

Weekly Assignment-1: SalesDB

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Data Definition Language (DDL) - Create Tables

Question: Write CREATE TABLE commands for the following table descriptions:
CLIENT MASTER, PRODUCT MASTER, SALESMAN MASTER, SALES ORDER, SALES ORDER DETAILS.

Query:

-- Client Master Table

```
CREATE TABLE CLIENT_MASTER (  
    CLIENTNO VARCHAR(6) CONSTRAINT PK_CLIENT_MASTER PRIMARY KEY,  
    NAME VARCHAR(20) NOT NULL,  
    ADDRESS1 VARCHAR(30),  
    ADDRESS2 VARCHAR(30),  
    CITY VARCHAR(15),  
    PINCODE NUMERIC(8),  
    STATE VARCHAR(15),  
    BALDUE NUMERIC(10,2) CONSTRAINT CHK_BALDUE CHECK (BALDUE <> 0),  
    CONSTRAINT CHK_CLIENTNO CHECK (CLIENTNO LIKE 'C%')  
);
```

-- Product Master Table

```
CREATE TABLE PRODUCT_MASTER (  
    PRODUCTNO VARCHAR(6) CONSTRAINT PK_PRODUCT_MASTER PRIMARY KEY,  
    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 CONSTRAINT CHK_SELLPRICE CHECK  
(SELLPRICE <> 0),  
    COSTPRICE NUMERIC(8,2) NOT NULL CONSTRAINT CHK_COSTPRICE CHECK  
(COSTPRICE <> 0),  
    CONSTRAINT CHK_PRODUCTNO CHECK (PRODUCTNO LIKE 'P%')  
);
```

-- Salesman Master Table

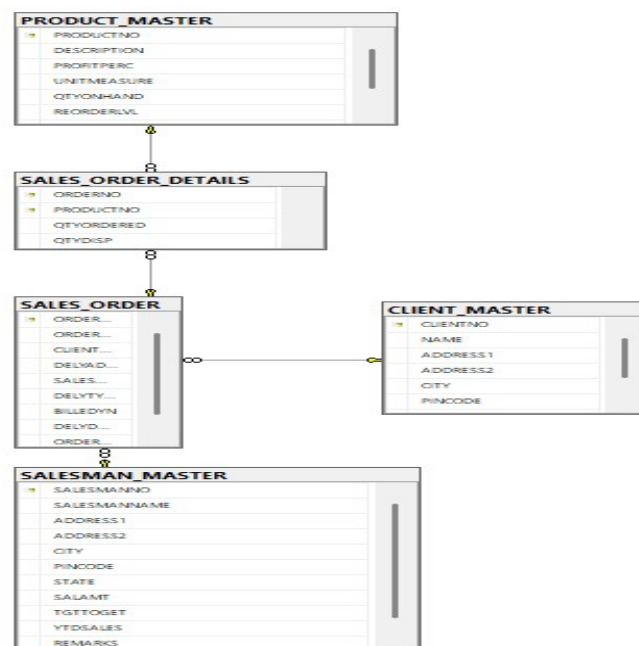
```
CREATE TABLE SALESMAN_MASTER (  
    SALESMANNO VARCHAR(6) CONSTRAINT PK_SALESMAN_MASTER PRIMARY KEY,  
    SALESMANNAME VARCHAR(20) NOT NULL,  
    ADDRESS1 VARCHAR(30) NOT NULL,  
    ADDRESS2 VARCHAR(30),  
    CITY VARCHAR(20),  
    PINCODE NUMERIC(8),  
    STATE VARCHAR(20),  
    SALAMT NUMERIC(8,2) NOT NULL CONSTRAINT CHK_SALAMT CHECK (SALAMT <> 0),  
    TGTTOGET NUMERIC(6,2) NOT NULL,  
    YTDSALES NUMERIC(6,2) NOT NULL,  
    REMARKS VARCHAR(60),  
    CONSTRAINT CHK_SALESMANNO CHECK (SALESMANNO LIKE 'S%')  
);
```

```

-- Sales Order Table
CREATE TABLE SALES_ORDER
(
    ORDERNO VARCHAR(6) CONSTRAINT PK_SALES_ORDER PRIMARY KEY,
    ORDERDATE DATE,
    CLIENTNO VARCHAR(6),
    DELYADDR VARCHAR(25),
    SALESMANNO VARCHAR(6),
    DELYTYPE CHAR(1) CONSTRAINT CHK_DELYTYPE CHECK (DELYTYPE IN ('P',
        'F')),
    BILLEDYN CHAR(1) CONSTRAINT CHK_BILLEDYN CHECK (BILLEDYN IN ('Y',
        'N')),
    DELYDATE DATE,
    ORDERSTATUS VARCHAR(10) CONSTRAINT CHK_ORDERSTATUS
        CHECK (ORDERSTATUS IN ('In Process', 'Fulfilled', 'Backorder',
        'Cancelled')),
    CONSTRAINT FK_ORDER_CLIENT FOREIGN KEY (CLIENTNO) REFERENCES
        CLIENT_MASTER(CLIENTNO),
    CONSTRAINT FK_ORDER_SALESMAN FOREIGN KEY (SALESMANNO) REFERENCES
        SALESMAN_MASTER(SALESMANNO),
    CONSTRAINT CHK_ORDERNO CHECK (ORDERNO LIKE '0%')
);

-- Sales Order Details Table
CREATE TABLE SALES_ORDER_DETAILS
(
    ORDERNO VARCHAR(6),
    PRODUCTNO VARCHAR(6),
    QTYORDERED NUMERIC(8),
    QTYDISP NUMERIC(8),
    PRODUCTRATE NUMERIC(10,2),
    CONSTRAINT PK_ORDER_DETAILS PRIMARY KEY (ORDERNO, PRODUCTNO),
    CONSTRAINT FK_DETAILS_ORDER FOREIGN KEY (ORDERNO) REFERENCES
        SALES_ORDER(ORDERNO),
    CONSTRAINT FK_DETAILS_PRODUCT FOREIGN KEY (PRODUCTNO) REFERENCES
        PRODUCT_MASTER(PRODUCTNO)
);

