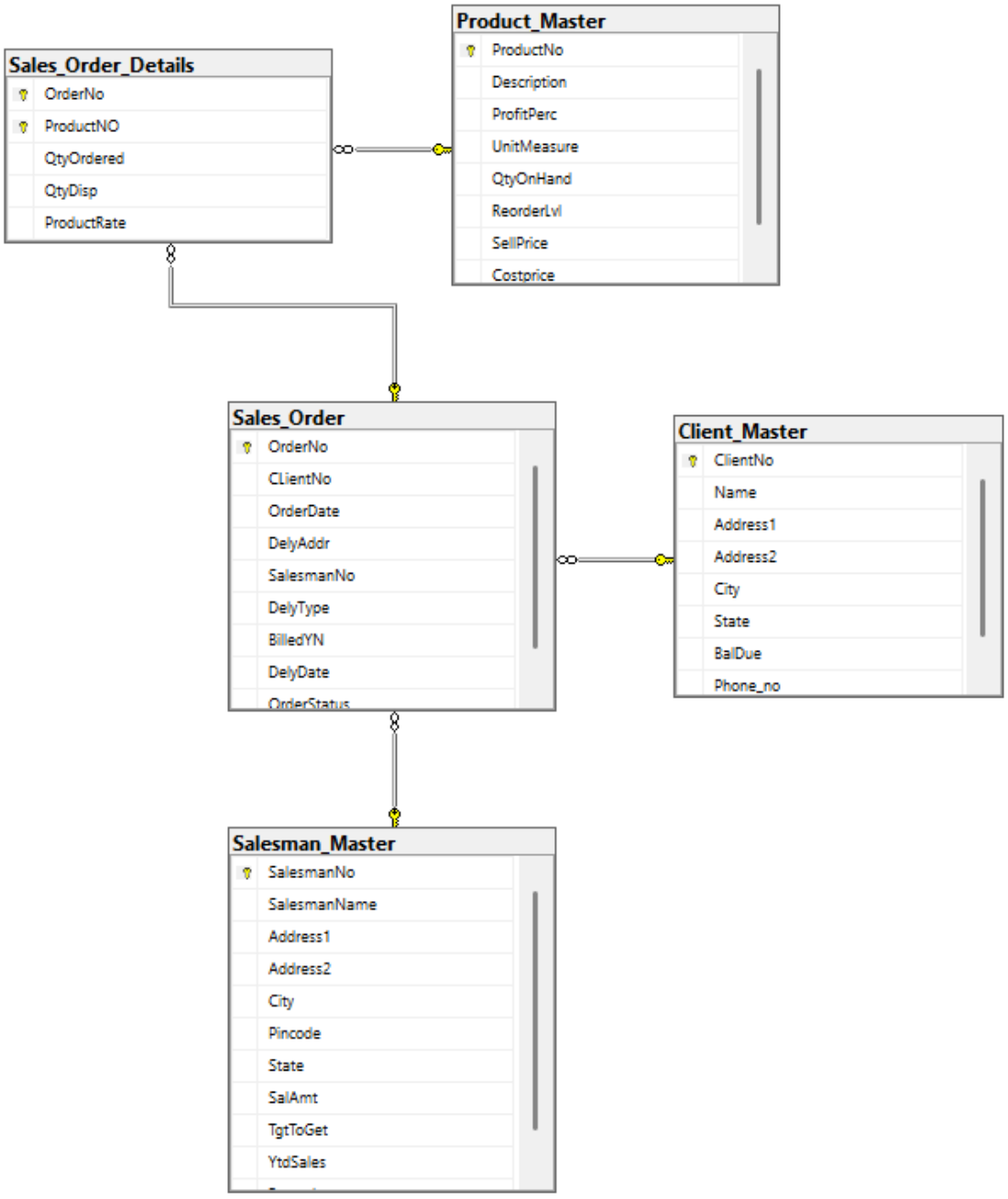
WEEK-1 SQL COMMANDS

Database creation

Create database SalesDB;

Use SalesDB;

