Tutorial
on
“Operations on Database using JDeveloper”

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About Tutorial:

The main intention of this tutorial is to introduce JDeveloper to the beginners. It gives basic details and features of JDeveloper like connecting to database and creating applications. In a word- it shows you how to use JDeveloper to perform offline database development.

The tasks you learn by the end of this tutorial:

- Creating a Database Connection through JDeveloper
- Creating the Model Project
- Modeling Offline Database Objects
- Creating PL/SQL Objects in the Database

Let us look at the above mentioned steps in brief with clear pictures.

Creating a Database Connection:

In order to access the database of our university, one has to initially establish a connection to the SQL server. The following steps teach establishing such a connection through JDeveloper.

1) Open JDeveloper and click on the “Connections” Tab. A Connection Navigator appears else you can open one by Clicking View>Connection Navigator.

![Connection Navigator Image]
2) The Connection navigator appears and to make a new connection to the database, right click on the “Database” and choose “New Database Connection”.

3) A page appears with the title “Create Database Connection”. Click “Next”. In this page you can name the connection which you will be establishing. In the picture shown we are establishing a connection with the name “Tutorial_connection”. Click “Next”.

In that page enter your username (which is usually your e-id) and password. Leave the field “Role” blank. Make sure you check the “Deploy password” option. Click “Next”.

4) There appears the “Step 3 of 4: Connection”. Fill in the following details in the page.
   Driver: Thin
   Host Name: oracle.cis.ksu.edu
   JDBC Port: 1521
   SID: ORACLE
Leave the other fields blank and click “Next”.

5) This is the last step to establish the connection. In this you click “Test Connection” in order to make sure that the connection is successfully established or not. Once the Status is shown as “Success!”, click “Finish”.

Now you are connected to the database through your JDeveloper. Under “Tutorial_connection>username>Tables” all the tables present in the database of that user are displayed.
Creating the Model Project:

In order to organize the work in projects we create an application to put all our work in it. One can build many types of applications depending upon technology and its usage because JDeveloper provides a wide of variety of templates from which one can select according to their requirement.

The following steps help in creating an application and the project that use a web template.

1) Click on the “Application Navigator”. On the Application, right click and choose the option “New Application”.

2) A dialogue box appears to create a new application. Fill in the “Application Name”, click “Browse” to select a particular folder to put your data in. In case of an application that needs special template click on the drop down box labeled “Application Template” and check the template corresponding to the application to be built. Here we choose “Web Application [JSP, Struts, ADF BC]” and click “OK”.

![Application Navigator](image1)

![Create Application](image2)
3) An application with the given name is created. You can view it in the “Application Navigator”. Click File>SaveAll to save all your data.

**Modeling Database Objects Offline:**

Under this phase we access the tables in the database and make certain changes which will be reflected back in the database.

**Creating the Database Diagram:**

1) In the Application Navigator, right click on the “Model” and choose “New”. A dialogue box opens, Under “Filter By” choose “All Technologies” and in that go to Database Tier>Offline Database Objects and then “Database Diagram” in it. Click “OK”. Enter a name for your diagram and click “OK”.

![Database Diagram in Oracle JDeveloper](image-url)
2) The diagram workspace opens in the work area part of the JDeveloper.

Importing Tables from a Database Connection:

1) Go to Connection Bar and travel to the “Tables” under the connection that was previously created. Now click, drag and drop the tables which you want onto the workspace. In case of multiple tables to be dragged, use “Ctrl” and select all the tables and drag on the space. Here in the example being shown we take “Employees” and “Departments” table.
2) Make sure that you create “Offline database Objects” and click “OK”. The workspace is seen with the tables connected since they have an established connection between them. Click on the Zoom In button to have a larger view of the diagram.

![Create From Database Object dialog](image)

Editing Objects on the Diagram:

The tables can be edited i.e. the name of the tables can be changed, new columns can be created else the old columns can be edited. Many changes can be made to the tables without using any SQL commands. This is the beauty of this feature of JDeveloper.

1) To make changes to the table, here we took “Employees” table in the example. Give a right click on the table and select the “Properties”.

![Employee table properties](image)
2) A new dialogue box with the name “Edit Offline Table” opens. Select the “Column Information” and here we edit the attribute “FIRSTNAME”. In that we change its size to 50. Click “OK” once the changes are made.

3) These changes are reflected in the table seen in the diagram space.
Running a SQL Script to Create an Object Type

The stored PL/SQL database can be created, edited, tested and debugged using JDeveloper. To do this one has to create a PL/SQL object directly in the database. The following steps help us to create an Object type by running a SQL Script.

1) To write a SQL script we need a SQL file. Click on the “Model” and select “New”. Expand the “Database Tier” and select the “Database Files”. Select the SQL file and click “Ok”.

2) A dialogue box opens with the name “Create SQL File”. Give a name to the SQL file (here we took it as emp_rec.sql) and click “OK” to create a SQL file. In this example it is named as emp_rec.sql.

3) In the so opened file copy the following code.

```
REM
REM Create object TUTORIAL_EMP
REM
CREATE or REPLACE type TUTORIAL_EMP as object
(
  employeno number(6),
  deptno number(5),
  lastname varchar2(30),
  phone varchar2(10)
);
/
show errors;
```
Once the file is made, our aim is to create an object. To do this, right click on the file choose “Run in SQL* PLUS” and go to “Tutorial_connection”.

```
REM
REM Create object TUTORIAL_EMP
REM
CREATE or REPLACE type TUTORIAL_EMP as object
|
  enamee number(6),
  deptno number(5),
  lastnme varchar2(30),
  phone varchar2(10)
);
/
SHOW ERRORS;
```

There a dialogue box appears asking you to browse for a file. You have to browse for the “sqlplusw.exe” file (it is usually present in Oracle\ora91\bin). Once the script is run, the message: “Type Created. No Errors” appears. You can close the window.

4) We have successfully created a PL/SQL object directly in the Database. You can view this at: Connection Navigator>Tutorial_connection>sowji>Types” as shown below.
Thus the task is accomplished. You can use this object in a PL/SQL package and further to run the PL/SQL Functions. The tutorial does not deal with this part since the main aim of the tutorial is to introduce the basics of JDeveloper.

**Summary:**

Thus from the above tutorial, one can learn to establish connection to the database, create applications and projects, access the tables, edit them and create a PL/SQL object.