```



Insertion Queries

-- Client Master

```
INSERT INTO CLIENT_MASTER (CLIENTNO, NAME, CITY, PINCODE, STATE, BALDUE)
VALUES
('C00001', 'Ivan Bayross', 'Mumbai', 400054, 'Maharashtra', 15000),
('C00002', 'Mamta Muzumdar', 'Madras', 600001, 'Tamil Nadu', 0.1),
('C00003', 'Chhaya Bankar', 'Mumbai', 400057, 'Maharashtra', 5000),
('C00004', 'Ashwini Joshi', 'Bangalore', 560001, 'Karnataka', 10000),
('C00005', 'Hansel Colaco', 'Mumbai', 400060, 'Maharashtra', 2000);
```

Output:

	CLIENTNO	NAME	ADDRESS1	ADDRESS2	CITY	PINCODE	STATE	BALDUE
1	C00001	Ivan Bayross	NULL	NULL	Mumbai	400054	Maharashtra	15000.00
2	C00002	Mamta Muzumdar	NULL	NULL	Madras	600001	Tamil Nadu	0.10
3	C00003	Chhaya Bankar	NULL	NULL	Mumbai	400057	Maharashtra	5000.00
4	C00004	Ashwini Joshi	NULL	NULL	Bangalore	560001	Karnataka	10000.00
5	C00005	Hansel Colaco	NULL	NULL	Mumbai	400060	Maharashtra	2000.00

