VEHICLE SHOWROOM MANAGEMENT DATABASE

Team:-

Ishan Sharma – 1Ms19IS050

Kuldeep Pancholi – 1MS19IS061

INTRODUCTION :

This Database can be used by an automobile center for keeping the records of items that are to be transacted for purchase and sale.

ADVANTAGES :

- It is much faster than a manual system.
- Easy to generate reports for any transaction.
- It is very flexible to work.
- Easy and fastest record finding technique.

Contents:

CHARACTERISTICS:

Entity:

- VENDOR(VENDOR_CODE,VEDOR_NAME,CITY,ADDRESS, PHONE_NO)
- PURCHASE (PURCHASE_CODE, DESC)

- ITEM_TABLE (ITEM_CODE, ITEM_NAME, PURCHASE_PRICE, SALE_PRICE, CURR_STOCK)
- VEHICLE (VEHICLE_CODE, VEHICLE_NAME)
- COMPANY (COMPANY_ID, COMPANY_NAME, CITY,PHONE_NO, ADDRESS, EMAIL)
- SALES (SALES_CODE, DESC)
- CUSTOMER (CUST_ID, CNAME, CITY, PHONE_NO, EMAIL)

Relations:

- VENDOR_SELLED (VENDOR_CODE, PURCHASE_CODE)
- PURCHASE_TRANS (PURCHASE_CODE, ITEM_CODE, QTY, AMOUNT)
- READY_FOR_SALE (VEHICLE_CODE, ITEM_CODE)
- BUILD (COMPANY_ID, VEHICLE_CODE)
- SALES_TRANS (SALES_CODE, ITEM_CODE, QTY, AMOUNT)
- CUSTOMER_PURCHASED (CUST_ID, SALES_CODE)

ER Model Assumption -

- A Customer can have any no. of items or zero items from the sold items while a particular sold item can be sold to only one customer. Hence CUSTOMER PURCHASED relation is 1:M (CUSTOMER to SALES). Each sold item must have a customer hence entity SALES has total participation.
- Each item that is sold from the available items must have a single and unique transaction ID. So, SALES_TRANS is a 1:1 relation and the entity SALES has total participation in it.

- A company can make any no. of vehicles or there may be some newly established company which didn't make any vehicle till now, but for every vehicle, there is a company which made him, So BUILD is 1:M relation (COMPANY TO VEHICLE) and entity VEHICLE has full participation in BUILD relation.
- Among the built vehicles there may be some vehicles that are not ready to include in the ready to sell item list. Hence READY_FOR_SALE is a 1:1 relationship and both the entities have partial participation.
- A vendor can sell any no. of items but each item that is sold by vendors must be built by a particular vendor. Hence VENDOR_SELLED is 1:M relation (VENDOR TO PURCHASE) and entity PURCHASE HAS full participation.
- Similar to the SALES_TRANS relation we can define PURCHASE_TRANS, so it's a 1:1 relationship in which entity purchase has full participation.

Functional Dependencies and Primary Key -

1.) Customer-

Cust_id -> {Fname, Lname, City, Phone_no, Email} Since all the fields depend on Cust_id ,
(Cust_id)+ -> R.
Hence ,Cust_id is the Primary Key.

2.) Vendor-

Vendor_code -> {Fname, Lname, City, Address, Phone_no} Since all the fields depend on Vendor_code , (Vendor_code)+ -> R.
Hence, Vendor_code is Primary Key.

3.) Company-

Comany_id -> {Company_name, City, Phone_no, Email, Address} Since all the fields depend on Company_id ,
(Company_id)+ -> R.
Hence , Company_id is Primary Key.

4.) Sales-

{Sales_code, Cust_id} -> Desc
Since all the fields depend on {Sales_code, Cust_id}, ({Sales_code, Cust_id})+ -> R.
Hence , {Sales_code, Cust_id} is Primary Key.

5.) Purchase-

{Purchase_code, Vendor_code} -> Desc
Since all the fields depend on {Purchase_code, Vendor_code},

({Purchase_code, Vendor_code})+ -> R.
Hence , {Purchase_code, Vendor_code} is Primary Key.

6.) Vehicle-

{Vehicle_code, Company_id} -> Vehicle_name
Since all the fields depend on {Vehicle_code, Company_id}, ({Vehicle_code, Company_id})+ -> R.
Hence , {Vehicle_code, Company_id} is Primary Key.

