IDS-PROJECT

- **Name:**
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    3971/FBAS/BSCS/F18.
    Section (B).

- **Course:**

  Introduction to Database System.

- **Submitted to:**

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UTILITY STORE MANAGEMENT SYSTEM

❖ REPORT

CHAPTER # 1

♦ Introduction:

My database is about utility store management system. In my database there are totally 5 main entity classes that are Customer, Product, Rack, Supplier and Staff. Customer class contains two subtypes that are member customers and other are non-members customers and staff class contain three subtypes that are manager, salesman and reception. These five (main types) classes are

logically related to each other. Customer class keeps the record of customers of the utility store (members and non-members), product class contains data about product sold in utility store, rack class keeps track of record about product that which product is placed in which rack(position) and available space to keep products on it, staff class contains record of staff members works in utility store (manager, salesman, receptionist) and supplier class contains information about suppliers which are supplying products to that store.

- **Problem:**

If the data (record) of utility store is kept / saved, managed and used manually then lots of problems may arise as data is in-efficient and in-accurate. So, we must resolve that problem.

- **Proposed Solution:**

We must keep our data in DATABASE. That means we must store our data in computerized form. Todays we have lots of memory / space to save our data. So, our data is efficient, accurate, consistent, no redundancy of data and we have no fear to lose our data. This is the best solution for our problem.

CHAPTER # 2

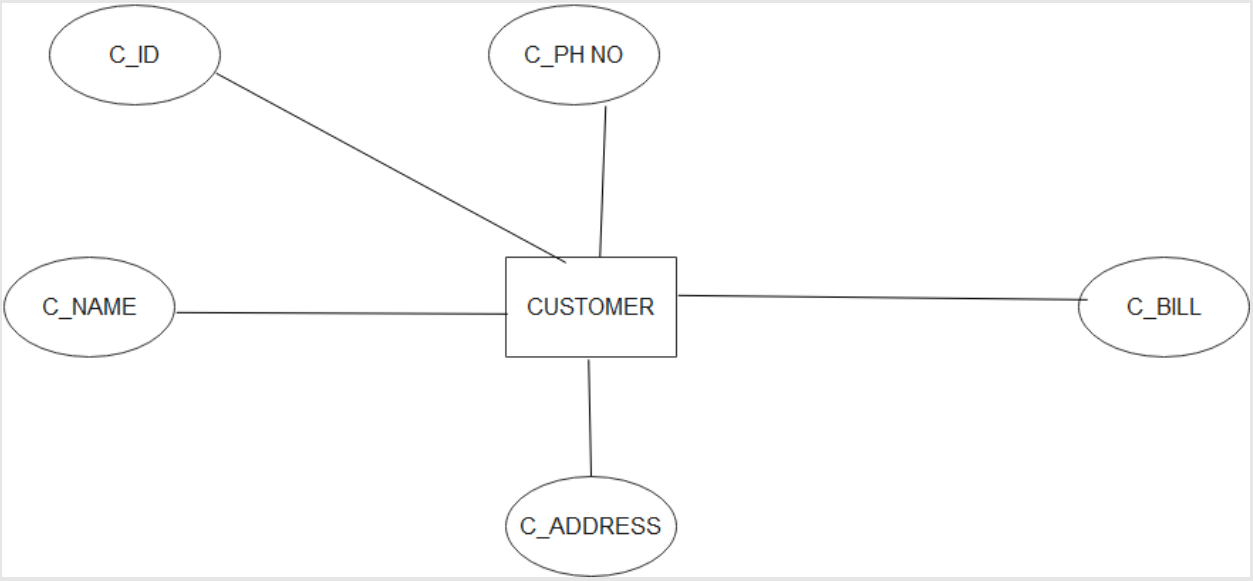
♦ Data Requirement:

We have total 5 entity classes that are CUSTOMER,STAFF,SUPPLIER,ORDER AND RACK. Customer class keeps the record of customers of the utility store (members and non-members), product class contains data about product sold in utility store, rack class keeps track of record about product that which product is placed in which rack(position) and available space to keep products on it, staff class contains record of staff members works in utility store (manager, salesman, receptionist) and supplier class contains information about suppliers which are supplying products to that store.

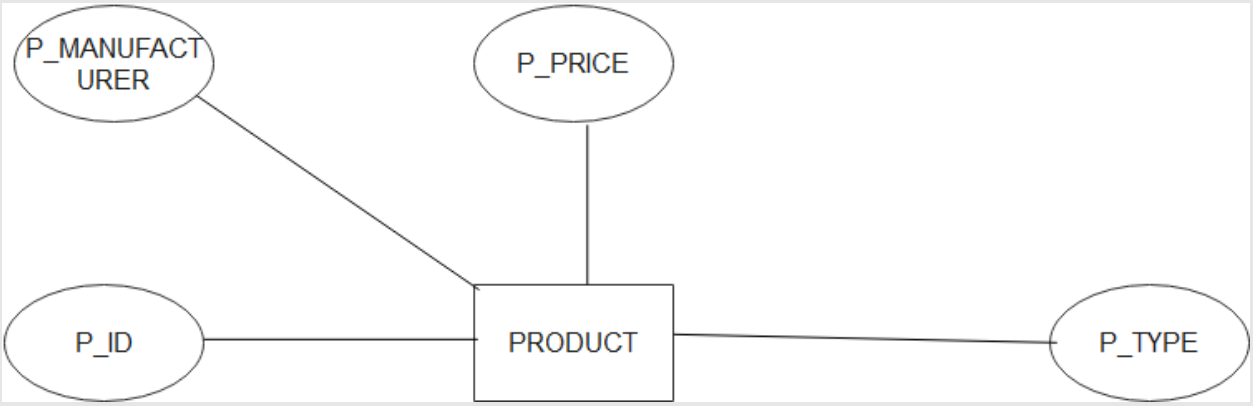
- **Entity classes and their attributes:**

Following are entities and their attributes used in my database system.

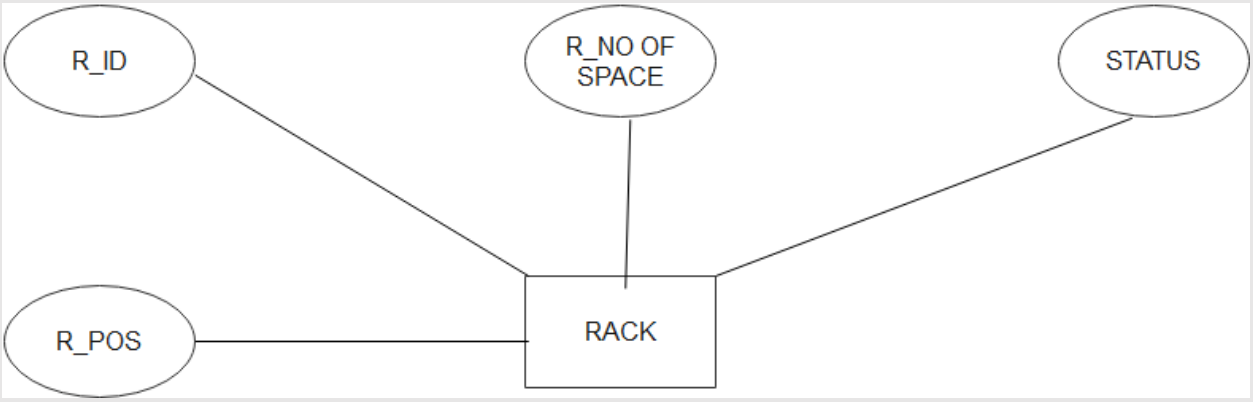
i. CUSTOMER**(C_ID,**C_NAME,C_PH NO,C_BILL,C_ADDRESS**).**



