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Section: BM

Subject: DBMS

Assignment #3

Problem #1

(a) Implement the above ERD as-it-is in SQL server. Name of the entities, attributes and all constraints must be the same. (2 Points)

```
create table Customer(  
    customer_id int NOT NULL,  
    customer_name Char(50) NOT NULL,  
    customer_email Char(50) ,  
    customer_no int Unique NOT NULL,  
    customer_address char(150),  
    customer_postcode int,  
    Primary key(customer_id)  
);  
  
create table Product(  
    product_id int NOT NULL,  
    product_name char(50) NOT NULL,  
    manufacturer char(50),  
    price int NOT NULL,  
    in_hand int,  
    Primary key(product_id)  
);  
  
create table Sales(  
    customer_id int NOT NULL,  
    product_id int NOT NULL,  
    unit_price int NOT NULL,  
    quantity int NOT NULL,  
    date_purchased date,  
    Foreign Key(customer_id) references Customer(customer_id),  
    Foreign Key(product_id) references Product(product_id)  
);
```

(b) Insert at least FIVE records in customer and product table and TEN records in Sales. (2 Points)

```

insert into Customer values(212,'mike','mike@gmail.com',329876122,'3216/newyork',54321)
insert into Customer values(321,'Asim','Asim@gmail.com',923457681,'4213/karachi',75900)
insert into Customer values(216,'Asad','Asad@gmail.com',314890434,'6789/Mirpurkhas',75932)
insert into Customer values(322,'jhon','jhon@gmail.com',134268920,'906/London',75600)
insert into Customer values(288,'Ahmed','Ahmed@gmail.com',123456789,'709/Karachi',74321)

insert into Product values(1001,'Bonus Washing Powder','Colgate Palmolive',300,100)
insert into Product values(1002,'Dove Soap','Unilever',200,150)
insert into Product values(1004,'Tapal Tea','Tapal',150,70)
insert into Product values(1005,'Haleeb Milk ','Haleeb Foods',190,120)
insert into Product values(1009,'Dayfrash Milk','DairyLand',250,50)

insert into Sales values(212,1001,320,5,'2021/1/15')
insert into Sales values(212,1004,170,6,'2021/1/1')
insert into Sales values(216,1001,320,2,'2021/1/15')
insert into Sales values(216,1005,210,10,'2021/2/4')
insert into Sales values(216,1002,230,8,'2021/1/8')
insert into Sales values(288,1009,270,4,'2021/3/10')
insert into Sales values(288,1001,320,9,'2021/1/9')
insert into Sales values(321,1002,230,9,'2021/2/8')
insert into Sales values(322,1005,210,6,'2021/1/6')
insert into Sales values(322,1009,270,3,'2021/4/9')

```

(c) Display the structure of each table using sp_columns and attach the screenshots.

	TABLE_QUALIFIER	TABLE_OWNER	TABLE_NAME	COLUMN_NAME	DATA_TYPE	TYPE_NAME	PRECISION	LENGTH	SCALE	RADIX	NULLABLE
1	sales	dbo	Customer	customer_id	4	int	10	4	0	10	0
2	sales	dbo	Customer	customer_name	1	char	50	50	NULL	NULL	0
3	sales	dbo	Customer	customer_email	1	char	50	50	NULL	NULL	1
4	sales	dbo	Customer	customer_no	4	int	10	4	0	10	0
5	sales	dbo	Customer	customer_address	1	char	150	150	NULL	NULL	1
6	sales	dbo	Customer	customer_postcode	4	int	10	4	0	10	1

	TABLE_QUALIFIER	TABLE_OWNER	TABLE_NAME	COLUMN_NAME	DATA_TYPE	TYPE_NAME	PRECISION	LENGTH	SCALE	RADIX	NULLABLE
1	sales	dbo	Product	product_id	4	int	10	4	0	10	0
2	sales	dbo	Product	product_name	1	char	50	50	NULL	NULL	0
3	sales	dbo	Product	manufacturer	1	char	50	50	NULL	NULL	1
4	sales	dbo	Product	price	4	int	10	4	0	10	0
5	sales	dbo	Product	in_hand	4	int	10	4	0	10	1

	TABLE_QUALIFIER	TABLE_OWNER	TABLE_NAME	COLUMN_NAME	DATA_TYPE	TYPE_NAME	PRECISION	LENGTH	SCALE	RADIX	NULLABLE
1	sales	dbo	Sales	customer_id	4	int	10	4	0	10	0
2	sales	dbo	Sales	product_id	4	int	10	4	0	10	0
3	sales	dbo	Sales	unit_price	4	int	10	4	0	10	0
4	sales	dbo	Sales	quantity	4	int	10	4	0	10	0
5	sales	dbo	Sales	date_purchased	-9	date	10	20	NULL	NULL	1

(d) Display all the records from each table using select and attach the screenshots.

