MODULE : 5 (DATABASE)

1.What do you understand By Database

ANS: A database is a structured collection of data that is organized and stored in a computer system.

o It is designed to efficiently manage, store, and retrieve information. Databases are used in various applications, including websites, mobile apps, business systems, and more, to handle large volumes of data and provide a systematic way of organizing and accessing information.

2. What is Normalization?

ANS:

o Normalization is the process of organizing the data in the database.
o Normalization is used to minimize the redundancy from a relation or set of relations. It is also used to eliminate undesirable characteristics like Insertion, Update, and Deletion Anomalies.
o Normalization divides the larger table into smaller and links them using relationships.
o The normal form is used to reduce redundancy from the database table.

3. What is Difference between DBMS and RDBMS?

ANS:**DBMS**

   o DBMS applications store data as file
   o Normalization is not present in DBMS
   o DBMS does not apply any security with regards to data manipulation.

- o no relation between the tables.
- o DBMS does not support distributed database.
- o DBMS is meant to be for small organization and deal with small data.
- o Examples of DBMS are file systems, xml etc.

RDBMS:

- o RDBMS applications store data in a tabular form.
- o Normalization is present in RDBMS.
- o RDBMS defines the integrity constraint for the purpose of ACID (Atomocity, Consistency, Isolation and Durability) property.
- o data values are stored in the form of tables, so a relationship between these data values will be stored in the form of a table as well.
- o RDBMS supports distributed database.
- o handle large amount of data
- o Example of RDBMS are mysql, postgre, sql server, oracle etc.

4. What is MF Cod Rule of RDBMS Systems?

ANS: The MF Cod Rule of RDBMS Systems states that for a system to qualify as an RDBMS, it must be able to manage database entirely through the relational capabilities.

- o Rule 0 of the MF Cod Rules states that the system must qualify as relational, as a database, and as a management system. For a system to qualify as an RDBMS, that system must use its relational facilities exclusively to manage the database

5. What do you understand By Data Redundancy?

ANS: Data redundancy means the occurrence of duplicate copies of similar data. It is done intentionally to keep the same piece of data at different places, or it occurs accidentally

- o In DBMS, when the same data is stored in different tables, it causes data redundancy.

- Sometimes, it is done on purpose for recovery or backup of data, faster access of data, or updating data easily. Redundant data costs extra money, demands higher storage capacity, and requires extra effort to keep all the files up to date.

6. What is DDL Interpreter?

7.What is DML Compiler in SQL?

8. What is SQL Key Constraints writing an Example of SQL Key Constraints

9.What is save Point? How to create a save Point write a Query?

10. What is trigger and how to create a Trigger in SQL?

TASK

1. Create Table Name : Student and Exam

QUERY:

use assignment;

create table student_1(roll_no int primary key auto_increment,name varchar(20),branch varchar(30));

insert into student_1(name,branch) values("jay","computer science"),("suhani","electronic and com"),("kriti","electronic and com");

use assignment;

create table exam_1(roll_no int not null,foreign key(roll_no) references student_1(roll_no),scode varchar(20),marks int(100),p_code varchar(20));

insert into exam_1(roll_no,scode,marks,p_code)
values(1,"cs11",50,"cs"),(1,"cs12",60,"cs"),(2,"ec101",66,"ec"),(2,"ec102",70,"ec"),(3,"ec101",45,"ec"),(3,"ec102",50,"ec");

2. Create table given below

QUERY:

use assignment;

create table table_2(firstName varchar(20) not null,lastName varchar(20) not null,address varchar(25) not null,city varchar(15) not null,age int(5) not null);

insert into table_2(firstName,lastName,address,city,age) values ("Mickey","Mouse","123 Fantasy Way","Anaheim",73),("Bat","Man","321 Cavern Ave","Gotham",54),("Wonder","Woman","987 Truth Way","Paradise",39),("Donald","Duck","555 Quack Street","Mallard",56),("Bugs","Bunny","567 Carrot Street","Rascal",58),("Wiley","Coyote","999 Acme Way","Canyon",61),("Cat","Woman","234 Purrfect Street","Hairball",32),("Tweety","Bird","543","Itotlow",28);