-- Product Master

```
INSERT INTO PRODUCT_MASTER (PRODUCTNO, DESCRIPTION, PROFITPERC,
UNITMEASURE, QTYONHAND, REORDERLVL, SELLPRICE, COSTPRICE) VALUES
('P00001', 'T-Shirts', 5, 'Piece', 200, 50, 350, 250),
('P00002', 'Trousers', 10, 'Piece', 150, 40, 2500, 2000),
('P00003', 'Pull Overs', 8, 'Piece', 100, 30, 1100, 800),
('P00004', '1.44 Drive', 12, 'Piece', 50, 10, 500, 400),
('P00005', 'Keyboards', 15, 'Piece', 80, 20, 3000, 2200),
('P00006', 'Monitors', 10, 'Piece', 30, 5, 6000, 4500);
```

Output:

	PRODUCTNO	DESCRIPTION	PROFITPERC	UNITMEASURE	QTYONHAND	REORDERLVL	SELLPRICE	COSTPRICE
1	P00001	T-Shirts	5.00	Piece	200	50	350.00	250.00
2	P00002	Trousers	10.00	Piece	150	40	2500.00	2000.00
3	P00003	Pull Overs	8.00	Piece	100	30	1100.00	800.00
4	P00004	1.44 Drive	12.00	Piece	50	10	500.00	400.00
5	P00005	Keyboards	15.00	Piece	80	20	3000.00	2200.00
6	P00006	Monitors	10.00	Piece	30	5	6000.00	4500.00

-- Salesman Master

```
INSERT INTO SALESMAN_MASTER (SALESMANNO, SALESMANNAME, ADDRESS1, ADDRESS2,
CITY, PINCODE, STATE, SALAMT, TGTTOGET, YTDSALES) VALUES
('S00001', 'Aman', 'A/14', 'Worli', 'Mumbai', 400002, 'Maharashtra', 3000,
100, 50),
('S00002', 'Omkar', 'B/20', 'Juhu', 'Mumbai', 400049, 'Maharashtra', 3500,
200, 100);
```

Output:

	SALESMANNO	SALESMANNAME	ADDRESS1	ADDRESS2	CITY	PINCODE	STATE	SALAMT	TGTTOGET	YTDSALES	REMARKS
1	S00001	Aman	A/14	Worli	Mumbai	400002	Maharashtra	3000.00	100.00	50.00	NULL
2	S00002	Omkar	B/20	Juhu	Mumbai	400049	Maharashtra	3500.00	200.00	100.00	NULL

-- Sales Orders

```
INSERT INTO SALES_ORDER (ORDERNO, ORDERDATE, CLIENTNO, DELYTYPE, BILLEDYN,
SALESMANNO, DELYDATE, ORDERSTATUS) VALUES
('019001', '2002-04-12', 'C00001', 'F', 'N', 'S00001', '2002-04-20', 'In
Process'),
('019002', '2002-05-25', 'C00002', 'P', 'Y', 'S00002', '2002-05-30',
'Fulfilled'),
('019003', '2002-04-01', 'C00001', 'F', 'Y', 'S00001', '2002-04-10',
'Fulfilled');
```

Output:

	ORDERNO	ORDERDATE	CLIENTNO	DELYADDR	SALESMANNO	DELYTYPE	BILLEDYN	DELYDATE	ORDERSTATUS
1	O19001	2002-04-12	C00001	NULL	S00001	F	N	2002-04-20	In Process
2	O19002	2002-05-25	C00002	NULL	S00002	P	Y	2002-05-30	Fulfilled
3	O19003	2002-04-01	C00001	NULL	S00001	F	Y	2002-04-10	Fulfilled

-- Sales Order Details

```
INSERT INTO SALES_ORDER_DETAILS (ORDERNO, PRODUCTNO, QTYORDERED, QTYDISP,
PRODUCTRATE) VALUES
('019001', 'P00001', 4, 4, 350),
('019001', 'P00002', 2, 2, 2500),
('019002', 'P00003', 3, 3, 1100),
('019003', 'P00001', 10, 10, 350);
```

Output:

	ORDERNO	PRODUCTNO	QTYORDERED	QTYDISP	PRODUCTRATE
1	O19001	P00001	4	4	350.00
2	O19001	P00002	2	2	2500.00
3	O19002	P00003	3	3	1100.00
4	O19003	P00001	10	10	350.00

Question 1: Display the names of all the clients.