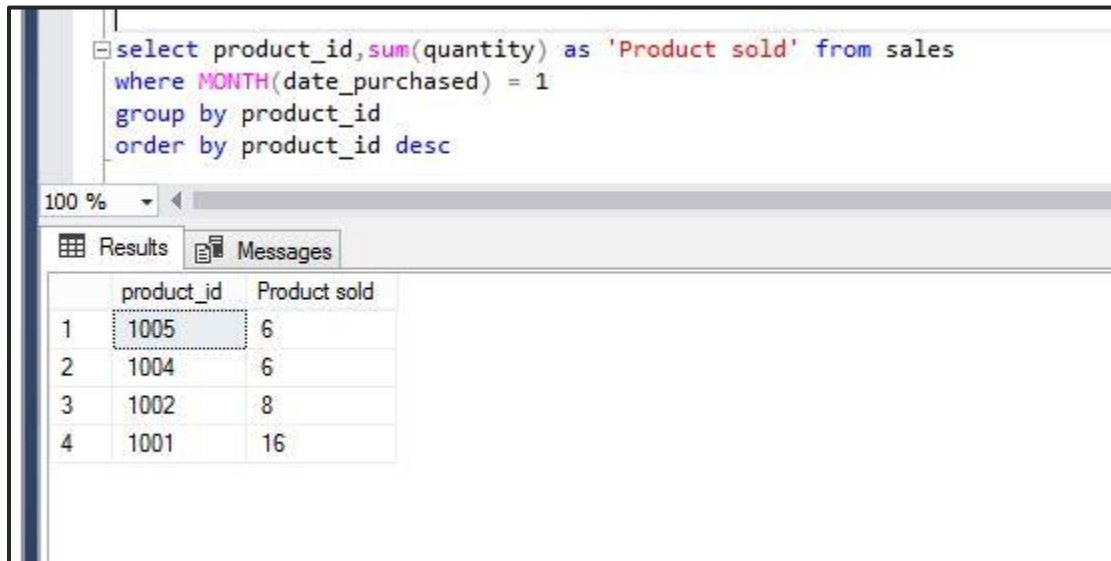
	customer_id	customer_name	customer_email	customer_no	customer_address	customer_postcode
1	212	mike	mike@gmail.com	329876122	3216/newyork	54321
2	216	Asad	Asad@gmail.com	314890434	6789/Mirpurkhas	75932
3	288	Ahmed	Ahmed@gmail.com	123456789	709/Karachi	74321
4	321	Asim	Asim@gmail.com	923457681	4213/karachi	75900
5	322	jhon	jhon@gmail.com	134268920	906/London	75600

	product_id	product_name	manufacturer	price	in_hand
1	1001	Bonus Washing Powder	Colgate Palmolive	300	100
2	1002	Dove Soap	Unilever	200	150
3	1004	Tapal Tea	Tapal	150	70
4	1005	Haleeb Milk	Haleeb Foods	190	120
5	1009	Dayfrash Milk	DairyLand	250	50

	customer_id	product_id	unit_price	quantity	date_purchased
1	212	1001	320	5	2021-01-15
2	212	1004	170	6	2021-01-01
3	216	1001	320	2	2021-01-15
4	216	1005	210	10	2021-02-04
5	216	1002	230	8	2021-01-08
6	288	1009	270	4	2021-03-10
7	288	1001	320	9	2021-01-09
8	321	1002	230	9	2021-02-08
9	322	1005	210	6	2021-01-06
10	322	1009	270	3	2021-04-09

Problem #2

(a) Write a query to show that how many items of EACH product are sold in the month of January. Sort the records in decreasing order of product quantity. (1 Point)



