



Mohammad Ali Jinnah University
Chartered by Government of Sindh - Recognized by HEC

Assignment 3

Subject: DBMS

Section: BM

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Assignment 3

Question # 1

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

```
CREATE DATABASE Assignment3
```

```
USE Assignment3
```

```
CREATE TABLE CUSTOMER(  
    customer_id int not null PRIMARY KEY,  
    customer_name varchar(50) not null,  
    customer_email varchar(50),  
    customer_no int unique not null,  
    customer_address varchar(150),  
    customer_postcode int,  
)
```

```
CREATE TABLE PRODUCT(  
    product_id int not null PRIMARY KEY,  
    product_name char(50) not null,  
    manufacturer char(50),  
    price int not null,  
    in_hand int,  
)
```

```
CREATE TABLE SALES(  
    customer_id int not null FOREIGN KEY (customer_id) REFERENCES CUSTOMER(customer_id),  
    product_id int not null FOREIGN KEY (product_id) REFERENCES PRODUCT(product_id),  
    unit_price int not null,  
    quantity int not null,  
    date_purchased date not null,  
)
```

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

-- 2

```
INSERT INTO CUSTOMER VALUES(001, 'John', 'John@company.com', 1, '39 stress ABC road', 123)
INSERT INTO CUSTOMER VALUES(002, 'Turnquist', 'Turnquist@company.com', 2, '39 stress ABC road', 132)
INSERT INTO CUSTOMER VALUES(003, 'Norberto Bellini', 'Bellini@company.com', 3, '39 stress ABC road', 145)
INSERT INTO CUSTOMER VALUES(004, 'Lucio Fenske', 'Lucio.Fenske@company.com', 4, '39 stress ABC road', 178)
INSERT INTO CUSTOMER VALUES(005, 'Kristel Shehan', 'Shehan@company.com', 5, '39 stress ABC road', 159)
```

```
INSERT INTO PRODUCT VALUES(85, 'oil', '2021-5-12', 39, 159)
INSERT INTO PRODUCT VALUES(88, 'water', '2021-5-12', 55, 32)
INSERT INTO PRODUCT VALUES(02, 'fish', '2020-8-5', 45, 75)
INSERT INTO PRODUCT VALUES(58, 'fruit', '2015-6-20', 11, 45)
INSERT INTO PRODUCT VALUES(75, 'crops', '2018-4-22', 05, 88)
```

```
INSERT INTO SALES VALUES(001, 75, 05, 1, '8/2/2021')
INSERT INTO SALES VALUES(005, 75, 05, 4, '4-12-2019')
INSERT INTO SALES VALUES(003, 58, 11, 2, '7-5-2016')
INSERT INTO SALES VALUES(005, 58, 11, 2, '1-4-2020')
INSERT INTO SALES VALUES(002, 02, 45, 5, '1/12/2019')
INSERT INTO SALES VALUES(005, 58, 05, 4, '11-12-2021')
INSERT INTO SALES VALUES(003, 88, 55, 1, '7-22-2020')
INSERT INTO SALES VALUES(004, 02, 45, 1, '8-05-2018')
INSERT INTO SALES VALUES(004, 58, 05, 4, '4-12-2019')
INSERT INTO SALES VALUES(002, 85, 39, 8, '8-28-2021')
INSERT INTO SALES VALUES(001, 88, 55, 4, '5-12-2019')
INSERT INTO SALES VALUES(003, 02, 45, 4, '8-1-2019')
INSERT INTO SALES VALUES(005, 85, 39, 10, '8-6-2019')
INSERT INTO SALES VALUES(004, 58, 05, 8, '8-6-2019')
```

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

```
sp_columns CUSTOMER
sp_columns PRODUCT
sp_columns SALES
```

	TABLE_QUALIFIER	TABLE_OWNER	TABLE_NAME	COLUMN_NAME	DATA_TYPE	TYPE_NAME	PRECISION	LENGTH	SCALE	RADIX	NULLABLE	REMARKS	COLUMN_DEF	SQL_DATA_TYPE	SQL_C
1	Assignment3	dbo	CUSTOMER	customer_id	4	int	10	4	0	10	0	NULL	NULL	4	NUL
2	Assignment3	dbo	CUSTOMER	customer_name	12	varchar	50	50	NULL	NULL	0	NULL	NULL	12	NUL
3	Assignment3	dbo	CUSTOMER	customer_email	12	varchar	50	50	NULL	NULL	1	NULL	NULL	12	NUL
4	Assignment3	dbo	CUSTOMER	customer_no	4	int	10	4	0	10	0	NULL	NULL	4	NUL
5	Assignment3	dbo	CUSTOMER	customer_address	12	varchar	150	150	NULL	NULL	1	NULL	NULL	12	NUL
6	Assignment3	dbo	CUSTOMER	customer_postcode	4	int	10	4	0	10	1	NULL	NULL	4	NUL