7.) Item_Table-

Item_code -> {Item_name, Purchase_price, Curr_stock, Sale_price} Since all the fields depend on Item_code ,
(Item_code)+ -> R.
Hence ,Item_code is Primary Key.

8.) Sales_Trans-

{Item_code, Sales_code} -> {Amount, Qty}
Since all the fields depend on {Item_code, Sales_code}, ({Item_code, Sales_code})+ -> R.
Hence , {Item_code, Sales_code} is Primary Key.

9.) Purchase_Trans-

{Item_code, Purchase_code} -> {Amount, Qty}
Since all the fields depend on {Item_code, Purchase_code}, ({Item_code, Purchase_code})+ -> R.
Hence , {Item_code, Purchase_code} is Primary Key.

10.) Ready_For_Sale-

In this relationship, the only attributes are Primary Key attributes.

Normalization-

** All the tables contain only atomic values, therefore all the tables are in 1NF.

1.) Customer

- Primary key: Cust_id
- All the attributes depend on the Cust_id, hence the table is in 2NF
- All the attributes depend on Cust_id directly, hence the table is in 3NF
- All determinants(Cust_id) are candidate keys, hence the table is in BCNF.

2.) Vendor

- Primary key: Vendor_code
- All the attributes depend on the Vendor_code, hence the table is in 2NF
- All the attributes depend on Vendor_codedirectly, hence the table is in 3NF
- All determinants(Vendor_code) are candidate keys, hence the table is in BCNF.

3.) Company

- Primary key: Compny_id
- All the attributes depend on the Company_id, hence the table is in 2NF
- All the attributes depend on Company_iddirectly, hence the table is in 3NF
- All determinants(Company_id) are candidate keys, hence the table is in BCNF.

4.) Vehicle

- Primary key : {Vehicle_code, Company_id}
- All the attributes depend on the {Vehicle_code, Company_id}, hence the table is in 2NF
- All the attributes depend on {Vehicle_code, Company_id}directly, hence the table is in 3NF
- All determinants({Vehicle_code, Company_id}) are candidate keys, hence the table is in BCNF.

5.) Item_Table

- Primary key: Item_code
- All the attributes depend on the Item_code, hence the table is in 2NF
- All the attributes depend on Item_codedirectly, hence the table is in 3NF
- All determinants(Item_code) are candidate keys, hence the table is in BCNF.

6.) Sales

- Primary key : {Sales_code, Cust_id}
- All the attributes depend on the {Sales_code, Cust_id}, hence the table is in 2NF
- All the attributes depend on {Sales_code, Cust_id}directly, hence the table is in 3NF
- All determinants({Sales_code, Cust_id}) are candidate keys, hence the table is in BCNF.

7.) Purchase

- Primary key : {Purchase_code, Vendor_code}
- All the attributes depend on the {Purchase_code, Vendor_code}, hence the table is in 2NF
- All the attributes depend on {Purchase_code, Vendor_code}directly, hence the table is in 3NF
- All determinants({Purchase_code, Vendor_code}) are candidate keys, hence the table is in BCNF.

8.) Sales_trans

- Primary key : {Item_code, Sales_code}
- All the attributes depend on the {Item_code, Sales_code}, hence the table is in 2NF
- All the attributes depend on {Item_code, Sales_code} directly, hence the table is in 3NF
- All determinants({Item_code, Sales_code}) are candidate keys, hence the table is in BCNF.