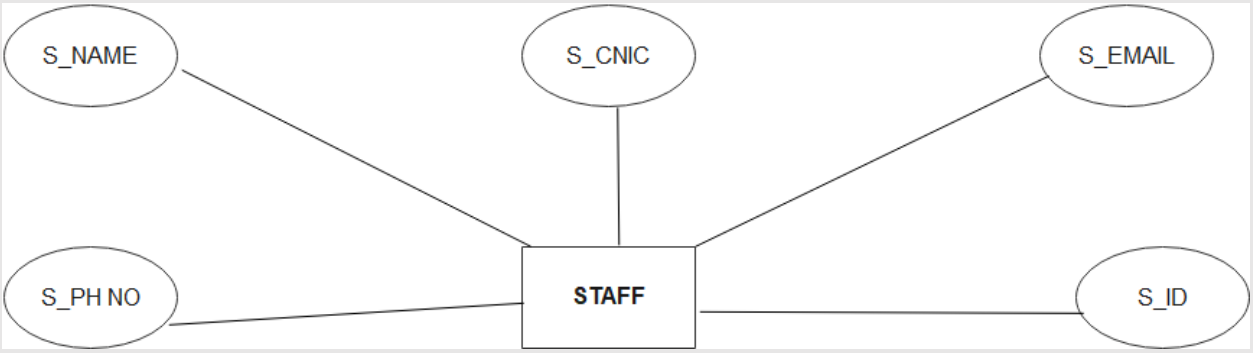
ii. PRODUCT**(P_ID,**P_TYPE,P_PRICE,P_MANUFACTURER**).**



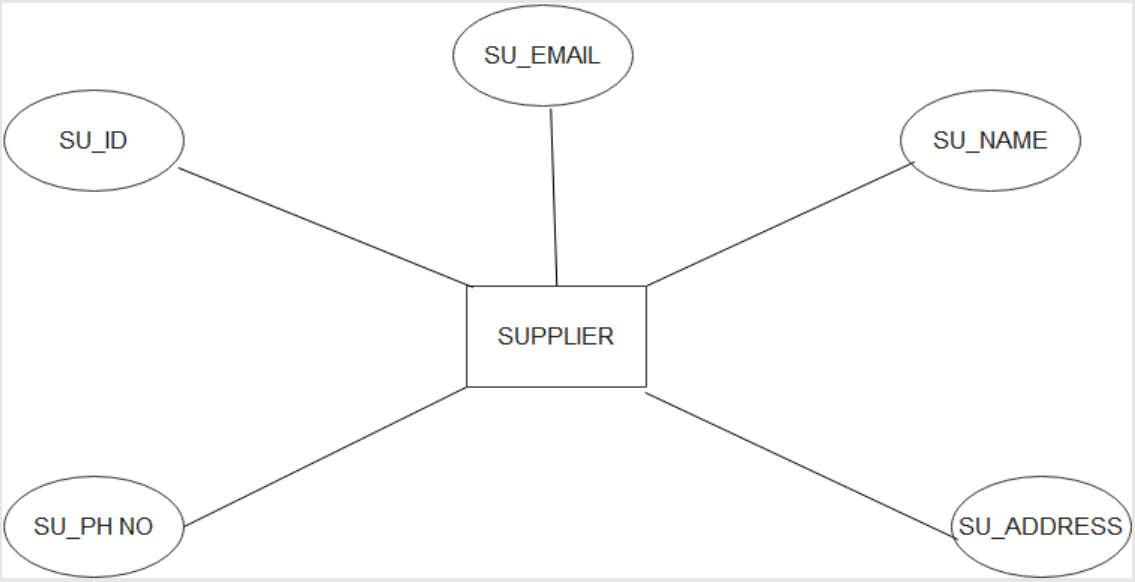
iii. RACK**(R_ID,**R_NO OF SPACE,R_POS,R_STATUS**).**



iv. STAFF**(S_ID,**S_NAME,S_PH NO,S_CNIC,S_EMAIL**).**

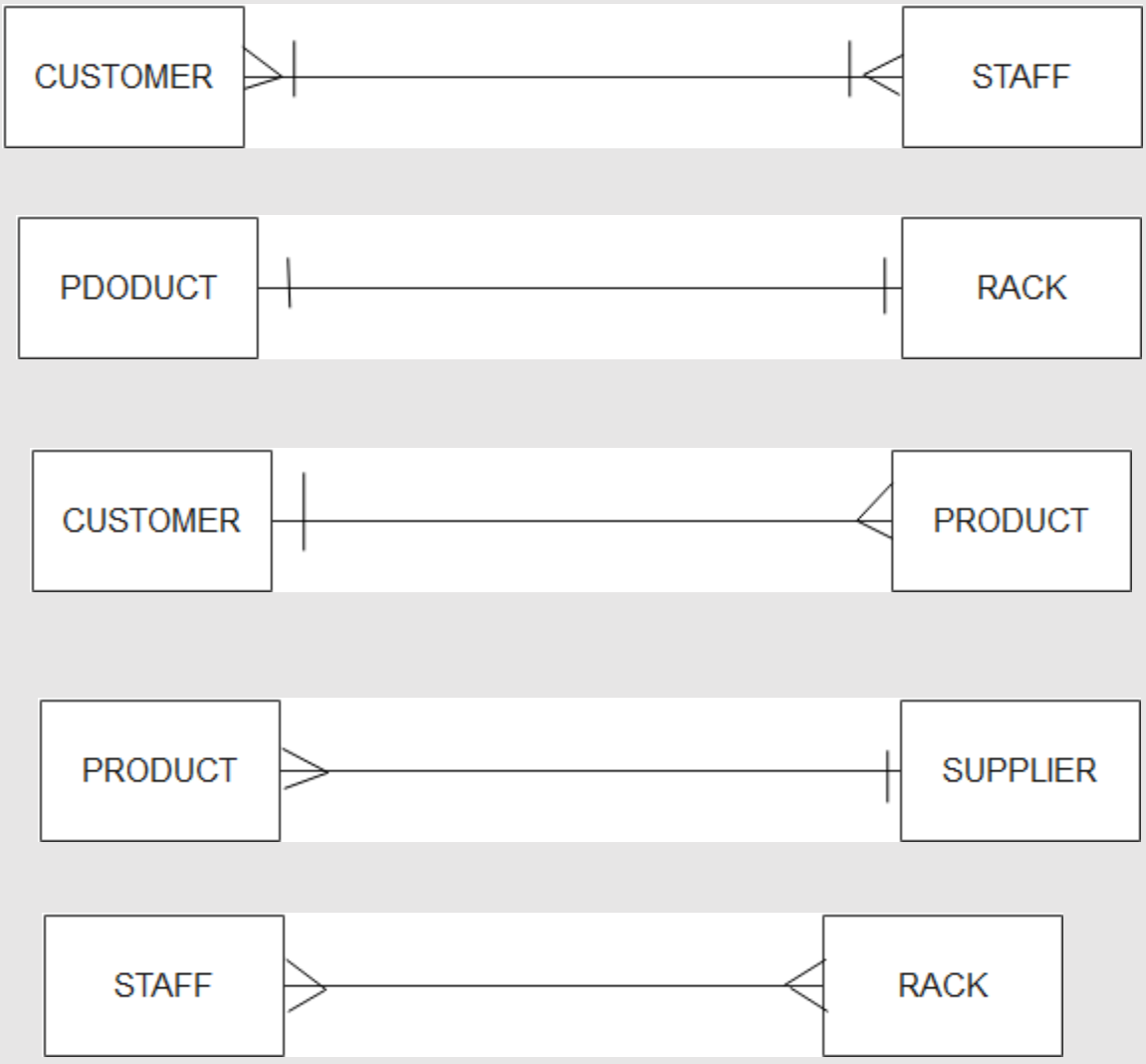


v. SUPPLIER**(SU_ID,**SU_NAME,SU_PH NO,SU_EMAIL,SU_ADDRESS**).**



- **Business Rule:**

It is the rule that defines which class is forming relationship with which class. Following shows that relations.



