I. Database Schema for a customer-sale scenario

Customer(**Cust id : integer**, cust_name: string)
Item(**item id: integer**, item_name: string, price: integer)
Sale(**bill no: integer**, bill_date: date, cust_id: integer, item_id: integer, qty_sold: integer)

For the above schema, perform the following:-

a) Neatly sketch schema diagram and identify join relationship among tables.
b) Create the tables with the appropriate integrity constraint Insert around 10 records in each of the tables
c) List all the bills for the current date with the customer names and item numbers
d) List the total Bill details with the quantity sold, price of the item and the final amount
e) List the details of the customer who have bought a product which has a price>200
f) Give a count of how many products have been bought by each customer
g) Give a list of products bought by a customer having cust_id as 5
h) List the item details which are sold as of today
i) Create a view which lists out the bill_no, bill_date, cust_id, item_id,price, qty_sold, amount
j) Create a view which lists the daily sales date wise for the last one week
k) Identify the normalization of this schema. Justify your answer. If the schema is not normalized then normalize the schema.

a) Schema Diagram

b)
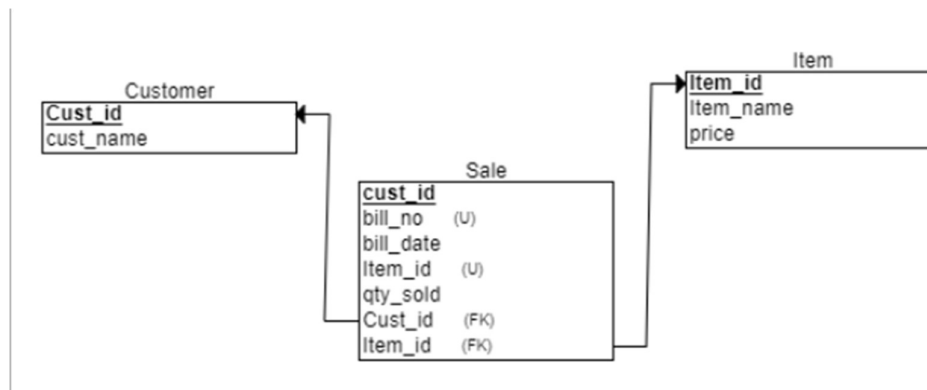
```sql
1   create table Customer(cust_id integer primary key,cust_name varchar2(30));
2   insert into Customer values(11,'ab');insert into Customer values(12,'bc');
3   insert into Customer values(13,'cd');insert into Customer values(14,'de');
4   insert into Customer values(15,'ef');insert into Customer values(16,'fg');
5   insert into Customer values(17,'gh');insert into Customer values(18,'ij');
6   insert into Customer values(19,'jk');insert into Customer values(20,'kl');
7
8   create table Item(Item_id integer primary key,Item_name varchar2(30),price integer);
9   insert into Item values(11,'lm',1);insert into Item values(12,'mn',2);
10  insert into Item values(13,'no',3);insert into Item values(14,'op',4);
11  insert into Item values(15,'pq',5);insert into Item values(16,'qr',6);
12  insert into Item values(17,'rs',7);insert into Item values(18,'st',8);
13  insert into Item values(19,'tu',9);insert into Item values(20,'uv',10);
14  create table Sales(
15      bill_no integer primary key,bill_date date,
16      custid integer references customer(cust_id),
17      itemid integer references Item(item_id),qty_sold integer
18  );
19  insert into Sales values(11,'01-01-2000',1,1,500);insert into Sales values(2,'02-01-2000',2,2,550);
20  insert into Sales values(13,'03-01-2000',3,3,600);insert into Sales values(4,'04-01-2000',4,4,650);
21  insert into Sales values(15,'05-01-2000',5,5,700);insert into Sales values(6,'06-01-2000',6,6,750);
22  insert into Sales values(17,'07-01-2000',7,7,800);insert into Sales values(8,'08-01-2000',8,8,850);
23  insert into Sales values(19,'01-01-2000',9,9,900);insert into Sales values(10,'01-01-2000',10,10,905);
```

c)

```sql
25  select bill_no,bill_date,custid,cust_name from Sales s inner join customer c on s.custid=c.cust_id where bill_date='01-01-2000';
```

Results | Explain | Describe | Saved SQL | History

BILL_NO	BILL_DATE	CUSTID	CUST_NAME
1	01/01/2000	1	ab
10	01/01/2000	10	kl
9	01/01/2000	9	jk

d)

```sql
27  select bill_no,bill_date,qty_sold,price,qty_sold*price as final from Sales s inner join item i on itemid=item_id;
```

Results | Explain | Describe | Saved SQL | History

BILL_NO	BILL_DATE	QTY_SOLD	PRICE	FINAL
15	05/01/2024	700	5	3500
5	05/01/2000	70	5	350
25	05/01/2024	700	5	3500
1	01/01/2000	50	1	50
21	01/01/2024	500	1	500
11	01/01/2024	500	1	500
24	04/01/2024	650	4	2600
4	04/01/2000	65	4	260
14	04/01/2024	650	4	2600
2	02/01/2000	55	2	110

e)

```
28
29  select cust_id,cust_name from customer inner join item on cust_id=item_id where price>200;
```

Results Explain Describe Saved SQL History

CUST_ID	CUST_NAME
29	jk
24	de
28	ij
25	ef
27	gh
26	fg
23	cd
30	kl

8 rows returned in 0.05 seconds   Download

f)

```
26
27  select cust_id,cust_name,qty_sold as product from customer inner join sales on cust_id=itemid where cust_id=custid;
```

Results Explain Describe Saved SQL History

CUST_ID	CUST_NAME	PRODUCT
4	de	650
6	fg	750
1	ab	50
4	de	65
2	bc	55
3	cd	60
7	gh	800
6	fg	75
7	gh	80
3	cd	600

g)

```
29  select item_id,item_name from item inner join sales on item_id=custid where custid=5;
```

Results Explain Describe Saved SQL History

ITEM_ID	ITEM_NAME
5	pq
5	pq
5	pq

h)

```
31  select item_id,item_name from item inner join sales on item_id=itemid where bill_date='01-01-2024';
```

Results Explain Describe Saved SQL History

ITEM_ID	ITEM_NAME
9	tu
10	uv
1	lm
10	uv
1	lm
9	tu

6 rows returned in 0.01 seconds   Download

i)

```
1  create view Bill_Info as select bill_no,bill_date,custid,item_id,price,qty_sold,price*qty_sold as Tot_price from sales s inner join item i on s.itemid=i.item_id;
```

Results Explain Describe Saved SQL History

View created.

0.03 seconds

j)

```
1  create view Lastweek_sale_info as select bill_no,bill_date,custid,item_id,price,qty_sold,price*qty_sold as tot_price from sales inner join item on itemid=item_id
2  where bill_date>=trunc(sysdate)-7 and bill_date<=trunc(sysdate);
```

Results Explain Describe Saved SQL History

View created.

0.04 seconds