Query:

```
SELECT Name
FROM CLIENT_MASTER;
```

Output:

Results		Messages	
	Name		
1	Ivan Bayross		
2	Mamta Muzumdar		
3	Chhaya Bankar		
4	Ashwini Joshi		
5	Hansel Colaco		

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

Query:

```
SELECT *
FROM CLIENT_MASTER
WHERE City = 'Mumbai';
```

Output:

Results

Messages

	CLIENTNO	NAME	ADDRESS1	ADDRESS2	CITY	PINCODE	STATE	BALDUE
1	C00001	Ivan Bayross	NULL	NULL	Mumbai	400054	Maharashtra	15000.00
2	C00003	Chhaya Bankar	NULL	NULL	Mumbai	400057	Maharashtra	5000.00
3	C00005	Hansel Colaco	NULL	NULL	Mumbai	400060	Maharashtra	2000.00

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

Query:

```
SELECT *
FROM PRODUCT_MASTER
WHERE SELLPRICE > 2000 AND SELLPRICE < 5000;
```

Output:

Results

Messages

	PRODUCTNO	DESCRIPTION	PROFITPERC	UNITMEASURE	QTYONHAND	REORDERLVL	SELLPRICE	COSTPRICE
1	P00002	Trousers	10.00	Piece	150	40	2500.00	2000.00
2	P00005	Keyboards	15.00	Piece	80	20	3000.00	2200.00

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

Query:

```
SELECT Name, City, State
FROM CLIENT_MASTER
WHERE State <> 'Maharashtra';
```

Output:

	Name	City	State
1	Mamta Muzumdar	Madras	Tamil Nadu
2	Ashwini Joshi	Bangalore	Karnataka

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

Query:

```
SELECT *
FROM CLIENT_MASTER
WHERE CLIENTNO IN ('C00001', 'C00002');
```

Output:

	CLIENTNO	NAME	ADDRESS1	ADDRESS2	CITY	PINCODE	STATE	BALDUE
1	C00001	Ivan Bayross	NULL	NULL	Mumbai	400054	Maharashtra	15000.00
2	C00002	Mamta Muzumdar	NULL	NULL	Madras	600001	Tamil Nadu	0.10

Write Commands (DDL & DML)

Question 1: Make Client_no as primary key in client_master

Already declared in Create command

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

Query:

```
ALTER TABLE CLIENT_MASTER ADD phone_no NUMERIC(10);
```

Output:



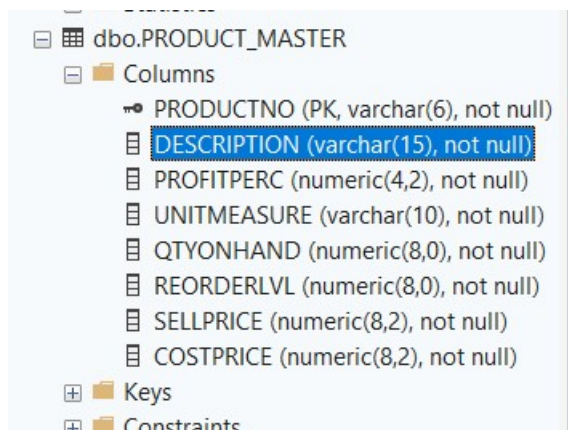
dbo.CLIENT_MASTER
Columns
CLIENTNO (PK, varchar(6), not null)
NAME (varchar(20), not null)
ADDRESS1 (varchar(30), null)
ADDRESS2 (varchar(30), null)
CITY (varchar(15), null)
PINCODE (numeric(8,0), null)
STATE (varchar(15), null)
BALDUE (numeric(10,2), null)
phone_no (numeric(10,0), null)

Question 3: Add not null constraints to product_master columns.