- **Types of relationship:**

1)One-to-One Relationship (1:1).

2)One-to-Many Relationship (1:M).

3)Many-to-Many Relationship (M:N).

CLASS 1	CLASS 2	RELATIONSHIP TYPE
CUSTOMER	STAFF	M:N
CUSTOMER	ORDER	1:M
ORDER	PRODUCT	M:N

PRODUCT	SUPPLIER HISTORY	M:N
SUPPLIER HISTORY	SUPPLIER	1:M
STAFF	RACK	M:N
PRODUCT	RACK	1:1

- **Degree of relationship:**

CLASS 1	CLASS 2	DEGREE OF RELATIONSHIP
CUSTOMER	STAFF	BINARY
CUSTOMER	ORDER	BINARY
ORDER	PRODUCT	BINARY
PRODUCT	SUPPLIER HISTORY	BINARY
SUPPLIER HISTORY	SUPPLIER	BINARY
STAFF	RACK	BINARY
PRODUCT	RACK	BINARY

My project (database) is based upon Binary Relationship. Uniary, ternary and N-ary is not used (not required).

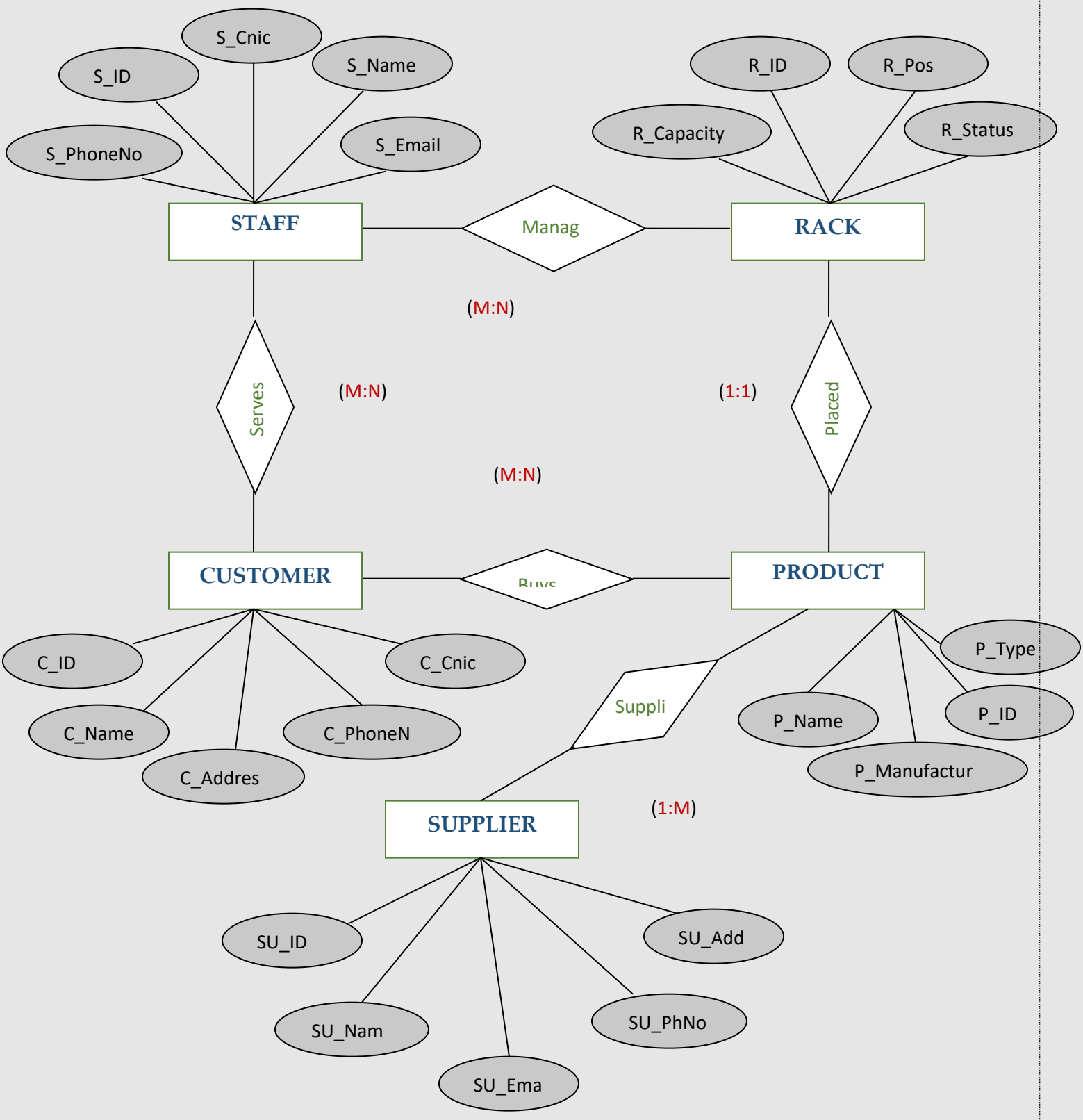
CHAPTER # 3

♦ Data Modeling:

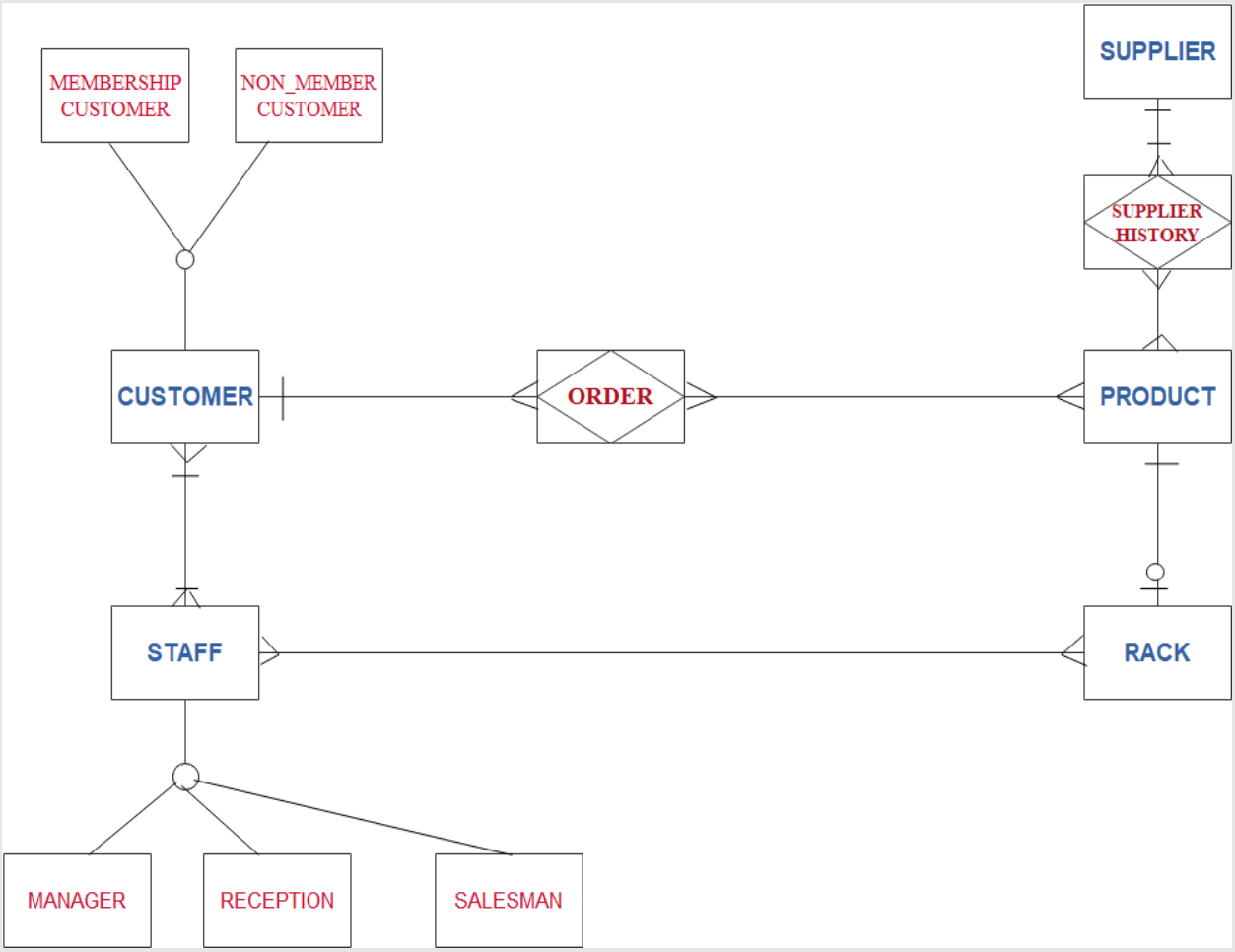
ERD_Diagram

Following are two diagrams. One (figure-1.1) is showing relationship of entity classes along with their attributes and applied concept of types of relationship and other (figure-1.2) is showing relationship of entity classes (without their attributes) and applied concepts of specialization/generalization, cardinalities etc.

(figure 1.1)


S_Cnic
S_ID
S_Name
S_PhoneNo
S_Email
STAFF
Manag
R_ID
R_Pos
R_Capacity
R_Status
RACK
(M:N)
Serves
(M:N)
(1:1)
Placed
(M:N)
CUSTOMER
Buys
PRODUCT
C_ID
C_Cnic
C_Name
C_PhoneN
C_Addres
Suppli
P_Type
P_Name
P_ID
P_Manufactur
(1:M)
SUPPLIER
SU_ID
SU_Add
SU_Nam
SU_PhNo
SU_Ema

(Figure 1.2)



CHAPTER # 4

♦ LOGICAL DATA MODEL:

Step 1:

Represent Entity Classes

In this we represent on table for each entity classes.

CUSTOMER:

C_ID	C_NAME	C_PH NO	C_BILL	C_ADDRESS
0	Karamat	03456789875	$3,500.00	house no 11, street 1, i10, Islamabad
1	Aown	03217721665	$200.00	house no 1, street 12, i10, Islamabad
2	Saad	03217731665	$200.00	house no 51, street 22, sadiqabad, Rwp
3	Hammad	03217741865	$500.00	house no 18, street 16, g6, Islamabad
4	Burhan	03217741895	$600.00	house no 8, street 1, f10, Islamabad

- **MEMBERSHIP CUSTOMER:**

C_ID	MC_NAME	MC_PH NO	MC_BILL
0	Saddam	03456789875	$3,500.00
1	Saim	03417721665	$200.00
2	Umar	03117731665	$200.00
3	Sadiq	03217741865	$500.00
4	Tauseef	03317741895	$600.00

- **NON-MEMBERSHIP CUSTOMER:**

C_ID	NMC_NAME	NMC_PH NO	NMC_BILL
0	Usman	03456785775	$500.00
1	Ali	03217725665	$1200.00
2	Altaf	03217734665	$20.00

3	Shaheen	03217741365	$1500.00
4	Aslam	03217741395	$1600.00

- **PRODUCT:**

P_ID	P_TYPE	P_PRICE	P_MANUFACTURER
10	Toys	$1,200.00	Kc brand
11	Food	$1,500.00	Knor
12	Crockery	$2,000.00	boss
13	Food	$1,230.00	National
14	Food	$500.00	Bake parlor

- **RACK:**

R_ID	R_POS	R_NO OF SPACE	R_STATUS
2971	West	40	Empty
2972	East	50	Half empty
2973	West	20	Full
2974	North	50	Full
2975	South	60	Empty

- **STAFF:**

S_ID	S_NAME	S_PH NO	S_CNIC	S_EMAIL
1	Qanat	03120059719	3440250809834	qanat@gmail.com
2	Sameed	03110054713	8140252804837	sameed@gmail.com

3	Sarosh	03220159712	3940650808824	sarosh@gmail.com
4	Waqar	03030052711	6440230803832	waqar@gmail.com
5	Hamza	03150459312	3340255809834	hamza@gmail.com

- **MANAGER:**

S_ID	M_NAME	M_PH NO	M_SALARY
1	Qanat	03120059719	40K
2	Sameed	03110054713	45K
3	Sarosh	03220159712	50K
4	Waqar	03030052711	40K
5	Hamza	03150459312	45K

- **RECEPTION:**

S_ID	R_NAME	R_PH NO	R_SALARY
1	Arslan	03120059719	20K
2	Haider	03110054713	24K
3	Zeeshan	03220159712	25K
4	Ali	03030052711	30K
5	Tauqeer	03150459312	30K

