

Date: 02-01-2026

## WEEK 1 - SQL COMMANDS

### 1. CREATING DATABASE

```
CREATE DATABASE WA1;  
USE WA1;
```

### 2. TABLE CREATIONS

#### • Client\_Master

```
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

```
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)  
)
```

#### • Salesman\_Master

```
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**

```

CREATE TABLE SALES_ORDER (
    ORDERNO VARCHAR(6) PRIMARY KEY
        CHECK (ORDERNO LIKE 'O%'),
    CLIENTNO VARCHAR(6),
    ORDERDATE DATE,
    DELYADDR VARCHAR(25),
    SALESMANNO VARCHAR(6),
    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')),

    CONSTRAINT FK_SO_CLIENT
        FOREIGN KEY (CLIENTNO)
        REFERENCES CLIENT_MASTER(CLIENTNO),

```

```

    CONSTRAINT FK_SO_SALESMAN
        FOREIGN KEY (SALESMANNO)
        REFERENCES SALESMAN_MASTER(SALESMANNO)
);

```

- **Sales\_Order\_Details**

```

CREATE TABLE SALES_ORDER_DETAILS (
    ORDERNO VARCHAR(6),
    PRODUCTNO VARCHAR(6),
    QTYORDERED NUMERIC(8),
    QTYDISP NUMERIC(8),

```

```

PRODUCTRATE NUMERIC(10,2),

CONSTRAINT PK_SALES_ORDER_DETAILS
    PRIMARY KEY (ORDERNO, PRODUCTNO),

CONSTRAINT FK_SOD_ORDER
    FOREIGN KEY (ORDERNO)
    REFERENCES SALES_ORDER(ORDERNO),

CONSTRAINT FK_SOD_PRODUCT
    FOREIGN KEY (PRODUCTNO)
    REFERENCES PRODUCT_MASTER(PRODUCTNO)

);

```

### 3. INSERTIONS INTO TABLES

- **Client\_Master**

```

INSERT INTO CLIENT_MASTER VALUES ('C00001','Ivan
Bayross','Addr1','Addr2','Mumbai',400054,'Maharashtra',15000);
INSERT INTO CLIENT_MASTER VALUES ('C00002','Rohit
Sharma','Addr1','Addr2','Delhi',110001,'Delhi',12000);
INSERT INTO CLIENT_MASTER VALUES ('C00003','Anita
Desai','Addr1','Addr2','Chennai',600001,'Tamil Nadu',18000);
INSERT INTO CLIENT_MASTER VALUES ('C00004','Kiran
Rao','Addr1','Addr2','Hyderabad',500001,'Telangana',9000);
INSERT INTO CLIENT_MASTER VALUES ('C00005','Neha
Singh','Addr1','Addr2','Bangalore',560001,'Karnataka',20000);

```

- **Product\_Master**

```

INSERT INTO PRODUCT_MASTER VALUES
('P00001','T-Shirts',5,'Piece',200,50,350,250);
INSERT INTO PRODUCT_MASTER VALUES
('P00002','Jeans',6,'Piece',150,40,1200,900);
INSERT INTO PRODUCT_MASTER VALUES
('P00003','Shoes',8,'Pair',100,30,2500,2000);
INSERT INTO PRODUCT_MASTER VALUES
('P00004','Jackets',7,'Piece',80,20,3000,2500);
INSERT INTO PRODUCT_MASTER VALUES
('P00005','Caps',4,'Piece',300,60,250,150);
INSERT INTO PRODUCT_MASTER VALUES
('P00006','Trousers',6,'Piece',120,30,1800,1400);
INSERT INTO PRODUCT_MASTER VALUES
('P00007','Pull Overs',5,'Piece',90,20,2200,1800);

```

- **Salesman\_Master**

```
INSERT INTO SALESMAN_MASTER VALUES  
(‘S00001’,‘Aman’,‘A/14’,‘Worli’,‘Mumbai’,400002,‘Maharashtra’,3000,100,50,‘Good’);  
INSERT INTO SALESMAN_MASTER VALUES (‘S00002’,‘Ravi’,‘B/22’,‘Karol  
Bagh’,‘Delhi’,110005,‘Delhi’,4000,150,70,‘Excellent’);  
INSERT INTO SALESMAN_MASTER VALUES  
(‘S00003’,‘Sunita’,‘C/11’,‘Adyar’,‘Chennai’,600020,‘Tamil Nadu’,3500,120,60,‘Good’);  
INSERT INTO SALESMAN_MASTER VALUES (‘S00004’,‘Arjun’,‘D/45’,‘Banjara  
Hills’,‘Hyderabad’,500034,‘Telangana’,4500,180,90,‘Very Good’);  
INSERT INTO SALESMAN_MASTER VALUES  
(‘S00005’,‘Meena’,‘E/78’,‘Indiranagar’,‘Bangalore’,560038,‘Karnataka’,5000,200,110,‘Exc  
ellent’);
```

