Assignment Day3 –SQL: Comprehensive practice

# Answer following questions

1. In SQL Server, assuming you can find the result by using both joins and subqueries, which one would you prefer to use and why?

Subqueries can be used to return either a single value or a row set,

Joins are used to return rows.

In most cases, they are no difference performance join queries and subqueries, but in some cases, join produces better performance.

1. What is CTE and when to use it?

It is a common table expression. It is a temporary named result set that you can reference with a select, insert, update, or delete statement.

When you have a lot of complicated queries using cte make it easier to understand and help other queries to run faster

1. What are Table Variables? What is their scope and where are they created in SQL Server?

Table Variables is a special type of the local variable that helps to store data temporarily.

The table variable scope is within the batch. We can define a table variable inside a stored procedure and function as well. In this case, the table variable scope is within the stored procedure and function. We cannot use it outside the scope of the batch, stored procedure or function.

1. What is the difference between DELETE and TRUNCATE? Which one will have better performance and why?

TRUNCATE is like the DELETE statement with no WHERE clause. TRUNCATE is faster and uses fewer system and transaction log resources.

1. What is Identity column? How does DELETE and TRUNCATE affect it?

Delete stamen removes rows one at a time and records an entry in the transaction log for each deleted row. Truncate table removes the data by deallocating the data pages used to store the table data and records only the pagedeallocations in the transacting log.

1. What is difference between “delete from table\_name” and “truncate table table\_name”?

Truncate removes all the row from a table, leaving the table empty. Delete may remove conditionally if the where clause is used.

# Write queries for following scenarios

All scenarios are based on Database NORTHWND.

1. List all cities that have both Employees and Customers.
2. List all cities that have Customers but no Employee.
   1. Use sub-query
   2. Do not use sub-query
3. List all products and their total order quantities throughout all orders.
4. List all Customer Cities and total products ordered by that city.
5. List all Customer Cities that have at least two customers.
   1. Use union
   2. Use sub-query and no union
6. List all Customer Cities that have ordered at least two different kinds of products.
7. List all Customers who have ordered products, but have the ‘ship city’ on the order different from their own customer cities.
8. List 5 most popular products, their average price, and the customer city that ordered most quantity of it.
9. List all cities that have never ordered something but we have employees there.
   1. Use sub-query
   2. Do not use sub-query
10. List one city, if exists, that is the city from where the employee sold most orders (not the product quantity) is, and also the city of most total quantity of products ordered from. (tip: join sub-query)
11. How do you remove the duplicates record of a table?

Using DISTINCT key word to remove the duplicates record.

12. Sample table to be used for solutions below- Employee (empid integer, mgrid integer, deptid integer, salary money) Dept (deptid integer, deptname varchar(20))

Find employees who do not manage anybody.

13. Find departments that have maximum number of employees. (solution should consider scenario having more than 1 departments that have maximum number of employees). Result should only have - deptname, count of employees sorted by deptname.

14. Find top 3 employees (salary based) in every department. Result should have deptname, empid, salary sorted by deptname and then employee with high to low salary.

GOOD LUCK.