Weekly Assignment

Creating Database and Tables:

```sql
use Sales_DB;
create table client_master (
    ClientNo    varchar(6) primary key check (clientno like 'c%'),
    Name        varchar(20) not null,
    Address1    varchar(30),
    Address2    varchar(30),
    City        varchar(15),
    PinCode     int,
    State       varchar(15),
    BalanceDue      decimal(10,2)
);
create table product_master (
    ProductNo       varchar(6) primary key check (productno like 'p%'),
    Description     varchar(25) not null,
    Profitpercentage    decimal(5,2) not null,
    UnitMeasure     varchar(10) not null,
    QtyOnHand       int not null,
    ReorderLevel    int not null,
    SellPrice       decimal(8,2) not null check (sellprice > 0),
    CostPrice       decimal(8,2) not null check (costprice > 0)
);
create table salesman_master (
    salesManNo      varchar(6) primary key check (salesManNo like 's%'),
    salesManName    varchar(20) not null,
    address1        varchar(30) not null,
    city            varchar(20),
    pinCode         int,
    state           varchar(20),
    salaryAmount        decimal(8,2) not null,
    tgtToGet        decimal(6,2) not null,
    ytdSales        decimal(6,2) not null,
    remarks         varchar(60) not null
);

create table sales_order (
    orderNo     varchar(6) primary key check (orderno like 'o%'),
    clientNo    varchar(6) references client_master(clientno),
    orderDate   date,
    delyAddr    varchar(25),
    salesmanno  varchar(6) references salesman_master(salesmanno),
    delyType    char(1) check (delytype in ('p','f')),
    billedYn    char(1) check (billedyn in ('y','n')),
    delyDate    date,
    orderStatus varchar(15)
        check (orderstatus in ('In Process','Fulfilled','Backorder','Cancelled'))
);
```

```sql
create table sales_order_details (
    orderNo     varchar(6),
    productNo   varchar(6),
    qtyOrdered  int,
    qtyDisp     int,
    productRate decimal(10,2),
    primary key (orderNo, productNo),
    foreign key (orderNo) references sales_order(orderNo),
    foreign key (productNo) references product_master(productNo)
);
```

Insertion of data(Insert Command):

```sql
insert into client_master
(clientno, name, address1, address2, city, pincode, state, balancedue) values
('C00001','Ivan Bayross','Andheri East',null,'Mumbai',400054,'Maharashtra',15000),
('C00002','Virat Kohli','Mg Road',null,'Mumbai',400001,'Maharashtra',4000),
('C00003','Rohit Sharma','Link Road',null,'Delhi',110001,'Delhi',6000),
('C00004','Ms Dhoni','Beach Road',null,'Chennai',600001,'Tamil Nadu',3000),
('C00005','Sachin Tendulkar','Bandra West',null,'Nagpur',440001,'Maharashtra',2000);

insert into product_master
(productno, description, profitpercentage, unitmeasure, qtyonhand, reorderlevel,
sellprice, costprice) values
('P00001','Pull Overs',10,'Piece',100,20,2500,1800),
('P00002','Trousers',12,'Piece',150,30,2200,1600),
('P00003','Caps',8,'Piece',300,50,500,300),
('P00004','1.44 drive',15,'Piece',80,10,1200,900),
('P00005','Shirts',20,'Piece',200,40,1800,1300);

insert into salesman_master
(salesmanno, salesmanname, address1, city, pincode, state, salaryAmount, tgtToGet,
ytdsales, remarks) values
('S00001','Aman','A/14','Mumbai',400002,'Maharashtra',3000,100,50,'Good'),
('S00002','Rahul','B/22','Delhi',110002,'Delhi',4000,150,120,'Excellent');

insert into sales_order
(orderno, orderdate, clientno, delyaddr, salesmanno, delytype, billedyn, delydate,
orderstatus) values
('O19001','2002-06-12','C00001','Mumbai','S00001','F','N','2002-07-20','InProcess'),
('O19002','2002-05-10','C00002','Mumbai','S00001','P','Y','2002-05-18','Fulfilled'),
('O19003','2002-04-05','C00003','Delhi','S00002','F','Y','2002-04-12','Fulfilled');

insert into sales_order_details
(orderno, productno, qtyordered, qtydisp, productrate) values
('O19001','P00001',4,2,2500),
('O19001','P00002',2,2,2200),
('O19002','P00002',5,5,2200),
('O19003','P00003',10,8,500);
```

