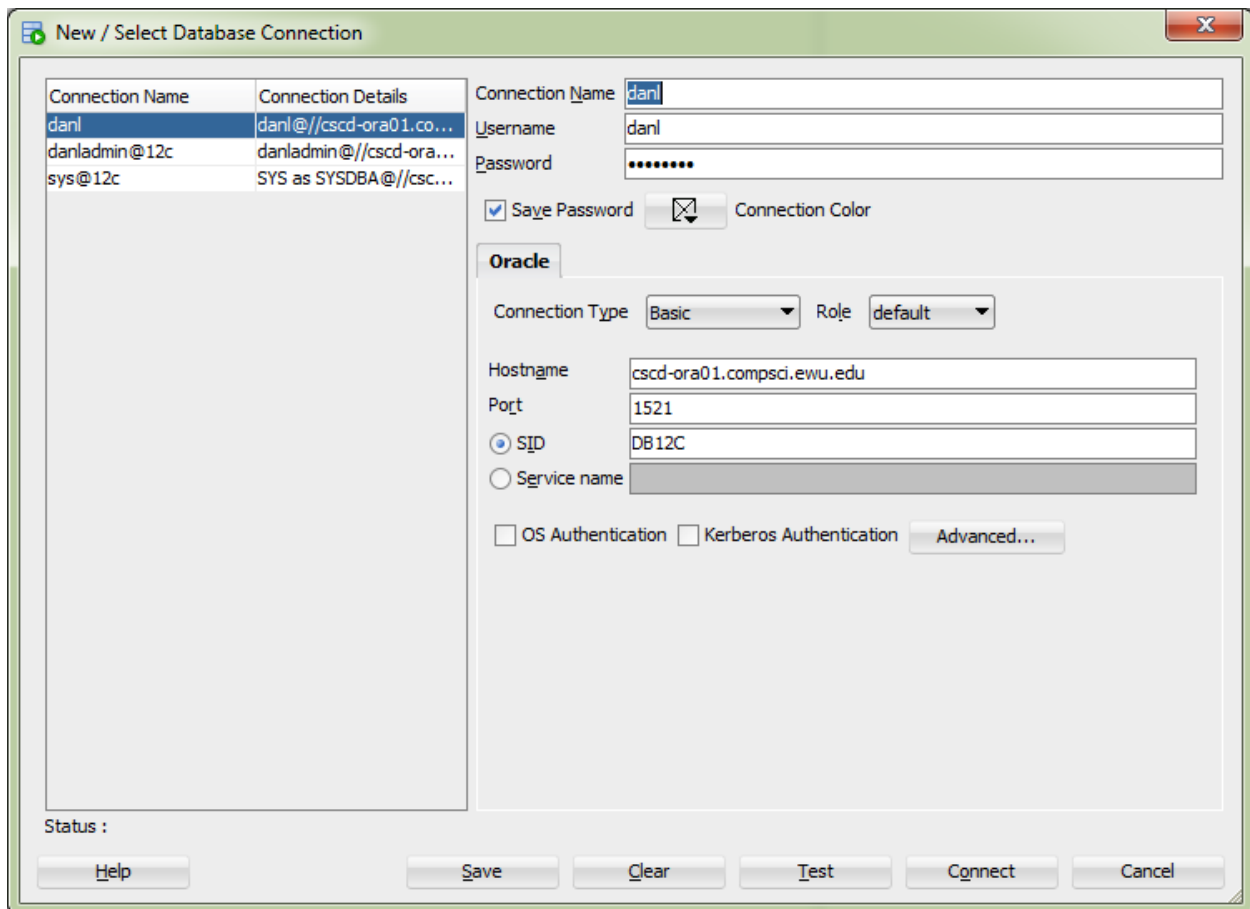


CSCD 427 Query Optimization Lab Assignment (24 points)

Due: 11:59pm on May 17, 2017

Preparation:

1. Open Oracle SQL Developer, and add a new connection.
 - a. Your user name is **s17YourLastName** (*all in lower case*); your password is initially set to be the same as your username.
 - b. Hostname: cscd-ora01.compsci.ewu.edu
 - c. Port: 1521
 - d. SID: DB12C



2. Copy the entire script "DDL.sql", paste it into Worksheet, and then click "Run Script" to create database tables.
3. Similar to Step 3, run script "smallRelationsInsertFile.sql" to add new tuples into existing tables.

Assignment:

For each query given below, do the following:

1. Solve each query using SQL, execute the SQL statement, and include the corresponding query result in your report.
2. Develop an initial **logical** plan for each query, and use Relation Algebra (RA) trees to represent your plan.
3. Click “Explain Plan...” button to find the detailed **physical** execution plan developed by Oracle. If the plan given by SQL Developer is the same as your initial plan, then update your initial RA tree to annotate the **physical** operators. If the plan given by SQL Developer is different from your initial plan, use a new RA tree to represent this plan.

To help you understand Oracle execution plan:

- How do I display and read the execution plans for a SQL statement:
https://blogs.oracle.com/optimizer/entry/displaying_and_reading_the_execution_plans_for_a_sql_statement
 - An Oracle White Paper on “The Oracle Optimizer Explain the Explain Plan”.
<http://www.oracle.com/technetwork/database/bi-datawarehousing/twp-explain-the-explain-plan-052011-393674.pdf>
4. Click “SQL Tuning Advisor” button to find the tuning advices recommended by SQL Developer. Explain why the recommendations could improve the performance.
 5. Have fun!!

Queries:

1. Find the IDs and titles of all the courses taught in the Fall 2009 semester but not in the Spring 2010 semester.
2. Find the IDs and names of all students who have not taken any courses before Spring 2010.
3. Find the total number of distinct students who have taken course sections taught by the instructor of ID 10101.
4. Find the names of all instructors whose salary is greater than at least one instructor in the Biology department.
5. List the names of courses and the names of the corresponding prereq courses. (Don’t include the courses without any prereqs.)
6. Find the pairs of instructors who work in the same department and the first instructor has a salary greater than the second instructor. Please display the IDs of the two instructors, their department info, and their corresponding salaries.