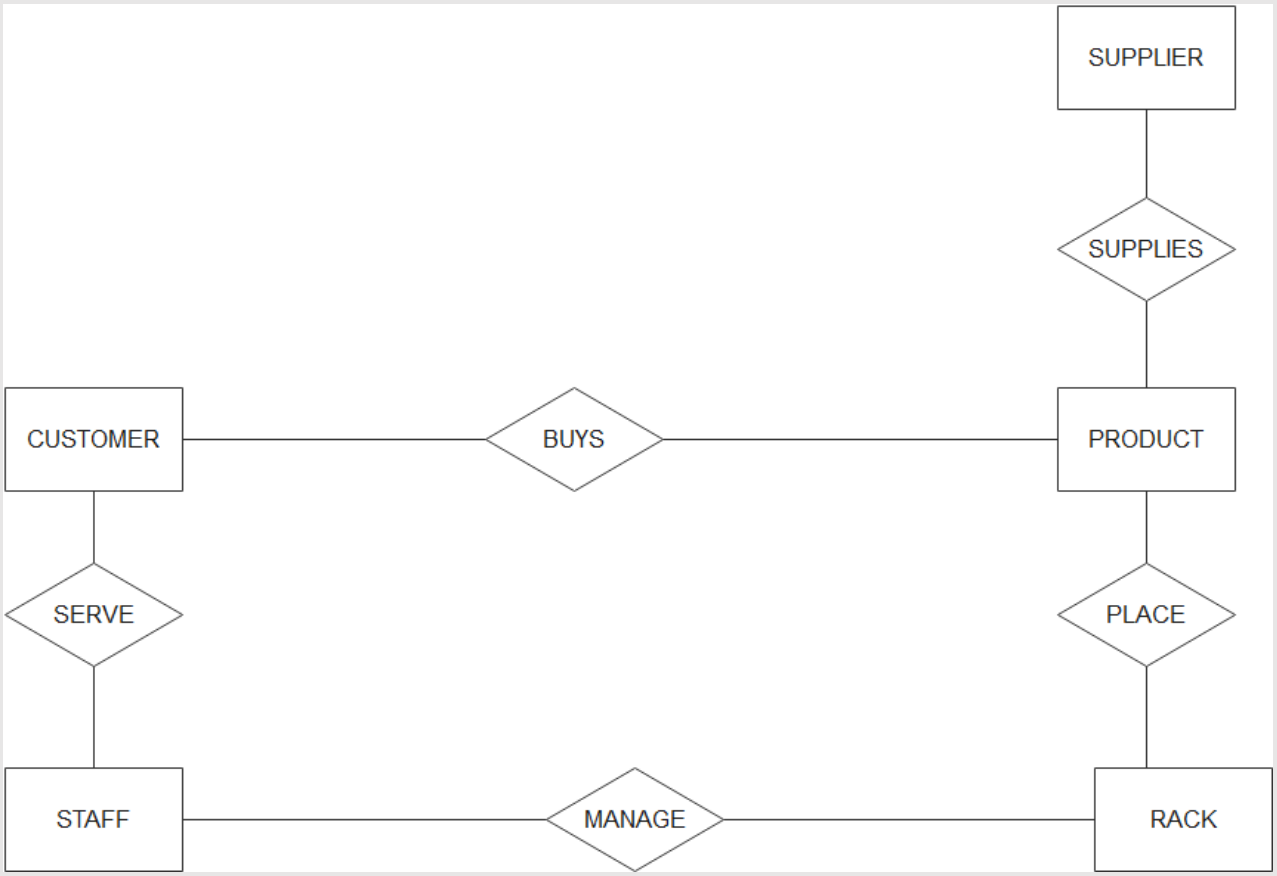
- **SALESMAN:**

S_ID	SA_NAME	SA_PH NO	SA_SALARY
1	Abbas	03120059719	15K
2	Hassan	03110054713	10K
3	Imran	03220159712	10K

4	Saad	03030052711	10K
5	Nadeem	03150459312	10K

- **SUPPLIER:**

SU_ID	SU_NAME	SU_PH NO	SU_EMAIL	C_ADDRESS
21	Arslan	03455678987	arslan@gmail.com	house no 5,street 4,f6,Islamabad
22	Haider	03456784748	haider@gmail.com	house no 8, street 3,raja bazar,rwp
23	Tariq	028437465840	tariq@gmail.com	house no 7, street 5,mandi moor,Islamabad
24	Amjad	031278495999	amjad@gmail.com	house no 54,street 5,muslaim town,rwp
25	Subhan	03217745678	subhan@gmail.com	house no 9, street 6,sadiqabad rwp



Step 2:

Represent Relationship:

When we relate CUSTOMER and STAFF entity classes new class is formed named as FEEDBACK entity class.

FEEDBACK CLASS

S_ID	C_ID	FEEDBACK	DATE
3071	0	Good	2/5/2020
3072	1	Poor	5/9/2020
3073	2	Medium	9/12/2020
3074	3	Good	7/12/2020
3075	4	Excellent	9/9/1010

When we relate STAFF and RACK entity classes new class is formed named as SERVICES entity class.

SERVICES CLASS

S_ID	R_ID	SER_REMARKS
21	2971	Full
22	2972	Empty
23	2973	Empty
24	2974	Half empty
25	2975	Full

When we relate CUSTOMER class and PRODUCT entity class. New class is formed named as ORDER class.

ORDER CLASS

O_ID	C_ID	O_DATE
112	0	12/12/2020
113	1	25/12/2020
114	2	29/12/2020
115	3	1/1/2021
116	4	3/1/2021

When we relate ORDER associative entity class and PRODUCT entity class new class is formed named as CUSTOMER TRANSACTION entity class.

CUSTOMER TRANSACTION CLASS

O_ID	P_ID	CT_DATE	CT_QUANTITY
112	10	12/2/2020	5
113	11	11/4/2020	6
114	12	8/15/2020	8
115	13	11/18/2020	2
116	14	5/5/2020	9

When we relate SUPPLIER entity class and PRODUCT entity class new class is formed named as SUPPLIER HISTORY entity class.

SUPPLIER HISTORY CLASS

SH_ID	SU_ID	SH_DATE	SH_QUANTITY
1	21	12/11/2020	9
2	22	11/13/2020	8
3	23	11/11/2021	7
4	24	1/21/2020	6
5	25	2/1/2020	5

When we relate SUPPLIER HISTORY entity class and PRODUCT entity class new class is formed named as SUPPLIER TRANSACTION entity class.

SUPPLIER TRANSACTION CLASS

SH_ID	P_ID	ST_DATE	ST_QUANTITY
1	10	12/3/2021	12
2	11	2/22/2021	13
3	12	2/22/2020	11
4	13	3/4/2020	15
5	14	5/22/2020	16

Step 3:

Normalization

My database entities are in normal form and there are no anomalies (Deletion, Modification, Insertion) in it so, we don't need to normalize our database. it is already in normalize state. As in our tables no transitive dependency, no functional dependency and no repeating group in it.

CHAPTER # 5

♦ Implementation:

○ Creation of Tables:

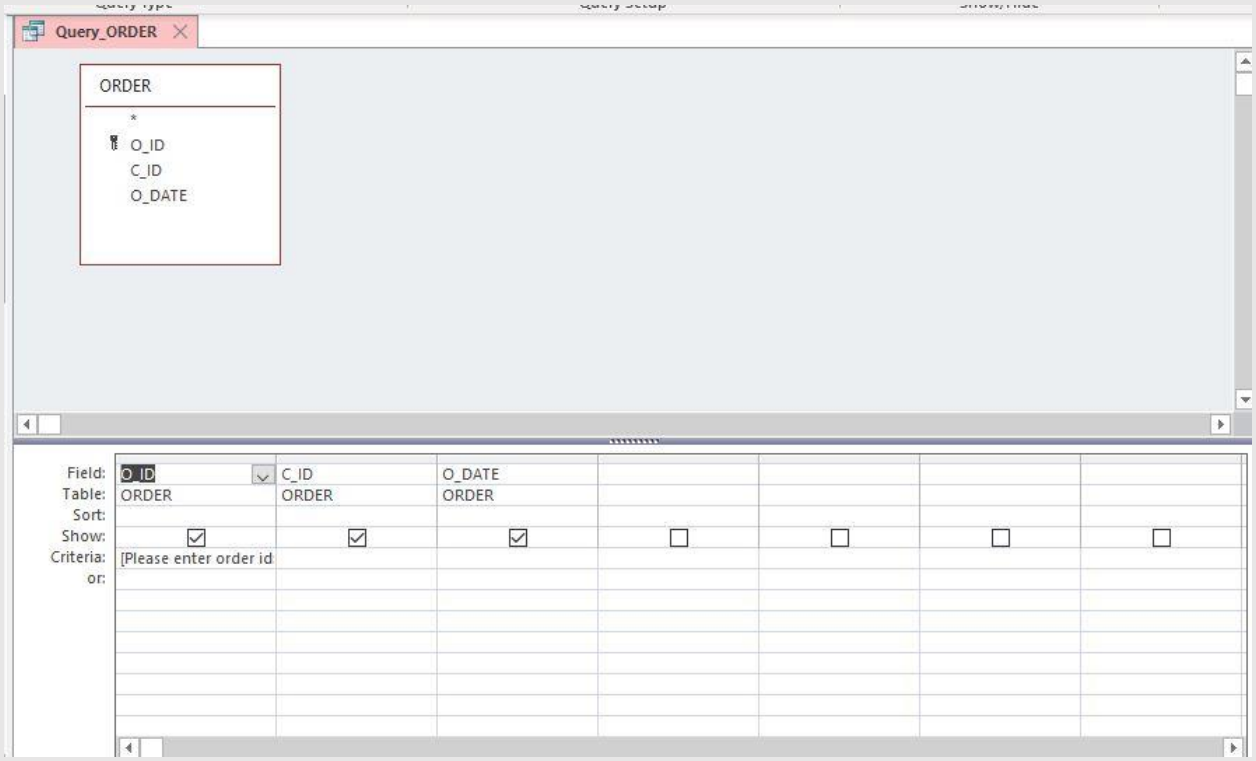
I have created all tables of my database using DBMS MS-ACCESS. 1 screenshot of my table in design view is as follow.