1. Display the names of all the clients.
Query:
```sql
select name from client_master;
```
110 % ✓ ● No issues found

⊞ Results ▤ Messages

	name
1	Ivan Bayross
2	Virat Kohli
3	Rohit Sharma
4	Ms Dhoni
5	Sachin Tendulkar

2. display all the clients who are located in mumbai.

Query:
```sql
select * from client_master where city = 'Mumbai';
```
⊞ Results ▤ Messages ▥ Client Statistics

	ClientNo	Name	Address1	Address2	City	PinCode	State	BalanceDue
1	C00001	Ivan Bayross	Andheri East	NULL	Mumbai	400054	Maharashtra	15000.00
2	C00002	Virat Kohli	Mg Road	NULL	Mumbai	400001	Maharashtra	4000.00

3. display all the products whose selling price is > 2000 and < 5000.

Query:
```sql
select * from product_master
where sellprice > 2000  and sellprice < 5000;
```
⊞ Results ▤ Messages ▥ Client Statistics

	ProductNo	Description	Profitpercentage	UnitMeasure	QtyOnHand	ReorderLevel	SellPrice	CostPrice
1	P00001	Pull Overs	10.00	Piece	100	20	2500.00	1800.00
2	P00002	Trousers	12.00	Piece	150	30	2200.00	1600.00

4. Display Name, City and State of Clients not in the state of Maharashtra.

Query:
```sql
select name, city, state from client_master
where state <> 'Maharashtra';
```
⊞ Results ▤ Messages ▥ Client Statistics

	name	city	state
1	Rohit Sharma	Delhi	Delhi
2	Ms Dhoni	Chennai	Tamil Nadu

5. Display all the information of client_no C00001 and C00002.

Query:
```sql
select *from client_master
where clientno in ('C00001','C00002');
```

Results | Messages | Client Statistics

	ClientNo	Name	Address1	Address2	City	PinCode	State	BalanceDue
1	C00001	Ivan Bayross	Andheri East	NULL	Mumbai	400054	Maharashtra	15000.00
2	C00002	Virat Kohli	Mg Road	NULL	Mumbai	400001	Maharashtra	4000.00

6. Change the selling price of '1.44 drive' to Rs. 1150.50

Query:
```sql
update product_master
set sellprice = 1150.50
where description = '1.44 drive';
```

Messages | Client Statistics

```
(1 row affected)

Completion time: 2026-01-04T21:49:01.6826468+05:30
```

7. Delete the record of client_no C0005.

Query:
```sql
delete from client_master
where clientno = 'C00005';
```

Messages | Client Statistics

```
(1 row affected)

Completion time: 2026-01-04T21:51:24.5593997+05:30
```

8. Display the clients who stay in a city whose second letter is 'a'.

Query:
```sql
select *
from client_master
where state like '_a%';
```

Results | Messages | Client Statistics

	ClientNo	Name	Address1	Address2	City	PinCode	State	BalanceDue
1	C00001	Ivan Bayross	Andheri East	NULL	Mumbai	400054	Maharashtra	15000.00
2	C00002	Virat Kohli	Mg Road	NULL	Mumbai	400001	Maharashtra	4000.00
3	C00004	Ms Dhoni	Beach Road	NULL	Chennai	600001	Tamil Nadu	3000.00

9. Count the number of products having price greater than or equal to 1500.

Query:
```sql
select count(*) as product_count
from product_master
where sellprice >= 1500;
```

	product_count
1	3

10. Display qtyordered, qtydisp and balancedqty.

Query:
```sql
Select qtyordered,qtydisp,(qtyordered - qtydisp) as balancedqty
from sales_order_details;
```

	qtyordered	qtydisp	balancedqty
1	4	2	2
2	2	2	0
3	5	5	0
4	10	8	2

1. Make Client_no as primary key in client_master.

```sql
alter table client_master
add constraint pk_client primary key (clientno);
```

2. Add a new column phone_no in the client_master table.

Query:
```sql
alter table client_master
add phone_no varchar(15);
```

Commands completed successfully.