- **Sales\_Order**

```
INSERT INTO SALES_ORDER VALUES  
(‘O19001’,‘C00001’,‘2002-06-12’,‘Mumbai’,‘S00001’,‘F’,‘N’,‘2002-07-20’,‘In Process’);  
INSERT INTO SALES_ORDER VALUES  
(‘O19002’,‘C00002’,‘2002-06-15’,‘Delhi’,‘S00002’,‘P’,‘Y’,‘2002-07-25’,‘Fulfilled’);  
INSERT INTO SALES_ORDER VALUES  
(‘O19003’,‘C00003’,‘2002-06-18’,‘Chennai’,‘S00003’,‘F’,‘N’,‘2002-07-30’,‘Backorder’);  
INSERT INTO SALES_ORDER VALUES  
(‘O19004’,‘C00004’,‘2002-06-20’,‘Hyderabad’,‘S00004’,‘P’,‘Y’,‘2002-08-05’,‘Fulfilled’);  
INSERT INTO SALES_ORDER VALUES  
(‘O19005’,‘C00005’,‘2002-06-25’,‘Bangalore’,‘S00005’,‘F’,‘N’,‘2002-08-10’,‘Cancelled’);  
INSERT INTO SALES_ORDER VALUES  
(‘O19007’,‘C00002’,GETDATE(),‘Delhi’,‘S00002’,‘F’,‘Y’,GETDATE(),‘Fulfilled’);
```

- **Sales\_Order\_Details**

```
INSERT INTO SALES_ORDER_DETAILS VALUES (‘O19001’,‘P00001’,4,4,525);  
INSERT INTO SALES_ORDER_DETAILS VALUES (‘O19002’,‘P00002’,2,2,1250);  
INSERT INTO SALES_ORDER_DETAILS VALUES (‘O19003’,‘P00003’,1,0,2600);  
INSERT INTO SALES_ORDER_DETAILS VALUES (‘O19004’,‘P00004’,3,3,3200);  
INSERT INTO SALES_ORDER_DETAILS VALUES (‘O19005’,‘P00005’,5,5,300);  
INSERT INTO SALES_ORDER_DETAILS VALUES (‘O19006’,‘P00006’,6,6,1800);  
INSERT INTO SALES_ORDER_DETAILS VALUES (‘O19006’,‘P00007’,3,3,2200);  
INSERT INTO SALES_ORDER_DETAILS VALUES (‘O19007’,‘P00006’,4,4,1800);  
INSERT INTO SALES_ORDER_VALUES  
(‘O19008’,‘C00001’,GETDATE(),‘Mumbai’,‘S00001’,‘F’,‘Y’,GETDATE(),‘Fulfilled’);
```

#### 4. Performing Queries on the above schema

1. Select name from CLIENT\_MASTER;

Results		Messages
	name	
1	Ivan Bayross	
2	Rohit Sharma	
3	Anita Desai	
4	Kiran Rao	
5	Neha Singh	

2. Select \* from Client\_Master where City='Mumbai';

Results									Messages
	CLIENTNO	NAME	ADDRESS1	ADDRESS2	CITY	PINCODE	STATE	BALDUE	
1	C00001	Ivan Bayross	Addr1	Addr2	Mumbai	400054	Maharashtra	15000.00	

3. Select \* from Product\_Master where SELLPRICE BETWEEN 2000 and 5000;

Results									Messages
	PRODUCTNO	DESCRIPTION	PROFITPERC	UNITMEASURE	QTYONHAND	REORDERLVL	SELLPRICE	COSTPRICE	
1	P00003	Shoes	8.00	Pair	100	30	2500.00	2000.00	
2	P00004	Jackets	7.00	Piece	80	20	3000.00	2500.00	

4. Select name,city,state from Client\_Master where state!='Maharashtra';

Results				Messages
	name	city	state	
1	Rohit Sharma	Delhi	Delhi	
2	Anita Desai	Chennai	Tamil Nadu	
3	Kiran Rao	Hyderabad	Telangana	
4	Neha Singh	Bangalore	Karnataka	

5. Select \* from CLIENT\_MASTER where CLIENTNO IN ('C00001','C00002');

Results									Messages
	CLIENTNO	NAME	ADDRESS1	ADDRESS2	CITY	PINCODE	STATE	BALDUE	
1	C00001	Ivan Bayross	Addr1	Addr2	Mumbai	400054	Maharashtra	15000.00	
2	C00002	Rohit Sharma	Addr1	Addr2	Delhi	110001	Delhi	12000.00	