CUSTOMER

Field Name	Data Type	Description (Optional)
C_ID	Number	id of customer
C_NAME	Short Text	name of customer
C_PH NO	Short Text	phone no of customer
C_BILL	Currency	bill of customer
C_ADDRESS	Long Text	address of customer

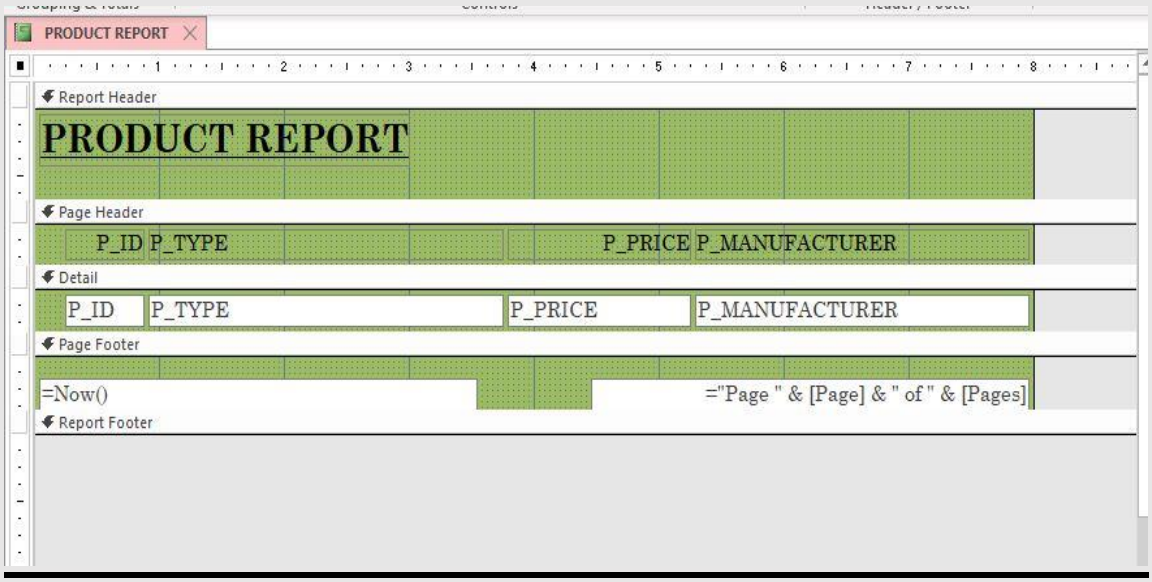
- **Creation of Queries:**

  I have created all possible queries of my database using DBMS MS-ACCESS. 1 screenshot of my dynamic query in design view is as follow.



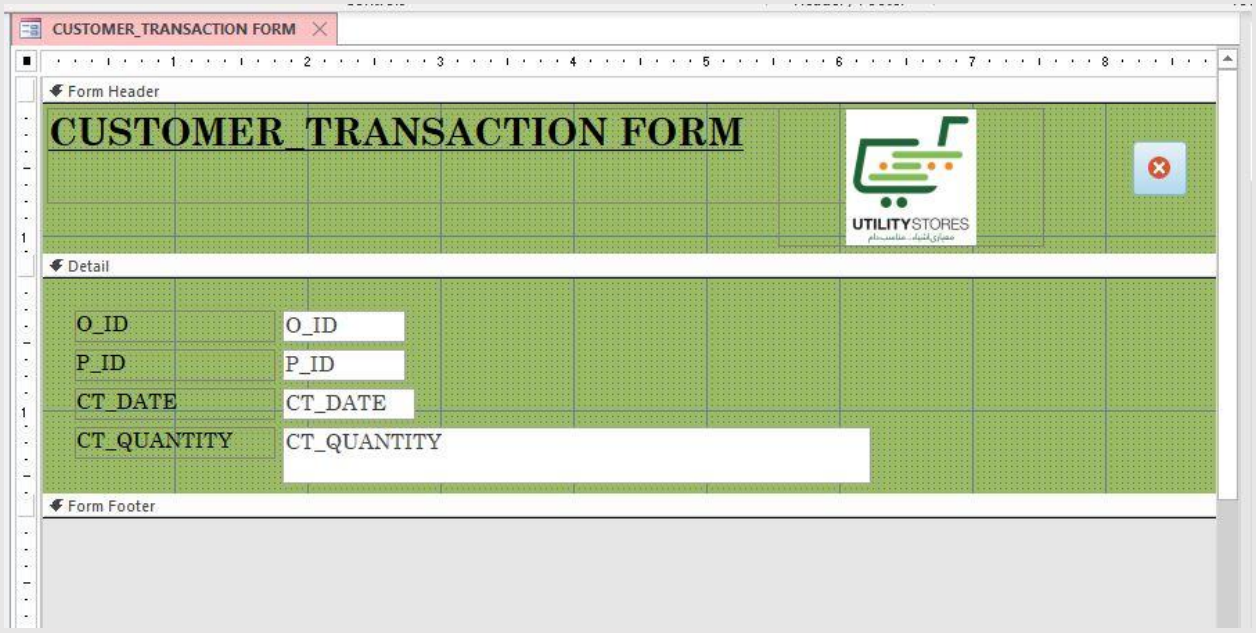
Creation of Reports:

I have created all possible reports of my database using DBMS MS-ACCESS. 1 screenshot of my form in design view is as follow.



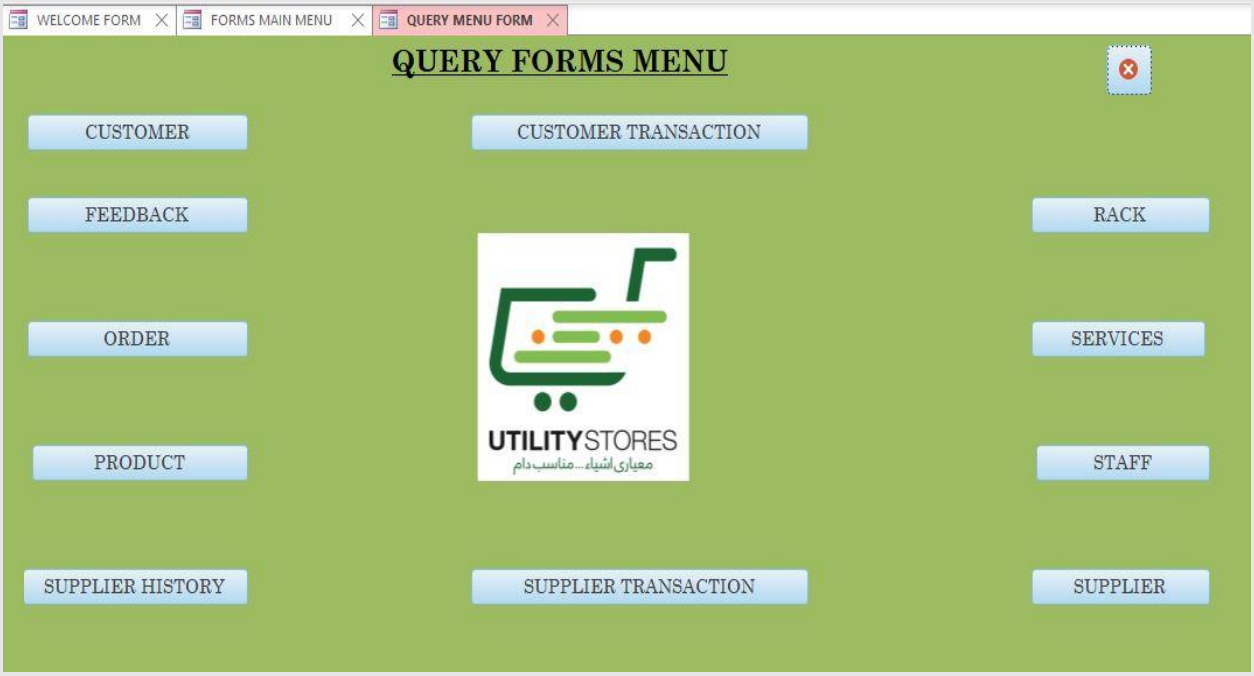
- ## Creation of Forms:

  I have created all possible forms of my database using DBMS MS-ACCESS. 1 screenshot of my form in design view is as follow.