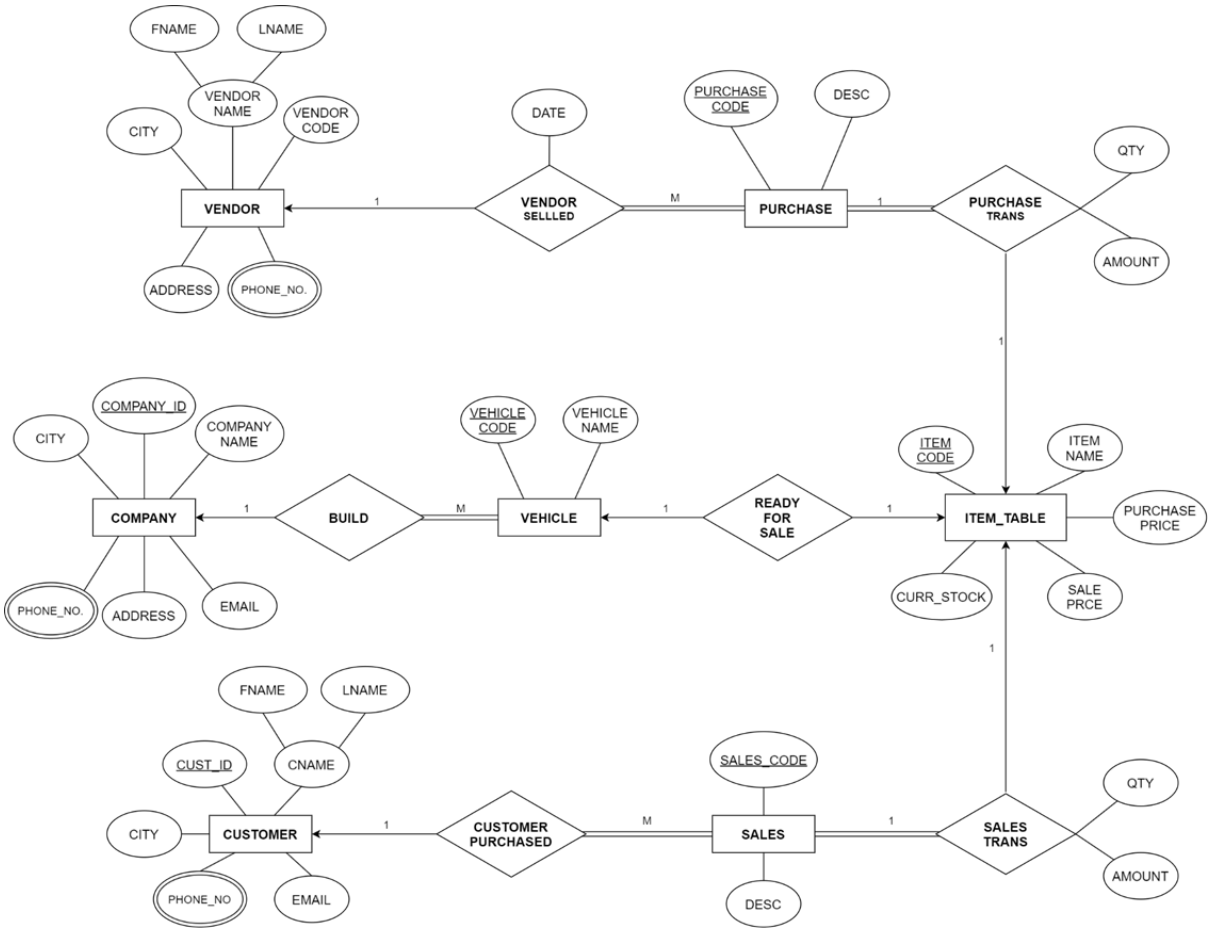
9.) Purchase_trans

- Primary key : {Item_code, Purchase_code}
- All the attributes depend on the {Item_code, Purchase_code}, hence the table is in 2NF
- All the attributes depend on {Item_code, Purchase_code} directly, hence the table is in 3NF
- All determinants({Item_code, Purchase_code}) are candidate keys, hence the table is in BCNF.