Query:

```
ALTER TABLE PRODUCT_MASTER ALTER COLUMN DESCRIPTION VARCHAR(15) NOT NULL;
```

Output:



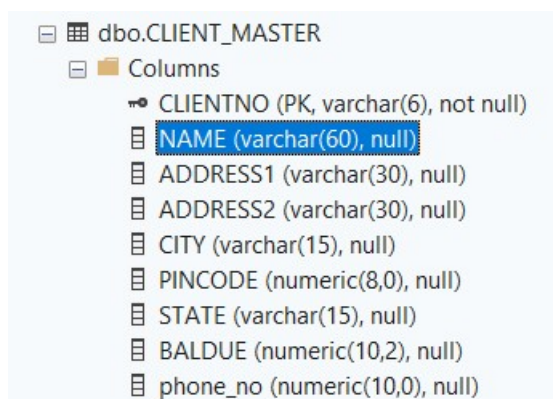
dbo.PRODUCT_MASTER
Columns
PRODUCTNO (PK, varchar(6), not null)
DESCRIPTION (varchar(15), not null)
PROFITPERC (numeric(4,2), not null)
UNITMEASURE (varchar(10), not null)
QTYONHAND (numeric(8,0), not null)
REORDERLVL (numeric(8,0), not null)
SELLPRICE (numeric(8,2), not null)
COSTPRICE (numeric(8,2), not null)
Keys
Constraints

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

Query:

```
ALTER TABLE CLIENT_MASTER ALTER COLUMN NAME VARCHAR(60);
```

Output:



dbo.CLIENT_MASTER
Columns
CLIENTNO (PK, varchar(6), not null)
NAME (varchar(60), null)
ADDRESS1 (varchar(30), null)
ADDRESS2 (varchar(30), null)
CITY (varchar(15), null)
PINCODE (numeric(8,0), null)
STATE (varchar(15), null)
BALDUE (numeric(10,2), null)
phone_no (numeric(10,0), null)

Question 5: Remove pincode column from table.

Query:

```
ALTER TABLE CLIENT_MASTER DROP COLUMN PINCODE;
```

Output:



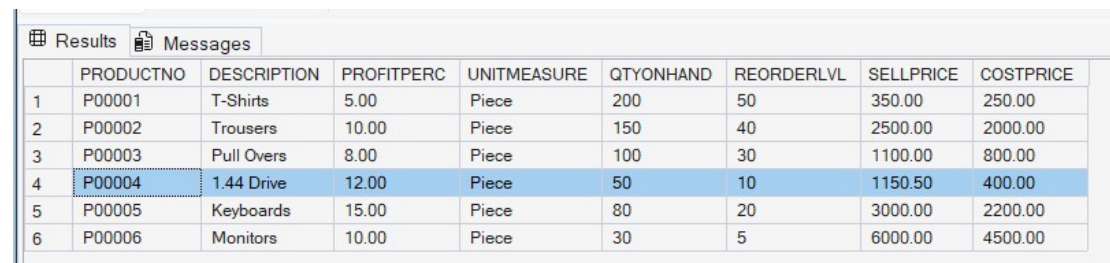
dbo.CLIENT_MASTER	
Columns	
CLIENTNO (PK, varchar(6), not null)	
NAME (varchar(60), null)	
ADDRESS1 (varchar(30), null)	
ADDRESS2 (varchar(30), null)	
CITY (varchar(15), null)	
STATE (varchar(15), null)	
BALDUE (numeric(10,2), null)	
phone_no (numeric(10,0), null)	

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

Query:

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

Output:



	PRODUCTNO	DESCRIPTION	PROFITPERC	UNITMEASURE	QTYONHAND	REORDERLVL	SELLPRICE	COSTPRICE
1	P00001	T-Shirts	5.00	Piece	200	50	350.00	250.00
2	P00002	Trousers	10.00	Piece	150	40	2500.00	2000.00
3	P00003	Pull Overs	8.00	Piece	100	30	1100.00	800.00
4	P00004	1.44 Drive	12.00	Piece	50	10	1150.50	400.00
5	P00005	Keyboards	15.00	Piece	80	20	3000.00	2200.00
6	P00006	Monitors	10.00	Piece	30	5	6000.00	4500.00

Question 7: Delete the record of client_no C00005.