Completion time: 2026-01-04T22:04:48.3050544+05:30

3. Add the not null constraint in the product_master table with the column description, profit percent, sell price and cost price.

```sql
alter table product_master
alter column description varchar(25) not null;

alter table product_master
alter column profitpercentage decimal(5,2) not null;

alter table product_master
alter column sellprice decimal(8,2) not null;

alter table product_master
alter column costprice decimal(8,2) not null;
```
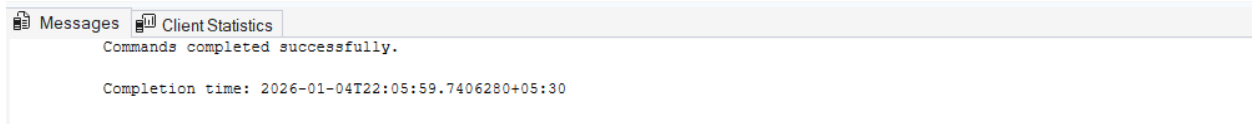
Messages | Client Statistics
```
Commands completed successfully.

Completion time: 2026-01-04T22:05:59.7406280+05:30
```
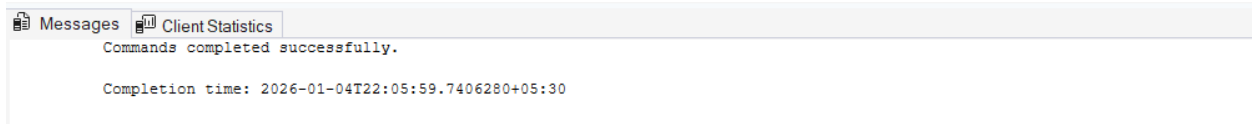
4. Change size of name column to 60 in client_master table.

Query:
```sql
alter table client_master
alter column name varchar(60);
```

Messages | Client Statistics
```
Commands completed successfully.

Completion time: 2026-01-04T22:05:59.7406280+05:30
```

5. Remove pincode column from table.

Query:
```sql
alter table client_master
drop column pincode;
```

Messages | Client Statistics
```
Commands completed successfully.

Completion time: 2026-01-04T22:05:59.7406280+05:30
```
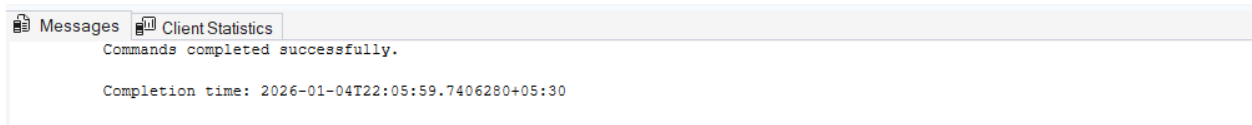
1. Recursive Relationship.

A recursive relationship occurs when a table is related to itself through a foreign key.
Example: employee(empid, managerid) where managerid references empid.

2. Composite key.

A composite key is a primary key formed using two or more columns to uniquely identify a record.
Example: primary key (orderno, productno).

3. The 'like' operator with pattern matching.

The LIKE operator is used to search data based on a specified pattern in a column.
Example: `select * from client_master where city like 'M%';`

4. Drop Table command.

The DROP TABLE command permanently removes a table and all its data from the database.
Example: `drop table client_master;`

5. Full Outer Join.

A FULL OUTER JOIN returns all records from both tables, matching rows where possible.
Example:

```
select * from client_master c

full outer join sales_order o

on c.clientno = o.clientno;
```

Joins:

1. Find out the products, which have been sold to 'Ivan Bayross'.

```sql
select distinct p.productno, p.description
from client_master c
join sales_order o on c.clientno = o.clientno
join sales_order_details d on o.orderno = d.orderno
join product_master p on d.productno = p.productno
where c.name = 'Ivan Bayross';
```