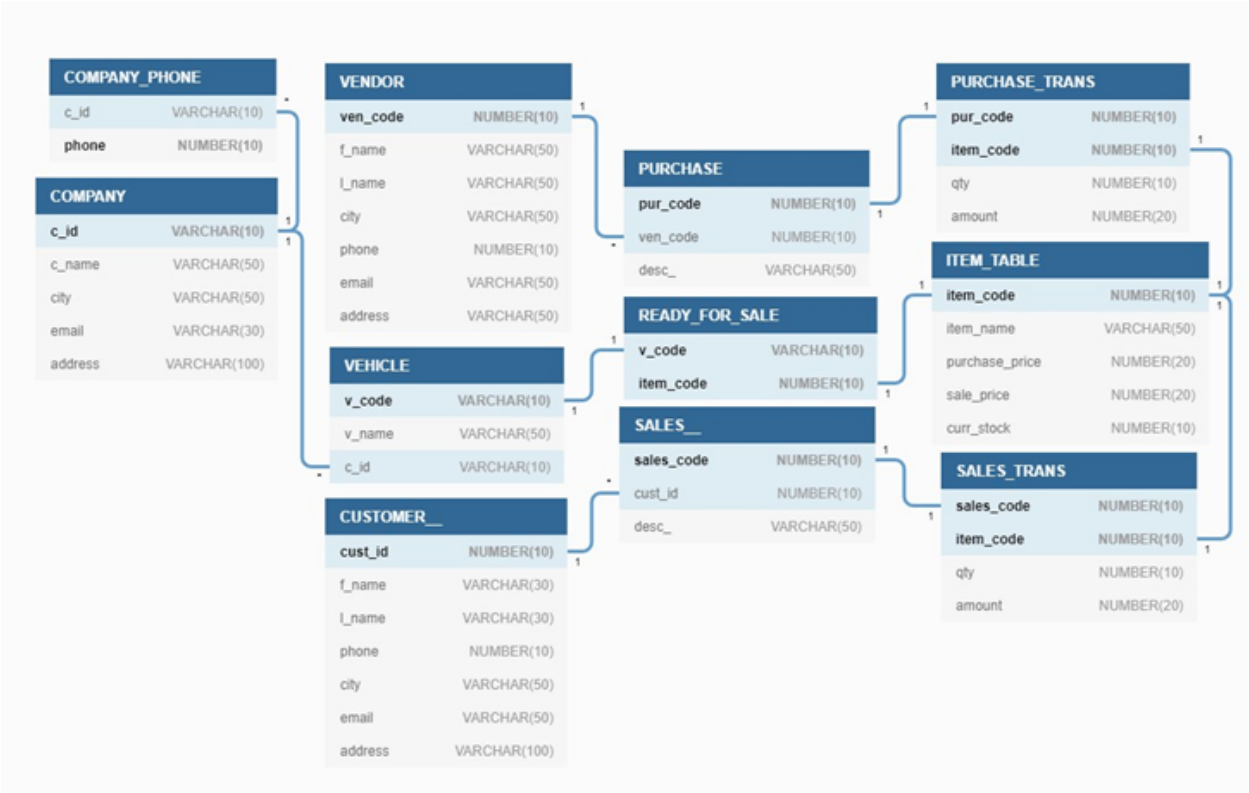
10.) Ready_For_Sale

- Primary key : {Item_code, Vehicle_code}
- All the attributes depend on the {Item_code, Vehicle_code}, hence the table is in 2NF
- All the attributes depend on {Item_code, Vehicle_code} directly, hence the table is in 3NF
- All determinants({Item_code, Vehicle_code}) are candidate keys, hence the table is in BCNF

ER-DIAGRAM


FNAME
LNAME
VENDOR NAME
VENDOR CODE
CITY
VENDOR
ADDRESS
PHONE_NO.
1
VENDOR SELLLED
DATE
M
PURCHASE
PURCHASE CODE
DESC
1
PURCHASE TRANS
QTY
AMOUNT
1
COMPANY_ID
CITY
COMPANY NAME
COMPANY
PHONE_NO.
ADDRESS
EMAIL
1
BUILD
M
VEHICLE
VEHICLE CODE
VEHICLE NAME
1
READY FOR SALE
1
ITEM_TABLE
ITEM CODE
ITEM NAME
PURCHASE PRICE
CURR_STOCK
SALE PRCE
1
FNAME
LNAME
CUST_ID
CNAME
CITY
CUSTOMER
PHONE_NO
EMAIL
1
CUSTOMER PURCHASED
M
SALES
SALES_CODE
DESC
1
SALES TRANS
QTY
AMOUNT

Relational Schema with Normalised tables



QUERIES

Q-1. Display all the vehicle companies.

```
select c_name from company;
```

	C_NAME
1	Honda
2	Hyundai
3	Maruti Suzuki
4	BMW
5	Audi

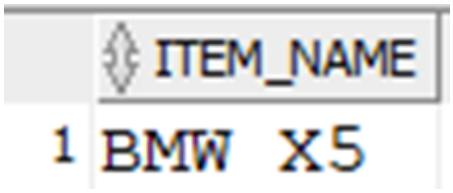
Q-2. Display all the vehicle names made by Hyundai.

```
select v.v_name
from vehicle v,company c
where v.c_id=c.c_id and c.c_name='Hyundai';
```

	V_NAME
1	Hyundai i20
2	Hyundai Creta
3	Hyundai Aura
4	Hyundai Venue

Q-3. Display the names of the expensive vehicle.