Query:

```
DELETE FROM CLIENT_MASTER WHERE CLIENTNO = 'C00005';
```

Output:

```
(1 row affected)
```

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

Query:


```
SELECT * FROM CLIENT_MASTER WHERE City LIKE '_a%';
```

Output:

Results

Messages

	CLIENTNO	NAME	ADDRESS1	ADDRESS2	CITY	STATE	BALDUE	phone_no
1	C00002	Mamta Muzumdar	NULL	NULL	Madras	Tamil Nadu	0.10	NULL
2	C00004	Ashwini Joshi	NULL	NULL	Bangalore	Karnataka	10000.00	NULL

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

Query:

```
SELECT COUNT(*) AS [No Of Products]
FROM PRODUCT_MASTER
WHERE SELLPRICE >= 1500;
```

Output:

Results		Messages	
	No Of Products		
1	3		

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

Query:

```
SELECT QTYORDERED, QTYDISP, (QTYORDERED - QTYDISP) AS balancedqty
FROM SALES_ORDER_DETAILS;
```

Output:

Results		Messages	
	QTYORDERED	QTYDISP	balancedqty
1	4	4	0
2	2	2	0
3	3	3	0
4	10	10	0

Define in few lines

Question 1: Recursive Relationship.

Definition: A recursive relationship occurs when a table has a foreign key that references its own primary key.

Example: An `Employee` table where a `ManagerID` column refers to the `EmployeeID` in the same table.

Question 2: Composite Key.

Definition: A composite key is a primary key that consists of two or more columns used together to uniquely identify a row.

Example: The combination of `ORDERNO` and `PRODUCTNO` in the `SALES_ORDER_DETAILS` table.

Question 3: The 'Like' operator with pattern matching.

Definition: The `LIKE` operator is used in a `WHERE` clause to search for a specified pattern in a column using wildcards like `%` (multiple characters) and `_` (single character).

Example: `WHERE City LIKE '_a%'` finds cities where the second letter is 'a'.

Question 4: Drop Table command.

Definition: The `DROP TABLE` command removes a table definition and all its data, indexes, and constraints from the database permanently.

Example: `DROP TABLE CLIENT_MASTER;`

Question 5: Full Outer Join.

Definition: A Full Outer Join returns all records when there is a match in either the left or right table records. Unmatched rows will contain `NULL` values.

Example: `SELECT * FROM TableA FULL OUTER JOIN TableB ON TableA.ID = TableB.ID;`

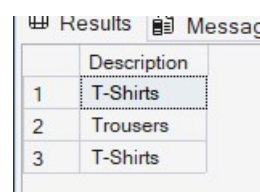
Joins

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

Query:

```
SELECT pm.Description
FROM PRODUCT_MASTER pm
JOIN SALES_ORDER_DETAILS sod ON pm.PRODUCTNO = sod.PRODUCTNO
JOIN SALES_ORDER so ON sod.ORDERNO = so.ORDERNO
JOIN CLIENT_MASTER cm ON so.CLIENTNO = cm.CLIENTNO
WHERE cm.NAME = 'Ivan Bayross';
```

Output:



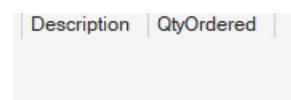
	Description
1	T-Shirts
2	Trousers
3	T-Shirts

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

Query:

```
SELECT pm.Description, sod.QtyOrdered
FROM PRODUCT_MASTER pm
JOIN SALES_ORDER_DETAILS sod ON pm.ProductNo = sod.ProductNo
JOIN SALES_ORDER so ON sod.OrderNo = so.OrderNo
WHERE MONTH(so.DelyDate) = MONTH(GETDATE())
AND YEAR(so.DelyDate) = YEAR(GETDATE());
```

Output:



