

WEEK - 1 - SQL COMMANDS

RATNA JASHWANTH

DATABASE SCHEMA

CLIENT MASTER			PRODUCT MASTER			SALESMAN MASTER		
CLIENTNO	vc2(6)	PK & Must start with 'C'	PRODUCTNO	vc2(6)	PK & Must start with 'P'	SALESMANNO	vc2(6)	PK & Must start with 'S'
NAME	vc2(20)	NOT NULL	DESCRIPTION	vc2(15)	NOT NULL	SALESMANNAME	vc2(20)	NOT NULL
ADDRESS1	vc2(30)		PROFITPERC	n(4,2)	NOT NULL	ADDRESS1	vc2(30)	NOT NULL
ADDRESS2	vc2(30)		UNITMEASURE	vc2(10)	NOT NULL	ADDRESS2	vc2(30)	
CITY	vc2(15)		QTYONHAND	n(8)	NOT NULL	CITY	vc2(20)	
PINCODE	n(8)		REORDERLVL	n(8)	NOT NULL	PINCODE	n(8)	
STATE	vc2(15)		SELLPRICE	n(8,2)	NOT NULL & can't be 0	State	vc2(20)	
BALDUE	n(10,2)		COSTPRICE	n(8,2)	NOT NULL & can't be 0	SALAMT	n(8,2)	NOT NULL & Can't be 0
						TGTTGET	n(6,2)	NOT NULL
						YTDSALES	n(6,2)	NOT NULL
						REMARKS	vc2(60)	
SALES ORDER			SALES ORDER DETAILS					
ORDERNO	vc2(6)	PK & Must start with 'O'	ORDERNO	vc2(6)	FK to SALES_ORDER			
CLIENTNO	vc2(6)	FK to CLIENT_MASTER	PRODUCTNO	vc2(6)	FK to PRODUCT_MASTER			
ORDERDATE	date		QTYORDERED	n(8)				
DELYADDR	vc2(25)		QTYDISP	n(8)				
SALESMANNO	vc2(6)	FK to SALESMAN_MASTER	PRODUCTRATE	n(10,2)				
DELYTYPE	char(1)	Check 'P' or 'F'	Create Composite PRIMARY KEY of ORDERNO and PRODUCTNO					
BILLEDYN	char(1)	Check 'Y' or 'N'						
DELYDATE	date							
ORDERSTATUS	vc2(10)	Check 'In Process' or 'Fulfilled' or 'Backorder' or 'Cancelled'						

CREATION OF TABLES

```
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)
);
```

```
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) not null,
    sellprice numeric(8,2) not null check (sellprice <> 0),
    costprice numeric(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,
    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)
);

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(10) check (orderstatus in ('in process','fulfilled','backorder','cancelled'))
);

create table sales_order_details (
    orderno varchar(6) references sales_order(orderno),
    productno varchar(6) references product_master(productno),
    qtyordered numeric(8),
    qtydisp numeric(8),
    productrate numeric(10,2),
    constraint pk_sales_order_details primary key (orderno, productno)
);

```

INSERTION OF SAMPLE DATA

insert into client_master values

```

('C0001','ivan bayross','andheri west','link road','mumbai',400058,'maharashtra',1200.00),
('C0002','rahul mehta','baner','main road','pune',411045,'maharashtra',3500.50),
('C0003','sanjay kumar','adyar','1st street','chennai',600020,'tamilnadu',800.00),
('C0004','anita shah','navrangpura','cg road','ahmedabad',380009,'gujarat',150.75),
('C0005','kiran reddy','madhapur','hitech city','hyderabad',500081,'telangana',2200.00);

```

insert into product_master values

```

('P0001','trousers',15.00,'pcs',100,20,2500.00,2000.00),
('P0002','pull overs',18.00,'pcs',80,15,3000.00,2400.00),
('P0003','shirts',12.00,'pcs',150,30,1800.00,1400.00),
('P0004','1.44 drive',10.00,'pcs',60,10,1000.00,850.00),
('P0005','jackets',20.00,'pcs',40,10,5000.00,4200.00);

```

insert into salesman_master values

```
('S0001','aman','mg road','sector 1','mumbai',400001,'maharashtra',15000,100,50,'average'),
('S0002','rohit','ring road','sector 2','pune',411001,'maharashtra',18000,120,90,'good'),
('S0003','neeraj','main road','sector 3','delhi',110001,'delhi',20000,150,140,'excellent'),
('S0004','karthik','it park','block a','hyderabad',500081,'telangana',17000,130,60,'good'),
('S0005','sunita','station road','area b','chennai',600001,'tamilnadu',16000,110,70,'average');
```

insert into sales_order values

```
('O19001','C0001','2002-04-15','mumbai','S0001','P','Y','2002-04-20','fulfilled'),
('O19002','C0002','2002-05-10','pune','S0002','F','N','2002-05-18','in process'),
('O19003','C0003','2025-01-05','chennai','S0005','P','Y','2025-01-12','fulfilled'),
('O19004','C0001','2025-02-01','mumbai','S0001','F','N','2025-02-10','backorder'),
('O19005','C0004','2025-01-20','ahmedabad','S0003','P','Y','2025-01-28','fulfilled');
```

insert into sales_order_details values

```
('O19001','P0001',6,6,2500.00),
('O19001','P0004',2,2,1000.00),
('O19002','P0002',4,0,3000.00),
('O19003','P0003',10,10,1800.00),
('O19004','P0002',3,1,3000.00);
```

Answer following queries with the help of above schema : [10]

