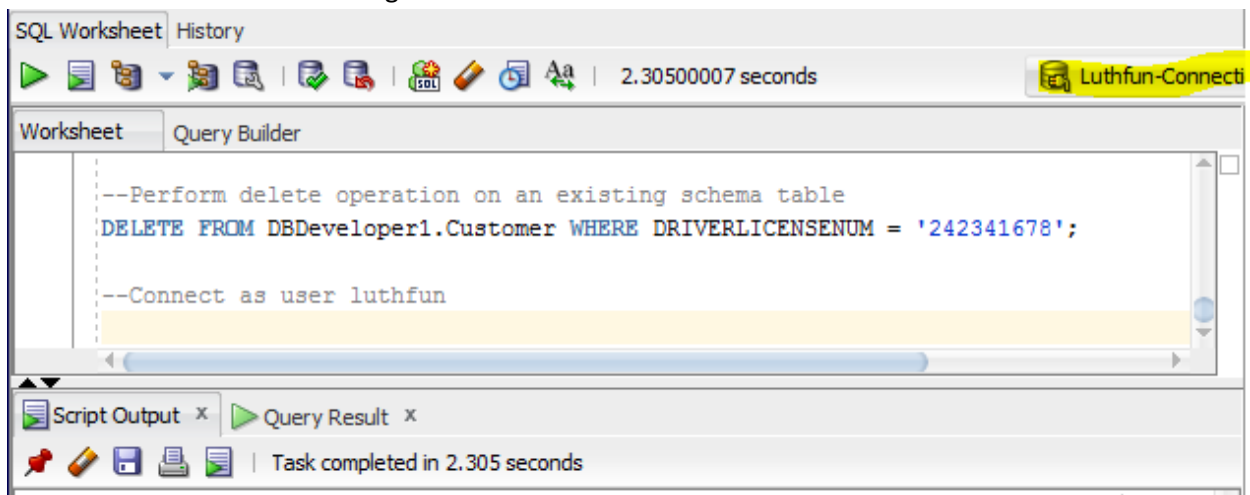
The DELETE statement was executed successfully from the user "Luthfun" connection. The bellow image shows that the DELETE statement was successfully executed.

Requirement #7 – Attempt to Execute a CREATE TABLE Statement as a new user

Requirement #7a – Connect using new user:
Connected to the database using the new user – "luthfun"

Requirement #7b – Execute a CREATE TABLE statement & show result:

A create table statement on current schema was executed but an error was occurred. It says the user has insufficient privilege. The bellow image displays the execution error.

Requirement #7c – Fix the problem of execution fail:

The user "luthfun" does not have the additional privileges to be able to perform CREATE TABLE operations on the schema. So, we need to grant CREATE and CREATE Any table privilege to the "luthfun." So, we need to connect the database as DBDeveloper1 Admin account to be able to GRANT privileges.
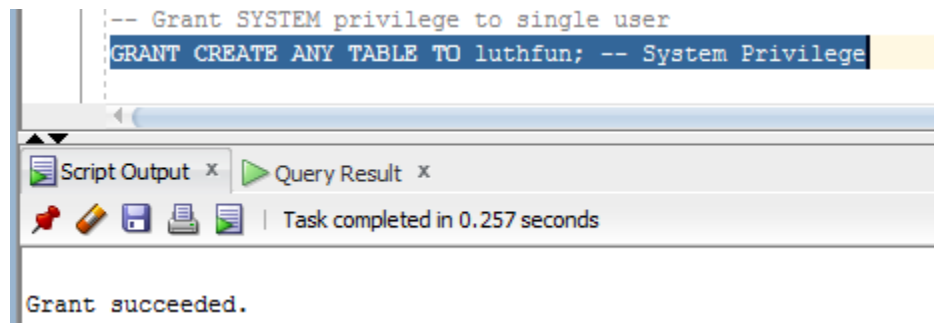
GRANT CREATE table privilege to luthfun:

GRANT CREATE ANY TABLE system privilege to luthfun:


```
-- Grant SYSTEM privilege to single user
GRANT CREATE ANY TABLE TO luthfun; -- System Privilege
```

Script Output × | Query Result ×

Task completed in 0.257 seconds

```
Grant succeeded.
```

Requirement #7d – Proof that the problem was fixed and we can CREATE table:

The CREATE statement was executed successfully from the user "luthfun" connection. The bellow image shows that the table has been created successfully.


```
GRANT CREATE ANY TABLE TO luthfun; -- System Privilege

-- Create table statement
CREATE TABLE Department (
    Dept_ID NUMBER(4) PRIMARY KEY,
    Dept_Name VARCHAR2(20) NOT NULL
);
```

Script Output × | Query Result ×

Task completed in 0.789 seconds

```
Table DEPARTMENT created.
```
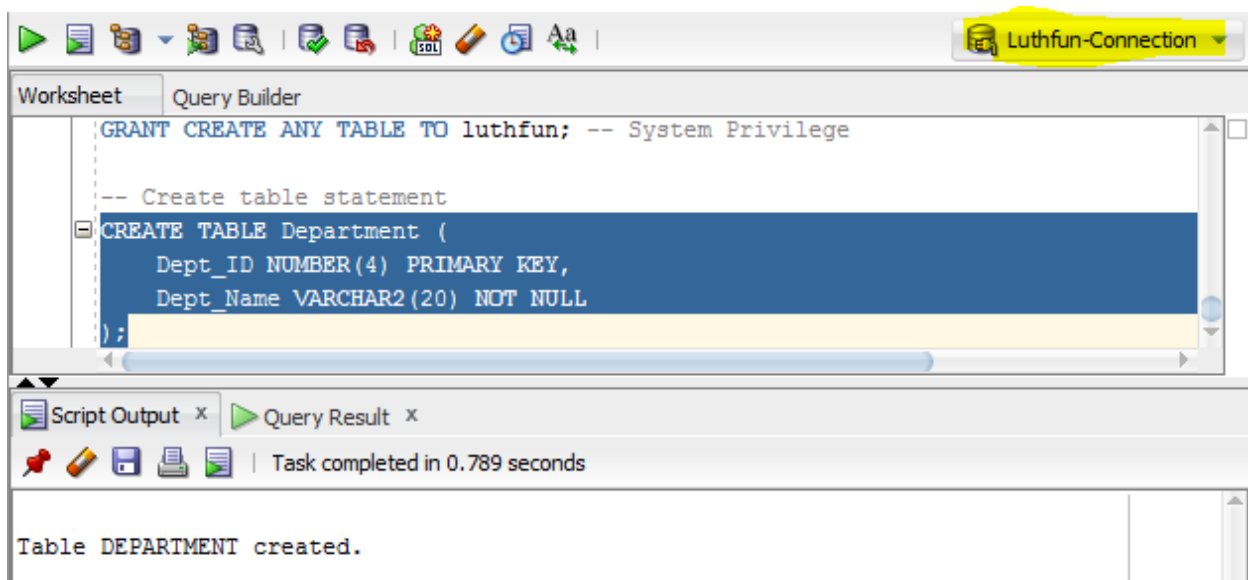
The table comes up in the list