ER-Diagram



1. **Create table commands**

- **Client Master Table**

```
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 numeric(8),
State varchar(15),
BalDue numeric(10,2)
);
```

- **Product Master Table**

```
create table Product_Master(
ProductNo varchar(6) primary key check(ProductNo like 'P%'),
Description varchar(15) NOT NULL ,
ProfitPerc numeric(4,2) NOT NULL,
UnitMeasure varchar(10) NOT NULL,
QtyOnHand numeric(8) NOT NULL,
ReorderLvl numeric(8,2) NOT NULL,
SellPrice numeric(8,2) NOT NULL check(SellPrice>0),
Costprice numeric(8,2) NOT NULL check(CostPrice>0)
);
```

- **Salesman Master Table**

```
create table Salesman_Master(
SalesmanNo varchar(6) primary key check(SalesmanNo like 'S%'),
SalesmanName varchar(20) not null,
Address1 varchar(30) not null,
Address2 varchar(30),
City varchar(20),
Pincode numeric(8),
State varchar(20),
SalAmt numeric(8,2) not null check(SalAmt>0),
TgtToGet numeric(6,2) not null,
YtdSales numeric(6,2) not null,
Remarks varchar(60)
);
```

- **Sales Order Table**

```
create table Sales_Order(
OrderNo varchar(6) Primary key check(OrderNo like 'O%'),
CLientNo varchar(6) Foreign key references Client_Master(ClientNo),
OrderDate date,
DelyAddr varchar(25),
SalesmanNo varchar(6) Foreign key references Salesman_Master(SalesmanNo),
DelyType char(1) check(DelyType in('P','F')),
BilledYN char(1) check(BilledYN in('Y' , 'N')),
DelyDate date,
OrderStatus varchar(10) check(OrderStatus in('In Process','Fulfilled',
'Backorder','Cancelled'))
);
```

- **Sales Order Details Table**

```
create table Sales_Order_Details(
OrderNo varchar(6) Foreign key references Sales_Order(OrderNo),
ProductNO varchar(6) Foreign key references Product_Master(ProductNo),
QtyOrdered numeric(8),
QtyDisp numeric(8),
ProductRate numeric(10,2),
primary key(OrderNo,ProductNo)
);
```

2. Insertion Commands

- **Client Master Table**

```
insert into Client_Master values('C0001','Ivan Bayross','A-11,Andheri
Appartments','Opp to Metro Station','Mumbai',400054,'Maharastra',15000);
insert into Client_Master values('C0002','Harini Rao','1-2/6,Province
Apartments','Near Cyber Towers','Hyderabad',505172,'Telangana',12000);
insert into Client_Master values('C0003','Srinitha Rao','Flat 101, Ganesh
Nagar','Opp Bus stop','Banglore',560001,'Karnataka',20000);
insert into Client_Master values('C0004','Vandana Roy','Krins Villas, T
Nagar','Near Virasat Restaurant','Chennai',600006,'Tamil Nadu',22000);
insert into Client_Master values('C0005','Sai Kumar','Resina Apartments','Near
Court Circle ','Vizag',515001,'Andhra Pradesh',18000);
```

- **Product Master Table**

```
insert into Product_Master values('P0001','T-Shirts',5,'Piece',200,50,350,250);
insert into Product_Master values('P0002','Trousers',8,'Piece',150,40,550,400);
insert into Product_Master values('P0003','Pull Overs',10,'Piece',80,30,900,650);
insert into Product_Master values('P0004','Jeans',12,'Piece',120,30,2200,900);
insert into Product_Master values('P0005','Jackets',15,'Piece',60,20,3000,1400);
```

insert into Product_Master values ('P0006', 'Sweatshirts', 8, 'Piece', 50, 10, 1200, 800);

