

GROUP PROJECT 3

Assigned: 10/5/2016; Due 1:30 PM, 10/17/2016

(BOTH a Hard copy and Soft copy of your solutions need to be submitted; a hard copy is submitted in class AND a soft copy is submitted to the class website; Late submission will not be accepted; Read the "Group Project Grading Policy" posted on the class website).

Problem 1 (20%):

Review the SQL file you have created for Problem 2 in Group Project 2, choose one table that should be indexed, include SQL statement(s) to create an index on that table, and rerun the queries that need to access the table and index. Provide your detailed explanations as to why you chose that table and search key for indexing, whether that index is primary or secondary, and why you chose those queries to rerun.

Problem 2 (60%):

Write a **JAVA program** using JDBC, PL/SQL, SQL Developer 4.1.3 and Oracle 12c to implement the following options for the relational database that you have created for Problem 2 in Group Project 2:

1. *Insert the pid, pname, years_of_experience, and age of a new performer into table Performer. Assume that the value of years_of_experience is not known, and will be estimated using the current information in the database. The years_of_experience value should be set to the average of the years_of_experience values for all performers with an age within +/- 10 years of the new performer's age. If there are no such performers, the new performer's years_of_experience should be set to 18 less than his/her age value. After these calculations, the years_of_experience value should be adjusted so that it is at least 0 and no more than the performer's age value.*
2. *Insert the pid, pname, years_of_experience, and age of a new performer into table Performer. Assume that the value of years_of_experience is not known, and will be estimated using the current information in the database. The years_of_experience value should be set to the average of the years_of_experience values for all performers who have acted in a movie that was directed by a director with a given did (director id). If there are no such performers, the new performer's years_of_experience should be set to 18 less than his/her age value. After these calculations, the years_of_experience value should be adjusted so that it is at least 0 and no more than the performer's age value.*
3. *Display the complete information of all performers.*
4. *Quit (exit the program).*

Requirements:

- The program terminates only when the user chooses Option 4.
- Each of Options 1 and 2 must be implemented as a PL/SQL Stored Procedure and the pid, pname, and age must be entered as the procedure parameter values at runtime when the procedure is called. In Option 2, a did (director id) must also be entered at runtime when the procedure is called.
- For testing, execute Option 3 once before and after each execution of Options 1 and 2; and execute each of Options 1 and 2 at least three times with different values of pid, pname, age and with different values of did for Option 2; and execute Option 4 at least one time to show that your program terminates correctly.
- The Java program and all the PL/SQL procedures must be commented properly.
- You are not required to round in any particular way when computing the years_of_experience values. If the true result of an average is not an integer, either of two closest integers will be valid answers.

Problem 3 (20%):

Using the same database you used in Problem 2, write two PL/SQL modules, one with a different type (procedure/function/anonymous block/package) of your choice to perform some tasks on more than one table in the given database. Different modules must implement different tasks. Make sure that these tasks cannot be done if you use only SQL. Your PL/SQL modules can include any appropriate PL/SQL programming constructs, but at the minimum, one module must include the PL/SQL programming construct “IF-ELSEIF-ELSE” and one module must include the PL/SQL programming construct “WHILE/FOR loop.” Compile, execute, and verify the results of your PL/SQL modules. Provide comments in your PL/SQL modules to include a detailed description of the tasks.

SUBMISSION:

- Soft and hard copies (one submission per group) must be submitted to **our class website (for soft copies) and in class (for hard copies) by 1:30 PM, 10/17/2016.** The soft and hard copies include the following:
 - Solutions for Problem 1: two files: a) the SQL file that shows the required explanations written as in-line comments, the SQL statement(s) for index creation, and the SQL queries that you chose to rerun; and b) the text file that shows the Oracle creation of the index and the Oracle execution of the SQL queries that you chose to rerun. Use the file name convention GP3_Problem1_Group X where X is your group number;
 - Solutions for Problem 2: three files: a) a Java file (extension .java) containing the Java source program; b) an SQL file (extension .sql) containing the PL/SQL stored procedures; and c) a PDF file that shows the steps indicating that you have compiled and executed the program successfully (the output must be included). Use the file name convention GP3_Problem2_Group X where X is your group number;
 - Solutions for Problem 3: the script file that shows the two PL/SQL modules implementing the tasks of your choice and the steps indicating that you have compiled and executed the two modules successfully (the output must be included). Use the file name convention GP3_Problem3_Group X where X is your group number.
- Within 24 hours after the due time, submit the grades you give to your group members in a text file (file extension .txt; file name GP3_Group Grading_Your First name_Your Last name) to the Dropbox of Group Project 3 (**do not use Email**). In this file, include your name, your group number, the names of your group members and the grades you give to them. **If you do not submit your member grades by that time, we will assume that you give equal points to all your group members (i.e. 10 points to each of your group members).** **Read the "Group Project Grading Policy" posted on the class website.**

NOTES:

- The instructions for Oracle SQL Developer 4.1.3, JDBC and PL/SQL are available on the class website;
- If you have questions concerning your Oracle account, contact Mr. James M. Cassidy (the System Administrator of the School of Computer Science) (jmcassidy@ou.edu);
- If you have questions concerning Oracle SQL Developer 4.1.3, JDBC or PL/SQL, see your TA, Jacob Anderson, during his office hours or email him at jacob.w.anderson-1@ou.edu;
- Start this project early to avoid last minute system problems. No late submission will be accepted.