CHAPTER # 6

♦ Appendix: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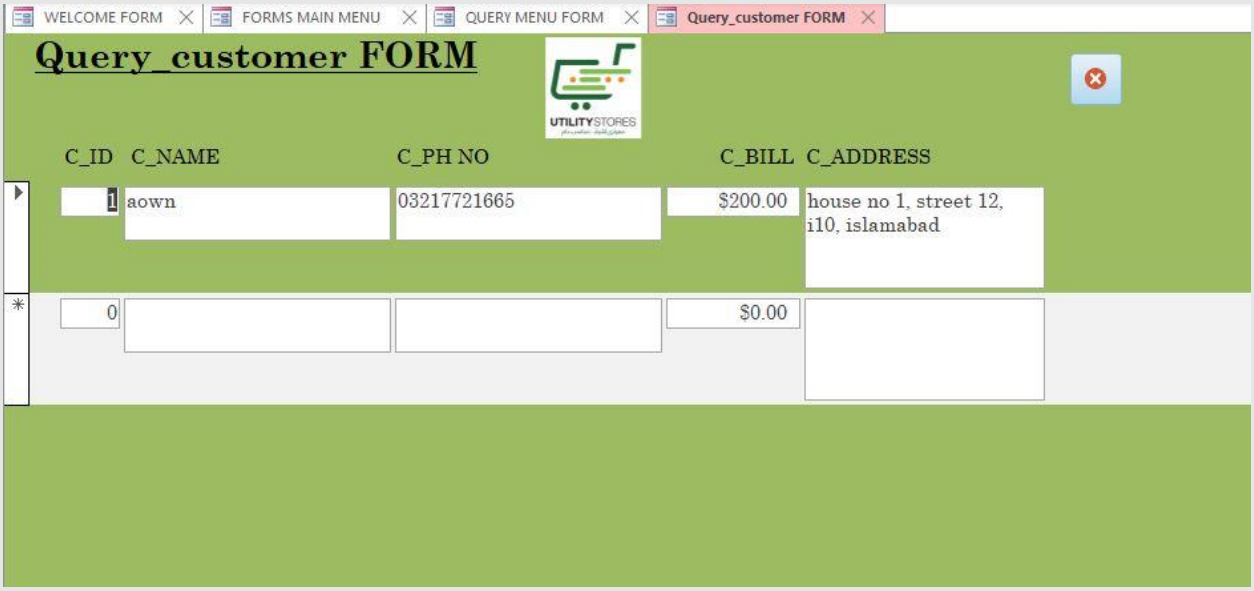
FORMS MAIN MENU
QUERY MENU FORM
QUERY FORMS MENU
CUSTOMER
CUSTOMER TRANSACTION
FEEDBACK
RACK
ORDER
SERVICES
PRODUCT
STAFF
SUPPLIER HISTORY
SUPPLIER TRANSACTION
SUPPLIER
UTILITYSTORES
معیاری اشیاء...مناسب دام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FORMS MAIN MENU
QUERY MENU FORM
Query_customer FORM
Query_customer FORM
UTILITYSTORES
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C_NAME
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C_BILL
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$200.00
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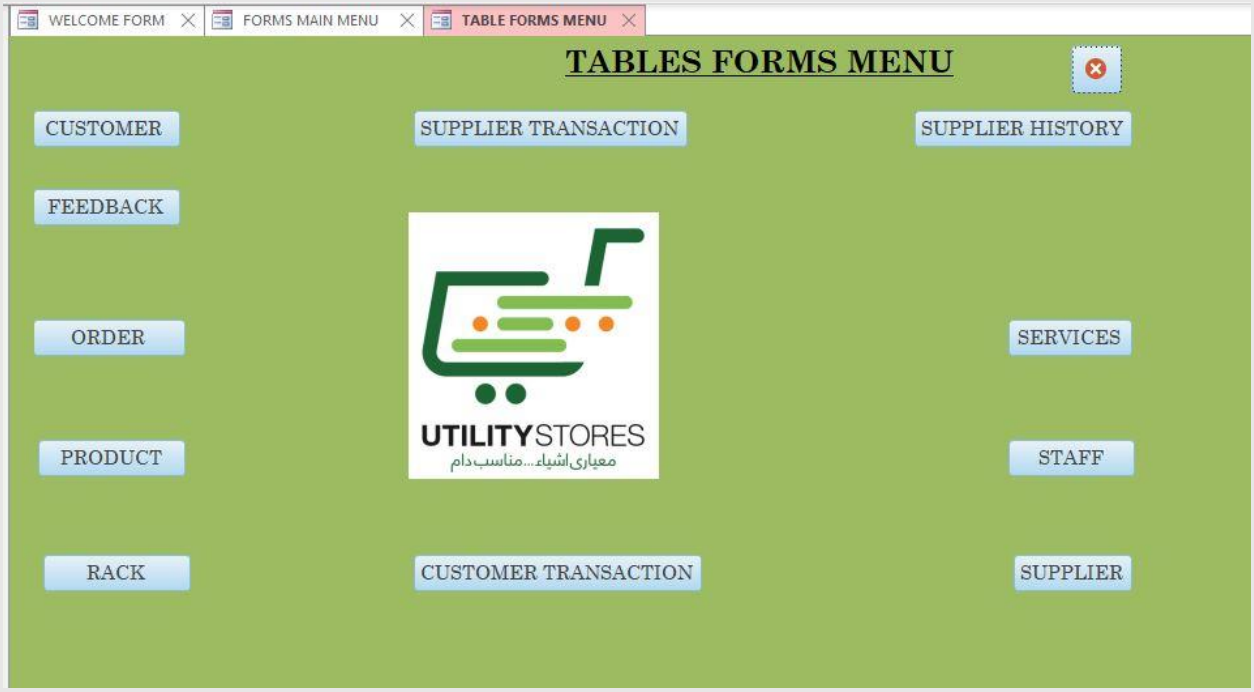
$0.00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FORMS MAIN MENU
TABLE FORMS MENU
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CUSTOMER
SUPPLIER TRANSACTION
SUPPLIER HISTORY
FEEDBACK
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SUPPLIER
UTILITYSTORES
معیاری اشیاء...مناسب دام

