Assignment Day4 –SQL: Comprehensive practice

Answer following questions **(Tommy Park)**

1. What is View? What are the benefits of using views?
   View a virtual table whose contents are defined by a query. The benefit of view is it simplify data manipulation. As a result, the user can simplify how they handle with data
2. Can data be modified through views?
   Yes the data can be modified through view. It can be updated, inserted, deleted with queries.
3. What is stored procedure and what are the benefits of using it?
   Stored procedure groups one or more Transact-SQL statements into a logical unit, which stores as an object in a SQL Server database. The benefit includes increase database security, faster execution, centralized Transact-SQL code in the data tier, reduce network traffic for larger ad hoc queries and encourages code reusability.
4. What is the difference between view and stored procedure?
   Unlike view, when a stored procedure is executed for the first time, SQL determines the most optimal query access plan and stores it in the plan memory Cache. Therefore, SQL can then reuse the plan on subsequent execution of the stored procedure.
5. What is the difference between stored procedure and functions?
   Mainly, stored Procedure for DML or data manipulation while functions are used for calculation. To call, stored procedure must call by its own name, but function need to be included inside of SELECT/FROM statement
6. Can stored procedure return multiple result sets?
7. Can stored procedure be executed as part of SELECT Statement? Why?
8. What is Trigger? What types of Triggers are there?
   Triggers are a special type of stored procedures that get executed when a specific event happens. Type of triggers include insert trigger, delete trigger, update trigger and instead of trigger.
9. What are the scenarios to use Triggers?
   Triggers are used to enforce integrity beyond simple Referential integrity, implement business rules, maintain audit records of changes, and accomplish cascading updates and deletes.
10. What is the difference between Trigger and Stored Procedure?
    The main difference is a stored procedures is invoked by calling it explicitly, while trigger is a stored procedures that runs automatically when event occurs through UPDATE, INSERT and DELETE.

Write queries for following scenarios (Code uploaded in Github)

Skip #1,2,4,7,8

Use Northwind database. All questions are based on assumptions described by the Database Diagram sent to you yesterday. When inserting, make up info if necessary. Write query for each step. Do not use IDE. BE CAREFUL WHEN DELETING DATA OR DROPPING TABLE.

1. Lock tables Region, Territories, EmployeeTerritories and Employees. Insert following information into the database. In case of an error, no changes should be made to DB.
    a. A new region called “Middle Earth”;
    b. A new territory called “Gondor”, belongs to region “Middle Earth”;
    c. A new employee “Aragorn King” who's territory is “Gondor”.
2. Change territory “Gondor” to “Arnor”.
3. Delete Region “Middle Earth”. (tip: remove referenced data first) (Caution: do not forget WHERE or you will delete everything.) In case of an error, no changes should be made to DB. Unlock the tables mentioned in question 1.
4. Create a view named “view_product_order_[your_last_name]”, list all products and total ordered quantity for that product.
5. Create a stored procedure “sp_product_order_quantity_[your_last_name]” that accept product id as an input and total quantities of order as output parameter.
6. Create a stored procedure “sp_product_order_city_[your_last_name]” that accept product name as an input and top 5 cities that ordered most that product combined with the total quantity of that product ordered from that city as output.
7. Lock tables Region, Territories, EmployeeTerritories and Employees. Create a stored procedure “sp_move_employees_[your_last_name]” that automatically find all employees in territory “Tory”; if more than 0 found, insert a new territory “Stevens Point” of region “North” to the database, and then move those employees to “Stevens Point”.
8. Create a trigger that when there are more than 100 employees in territory “Stevens Point”, move them back to Troy. (After test your code,) remove the trigger. Move those employees back to “Troy”, if any. Unlock the tables.
9. Create 2 new tables “people_your_last_name” “city_your_last_name”. City table has two records: {Id:1, City: Seattle}, {Id:2, City: Green Bay}. People has three records: {id:1, Name: Aaron Rodgers, City: 2}, {id:2, Name: Russell Wilson, City:1}, {Id: 3, Name: Jody Nelson, City:2}. Remove city of Seattle. If there was anyone from Seattle, put them into a new city “Madison”. Create a view “Packers_your_name” lists all people from Green Bay. If any error occurred, no changes should be made to DB. (after test) Drop both tables and view.
10. Create a stored procedure “sp_birthday_employees_[you_last_name]” that creates a new table “birthday_employees_your_last_name” and fill it with all employees that have a birthday on Feb. (Make a screen shot) drop the table. Employee table should not be affected.
11. Create a stored procedure named “sp_your_last_name_1” that returns all cites that have at least 2 customers who have bought no or only one kind of product. Create a

stored procedure named “sp_your_last_name_2” that returns the same but using a different approach. (sub-query and no-sub-query).

12. How do you make sure two tables have the same data?

14.

First Name	Last Name	Middle Name
John	Green	
Mike	White	M

Output should be

Full Name
John Green
Mike White M.

Note: There is a dot after M when you output.

15.

Student	Marks	Sex
Ci	70	F
Bob	80	M
Li	90	F
Mi	95	M

Find the top marks of Female students.

If there are to students have the max score, only output one.

16.

Student	Marks	Sex
Li	90	F
Ci	70	F
Mi	95	M
Bob	80	M

How do you out put this?

GOOD LUCK.