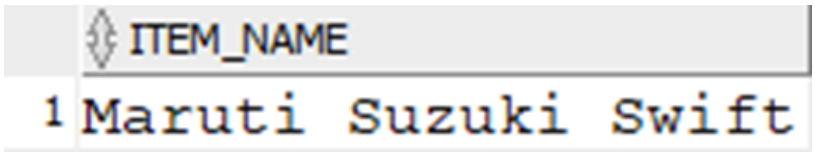
```
select item_name from item_table
where purchase_price in (
select max(purchase_price) from item_table
);
```



	ITEM_NAME
1	BMW X5

Q-4. Display the name of the cheapest vehicle.

```
select item_name from item_table
where purchase_price in (
select min(purchase_price) from item_table
);
```



	ITEM_NAME
1	Maruti Suzuki Swift

Q-5. Display the number of vehicles made by each company.

```
select c.c_name,count(*) from company c,vehicle v where c.c_id=v.c_id
group by(c.c_name);
```

	C_NAME	COUNT(*)
1	BMW	2
2	Hyundai	4
3	Maruti Suzuki	2
4	Audi	2
5	Honda	3

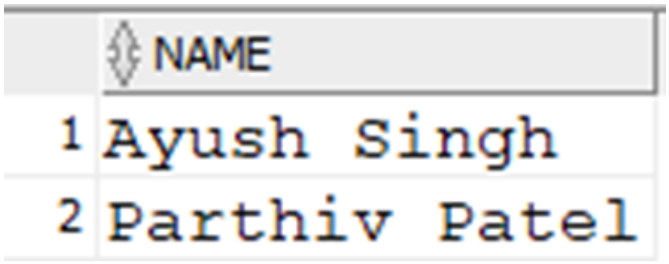
Q-6. Display all the vendor's name.

```
select f_name||' '||l_name Name from vendor;
```

	NAME
1	Ashish Sinha
2	Keshav Rajput

Q-7. Display customer names handled by the vendor ‘Ashish Sinha’.

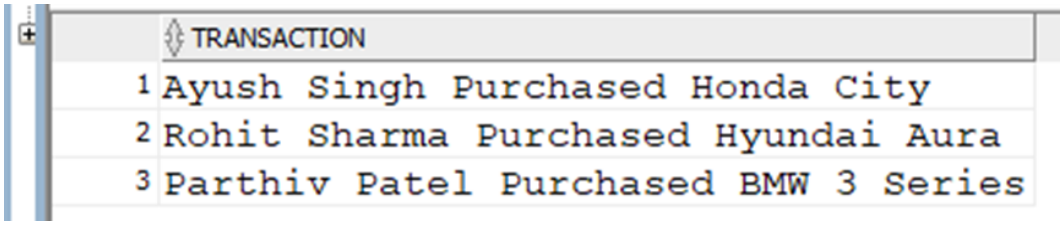
```
select c.f_name||' '||c.l_name NAME
from customer__ c,sales__ s,sales_trans st,purchase_trans pt,purchase
p,vendor v
where c.cust_id=s.cust_id and s.sales_code=st.sales_code and st.item_code =
pt.item_code and pt.pur_code = p.pur_code and p.ven_code = v.ven_code and
v.f_name='Ashish' and v.l_name='Sinha';
```



	NAME
1	Ayush Singh
2	Parthiv Patel

Q-8. Display names of the customer and purchased car.

```
select c.f_name||' '||c.l_name||' Purchased '||it.item_name TRANSACTION
from customer__ c,sales__ s,sales_trans st,item_table it where
c.cust_id=s.cust_id and s.sales_code=st.sales_code
and st.item_code=it.item_code;
```



	TRANSACTION
1	Ayush Singh Purchased Honda City
2	Rohit Sharma Purchased Hyundai Aura
3	Parthiv Patel Purchased BMW 3 Series

Q-9. Display the address of the customer with the highest bill.

```
select c.address
from customer__ c,sales__ s,sales_trans st
where c.cust_id=s.cust_id and s.sales_code=st.sales_code and st.amount = (
select max(amount) from sales_trans
);
```

	ADDRESS
1	D, block, Mahanagar, Lucknow, Uttar Pradesh 226006

Q-10. Display vehicle names with the highest stock

```
select item_name,curr_stock from item_table
where curr_stock in ( select max(curr_stock) from item_table
);
```

	ITEM_NAME	CURR_STOCK
1	Maruti Suzuki Dzire	6
2	Maruti Suzuki Swift	6
3	Honda Jazz	6