Assignment Day 5–SQL: Comprehensive practice

# Answer following questions

1. What is an object in SQL?

An object is any SQL Server resource, such as a SQL Server lock or Windows process

1. What is Index? What are the advantages and disadvantages of using Indexes?

An index is an on-disk structure associated with a table or view that speeds retrieval of rows from the table or view

index can speed up the data retrieving speed.

slow the data insertion and may affect query processing speed

1. What are the types of Indexes?

clustered index and non-clustered index

1. Does SQL Server automatically create indexes when a table is created? If yes, under which constraints?

yes if you did not create a clustered index, it will automatically created in primary key

1. Can a table have multiple clustered index? Why?

no, data is stored in the order to clustered index. You can’t have it stored in different order

1. Can an index be created on multiple columns? Is yes, is the order of columns matter?

yes, yes. Without optimizations, it will scan from left to right

1. Can indexes be created on views?

yes

1. What is normalization? What are the steps (normal forms) to achieve normalization?

Normalization is the process of organizing data in a database. This includes creating tables and establishing relationships between those tables according to rules designed both to protect the data and to make the database more flexible by eliminating redundancy and inconsistent dependency.

check normal form from 1NF to BCNF

1. What is denormalization and under which scenarios can it be preferable?

Denormalization is the process of adding precomputed redundant data to an otherwise normalized relational database to improve read performance of the database

when we want to increase the performance of database such as increasing faster execution speed in OLAP

1. How do you achieve Data Integrity in SQL Server?

by adding constrains and triggers

1. What are the different kinds of constraint do SQL Server have?

primary key, foreign key, not null, unique, check, Default

1. What is the difference between Primary Key and Unique Key?

Primary key is used to uniquely identify one specific rows while unique key is used to prevent duplicate value. Primary key cannot be null but unique key can have null

1. What is foreign key?

foreign key is a set of attributes in a table that references the primary keys of another table

1. Can a table have multiple foreign keys?

yes

1. Does a foreign key have to be unique? Can it be null?

yes. No

1. Can we create indexes on Table Variables or Temporary Tables?

Yes

1. What is Transaction? What types of transaction levels are there in SQL Server?

A **transaction** is a logical unit of work that contains one or more SQL statements. A transaction is an atomic unit

Read uncommitted, read committed, repeated read ,serializable

# Write queries for following scenarios

1. Write an sql statement that will display the name of each customer and the sum of order totals placed by that customer during the year 2002

Create table customer(cust\_id int, iname varchar (50)) create table order(order\_id int,cust\_id int,amount money,order\_date smalldatetime)

2. The following table is used to store information about company’s personnel:

Create table person (id int, firstname varchar(100), lastname varchar(100)) write a query that returns all employees whose last names start with “A”.

3. The information about company’s personnel is stored in the following table:

Create table person(person\_id int primary key, manager\_id int null, name varchar(100)not null) The filed managed\_id contains the person\_id of the employee’s manager.

Please write a query that would return the names of all top managers(an employee who does not have a manger, and the number of people that report directly to this manager.

4. List all events that can cause a trigger to be executed.

5. Generate a destination schema in 3rd Normal Form. Include all necessary fact, join, and dictionary tables, and all Primary and Foreign Key relationships. The following assumptions can be made:

a. Each Company can have one or more Divisions.

b. Each record in the Company table represents a unique combination

c. Physical locations are associated with Divisions.

d. Some Company Divisions are collocated at the same physical of Company Name and Division Name.

e. Contacts can be associated with one or more divisions and the address, but are differentiated by suite/mail drop records.status of each association should be separately maintained and audited.

GOOD LUCK.