3.Table Name: Employee

QUERY:

use assignment;

create table emp_3(employee_id int auto_increment primary key ,first_name varchar(15) not null,last_name varchar(15) not null,salary int(10) not null,joining_date datetime not null,department varchar(20));

insert into emp_3(first_name,last_name,salary,joining_date,department)values('John','Abraham',10000000,'2013-1-01 12:00:00 ','Banking'),('Michael','Clarke',800000,'2013-1-01 12:00:00 ','Insurance'),('Roy','Thomes',700000,'2013-2-01 12:00:00 ','Banking'),('Tom','Jose',600000,'2013-2-01 12:00:00 ','Insurance'),('Jerry','Pinto',650000,'2013-2-01 12:00:00 ','Insurance'),('Philip','Mathew',750000,'2013-1-01 12:00:00 ','Service'),('TestName1','123',650000,'2013-1-01 12:00:00 ','Service'),('TestName2','Lname%',600000,'2013-2-01 12:00:00 ','Insurance');

Table Name: Incentive

QUERY:

use assignment;

create table inc_3(employee_ref_id int not null,incentive_date date not null,incentive_amount int(10));

insert into inc_3 (employee_ref_id,incentive_date,incentive_amount)values(1,'2013-02-01',5000),(2,'2013-02-01',3000),(3,'2013-02-01',4000),(1,'2013-01-01',4500),(2,'2013-01-01',3500);

a. **Get First_Name from employee table using Tom name "Employee Name".**
    SELECT first_name
    FROM emp_3
    WHERE first_name = 'Tom';
b. **Get FIRST_NAME, Joining Date, and Salary from employee table.**

SELECT first_name, joining_date, salary
FROM emp_3;

c. Get all employee details from the employee table order by First_Name Ascending and Salary descending?
SELECT *
FROM emp_3
ORDER BY first_name ASC, salary DESC;

d. Get employee details from employee table whose first name contains 'J'.
select * from emp_3 where first_name like '%j';

e. Get department wise maximum salary from employee table order by salary ascending?
select department,MAX(salary) as max_salary from emp_3 group by department order by max_salary asc;

f. Select first_name, incentive amount from employee and incentives table for those employees who have incentives and incentive amount greater than 3000
select emp_3.first_name,inc_3.incentive_amount from emp_3 join inc_3 on emp_3.employee_id=inc_3.employee_ref_id where inc_3.incentive_amount>3000;

g. Create After Insert trigger on Employee table which insert records in view table
create table viewtable(employee_id int auto_increment primary key ,first_name varchar(15) not null,last_name varchar(15) not null,salary int(10) not null,joining_date datetime not null,department varchar(20));
create trigger emp_3_insert_trigger after insert on viewtable for each row insert into emp_3(first_name,last_name,salary,joining_date,department)values ('John','Abraham',10000000,'2013-1-01 12:00:00 ','Banking');

4.Table Name: Salesperson

QUERY:

create table sp_4(sno int auto_increment not null primary key,sname varchar(15) not null,city varchar(20) not null,comm float(5) not null);

insert into sp_4(sno,sname,city,comm)values(1001,'Peel','London',.12),(1002,'Serres','San Jose',.13),(1004,'Motika','London',.11),(1007,'Rafkin','Barcelona',.15),(1003,'Axelrod','New York',.1);

Table Name: Customer

QUERY:

create table custometr_4(cnm int(5) primary key

not null ,cname varchar(15) not null,city varchar(15) not null,rating int(5) not null,sno int(5) ,foreign key(sno) references sp_4(sno));

insert into custometr_4(cnm,cname,city,rating,sno)values(201,"hoffman","londan",100,1001),(202,"giovanne",

"roe",200,1003),(203,"liu","san jose",300,1002),(204,"grass","barcelona",100,1002),(206,"clemens","londan",300,1007),(207,"pereira","roe",100,1004);

a. All orders for more than $1000.

Select * from custometr_4 where order>=1000;

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

select sname,city,comm from sp_4 where (city='londan' and comm>'0.12');

c. All salespeople either in Barcelona or in London

 select * from sp_4 where(city='londan' or city='barcelona');

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

Select * from from sp_4 where comm>0.10 and comm<0.12;

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

select * from custometr_4 where not (rating <=100 and city ='rome');