B.Sc (Hons) in Information Technology

IT2040 -Database Management Systems

Year 2, Semester 1

Tutorial 07

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Learning outcomes:

- Explain the three important aspects of security
- Explain what is meant by a security policy and how SQL server supports implementation of security policies
- Write SQL statements to secure database objects in SQL server at server and database level

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1. What are the three major objectives in implementing database security?
2. What is a security policy? Why do you need a security policy?
3. What are the two major approaches through which SQL Server manage access to database securables? Explain them briefly.
4. Briefly explain the terms; principals, securables and permissions.
5. Suppose you have installed SQL Server to use for a software project. What are the steps you would follow to allow authentication and authorization of the people working with the SQL Server?
6. What is the difference between login and database user in SQL server?
7. Consider the following scenario:

   A software company has been assigned with the responsibility of automating the tasks of a private university. This include developing two databases to record student details and marks, and a library database. *Dinesh*, a newly appointed senior DBA is assigned to the project to handle all the administrative tasks related to the databases by the database architect. *Dinesh* creates the required databases and assign *Janani* the responsibility of managing the libraryDB. *Janani* assigns *Raveen* with the responsibility of creating tables. In addition, *Raveen* should be able to create views, stored

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procedures and triggers required. *Sachini* and *Fathima*, who are data entry operators are given the responsibility of inserting the data to the table. *Namal* is assigned with the responsibility of generating reports from the table in the data. For the above purpose, *Namal* could directly query the data or call functions and procedures.

a. Write a T-SQL statement to create login of *Dinesh* and provide him permission to handle all the administrative tasks in the server.

b. Assuming that *Janani* has a login by the name *janani.m*, write a T-SQL statements required to assign her with the responsibility of handling the libraryDB.
c. Assuming that *Reveen* has a login name by the name *raven.j* write T-SQL statements required to allow him to create tables, functions, procedures and triggers.
d. Write a T-SQL statements to add a user defined role which will provide permissions to perform activities for which *Sachini* and *Fathima* are responsible of.
e. Using the role created in (d), provide permissions to *Sachini* and *Fathima* assuming that their usernames are *sachini* and *fathima* respectively.
f. Assuming that *Namal* has a login name *namal.k*, write T-SQL statements required to perform the tasks he is responsible of.
g. Write a T-SQL statement to deny *namal* from inserting data to any table in the database.
h. Once the data entry process is over the permission granted to *Fathima* and *Sachini* should be removed. Write T-SQL statement to remove the permissions granted to them in (g) by cancelling permission on the role they are in.