- **Salesman Master Table**

  insert into Salesman_Master values('S0001','Aman','A/14','Worli','Mumbai',400002,'Maharastra',3000,100,50,'Good');
  insert into Salesman_Master values('S0002','Ravi','Plot 45, Kukatpally','Near Metro Station','Hyderabad',500072,'Telangana', 2800,200,40,'Excellent');
  insert into Salesman_Master values('S0003','Suresh','C-22, Andheri West','Near mall','Mumbai',400058,'Maharashtra', 3200,150,35,'Very Good');
  insert into Salesman_Master values('S0004','Neha','D-10, Salt Lake','Sector V','Kolkata',700091,'West Bengal', 2500,120,60,'Average');
  insert into Salesman_Master values('S0005','Anita','Flat 12, Ameerpet','Opp Big Bazaar','Hyderabad',500016,'Telangana', 2000,210,55,'Good');

- **Sales Order Table**

  insert into Sales_Order values('O19001','C0001','12-june-02','Hitech-City,Hyderabad','S0001','F','N','20-july-02','In Process');
  insert into Sales_Order values('O19002','C0002','05-jan-02','Andheri East, Mumbai','S0002','F','Y','12-sep-02','In Process');
  insert into Sales_Order values('O19003','C0003','07-sep-02','T Nagar, Chennai','S0003','P','N','14-oct-02','Fulfilled');
  insert into Sales_Order values('O19004','C0001','11-oct-02','Bandra West, Mumbai','S0004','P','Y','18-nov-02','Backorder');
  insert into Sales_Order values('O19005','C0002','13-nov-02','Velachery, Chennai','S0005','F','N','20-dec-02','Cancelled');
  insert into Sales_Order values('O19006','C0002','04-jan-26','Velachery, Chennai','S0005','F','N','20-jan-26','In Process');

- **Sales Order Details Table**

  insert into Sales_Order_Details values('O19001','P0001',4,4,525);
  insert into Sales_Order_Details values('O19001','P0002',5,2,490);
  insert into Sales_Order_Details values('O19002','P0003',3,3,550);
  insert into Sales_Order_Details values('O19003','P0004',4,3,900);
  insert into Sales_Order_Details values('O19004','P0005',1,1,1200);
  insert into Sales_Order_Details values('O19006','P0005',3,2,1500);

Queries

1. **Display the names of all the clients.**
   select Name from Client_Master;

	Name
1	Ivan Bayross
2	Harini Rao
3	Srinitha Rao
4	Vandana Roy
5	Sai Kumar

2. **Display all the clients who are located in Mumbai.**
   select * from Client_Master where city='Mumbai';

	ClientNo	Name	Address1	Address2	City	State	BalDue
1	C0001	Ivan Bayross	A-11,Andheri Appartments	Opp to Metro Station	Mumbai	Maharastra	15000.00

3. **Display all the products whose selling price is >2000 and <5000.**
   select * from Product_Master where SellPrice>2000 and SellPrice<5000;

	ProductNo	Description	ProfitPerc	UnitMeasure	QtyOnHand	ReorderLvl	SellPrice	Costprice
1	P0004	Jeans	12.00	Piece	120	30.00	2200.00	900.00
2	P0005	Jackets	15.00	Piece	60	20.00	3000.00	1400.00

4. **Display Name,City and State of Clients not in the state of Maharastra.**
   select Name,City,State from Client_Master where State<>'Maharastra';

	Name	City	State
1	Harini Rao	Hyderabad	Telangana
2	Srinitha Rao	Banglore	Karnataka
3	Vandana Roy	Chennai	Tamil Nadu
4	Sai Kumar	Vizag	Andhra Pradesh

5. **Display all the information of client_no C0001 and C0002.**
   select * from Client_Master where ClientNo in('C0001','C0002');

	ClientNo	Name	Address1	Address2	City	State	BalDue
1	C0001	Ivan Bayross	A-11,Andheri Appartments	Opp to Metro Station	Mumbai	Maharastra	15000.00
2	C0002	Harini Rao	1-2/6,Province Apartments	Near Cyber Towers	Hyderabad	Telangana	12000.00

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

   update Product_Master set SellPrice = 1150.50 where Description = '1.44 drive';

7. **Delete the record of client_no C0005.**

   delete from Client_Master where ClientNo='C0005';

   select * from Client_Master;