Description	QtyOrdered
-------------	------------

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

Query:

```
SELECT ProductNo, Description
FROM PRODUCT_MASTER
WHERE ProductNo IN (
    SELECT ProductNo
    FROM SALES_ORDER_DETAILS
    GROUP BY ProductNo
    HAVING COUNT(OrderNo) > 1
);
```

Output:

Results Messages		
	ProductNo	Description
1	P00001	T-Shirts

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

Query:

```
SELECT DISTINCT cm.Name
FROM CLIENT_MASTER cm
JOIN SALES_ORDER so ON cm.ClientNo = so.ClientNo
JOIN SALES_ORDER_DETAILS sod ON so.OrderNo = sod.OrderNo
JOIN PRODUCT_MASTER pm ON sod.ProductNo = pm.ProductNo
WHERE pm.Description = 'Trousers';
```

Output:

Results Message	
	Name
1	Ivan Bayross

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

Query:

```
SELECT so.OrderNo, pm.Description
FROM SALES_ORDER so
JOIN SALES_ORDER_DETAILS sod ON so.OrderNo = sod.OrderNo
JOIN PRODUCT_MASTER pm ON sod.ProductNo = pm.ProductNo
WHERE pm.Description = 'Pull Overs' AND sod.QtyOrdered < 5;
```

Output:

Results Messages		
	OrderNo	Description
1	O19002	Pull Overs

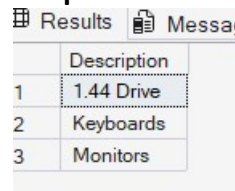
Subqueries

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

Query:

```
SELECT Description
FROM PRODUCT_MASTER
WHERE ProductNo NOT IN (SELECT DISTINCT ProductNo FROM
SALES_ORDER_DETAILS);
```

Output:



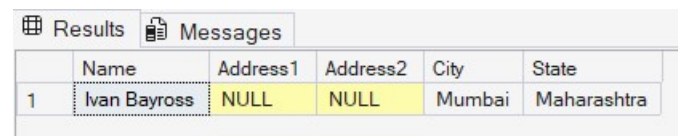
	Description
1	1.44 Drive
2	Keyboards
3	Monitors

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

Query:

```
SELECT Name, Address1, Address2, City, State FROM CLIENT_MASTER
WHERE CLIENTNO = (SELECT CLIENTNO FROM SALES_ORDER WHERE ORDERNO =
'O19001');
```

Output:



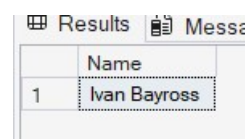
	Name	Address1	Address2	City	State
1	Ivan Bayross	NULL	NULL	Mumbai	Maharashtra

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

Query:

```
SELECT Name
FROM CLIENT_MASTER
WHERE ClientNo IN (SELECT ClientNo FROM SALES_ORDER WHERE OrderDate <
'2002-05-01');
```

Output:



	Name
1	Ivan Bayross

System Functions & Date Formatting

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

Query:

```
SELECT FORMAT(GETDATE(), 'dddd, MMMM dd, yyyy') AS [System Date];
```

Output:

	System Date
1	Sunday, January 04, 2026

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

Query:

```
SELECT FORMAT(BalDue, 'C', 'en-US') AS [Formatted Balance]
FROM CLIENT_MASTER;
```

Output:

	Formatted Balance
1	\$15,000.00
2	\$0.10
3	\$5,000.00
4	\$10,000.00

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

Query:

```
SELECT 'Salesman ' + SalesmanName + ' sold goods of ' + CAST(YTDSales AS
VARCHAR) +
' while given target was ' + CAST(TgtToGet AS VARCHAR) + '.' AS
[Sales Message]
FROM SALESMAN_MASTER
WHERE SalesmanName = 'Aman';
```

Output:

	Sales Message
1	Salesman Aman sold goods of 50.00 while given tar...

Question 4: Display your Age in Years.

Query:

```
SELECT DATEDIFF(YEAR, '2004-07-06', GETDATE()) AS [Age In Years];
```

Output:

Results		Message	
	Age In Years		
1	22		