Day 3 Assignment

1. Joins should generally be used whenever possible due to the performance comparison with subqueries except for correlated subqueries. This heavily depends on query, DBMS, as well as other factors and may subject to change for future implementation in SQL Server.
2. CTE or common table expression is used to simplify a query for readability, allows for recursive nature, or use in as view when table needs not to be stored.
3. Table Variables are an alternative way to store temporary data tables in the database. They are not written or retained in the database, instead table variables are stored in tempdb. Variable table exist only for the life of the transact-SQL batch, stored procedure, or function. They are also scoped to transact-SQL batch, stored procedure, or function. It is generally best practice to use variable tables for data records less than 100 and for large data sets (in the 1000s) temporary tables.
4. Based on syntax provided in the example slide, delete has an optional where clause which allows greater specification on what to delete from a table whereas truncate only has a parameter of a table. But in terms of functionality, truncate can reseed identity values, removes records and is faster as it records the page it deallocates rather than individual rows but does not allow for tables with indexed views or reference by foreign key or tables used in replication.
5. Identity column is a special column that uses a starting seed (starting value) and increment (default by 1) to provide each row with a distinct value. Delete key will not reseed this value whereas truncate will.
   1. As an interesting side information, it seems that identity column can in fact overflow when the cached value has reached its ceiling value for that datatype. There are two methods to resolve this issue, which is to truncate the table or to resize the datatype to a larger container
6. The biggest difference is how delete and truncate record in the log and from it, performance. “truncate table table\_name” will record the log of deallocating the data page to remove the table. While it the table’s content are being removed, the entire data page is locked (in terms of parallelism). “delete from table\_name” will record the log of deallocating the data of each individual row in the table. It will also lock each row 1 by 1 thereby creating a resource heavy operation.