**Q. Write about SQL.**

**A.** SQL is a standard language for accessing and manipulating databases. SQL stands for Structured Query Language. SQL is an ANSI (American National Standards Institute) standard. SQL is not case sensitive.

**Q.** **Study Basic SQL commands (create table, use, drop, insert) and execute the following queries using these commands:**

* **Create a table ‘Emp’ with attributes ‘ename’, ‘ecity’, ‘salary’, ‘enumber’, ‘eaddress’, ‘depttname’.**
* **Create another table ‘Company’ with attributes ‘cname’, ‘ccity’, ‘numberofemp’, ‘empnumber’.**

A. The CREATE TABLE statement is used to create a table in a database. The DROP statement is used to delete a table. The INSERT INTO statement is used to insert a new row in a table. The commands are as follows:

* create table Emp(ename varchar(20),ecity varchar(20),salary number(10),enumber number(20) primary key, eaddress varchar(20),depttname varchar(10));

Table created.

* create table Company(cname varchar(20),ccity varchar(20),numberofemp number(20),empnumber number(20));

Table created.

**Q. Study the viewing commands (select, update) and executes the following queries using these commands:**

* **Find the names of all employees who live in Delhi.**
* **Increase the salary of all employees by Rs. 5,000.**
* **Find the company names where the number of employees is greater than 10,000.**
* **Change the Company City to Gurgaon where the Company name is ‘TCS’.**

**A.** The SELECT statement is used to select data from a database. The UPDATE statement is used to update existing records in a table. The commands are as follows:

* insert into Emp values('&ename','&ecity',&salary,&enumber,'&eaddress','&depttname');

Enter value for ename: abhishek

Enter value for ecity: delhi

Enter value for salary: 5000000

Enter value for enumber: 3

Enter value for eaddress: delhi

Enter value for depttname: admin

old 1: insert into Emp values ('&ename','&ecity',&salary,&enumber,'&eaddress','&depttname')

new 1: insert into Emp values('abhishek','delhi',5000000,3,'delhi','admin')

1 row created.

Enter value for ename: anurag

Enter value for ecity: delhi

Enter value for salary: 100000

Enter value for enumber: 1

Enter value for eaddress: delhi

Enter value for depttname: production

old 1: insert into Emp values('&ename','&ecity',&salary,&enumber,'&eaddress','&depttname')

new 1: insert into Emp values('anurag','delhi',100000,1,'delhi','production')

1 row created.

Enter value for ename: rahul

Enter value for ecity: agra

Enter value for salary: 2000000

Enter value for enumber: 2

Enter value for eaddress: delhi

Enter value for depttname: finance

old 1: insert into Emp values('&ename','&ecity',&salary,&enumber,'&eaddress','&depttname')

new 1: insert into Emp values('rahul','agra',2000000,2,'delhi','finance')

1 row created.

* insert into Company values('&cname','&ccity',&numberofemp,&empnumber)

Enter value for cname: tcs

Enter value for ccity: delhi

Enter value for numberofemp: 9000

Enter value for empnumber: 2000

old 1: insert into Company values('&cname','&ccity',&numberofemp,&empnumber)

new 1: insert into Company values('tcs','delhi',9000,2000)

1 row created.

Enter value for cname: mmrpl  
Enter value for ccity: Gurgaon

Enter value for numberofemp: 200

Enter value for empnumber: 92200

old 1: insert into Company values('&cname','&ccity',&numberofemp,&empnumber)

new 1: insert into Company values('mmrpl','gurgaon',100000,92200)

1 row created.

Enter value for cname: giga

Enter value for ccity: agra

Enter value for numberofemp: 600000

Enter value for empnumber: 50600

old 1: insert into Company values('&cname','&ccity',&numberofemp,&empnumber)

new 1: insert into Company values('giga','agra',600000,50600)

1 row created.

