Homework 3

**Complete the following activities in your assigned Windows server in the database that you created for the previous homework assignment. You may complete some tasks using the EM Express, and you may complete some using SQL Tools. For any tasks that you complete graphically using EM Express, have the program show the SQL, and copy that code as your submission for the task.**

**NOTE: When taking screenshots, please make sure that your picture is of the information that I need to see, and that it is clear enough that I can read it. Small text in a screenshot of your entire desktop is impossible to read – and therefore incorrect. Refer to Homework 2 for examples.**

1. Connect to the database on your assigned server using the SYS account.
2. Write and execute the code to create a user with the same username as your Pipeline username and your M# as the password (be sure to include the “M”) to use as your database administrator account. For example, I would create a user with the username “SLBROOKS” and “M00012323” as the password. Have this user use the USERS tablespace as their default tablespace and TEMP as their temporary tablespace.
3. Grant DBA and SYSDBA to this user.
4. Investigate the differences between DBA and SYSDBA. Write a brief explanation ***in your own words*** of what the differences are.
5. Logout of the SYS account. Log back into the database using the account you created in step #2. **Working in a database as the SYS user is highly discouraged. From this point forward, you should use the account from step #2 and not login to the SYS account or using SYSDBA privileges unless absolutely necessary to complete a task.**
6. Alter the database to add supplemental log data.
7. Create a tablespace. Name the tablespace “<yourusername>\_space” and the data file “<yourusername>\_space01.dbf”. Use automatic segment management and automatic extent allocation size. Make it 75 megabytes in size. Place the data file for this tablespace in the same folder as the other data files in your database.
8. Alter the tablespace you created above to add a second data file in the same folder that is 50 megabytes in size. Use a proper name for the data file based on the name of the previous data file.
9. Write and execute the code to create users with the following usernames and passwords. Make the tablespace you created above the default tablespace for each user, and assign TEMP as the temporary tablespace for each user. If you get an error when creating these users, look into the passwords…
   1. Username: NORMALGUY Password: norm!!
   2. Username: SUPERGAL Password: super!!
   3. Username: SLBROOKS Password: profe$$or
   4. Username: THATDUDE Password:Or4cl3P4$$
10. Write and execute the code to create a role with the name “role6790”. Grant the following privileges and roles to role6790:
    1. CONNECT
    2. RESOURCE
    3. CREATE SESSION
    4. CREATE TABLE
11. Grant role6790 to each of the users created in steps #9a and 9b.
12. Grant DBA to the SLBROOKS user created in step 9c and both DBA and SYSDBA to THATDUDE created in step 9d.
13. Alter the users created in step #9a and 9b to have a quota of 20 megabytes in the USERS tablespace and 30 megabytes in the tablespace you created in step 7.
14. Change the DEFAULT password policy to lock a user account after 4 failed login attempts.
15. Ensure that the database has auditing enabled using either “db,extended” or “db\_extended” auditing. Include a screenshot showing the audit initialization parameters with the db,extended or db\_extended value. If you have to change this value, you will need to **shutdown and restart the database** for this change to take effect.
16. Create audit options to audit the following for each user created in steps 9a and 9b (and only those users):
    1. Creating a session
    2. Creating a table
17. Set the audit options so that any **newly created tables** will have all SELECT operations audited automatically. The SELECTs should be audited by access. Do NOT audit every SELECT operation on every table in the database – only tables created from this point forward should be have SELECT operations audited on them.
18. You will need to ensure your auditing was implemented successfully. Include screenshots of the ***audit trail*** showing the generated audit information on the following items:
    1. Login as a NORMAL account
    2. CREATE TABLE People (

Person\_ID int,

Last\_Name varchar(255),

First\_Name varchar(255) );

* 1. Insert 5 rows of sample data into table
  2. Run a select query on the People table you created in step b.
  3. Login as a SYSDBA account
  4. Access the audit trail – verify that the SELECT query was audited and that you can see the text of the SELECT statement itself.

**Submission Requirements:**

Submit the SQL code necessary to complete steps 2 – 18 (except 5) in a Word document in addition to the screen shots requested in step 15 and 18. If you received an answer from a fellow student in the course’s Discussions, explain why you were unable to find the answer without this assistance and detail why the answer you were given works to address that particular problem.

**Common Sense Hints/Advice/Tasks:**

Make sure your commands worked. If you want to know if you created the users correctly, then try logging in using the usernames and passwords specified. Create a table as each user. Run a SELECT against that table. Login with your administrator account and check the audit trail. Make sure you see the logins by those users (and only those users). Make sure the table creations and SELECT queries by those users (and only those users), including the text of the SELECT commands, are in the audit trail. If you have problems with your audit logs, determine what is wrong and correct the issue. When everything is working properly, delete all existing records from your audit logs.