**Module - 5**

1. **What do you understand By Database?**

Database is collection of inter-related data stored in particular space from where we can use and change the data. In that, Management System is a set of programs to store and retrieve those data.

* + For example, Amazon has lots of data of lots of products and lots of people also. They can use their data to perform their day-to-day process very easily.

1. **What is Normalization?**
   * Normalization is the process of minimizing redundancy (duplicity) from a relation or set of relations.
   * Types Normalization
   * First Normal Form
   * First normal form(1NF)
   * Second normal form(2NF)
   * Third normal form(3NF)
   * Boyce & Code normal form (BCNF)
2. **What is Difference between DBMS and RDBMS?**

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| DBMS | RDBMS |
| DBMS stores data as file. | RDBMS stores data in tabular form. |
| Data elements need to access individually | Multiple data elements can be accessed at the same time. |
| No relationship between data. | Data is stored in the form of tables which are related to each other. |
| Normalization is not present | Normalization is present |
| DBMS does not support distributed database | RDBMS supports distributed database. |
| It stores data in either a navigational or hierarchical form | It uses a tabular structure where the headers are the column names, and the rows contain corresponding values. |
| It deals with small quantity of data. | It deals with large amount of data. |
| It supports single user | It supports multiple users. |
| The data in a DBMS is subject to low security levels with regards to data manipulation | There exist multiple levels of data security in a RDBMS. |
| Examples: XML, Window Registry, etc. | Examples: MySQL, PostgreSQL, SQL Server, Oracle, Microsoft Access etc |

1. **What is MF Cod Rule of RDBMS Systems?**
2. **What do you understand By Data Redundancy?**
   * Data redundancy is when multiple copies of the same information are stored in more than one place at a time.
   * Redundancy in relation may cause insertion, deletion and updation anomalies. So, it helps to minimize the redundancy in relations.
   * We have to reduce the Redundancy by using normalization.
3. **What is DDL Interpreter?**
   * DDL stands for Data Definition Language
   * DDL Interpreter interprets the DDL statements and records the generated statements in the table containing metadata.
4. **What is DML Compiler in SQL?**
   * DML compiler translates DML statements in a query language into a low-level instruction and the generated instruction can be understood by Query Evaluation Engine.
5. **What is SQL Key Constraints writing an Example of SQL Key Constraints?**
   * SQL key constraints are used to define the rules for uniqueness and referential integrity in a relational database. There are several types of key constraints in SQL, including primary keys, unique keys, and foreign keys.
6. **What is save Point? How to create a save Point write a Query?**
   * A SAVEPOINT is a point in a transaction when you can roll the transaction back to a certain point without rolling back the entire transaction.
   * The syntax for a SAVEPOINT command is as shown below.
     + SAVEPOINT SAVEPOINT\_NAME;
   * This command serves only in the creation of a SAVEPOINT among all the transactional statements.
   * The ROLLBACK command is used to undo a group of transactions.
7. **What is trigger and how to create a Trigger in SQL?**
   * A trigger is a stored procedure in database which automatically invokes whenever a special event in the database occurs.
   * For example, a trigger can be invoked when a row is inserted into a specified table.
   * CREATE TRIGGER [Trigger\_Name]

[Trigger\_Time] [Trigger\_Event]

ON [Table\_Name]

[Trigger\_Action]

**Table: - 3**

a) Get First\_Name from employee table using Tom name “Employee Name”.

[select](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/select.html) First\_name FROM employee WHERE First\_name="Tom";

b) Get FIRST\_NAME, Joining Date, and Salary from employee table.

[SELECT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/select.html) Employee\_id,Joining\_date,Salary FROM employee;

c) Get all employee details from the employee table order by First\_Name Ascending and Salary descending?

[SELECT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/select.html) \* FROM employee ORDER BY Salary DESC;

[SELECT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/select.html) \* FROM employee ORDER BY First\_name  ASC;

d) Get employee details from employee table whose first name contains ‘J’.

[SELECT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/select.html) \* FROM employee WHERE First\_name [LIKE](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/string-comparison-functions.html%23operator_like) 'J%';

e) Get department wise maximum salary from employee table order by salary ascending?

[SELECT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/select.html) Department,Max(Salary) FROM employee GROUP BY Department ORDER BY Salary;

f) Select first\_name, incentive amount from employee and incentives table for those employees who have incentives and incentive amount greater than 3000

[SELECT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/select.html) employee.First\_name,incentive.Incentive\_amount FROM employee INNER JOIN incentive ON employee.Employee\_id=incentive.Employee\_ref\_id [AND](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/logical-operators.html%23operator_and) incentive.Incentive\_amount>3000;

**Table: - 4**

b) Names and cities of all salespeople in London with commission above 0.12

[SELECT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/select.html) SNAME,CITY FROM salsperson WHERE CITY="London" [AND](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/logical-operators.html%23operator_and) COMM > 0.12;

c) All salespeople either in Barcelona or in London

[SELECT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/select.html) SNAME,CITY FROM salsperson WHERE CITY="London" [OR](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/logical-operators.html%23operator_or) CITY="Barcelona";

d) All salespeople with commission between 0.10 and 0.12. (Boundary values should be excluded).

[SELECT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/select.html) SNAME,COMM FROM salsperson WHERE COMM BETWEEN 0.10 [AND](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/logical-operators.html%23operator_and) 0.12;

e) All customers excluding those with rating <= 100 unless they are located in Rome.

[SELECT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/select.html) CNAME,CITY,RATING FROM customer WHERE RATING<=100 [AND](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/logical-operators.html%23operator_and) [NOT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/logical-operators.html%23operator_not) CITY="Rome";