	ClientNo	Name	Address1	Address2	City	State	BalDue
1	C0001	Ivan Bayross	A-11,Andheri Appartments	Opp to Metro Station	Mumbai	Maharastra	15000.00
2	C0002	Harini Rao	1-2/6,Province Apartments	Near Cyber Towers	Hyderabad	Telangana	12000.00
3	C0003	Srinitha Rao	Flat 101, Ganesh Nagar	Opp Bus stop	Banglore	Karnataka	20000.00
4	C0004	Vandana Roy	Krins Villas, T Nagar	Near Virasat Restaurant	Chennai	Tamil Nadu	22000.00

8. **Display the clients who stay in a city whose second letter is 'a'.**
   select * from Client_Master where City like '_a%';

	ClientNo	Name	Address1	Address2	City	State	BalDue
1	C0003	Srinitha Rao	Flat 101, Ganesh Nagar	Opp Bus stop	Banglore	Karnataka	20000.00

9. **Count the number of products having price greater than or equal to 1500.**
   select count(*) as products_count from Product_Master where SellPrice>1500 ;

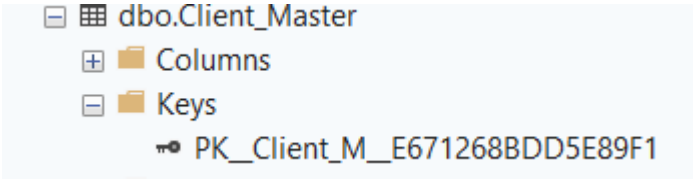
	products_count
1	2

10. **Display qtyordered,qtydisp and balancedqty.**
    select QtyOrdered,QtyDisp,(QtyOrdered-QtyDisp) as balancedqty from Sales_Order_Details;

	QtyOrdered	QtyDisp	balancedqty
1	4	4	0
2	5	2	3
3	3	3	0
4	4	3	1
5	1	1	0
6	3	2	1

1. **Make Client_no as primary key in client_master.**

   Alter table Client_Master add constraint pk_clientno primary key(ClientNo)



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

   alter table Client_Master add Phone_no varchar(15);

	ClientNo	Name	Address1	Address2	City	State	BalDue	Phone_no
1	C0001	Ivan Bayross	A-11,Andheri Appartments	Opp to Metro Station	Mumbai	Maharastra	15000.00	NULL
2	C0002	Harini Rao	1-2/6,Province Apartments	Near Cyber Towers	Hyderabad	Telangana	12000.00	NULL
3	C0003	Srinitha Rao	Flat 101, Ganesh Nagar	Opp Bus stop	Banglore	Karnataka	20000.00	NULL
4	C0004	Vandana Roy	Krins Villas, T Nagar	Near Virasat Restaurant	Chennai	Tamil Nadu	22000.00	NULL

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

   alter table Product_Master alter column Description varchar(15) NOT NULL;
   alter table Product_Master alter column ProfitPerc numeric NOT NULL;
   alter table Product_Master alter column SellPrice numeric NOT NULL;
   alter table Product_Master alter column CostPrice numeric NOT NULL;

4. **Change size of name column to 60 in client_master table.**

   alter table Client_Master alter column Name varchar(60);

5. **Remove pincode column from table.**
   alter table Client_Master drop column Pincode;

DEFINITIONS

1. **Recursive Relationship.**
   It is a type of relation where an entity is related to itself. i.e one row in a table is related to another row in the same table.
   Ex:Employee table has attributes like EmpID,EmpName,ManagerID.
   ManagerID is a recursive foreign key. Because ManagerID references EmpID.
   Query to find the managers for each employees.
   Select e.EmpName as Employee, m.EmpName as Manager from Employee e left join Employee m on e.ManagerID = m.EmpID;

2. **Composite Key**
   A composite key is a primary key made up of two or more columns used together to uniquely identify a record.
   Ex: In enrollments table Student_id ,Course_id together form a primary key.

3. **The 'like' operator with pattern matching.**
   The like operator is used to find a specific pattern in a column.