6. UPDATE Product\_Master set sellprice=1150.50 Where Description='Jeans';

7. The foreign key constraints were altered using ON DELETE CASCADE to maintain referential integrity during deletion.

```
ALTER TABLE SALES_ORDER DROP CONSTRAINT FK_SO_CLIENT;
ALTER TABLE SALES_ORDER ADD CONSTRAINT FK_SO_CLIENT FOREIGN
KEY (CLIENTNO) REFERENCES CLIENT_MASTER(CLIENTNO) ON DELETE
CASCADE;
```

```
ALTER TABLE SALES_ORDER_DETAILS DROP CONSTRAINT
FK_SOD_ORDER;
ALTER TABLE SALES_ORDER_DETAILS ADD CONSTRAINT
FK_SOD_ORDER FOREIGN KEY (ORDERNO) REFERENCES
SALES_ORDER(ORDERNO) ON DELETE CASCADE;
```

Delete from CLIENT\_MASTER where CLIENTNO='C00005';

8. Select \* from CLIENT\_MASTER where city like '\_a%';

	CLIENTNO	NAME	ADDRESS1	ADDRESS2	CITY	PINCODE	STATE	BALDUE
1	C00005	Neha Singh	Addr1	Addr2	Bangalore	560001	Karnataka	20000.00

9. Select count(\*) from PRODUCT\_MASTER where SELLPRICE>=1500;

	(No column name)
1	2

10. Select QTYORDERED, QTYDISP,(QTYORDERED - QTYDISP) AS BalancedQty from SALES\_ORDER\_DETAILS;

	QTYORDERED	QTYDISP	BalancedQty
1	4	4	0
2	2	2	0
3	1	0	1
4	3	3	0

## 5. SQL Commands on given Schema

- Clientno is already a primary key in Client\_Master (Done in Creation Commands)
- ALTER TABLE CLIENT\_MASTER ADD PhoneNo Varchar(15);

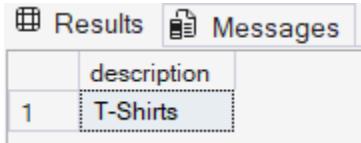
3. In creation Commands NOT NULL is already added to columns description, profit percent, sell price and cost price in Product\_Master table.
4. ALTER TABLE CLIENT\_MASTER ALTER COLUMN NAME VARCHAR(60) NOT NULL;
5. ALTER TABLE CLIENT\_MASTER DROP COLUMN PINCODE;

## 6. Defining Terms

1. **Recursive Relationship:** A recursive relationship is when a table is related to itself.  
**Ex:** An employee table where one employee is the manager of another employee.
2. **Composite Key:** A composite key is a primary key made using more than one column.  
**Ex:** (OrderNo, ProductNo) together identify one record in Sales\_Order\_Details.
3. **'Like' Operator with Pattern Matching:** The Like operator is used to search data that follows a specific pattern.  
**Ex:** SELECT \* FROM CLIENT\_MASTER WHERE NAME LIKE 'A%';
4. **DROP TABLE Command:** The DROP TABLE command is used to permanently delete a table and its data.  
**Ex:** DROP TABLE CLIENT\_MASTER;
5. **FULL OUTER JOIN:** A FULL OUTER JOIN returns all records from both tables, matching rows where possible, and showing NULL where there is no match.  
**Ex:** SELECT C.ClientNo, C.Name, O.OrderNo FROM CLIENT\_MASTER C  
FULL OUTER JOIN SALES\_ORDER O ON C.ClientNo = O.ClientNo;

## 7. Join Queries

1. select distinct 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';



The screenshot shows a database query results window. At the top, there are two tabs: 'Results' (which is selected) and 'Messages'. Below the tabs is a table with a single row. The table has one column labeled 'description'. The value in the cell is 'T-Shirts', which is highlighted with a dashed blue border.

	description
1	T-Shirts

2. select p.description, d.qtydisp 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());

```

	description	qtydisp
1	Trousers	6
2	Pull Overs	3
3	Trousers	4

3. select p.productno, p.description from product\_master p  
join sales\_order\_details d on p.productno = d.productno  
group by p.productno, p.description having count(d.productno) > 1;

	productno	description
1	P00006	Trousers

4. 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';

	name
1	Ivan Bayross
2	Rohit Sharma

5. 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;

	orderno	description	qtyordered
1	O19006	Pull Overs	3

## 8. SubQueries

1. select description from product\_master where productno not in (select productno from sales\_order\_details);

	Results	Messages
1	Caps	

2. select name, address1, address2, city, state from client\_master  
where clientno =(select clientno from sales\_order where orderno = 'O19001');

	Results	Messages
1	name      address1      address2      city      state Ivan Bayross      Addr1      Addr2      Mumbai      Maharashtra	

3. select name from client\_master where clientno in (select clientno from sales\_order where orderdate < '2002-05-01');

## 9. Commands

1. select format(cast('2012-02-11' as date), 'dddd, MMMM dd, yyyy') as system\_date;

	Results	Messages
1	system_date Saturday, February 11, 2012	

2. select format(99999.99, 'C') as balance\_due;

	Results	Messages
1	balance_due \$99,999.99	

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

	Results	Messages
1	message Salesman Aman sold goods of 50 while given targ...	

4. select datediff(year, '2003-06-15', getdate()) as age\_in\_years;

	Results	Messages
1	age_in_years 23	