1. Display the names of all the clients.

```
select name from client_master;
```

	name
1	ivan bayross
2	rahul mehta
3	sanjay kumar
4	anita shah
5	kiran reddy

2. Display all the clients who are located in Mumbai.

select * from client_master where city in ('mumbai');

	clientno	name	address1	address2	city	pincode	state	baldue
1	C0001	ivan bayross	andheri west	link road	mumbai	400058	maharashtra	1200.00

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

select * from product_master where sellprice between 2000 and 5000;

	productno	description	profitperc	unitmeasure	qtyonhand	reorderlvl	sellprice	costprice
1	P0001	trousers	15.00	pcs	100	20	2500.00	2000.00
2	P0002	pull overs	18.00	pcs	80	15	3000.00	2400.00
3	P0005	jackets	20.00	pcs	40	10	5000.00	4200.00

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

select name, city, state from client_master where state not in ('maharashtra')

	name	city	state
1	sanjay kumar	chennai	tamilnadu
2	anita shah	ahmedabad	gujarat
3	kiran reddy	hyderabad	telangana

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	pincode	state	baldue
1	C0001	ivan bayross	andheri west	link road	mumbai	400058	maharashtra	1200.00
2	C0002	rahul mehta	baner	main road	pune	411045	maharashtra	3500.50

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';

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	pincode	state	baldue
1	C0001	ivan bayross	andheri west	link road	mumbai	400058	maharashtra	1200.00

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

```
select count(*) as count_of_products from product_master where sellprice >= 1500.00;
```

	count_of_products
1	4

10. Display qtyordered, qtydisp and balancedqty (not in table).

```
select qtyordered, qtydisp, (qtyordered-qtydisp) as balanceqty from sales_order_details;
```

	qtyordered	qtydisp	balanceqty
1	6	6	0
2	2	2	0
3	4	0	4
4	10	10	0
5	3	1	2

Write Commands to do following [10]

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);
```

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(4,2) not null;
```

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

```
alter table product_master alter column costprice numeric(8,2) not null;
```

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

```
alter table client_master alter column name varchar(60) not null;
```

5. Remove pincode column from table.

```
alter table client_master drop column pincode;
```

Define in 1 or 2 lines and give one example also [10]

1. **Recursive Relationship.**

A recursive relationship is when a table is related to itself, meaning a row references another row in the same table.

Example:

An employee table where manager_id refers to employee_id of the same table.

2. **Composite key.**

A composite key is a primary key made up of **two or more columns** used together to uniquely identify a record.

Example:

(orderno, productno) as primary key in sales_order_details.

3. **The 'like' operator with pattern matching.**

The like operator is used to search for a specified pattern in a column using wildcards such as % and _.

Example:

```
select * from client_master where city like 'm%';
```

4. **Drop Table command.**

The drop table command permanently removes a table along with all its data and structure from the database.

Example:

```
drop table sales_order;
```

5. **Full Outer Join.**

A full outer join returns all records from both tables, including matching and non-matching rows.

Example:

```
select c.clientno, o.orderno from client_master c  
full outer join sales_order o on c.clientno = o.clientno;
```

Write queries for following descriptions: (Joins) [10]

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

```
select distinct p.productno, p.description from client_master c  
  
join sales_order s on c.clientno = s.clientno  
  
join sales_order_details sd on s.orderno = sd.orderno  
  
join product_master p on sd.productno = p.productno  
  
where c.name = 'ivan bayross';
```

	productno	description
1	P0001	trousers
2	P0002	pull overs
3	P0004	1.44 drive

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 sales_order s  
  
join sales_order_details sd on s.orderno = sd.orderno  
  
join product_master p on sd.productno = p.productno  
  
where month(s.delydate) = month(getdate()) and year(s.delydate) = year(getdate());
```

	productno	description	qtyordered
--	-----------	-------------	------------

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

```
select distinct p.productno, p.description  
  
from product_master p  
  
join sales_order_details sd on p.productno = sd.productno;
```

	productno	description
1	P0001	trousers
2	P0002	pull overs
3	P0003	shirts
4	P0004	1.44 drive

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

```
select distinct c.name from client_master c
join sales_order s on c.clientno = s.clientno
join sales_order_details sd on s.orderno = sd.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 s.orderno, p.productno, p.description, sd.qtyordered
from sales_order s
join sales_order_details sd on s.orderno = sd.orderno
join product_master p on sd.productno = p.productno
where p.description = 'pull overs' and sd.qtyordered < 5;
```

	orderno	productno	description	qtyordered
1	O19002	P0002	pull overs	4
2	O19004	P0002	pull overs	3

Write queries for following descriptions: (Subqueries) [12]

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

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

	productno	description	profitperc	unitmeasure	qtyonhand	reorderlvl	sellprice	costprice
1	P0005	jackets	20.00	pcs	40	10	5000.00	4200.00

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

```
select name, address1, address2, city, state from client_master  
  
where clientno = (  
  
    select clientno  
  
    from sales_order  
  
    where orderno = 'O19001'  
  
);
```

	name	address1	address2	city	state
1	ivan bayross	andheri west	link road	mumbai	maharashtra

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

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

	name
1	ivan bayross

Write Commands to do following [12]

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

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

	(No column name)
1	Saturday, February 11, 2012

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

```
select '$' + format(baldue, 'N2') as balance_due from client_master;
```

	balance_due
1	\$1,200.00
2	\$3,500.50
3	\$800.00
4	\$150.75

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 target was 100.00

4. Display your Age in Years.

```
select datediff(year, '2003-01-01', getdate()) as age_in_years;
```

	age_in_years	
1	23	