* select ename from Emp where ecity='delhi';

ENAME

--------------------

anurag

abhishek

* update Emp set salary=salary+5000;

3 rows updated.

select \* from Emp;

ENAME ECITY SALARY ENUMBER

-------------------- -------------------- ---------- ----------

EADDRESS DEPTTNAME

-------------------- ----------

anurag delhi 105000 1

delhi production

rahul agra 2005000 2

agra finance

abhishek delhi 5005000 3

delhi admin

* select cname from Company where numberofemp>10000;

CNAME

--------------------

mmrpl

giga

* update Company set ccity='gurgaon' where cname='tcs';

1 row updated.

select \* from Company;

CNAME CCITY NUMBEROFEMP EMPNUMBER

---------------- -------------- ------------------------ --------------------

tcs gurgaon 9000 2000

mmrpl gurgaon 200 92200

giga agra 600000 50600

**Q. Study the commands to modify the structure of table (alter, delete) and execute the following queries using these commands:**

* **Add an attribute named ‘Designation’ to the table ‘Emp’.**
* **Modify the table ‘Emp’, Change the data type of ‘salary’ attribute to float.**
* **Drop the attribute ‘depttname’ from the table ‘emp’.**
* **Delete the entries from the table ‘Company’ where the number of employees is less than 500.**

**A.** The ALTER TABLE statement is used to add, delete, or modify columns in an existing table. The DELETE statement is used to delete rows in a table. The commands are as follows:

* alter table Emp add designation varchar(20);

Table altered.

* alter table Emp modify salary float(20);

Table altered.

* alter table Emp drop column depttname;

Table altered.

* delete from Company where numberofemp<500;

1 row deleted.

**Q. Study the commands that involve compound conditions (and, or, in, not in, between, not between, like, not like) and execute the following queries using these commands:**

* **Find the names of all employees who live in ‘Gurgaon’ and whose salary is between Rs. 20,000 and Rs. 30,000.**
* **Find the names of all employees whose names begin with either letter ‘A’ or ‘B’.**
* **Find the company names where the company city is ‘Delhi’ and the number of employees is not between 5000 and 10,000.**
* **Find the names of all companies that do not end with letter ‘A’.**

**A.** The AND operator displays a record if both the first condition and the second condition are true. The OR operator displays a record if either the first condition or the second condition is true. The IN operator allows you to specify multiple values in a WHERE clause. The NOT IN operator allows you to specify multiple values that are not in a WHERE clause. The BETWEEN operator is used in a WHERE clause to select a range of data between two values. To display the persons outside the range we use NOT BETWEEN. The LIKE operator is used in a WHERE clause to search for a specified pattern in a column. The NOT LIKE operator is used in a WHERE clause to search for a pattern different from specified pattern in a column. The commands are as follows:

* select ename from Emp where ecity='gurgaon' AND salary BETWEEN 20000 AND 30000;

ENAME

--------------------

anurag

* select ename from Emp where ename like 'a%' or ename like 'b%';

ENAME

--------------------

rahul

* select cname from Company where ccity='delhi' AND numberofemp NOT BETWEEN 5000 AND 10000;

CNAME

--------------------

giga

* select cname from Company where NOT (cname like '%a');

CNAME

--------------------

tcs

**Q. Study the aggregate functions (sum, count, max, min, average) and execute queries using these commands.**

**A.** The SUM() function returns the total sum of a numeric column. The COUNT() function returns the number of rows that matches a specified criteria. The MAX() function returns the largest value of the selected column. The MIN() function returns the smallest value of the selected column. The AVG() function returns the average value of a numeric column. The commands are as follows:

* select SUM(salary) from Emp;

SUM (SALARY)

-----------

7020500

* select COUNT(\*) from Emp;

COUNT (\*)

----------

3

* select MAX(salary) from Emp;

MAX (SALARY)

-----------

5005000

* select MIN(salary) from Emp;

MIN (SALARY)

-----------

10500

* select AVG(salary) from Emp;

AVG (SALARY)

-----------

2340166.67