	TABLE_QUALIFIER	TABLE_OWNER	TABLE_NAME	COLUMN_NAME	DATA_TYPE	TYPE_NAME	PRECISION	LENGTH	SCALE	RADIX	NULLABLE	REMARKS	COLUMN_DEF	SQL_DATA_TYPE	SQL_C
1	Assignment3	dbo	PRODUCT	product_id	4	int	10	4	0	10	0	NULL	NULL	4	NUL
2	Assignment3	dbo	PRODUCT	product_name	1	char	50	50	NULL	NULL	0	NULL	NULL	1	NUL
3	Assignment3	dbo	PRODUCT	manufacturer	1	char	50	50	NULL	NULL	1	NULL	NULL	1	NUL
4	Assignment3	dbo	PRODUCT	price	4	int	10	4	0	10	0	NULL	NULL	4	NUL
5	Assignment3	dbo	PRODUCT	in_hand	4	int	10	4	0	10	1	NULL	NULL	4	NUL

	TABLE_QUALIFIER	TABLE_OWNER	TABLE_NAME	COLUMN_NAME	DATA_TYPE	TYPE_NAME	PRECISION	LENGTH	SCALE	RADIX	NULLABLE	REMARKS	COLUMN_DEF	SQL_DATA_TYPE	SQL_C
1	Assignment3	dbo	SALES	customer_id	4	int	10	4	0	10	0	NULL	NULL	4	NUL
2	Assignment3	dbo	SALES	product_id	4	int	10	4	0	10	0	NULL	NULL	4	NUL
3	Assignment3	dbo	SALES	unit_price	4	int	10	4	0	10	0	NULL	NULL	4	NUL
4	Assignment3	dbo	SALES	quantity	4	int	10	4	0	10	0	NULL	NULL	4	NUL
5	Assignment3	dbo	SALES	date_purchased	-9	date	10	20	NULL	NULL	0	NULL	NULL	-9	NUL

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

```
-- 4
select * from CUSTOMER;
```

	customer_id	customer_name	customer_email	customer_no	customer_address	customer_postcode
1	1	John	John@company.com	1	39 stress ABC road	123
2	2	Tumquist	Tumquist@company.com	2	39 stress ABC road	132
3	3	Norberto Bellini	Bellini@company.com	3	39 stress ABC road	145
4	4	Lucio Fenske	Lucio.Fenske@company.com	4	39 stress ABC road	178
5	5	Kristel Shehan	Shehan@company.com	5	39 stress ABC road	159

```
select * from PRODUCT;
```

	product_id	product_name	manufacturer	price	in_hand
1	2	fish	2020-8-5	45	75
2	58	fruit	2015-6-20	11	45
3	75	crops	2018-4-22	5	88
4	85	oil	2021-5-12	39	159
5	88	water	2021-5-12	55	32

```
select * from SALES;
```

	customer_id	product_id	unit_price	quantity	date_purchased
1	1	75	5	1	2021-08-02
2	5	75	5	4	2019-04-12
3	3	58	11	2	2016-07-05
4	5	58	11	2	2020-01-04
5	2	2	45	5	2019-01-12
6	5	58	5	4	2021-11-12
7	3	88	55	1	2020-07-22
8	4	2	45	1	2018-08-05
9	4	58	5	4	2019-04-12
10	2	85	39	8	2021-08-28
11	1	88	55	4	2019-05-12
12	3	2	45	4	2019-08-01

Question # 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)

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

	product_id	Product Sold
1	58	2
2	2	5

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

```
select c.customer_name,c.customer_no,c.customer_postcode,(quantity) AS 'MAXIMUM
transactions' from CUSTOMER c,
SALES s
where c.customer_id = s.customer_id
and (quantity) =
(select max(quantity) from SALES
where MONTH(date_purchased) = 6)
```

customer_name	customer_no	customer_postcode	MAXIMUM transactions
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A change in question is that the month is 8 not 6

```
select c.customer_name,c.customer_no,c.customer_postcode,(quantity) AS 'MAXIMUM
transactions' from CUSTOMER c,
SALES s
where c.customer_id = s.customer_id
and (quantity) =
(select max(quantity) from SALES
where MONTH(date_purchased) = 8)
```

	customer_name	customer_no	customer_postcode	MAXIMUM transactions
1	Kristel Shehan	5	159	10

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

```
select c.customer_name,c.customer_no,c.customer_postcode,(quantity*unit_price) AS
'MAXIMUM amount' from CUSTOMER c,
SALES S
where c.customer_id = S.customer_id
and (S.quantity*S.unit_price) =
(select max(quantity*unit_price) from SALES)
```

	customer_name	customer_no	customer_postcode	MAXIMUM amount
1	Tumquist	2	132	312

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))
```

	product_name	price	manufacturer
1	fish	45	2020-8-5

- 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)

```
-- 5
select *,
CASE
    WHEN in_hand < 10 THEN 'status is low.'
    WHEN in_hand BETWEEN 10 AND 50 THEN 'status is satisfactory.'
    WHEN in_hand > 50 THEN 'status is surplus'
END As inventory_Status
from PRODUCT;
```

	product_id	product_name	manufacturer	price	in_hand	inventory_Status
1	2	fish	2020-8-5	45	75	status is surplus
2	58	fruit	2015-6-20	11	45	status is satisfactory.
3	75	crops	2018-4-22	5	88	status is surplus
4	85	oil	2021-5-12	39	159	status is surplus
5	88	water	2021-5-12	55	32	status is satisfactory.