

WEEK-1 SQL COMMANDS

- **CREATION OF DATABASE**

```
CREATE DATABASE Products;
```

- **USAGE OF DATABASE**

```
USE Products;
```

- **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,
    REORDERVL 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),  
TGTT0GET 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),PRIMARY KEY (ORDERNO, PRODUCTNO)  
);
```

- **INSERTION OF VALUES IN EACH TABLES-**

INSERT INTO CLIENT_MASTER VALUES

('C00001', 'Ivan Bayross', 'A/14 Worli', 'Near Park', 'Mumbai', 400054, 'Maharashtra', 15000),
(‘C00002’, ‘Sanjay Mehta’, ‘B/10 Connaught’, ‘Block A’, ‘Delhi’, 110001, ‘Delhi’, 12000),
(‘C00003’, ‘Nisha Kaur’, ‘C/22 FC Road’, ‘Opp Mall’, ‘Pune’, 411001, ‘Maharashtra’, 9000),
(‘C00004’, ‘Rohit Sharma’, ‘D/50 MG Road’, ‘HSR Layout’, ‘Bangalore’, 560001, ‘Karnataka’, 18000),
(‘C00005’, ‘Aarti Shah’, ‘E/5 Anna Nagar’, ‘2nd Street’, ‘Chennai’, 600001, ‘Tamil Nadu’, 14000);

INSERT INTO PRODUCT_MASTER VALUES

(‘P00001’, ‘T-Shirt’, 5.5, ‘Piece’, 200, 50, 350.00, 250.00),
(‘P00002’, ‘Jeans’, 8.0, ‘Piece’, 150, 40, 900.00, 700.00),
(‘P00003’, ‘Trousers’, 6.0, ‘Piece’, 300, 60, 750.00, 500.00),
(‘P00004’, ‘Pull Overs’, 7.5, ‘Piece’, 100, 30, 1100.00, 850.00),
(‘P00005’, ‘1.44 MB Drive’, 4.5, ‘Piece’, 50, 20, 1500.00, 1200.00);

INSERT INTO SALESMAN_MASTER VALUES

(‘S00001’, ‘Aman’, ‘A/14’, ‘Worli’, ‘Mumbai’, 400002, ‘Maharashtra’, 3000.00, 100.00, 50.00, ‘Good’),
(‘S00002’, ‘Ravi Kumar’, ‘B/22’, ‘Andheri’, ‘Mumbai’, 400053, ‘Maharashtra’, 5000.00, 150.00, 80.00, ‘Average’),
(‘S00003’, ‘Sneha Iyer’, ‘C/10’, ‘Baner’, ‘Pune’, 411045, ‘Maharashtra’, 4500.00, 120.00, 90.00, ‘Excellent’),
(‘S00004’, ‘Vikas Rao’, ‘D/18’, ‘HSR’, ‘Bangalore’, 560102, ‘Karnataka’, 3500.00, 80.00, 60.00, ‘Good’),
(‘S00005’, ‘Neha Singh’, ‘E/55’, ‘T Nagar’, ‘Chennai’, 600017, ‘Tamil Nadu’, 3200.00, 90.00, 70.00, ‘Very Good’);

INSERT INTO SALES_ORDER VALUES

(‘O19001’, ‘C00001’, ‘2002-07-12’, ‘Mumbai’, ‘S00001’, ‘F’, ‘N’, ‘2002-07-20’, ‘In Process’),
(‘O19002’, ‘C00002’, ‘2002-08-10’, ‘Delhi’, ‘S00002’, ‘P’, ‘Y’, ‘2002-08-15’, ‘Fulfilled’),
(‘O19003’, ‘C00003’, ‘2002-09-05’, ‘Pune’, ‘S00003’, ‘F’, ‘N’, ‘2002-09-12’, ‘Backorder’),
(‘O19004’, ‘C00004’, ‘2002-07-22’, ‘Bangalore’, ‘S00004’, ‘P’, ‘Y’, ‘2002-07-28’, ‘Cancelled’),
(‘O19005’, ‘C00005’, ‘2002-10-02’, ‘Chennai’, ‘S00005’, ‘F’, ‘N’, ‘2002-10-10’, ‘In Process’);

```
INSERT INTO SALES_ORDER_DETAILS VALUES
```

```
('O19001', 'P00001', 10, 8, 350.00),  
(‘O19001’, ‘P00003’, 5, 5, 750.00),  
(‘O19002’, ‘P00004’, 3, 3, 1100.00),  
(‘O19003’, ‘P00003’, 7, 6, 750.00),  
(‘O19005’, ‘P00004’, 2, 1, 1100.00);
```

- **DISPLAYING ALL TABLES**