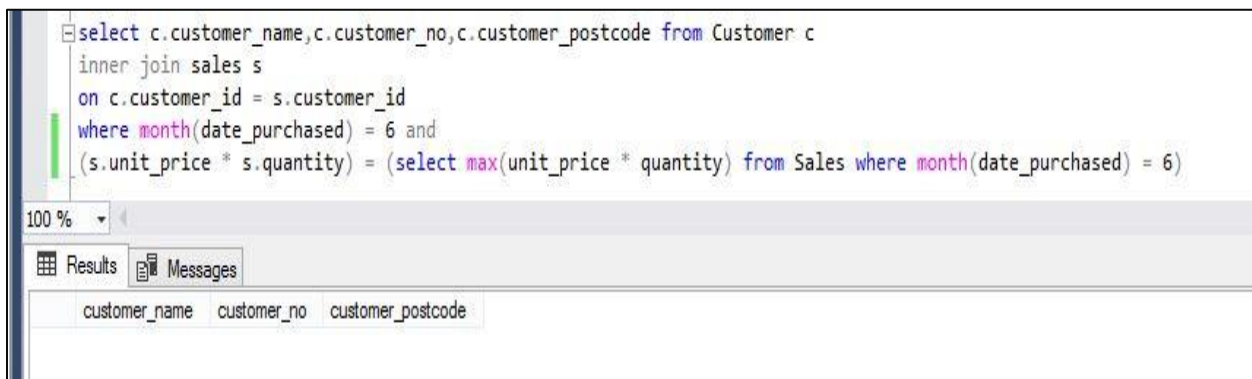
The screenshot shows a SQL query editor with the following query:

```
select product_id, sum(quantity) as 'Product sold' from sales
where MONTH(date_purchased) = 1
group by product_id
order by product_id desc
```

Below the query editor, the 'Results' tab is active, displaying a table with the following data:

	product_id	Product sold
1	1005	6
2	1004	6
3	1002	8
4	1001	16

(b) Select Name, contact and postal code of the customer who has done MAXIMUM transactions in the month of June. (1 Point)



The screenshot shows a SQL query editor with the following query:

```
select c.customer_name, c.customer_no, c.customer_postcode from Customer c
inner join sales s
on c.customer_id = s.customer_id
where month(date_purchased) = 6 and
(s.unit_price * s.quantity) = (select max(unit_price * quantity) from Sales where month(date_purchased) = 6)
```

Below the query editor, the 'Results' tab is active, displaying a table with the following headers:

customer_name	customer_no	customer_postcode
---------------	-------------	-------------------

(c) Select Name, contact and postal code of the customer who has spent MAXIMUM amount on sale still date. (1 Point)

```
select c.customer_name, c.customer_no, c.customer_postcode from Customer c
inner join sales s
on c.customer_id = s.customer_id
where (s.unit_price * s.quantity) = (select max(unit_price * quantity) from Sales)
```

100 %

Results Messages

	customer_name	customer_no	customer_postcode
1	Ahmed	123456789	74321

(d) Display the name, price and manufacturer of the product with second highest price. (1 Point)

```
select product_name, price, manufacturer from Product
where price = (select max(price) from Product where price < (select max(price) from Product))
```

100 %

Results Messages

	product_name	price	manufacturer
1	Dayfrash Milk	250	DairyLand

(e) Display all product from product table with inventory status. (If product_in_hand < 10, status is low. If product_in_hand <= 10 & <= 50, status is satisfactory. If product_in_hand > 50, status is surplus). (2 Points)


```

select *,
case
  when in_hand < 10 then 'Low'
  when in_hand >= 10 and in_hand <=50 then 'Satisfactory'
  when in_hand > 50 then 'Surplus'
end as 'Inventory status'
from Product

```

100 %

Results Messages

	product_id	product_name	manufacturer	price	in_hand	Inventory status
1	1001	Bonus Washing Powder	Colgate Palmolive	300	100	Surplus
2	1002	Dove Soap	Unilever	200	150	Surplus
3	1004	Tapal Tea	Tapal	150	70	Surplus
4	1005	Haleeb Milk	Haleeb Foods	190	120	Surplus
5	1009	Dayfrash Milk	DairyLand	250	50	Satisfactory