Date :

09/04/22.

# Theory Assignment 2

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Class - SE-IT
Subject - Database Management System

Q.1 Write short notes on.

A) Data Definition Language:

- To create database schema and database objects like table, view, trigger we need to use Data Definition Language (DDL).
- DDL statements are used to build and modify the structure of your tables and other objects in the database.
- The set of DDL commands are as follows:

1. CREATE Statement: To create database objects.
2. ALTER Statement: To modify structure of database objects.
3. DROP Statement: To remove database objects
4. RENAME Statement: To rename database objects.
5. TRONCATE Statement: To empty the database table.

- No rollback operation can be performed with these set of commands.

Ex. Table, View, Sequence, etc.

B) Data Manipulation Language:

- These statements are used for manipulating or managing data in database.
- DML commands are not auto-commited like DDL statements.

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- It means changes done by DML commands can be rolled back. In other words the DML statements do not implicitly commit the current transaction.

1. INSERT Statement: To add some data to Database table we need to use this command.
2. DELETE Statement: To add remove data from table we need to use this command.
3. UPDATE Statement: To add changes data added to table we need to use this command.

Q.2 Explain Stored Procedure and Stored Function?

- Stored procedures are just text objects, and don't store any data. They do provide access to data. They can return datasets, just like a view, but that where the similarity ends.
- A stored procedure is named PL/SQL block that can take some parameters (referred as arguments) and be invoked to produce some output.
- Generally Speaking you use a procedure to perform a specific action
- Stored procedures offers modularity of code.
- Procedures promote better reusability and maintainibility of code.
- One validated, they can be used any number of times without compiling again and again in order to make execution faster.
- Int can be used in any number of applications to make faster data access.

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Stored Function

```
CREATE [OR REPLACE] PROCEDURE procedure_name
[(parameter1 [mode1] datatype1, parameter2 [mode2]
datatype2, ...)]
IS|AS
PL SQL BLOCK/
[BEGIN PL/SQL Statements ; END;];
```

We can create new procedures with help of the CREATE PROCEDURE statement, which may declare a list of parameters, and also must define the actions to be performed by the standard PL/SQL block.

Q.3. What is normalization? Explain 1NF, 2NF & 3NF?

Normalization :

- Normalization is a step by step decomposition of complex records into simple records.
- Normalization is a process of organizing data in database in more efficient form. It results in tables that satisfy some constraints and are represented in a simple manner
- It is a process of designing a consistent database by minimizing redundancy and ensuring data integrity through decomposition which is lossless.

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## First Normal Form (1NF)

- A relation is in 1NF, if every row contains exactly one value for each attribute.
- 1NF states that all attributes in relation must have atomic values and all attribute in a tuple must have a single value from the domain of that attribute.

eg: Non-normalized form.

| Emp_Id. | E-name | Salary | Ecity |
|---|---|---|---|
| 10. | Mahesh | 50,000 | Mumbai, Pune |

Normalized form

| Emp_Id | Ename | Salary | Ecity |
|---|---|---|---|
| 10 | Mahesh | 50,000 | Mumbai |
| 10 | Mahesh | 50,000 | Pune |

## Second Normal Form.

- A relation is in 2NF, if it is in 1NF and all non-key attributes in relation are fully functionally dependent on the primary key of the relation

eg. Non-2NF Table.

| Eid | Ename | Salary | Project-Id | Hours | Allowance |
|---|---|---|---|---|---|

2NF Employee Table

| Eid | Ename | Salary |
|---|---|---|

2NF Project Table.

| Eid | Project-Id | Hours | Allowance |
|---|---|---|---|

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Third Normal Form :

- A relation in in 3NF, if it is in 2NF and no non-key attribute of the relation is transitively dependent on the primary key.
- 3NF prohibits transitive dependencies.

| Sr.No. | Faculty Code | Subject | Hours |
|---|---|---|---|
| 1. | 100 | DSA | 16 |
| 2 | 101 | SS | 8. |

hours depend on the subject and subject depends on faculty code and Sr.No.

- Hence there is transitive dependency.

Normalization 3NF

| Sr.No | Faculty Code | Subject |
|---|---|---|

| Subject | Hours |
|---|---|

Q.4 What is view ? Explain different types of view.

- A view is defined as a database object that allows us to create a virtual table in the database whose contents are defined by a query or token from one or more table.
- View is defined to hide complexity of query from user.

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Types of views.

1. Simple view
- The view which are based on only one table called as simple view.
- Allow to perform DML operations with some restrictions.
- Query defining simple view cannot have any join or grouping condition.

2. Complex view.
- The views which are based on more than one table called as Complex view.
- Do not allow DML operations to be performed.
- Query defining complex view can have or group condition.