```
-- Display CLIENT_MASTER
```

```
SELECT * FROM CLIENT_MASTER;
```

	CLIENTNO	NAME	ADDRESS1	ADDRESS2	CITY	PINCODE	STATE	BALDUE
1	C00001	Ivan Bayross	A/14 Worli	Near Park	Mumbai	400054	Maharashtra	15000.00
2	C00002	Sanjay Mehta	B/10 Connaught	Block A	Delhi	110001	Delhi	12000.00
3	C00003	Nisha Kaur	C/22 FC Road	Opp Mall	Pune	411001	Maharashtra	9000.00
4	C00004	Rohit Sharma	D/50 MG Road	HSR Layout	Bangalore	560001	Karnataka	18000.00
5	C00005	Aarti Shah	E/5 Anna Nagar	2nd Street	Chennai	600001	Tamil Nadu	14000.00

```
-- Display PRODUCT_MASTER
```

```
SELECT * FROM PRODUCT_MASTER;
```

	PRODUCTNO	DESCRIPTION	PROFITPERC	UNITMEASURE	QTYONHAND	REORDERVL	SELLPRICE	COSTPRICE
1	P00001	T-Shirt	5.50	Piece	200	50	350.00	250.00
2	P00002	Jeans	8.00	Piece	150	40	900.00	700.00
3	P00003	Trousers	6.00	Piece	300	60	750.00	500.00
4	P00004	Pull Overs	7.50	Piece	100	30	1100.00	850.00
5	P00005	1.44 MB Drive	4.50	Piece	50	20	1500.00	1200.00

```
-- Display SALESMAN_MASTER
```

```
SELECT * FROM SALESMAN_MASTER;
```

	SALESMANNO	SALESMANNAME	ADDRESS1	ADDRESS2	CITY	PINCODE	STATE	SALAMT	TGTT0GET	YTDSALES	REMARKS
1	S00001	Aman	A/14	Worli	Mumbai	400002	Maharashtra	3000.00	100.00	50.00	Good
2	S00002	Ravi Kumar	B/22	Andheri	Mumbai	400053	Maharashtra	5000.00	150.00	80.00	Average
3	S00003	Sneha Iyer	C/10	Baner	Pune	411045	Maharashtra	4500.00	120.00	90.00	Excellent
4	S00004	Vikas Rao	D/18	HSR	Bangalore	560102	Karnataka	3500.00	80.00	60.00	Good
5	S00005	Neha Singh	E/55	T Nagar	Chennai	600017	Tamil Nadu	3200.00	90.00	70.00	Very Good

```
-- Display SALES_ORDER
```

```
SELECT * FROM SALES_ORDER;
```

	ORDERNO	CLIENTNO	ORDERDATE	DELYADDR	SALESMANNO	DELYTYPE	BILLEDYN	DELYDATE	ORDERSTATUS
1	O19001	C00001	2002-07-12	Mumbai	S00001	F	N	2002-07-20	In Process
2	O19002	C00002	2002-08-10	Delhi	S00002	P	Y	2002-08-15	Fulfilled
3	O19003	C00003	2002-09-05	Pune	S00003	F	N	2002-09-12	Backorder
4	O19004	C00004	2002-07-22	Bangalore	S00004	P	Y	2002-07-28	Cancelled
5	O19005	C00005	2002-10-02	Chennai	S00005	F	N	2002-10-10	In Process

```
-- Display SALES_ORDER_DETAILS
SELECT * FROM SALES_ORDER_DETAILS;
```

	ORDERNO	PRODUCTNO	QTYORDERED	QTYDISP	PRODUCTRATE	
1	O19001	P00001	10	8	350.00	
2	O19001	P00003	5	5	750.00	
3	O19002	P00004	3	3	1100.00	
4	O19003	P00003	7	6	750.00	
5	O19005	P00004	2	1	1100.00	

--Display the names of all the clients.

