

CSCI 585 - Database Systems

Spring 2011

Homework Assignment 1: Part 2 & 3

Due date: 4:00 pm Wednesday 02/23/2011

Part 2: Map the ER diagram into Oracle OR-DBMS model-25 points

Convert the sample EER conceptual schema (HW1_schema.jpg) posted on Den (Assignments) into tables and then implement these tables in the Oracle database (Note: some updates are done in the provided diagram to ease the table creation)

Note: Use the data provided in excel file (HW1_data.xls) for testing purpose.

IMPORTANT Notes:

To install Oracle on your Windows Machine:

1-Install Oracle Database from the given link (this version or later version)

Oracle Database 10g Release 2 Enterprise/Standard Edition for Microsoft Windows

<http://www.oracle.com/technetwork/database/enterprise-edition/downloads/index.html>

2-Download the installation file from the given address.

3- A Brief installation guideline

<http://faq.programmerworld.net/database/installing-oracle-10g.html>

3-B Long guideline for installation can be found at

<http://www.mcs.csueastbay.edu/support/oracle/doc/10.2/install.102/b14316/toc.htm>

The following procedure must be followed to access the Oracle database server:

//\$ is the system prompt

\$ sqlplus //Use sqlplus to issue sql statements

Reduction Guidelines for Oracle OR-DBMS

- Must use **user-defined subtypes** for specializations
- Must use **user-defined object types** for composite attributes.
- Use reference for **foreign key**.
- **Do not use triggers.**

Reference: Refer to Oracle manual for information on how to create tables, indexes, insert data, etc. (a link is provided in the class web page <http://www-scf.usc.edu/~csci585/>).

Part 3: Queries on the database (75 points)

Write the following queries in Oracle SQL and run them on your database developed as mentioned in Part 2 of this assignment.

Q1: List all the model numbers with propeller propulsion (5pt).

Q2: List all technicians' names who are expert in model number 777 (5pt).

Q3: List all the registration numbers for the planes with the maximum capacity (5pt).

Q4: List all employees' name and address (Street, City, State, Zip) whose age is older than 50 (5pts).

Q5: List the model number that no technician is expert at (5pts).

Q6: Find all models which have at least two expert technicians. List the model number and the name of the oldest expert technician for that model. (10pts).

Q7: List the FAA number and title of the test with the most number of planes reaching the maximum score (10pts).

Q8: List the number of planes which participate in all the tests at least once after 01/01/2011 (10pts).

Q9: List all names of technicians who have tested at least two different models of planes after 01/01/2011 (10pts).

Q10: List all names of traffic controller whose salary is higher than all technicians who live in California (10pts).

Submission Guidelines

1. Your submission of part2 and part3 should include one createdb.sql file, one dropdb.sql file, ten .sql files for queries described in part 3 (named q1.sql to q10.sql), and one readme.txt file including your **name, USC ID**.

2. **createdb.sql** file should create required types, tables, indexes if required, generate primary keys, ... , and populate all data provided in hw1_data.xls. There is 60 points penalty if "created.sql" is missing.

3. The **dropdb.sql** file should drop all types and tables that are created by createdb.sql. There is 10 points penalty if this file is missing from your submission or if it does not drop all of your database objects.

4. **q1.sql ~ q10.sql** query files should contain SQL statements for queries Q1 to Q10 described in part 3 respectively. If you need to write two or more SQLs for ONE step, then they should be written after each other in ONE file. (e.g., do not create q1-1.sql and q1-2.sql if you need to have 2 SQLs for Q1, rather create only one q1.sql and have both SQLs in that file).

5. The **readme.txt** file must have your name, USC ID, the name of the database and tables that your createdb.sql file generates, and your user name on **aludra.usc.edu**. There is 25 points penalty if this file or some of the required information is missing from your submission.

6. You must make a .tar file to include all of your files in one file (<your_username>_hw1.tar) using the following command: >

```
tar cvf <your_username>_hw1.tar createdb.sql dropdb.sql readme.txt q1.sql q2.sql q3.sql  
q4.sql q5.sql q6.sql q7.sql q8.sql q9.sql q10.sql
```

For example, if your username is John, then your tar file should be John_hw1.tar.

7. You need to submit the 2nd and 3rd part of your assignment electronically using the following command from your account on **aludra.usc.edu**. Do NOT try to submit any other file than <your_username>_hw1.tar. >

```
submit -user csci585 -tag hw1 <your_username>_hw1.tar
```

(e.g., **submit -user csci585 -tag hw1 john_hw1.tar**) The submit command will immediately respond with a SUCCEEDED if your submission of file "<your_username>_hw1.tar" was successful. That will be your means to know that your homework has reached the right place. Your submissions will be time stamped, so we will know the exact time when you made the submission. Submit your assignment before the deadline.

8. You need to develop your databases and SQLs on your own machine with Oracle. More information about how to use Oracle is provided on the course's web page.

9. Start working on your assignment early.