⊞ Results 🗋 Messages 🗐 Client Statistics

	productno	description
1	P00001	Pull Overs
2	P00002	Trousers

2. Finding out the products and their quantities that will have to be delivered in the current month.

```sql
select p.description, d.qtyordered
from sales_order o
join sales_order_details d on o.orderno = d.orderno
join product_master p on d.productno = p.productno
where month(o.delydate) = month(getdate())
  and year(o.delydate) = year(getdate());
```

⊞ Results 🗋 Messages 🗐 Client Statistics

	productno	description
1	P00001	Pull Overs
2	P00002	Trousers

3. Listing the ProductNo and description of constantly sold (i.e. rapidly moving) products.

```sql
select productno, description
from product_master
where qtyonhand < reorderlevel;
```

⊞ Results 🗋 Messages 🗐 Client Statistics

	productno	description
1	P00001	Pull Overs
2	P00002	Trousers

4. Finding the names of clients who have purchased 'Trousers'.

```sql
select distinct c.name
from client_master c
join sales_order o on c.clientno = o.clientno
join sales_order_details d on o.orderno = d.orderno
join product_master p on d.productno = p.productno
where p.description = 'Trousers';
```

Results   Messages   Client Statistics

	name
1	Ivan Bayross
2	Virat Kohli

5. Listing the products and orders from customers who have ordered less than 5 units of 'Pull Overs'.

```sql
select o.orderno, p.description, d.qtyordered
from sales_order o
join sales_order_details d on o.orderno = d.orderno
join product_master p on d.productno = p.productno
where p.description = 'Pull Overs'
  and d.qtyordered < 5;
```

Results   Messages   Client Statistics

	orderno	description	qtyordered
1	O19001	Pull Overs	4

Subquerries:

1. Finding the non-moving products i.e. products not being sold.

```sql
select *
from product_master
where productno not in
(select productno from sales_order_details);
```

Results | Messages | Client Statistics

	ProductNo	Description	Profitpercentage	UnitMeasure	QtyOnHand	ReorderLevel	SellPrice	CostPrice
1	P00004	1.44 drive	15.00	Piece	80	10	1150.50	900.00
2	P00005	Shirts	20.00	Piece	200	40	1800.00	1300.00

2. Finding the name and complete address for the customer who has placed Order number 'O19001'.

```sql
select name, address1, city, state
from client_master
where clientno =
(select clientno from sales_order where orderno = 'O19001');
```

Results | Messages | Client Statistics

	name	address1	city	state
1	Ivan Bayross	Andheri East	Mumbai	Maharashtra

3. Finding the clients who have placed orders before the month of May'02.

```sql
select * from client_master
where clientno in
(select clientno from sales_order where orderdate < '2002-05-01');
```

Results | Messages | Client Statistics

	ClientNo	Name	Address1	Address2	City	State	BalanceDue	phone_no
1	C00003	Rohit Sharma	Link Road	NULL	Delhi	Delhi	6000.00	NULL

1.Display system date as Saturday, February 11, 2012

```sql
select format(cast('2012-02-11' as date), 'dddd, MMMM dd, yyyy') as system_date;
```

	system_date
1	Saturday, February 11, 2012

2. Display Balance Due from Client master as $99,999.99

```sql
select format(balancedue, '$99,999,99') as balance_due
from client_master;
```

	balance_due
1	$9999999
2	$9999999
3	$9999999
4	$9999999

3. Display message as 'Salesman Aman sold goods of 50 while given target was 100.'

```sql
select
'Salesman ' + salesmanname +
' sold goods of ' + cast(ytdsales as varchar) +
' while given target was ' + cast(tgttoGet as varchar) as message
from salesman_master
where salesmanname = 'Aman';
```

	message
1	Salesman Aman sold goods of 50.00 while given target was 100.00

4. Display your Age in Years

```sql
select datediff(year, '2005-02-15', getdate()) as age_in_years;
```

	age_in_years
1	21