```
select name from CLIENT_MASTER;
```

	name
1	Ivan Bayross
2	Sanjay Mehta
3	Nisha Kaur
4	Rohit Sharma
5	Aarti Shah

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

```
select * from CLIENT_MASTER where CITY='MUMBAI';
```

	CLIENTNO	NAME	ADDRESS1	ADDRESS2	CITY	PINCODE	STATE	BALDUE
1	C00001	Ivan Bayross	A/14 Worli	Near Park	Mumbai	400054	Maharashtra	15000.00

--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	REORDERVL	SELLPRICE	COSTPRICE

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

```
SELECT name,city,state from CLIENT_MASTER where state<>'Maharashtra';
```

	name	city	state
1	Sanjay Mehta	Delhi	Delhi
2	Rohit Sharma	Bangalore	Karnataka
3	Aarti Shah	Chennai	Tamil Nadu

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

```
select * from CLIENT_MASTER where CLIENTNO='C00001' OR CLIENTNO='C00002';
```

	CLIENTNO	NAME	ADDRESS1	ADDRESS2	CITY	PINCODE	STATE	BALDUE
1	C00001	Ivan Bayross	A/14 Worli	Near Park	Mumbai	400054	Maharashtra	15000.00
2	C00002	Sanjay Mehta	B/10 Connaught	Block A	Delhi	110001	Delhi	12000.00

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

```
UPDATE PRODUCT_MASTER SET SELLPRICE=1150.50 where DESCRIPTION='1.44 MB Drive';
```

```
(1 row affected)
```

```
Completion time: 2026-01-02T12:33:20.8636874+05:30
```

--Delete the record of client_no C0005.

- alter table SALES_ORDER DROP CONSTRAINT FK__SALES_ORD__CLIE__440B1D61;
- ALTER table sales_order add constraint fk_sales foreign key(CLIENTNO) references client_master(CLIENTNO) on delete cascade;
- alter table sales_order_details drop constraint FK__SALES_ORD__ORDER__4AB81AF0;
- alter table sales_order_details add constraint fk_sales_order123 foreign key(orderno) references sales_order(orderno) on delete cascade;
- delete from CLIENT_MASTER where CLIENTNO='C00005';
- select * from client_master;

	CLIENTNO	NAME	ADDRESS1	ADDRESS2	CITY	PINCODE	STATE	BALDUE
1	C00001	Ivan Bayross	A/14 Worli	Near Park	Mumbai	400054	Maharashtra	15000.00
2	C00002	Sanjay Mehta	B/10 Connaught	Block A	Delhi	110001	Delhi	12000.00
3	C00003	Nisha Kaur	C/22 FC Road	Opp Mall	Pune	411001	Maharashtra	9000.00
4	C00004	Rohit Sharma	D/50 MG Road	HSR Layout	Bangalore	560001	Karnataka	18000.00

--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	C00004	Rohit Sharma	D/50 MG Road	HSR Layout	Bangalore	560001	Karnataka	18000.00

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

```
select qtyordered, qtydisp, qtyordered-qtydisp from SALES_ORDER_DETAILS ;
```

	qtyordered	qtydisp	(No column name)
1	10	8	2
2	5	5	0
3	3	3	0
4	7	6	1

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

```
select count(*) from PRODUCT_MASTER where SELLPRICE>=1500;
```

	(No column name)
1	0

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

```
select qtyordered, qtydisp, qtyordered-qtydisp from SALES_ORDER_DETAILS ;
```

	qtyordered	qtydisp	(No column name)
1	10	8	2
2	5	5	0
3	3	3	0
4	7	6	1

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

```
alter table client_master add phone_no varchar(20);
```

```
Commands completed successfully.
```

```
Completion time: 2026-01-02T14:04:48.0960434+05:30
```

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

```
alter table client_master alter column name varchar(60);
```

ssages

Commands completed successfully.

Completion time: 2026-01-02T14:07:27.8660727+05:30

--Remove pincode column from table

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

Commands completed successfully.

Completion time: 2026-01-02T14:08:58.5669624+05:30

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

```
select pm.DESCRIPTION from PRODUCT_MASTER pm join SALES_ORDER_DETAILS sd on pm.PRODUCTNO=sd.PRODUCTNO join SALES_ORDER so on sd.ORDERNO=so.ORDERNO join CLIENT_MASTER cm on so.CLIENTNO=cm.CLIENTNO where cm.name='Ivan Bayross';
```

Results		Messages
	DESCRIPTION	
1	T-Shirt	
2	Trousers	

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

```
select p.PRODUCTNO,p.QTYONHAND from PRODUCT_MASTER p join SALES_ORDER_DETAILS sod on p.PRODUCTNO=sod.PRODUCTNO join SALES_ORDER so on so.ORDERNO=sod.ORDERNO where month(so.ORDERDATE)=month(getdate())
```

Results		Messages
	PRODUCTNO	QTYONHAND

--listing the ProductNo and description of constantly sold (i.e. rapidly moving) products.