Wildcards used are :
% - It represents 0 or more characters.
_ - represents one character
Ex: Find names of students starting with A.
Select name from students where name like 'A%';

4. **Drop Table command.**
   Drop table command is DDL(Data Definition Language) command which is used to permanently delete the data from table and its structure from the database.
   Syntax :
   DROP TABLE TableName;
   Ex: drop table students;

5. **Full Outer Join**
   It is type of join that return all the records when there is a match in either of the left table or right table.
   i.e it returns all records from both tables , matching records where possible and null values when their is no match.
   Ex: retrieve all customers and their orders.
   Customer table has columns like CustomerID,CustomerName
   Orders table has columns like OrderID and CustomerID
   Select c.CustomerID, c.CustomerName, o.OrderID from Customers c
   Full outer join Orders o on c.CustomerID = o.CustomerID;

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

   ```
   select distinct p.ProductNo,p.Description from Product_Master p
   join Sales_Order_Details sd on sd.ProductNO = p.ProductNo
   join Sales_Order s on sd.OrderNo=s.OrderNo
   join Client_Master c on s.CLientNo=c.ClientNo
   where c.Name='Ivan Bayross';
   ```

	ProductNo	Description
1	P0001	T-Shirts
2	P0002	Trousers
3	P0005	Jackets

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

   ```
   select p.ProductNO,p.Description,sd.QtyOrdered from Product_Master p
   ```

```
join Sales_Order_Details sd  on sd.ProductNO=p.ProductNo
join Sales_Order s on s.OrderNo=sd.OrderNo
where month(s.DelyDate)=month(GETDATE()) ;
```

	ProductNO	Description	QtyOrdered
1	P0005	Jackets	3

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

```
select p.ProductNo,p.Description from Product_Master p
join Sales_Order_Details sd on p.ProductNo = sd.ProductNo
group by p.ProductNo, p.Description having count(distinct sd.OrderNo) > 1;
```

	ProductNo	Description
1	P0005	Jackets

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

```
select c.Name from Client_Master c
join Sales_Order s on s.CLientNo=c.ClientNo
join Sales_Order_Details sd on sd.OrderNo=s.OrderNo
join Product_Master p on sd.ProductNO=p.ProductNo
where p.Description='Trousers';
```

	Name
1	Ivan Bayross

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

```
select c.Name,p.ProductNo,p.Description,sd.OrderNo,  sd.QtyOrdered
from Product_Master p
join Sales_Order_Details sd on sd.ProductNO=p.ProductNo
join Sales_Order s on sd.OrderNo=s.OrderNo
join Client_Master c on s.CLientNo=c.ClientNo
where p.Description='Pull Overs' and sd.QtyOrdered<5;
```

	Name	ProductNo	Description	OrderNo	QtyOrdered
1	Harini Rao	P0003	Pull Overs	O19002	3

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

   select p.ProductNo,p.Description from Product_Master p left join Sales_Order_Details sd on sd.ProductNO=p.ProductNo where sd.ProductNO IS null;

	ProductNo	Description
1	P0006	Sweatshirts

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

   select c.Name,concat(c.Address1,' ' ,c.Address2) as Address from Client_Master c

   join Sales_Order s on s.CLientNo=c.ClientNo where s.OrderNo='O19001';

	Name	Address
1	Ivan Bayross	A-11,Andheri Appartments Opp to Metro Station

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

   select c.ClientNo,c.Name from Client_Master c

   join Sales_Order s on s.CLientNo=c.ClientNo

   where s.OrderDate<'1-may-02';

	ClientNo	Name
1	C0002	Harini Rao

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

   select FORMAT(cast('2012-02-11' As Date),'dddd,MMMM dd,yyyy') as SystemDate;

	SystemDate
1	Saturday,February 11,2012

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

   select concat('$',cast(BalDue as decimal(10,2))) as BalDue from Client_Master;

	BalDue
1	$15000.00
2	$12000.00
3	$20000.00
4	$22000.00

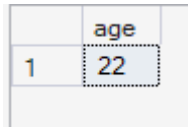
3. **Display message as Salesman Aman sold goods of 50 while given target was 100.**

```
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 tar...

4. Display age in years.

```
select DATEDIFF(year,'2004-09-21',getdate()) as age;
```



	age
1	22