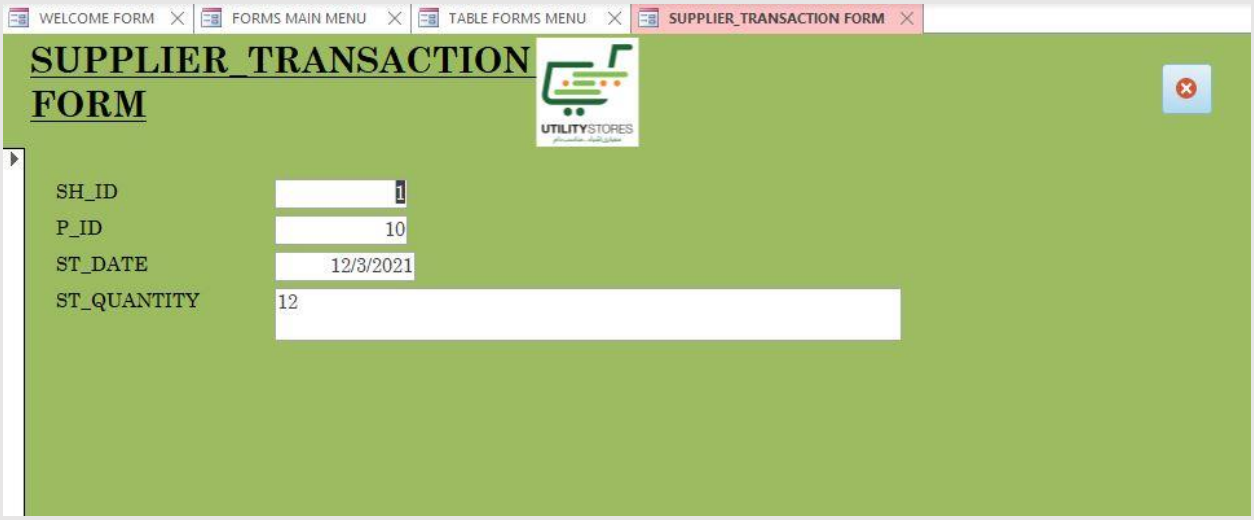
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TABLE FORMS MENU
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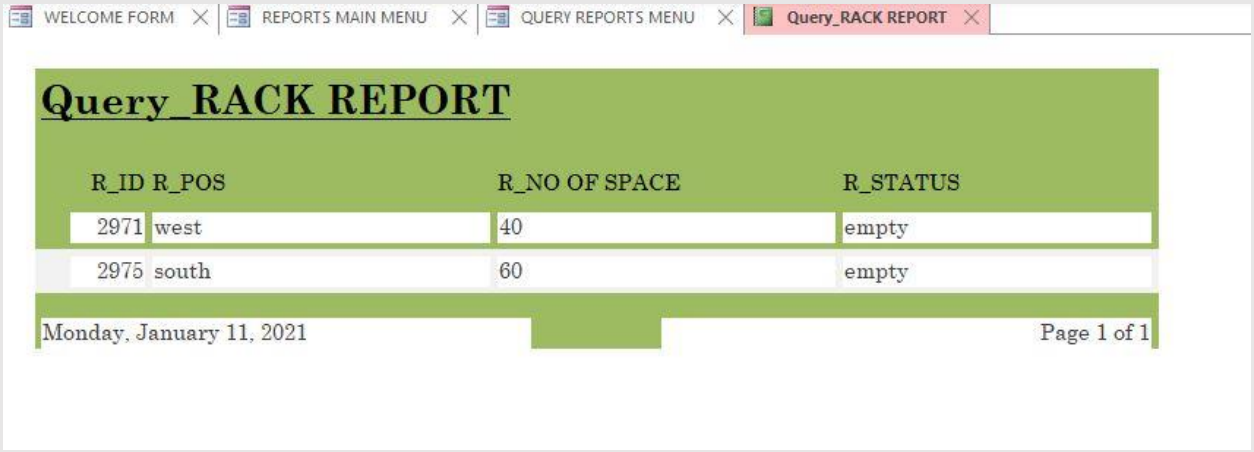
SUPPLIER_TRANSACTION FORM
UTILITYSTORES
SH_ID
1
P_ID
10
ST_DATE
12/3/2021
ST_QUANTITY
12


WELCOME FORM
REPORTS MAIN MENU
REPORTS MAIN MENU
QUERIES
UTILITYSTORES
معیاری اشیاء...مناسب دام
TABLES


WELCOME FORM
REPORTS MAIN MENU
QUERY REPORTS MENU
QUERY REPORTS MENU
CUSTOMER
CUSTOMER TRANSACTION
SUPPLIER
RACK
SERVICES
PRODUCT
UTILITYSTORES
معیاری اشیاء...مناسب دام
FEEDBACK
ORDER
SUPPLIER HISTORY
SUPPLIER TRANSACTION
STAFF


WELCOME FORM
REPORTS MAIN MENU
QUERY REPORTS MENU
Query_RACK REPORT
Query_RACK REPORT
R_ID R_POS
R_NO OF SPACE
R_STATUS
2971 west
40
empty
2975 south
60
empty
Monday, January 11, 2021
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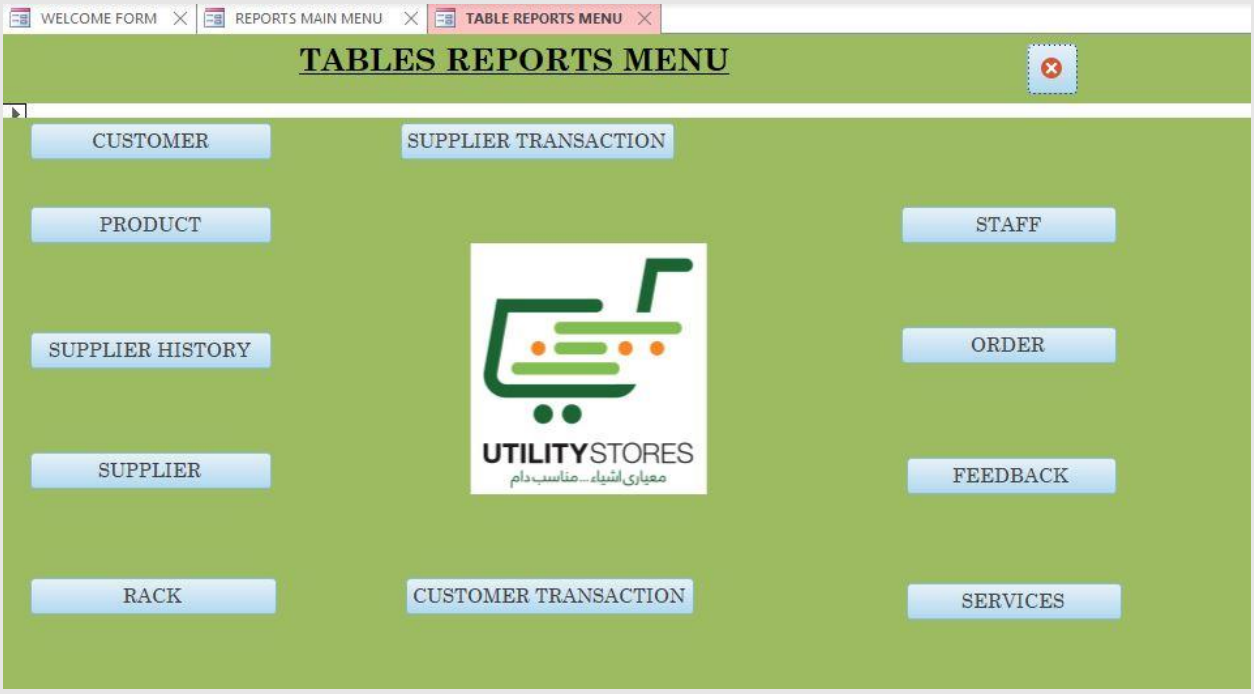
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TABLE REPORTS MENU
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CUSTOMER
SUPPLIER TRANSACTION
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STAFF
SUPPLIER HISTORY
ORDER
SUPPLIER
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معیاری اشیاء ... مناسب دام


WELCOME FORM
REPORTS MAIN MENU
TABLE REPORTS MENU
SUPPLIER REPORT
SUPPLIER REPORT
SU_ID SU_NAME SU_PH NO SU_ADDRESS SU_EMAIL
21 arslan 03455678987 house no 5,street 4,f6,islama arslan@gmail.com
22 haider 03456784748 house no 8, street 3,raja baz haider@gmail.com
23 tariq 028437465840 house no 7, street 5,mandi n tariq@gmail.com
24 amjad 031278495999 house no 54,street 5,muslair amjad@gmail.com
25 subhan 03217745678 house no 9, street 6,sadiqab subhan@gmail.com
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