```
select p.productno,p.description, count(s.productno) as times_sold from PRODUCT_MASTER p join SALES_ORDER_DETAILS s on p.PRODUCTNO=s.PRODUCTNO group by p.PRODUCTNO, p.DESCRIPTION having count(s.productno)>=1 order by times_sold desc;
```

	productno	description	times_sold
1	P00003	Trousers	2
2	P00004	Pull Overs	1
3	P00001	T-Shirt	1

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

```
select cm.name from PRODUCT_MASTER pm join SALES_ORDER_DETAILS sd on  
pm.PRODUCTNO=sd.PRODUCTNO join SALES_ORDER so on sd.ORDERNO=so.ORDERNO join  
CLIENT_MASTER cm on so.CLIENTNO=cm.CLIENTNO where pm.DESCRIPTION='Trousers';
```

	name
1	Ivan Bayross
2	Nisha Kaur

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

```
select p.description , s.qtyordered, c.clientno, c.name from PRODUCT_MASTER p join  
SALES_ORDER_DETAILS s on p.PRODUCTNO=s.PRODUCTNO join SALES_ORDER so on  
s.ORDERNO=so.ORDERNO join CLIENT_MASTER c on c.CLIENTNO=so.CLIENTNO where  
s.QTYORDERED<5 and p.DESCRIPTION='Pull Overs';
```

	description	qtyordered	clientno	name
1	Pull Overs	3	C00002	Sanjay Mehta

--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 s  
on p.PRODUCTNO=s.PRODUCTNO where s.PRODUCTNO is null;
```

	productno	description
1	P00002	Jeans
2	P00005	1.44 MB Drive

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

```
select c.NAME,C.ADDRESS1+C.ADDRESS2+C.CITY+C.STATE from CLIENT_MASTER c join  
SALES_ORDER s on c.CLIENTNO=s.CLIENTNO where s.ORDERNO='O19001';
```

	NAME	(No column name)
1	Ivan Bayross	A/14 WorliNear ParkMumbaiMaharashtra

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

```
SELECT c.CLIENTNO, c.name FROM SALES_ORDER s join CLIENT_MASTER c on  
c.CLIENTNO=s.CLIENTNO where s.ORDERDATE<'2002-05-01';
```

	CLIENTNO	name

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

```
SELECT FORMAT(GETDATE(), 'dddd, MMMM dd, yyyy') AS System_Date;
```

	System_Date
1	Friday, January 02, 2026

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

```
SELECT CLIENTNO, FORMAT(BALDUE, '$##,##0.00') AS Balance_Due FROM CLIENT_MASTER;
```

	CLIENTNO	Balance_Due
1	C00001	\$15,000.00
2	C00002	\$12,000.00
3	C00003	\$9,000.00
4	C00004	\$18,000.00

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

```
SELECT 'Salesman Aman sold goods of ' + CAST(YTDSALES AS VARCHAR(10)) + ' while given target was ' + CAST(TGTT0GET AS VARCHAR(10)) + '.' AS Sales_Message FROM SALESMAN_MASTER WHERE SALESMANNAME = 'Aman';
```

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

-- 4. Display your Age in Years

```
SELECT DATEDIFF(YEAR, '2005-10-22', GETDATE()) AS Age_In_Years;
```

	Age_In_Years
1	21

• DEFINITIONS:

1. Recursive Relationship

A recursive relationship occurs when a table is related to itself.

Example:

An employee manages another employee in the same table.

-- Employee table where ManagerID refers to EmployeeID

```
employee(epid, empname, managerid)
```

Here, ManagerID points to EmpID of the same table.

2. Composite Key

a composite key is a primary key formed using two or more columns together.

Example:

primary key (orderno, productno)

orderno alone or productno alone is not unique, but together they uniquely identify a record.

3. LIKE Operator with Pattern Matching

The LIKE operator is used to search data using patterns.

Example:

```
select * from client_master where name like 'a%';
```

Finds all clients whose names start with 'A'.

4. DROP TABLE Command

drop table is used to permanently delete a table and its data.

Example:

```
drop table client_master;
```

5. Full Outer Join

A Full Outer Join returns all records from both tables, showing NULL where there is no match.

Example:

```
select * from client_master c full outer join sales_order s on c.clientno = s.clientno;
```

- All clients
- All orders
- NULLs where no match exists