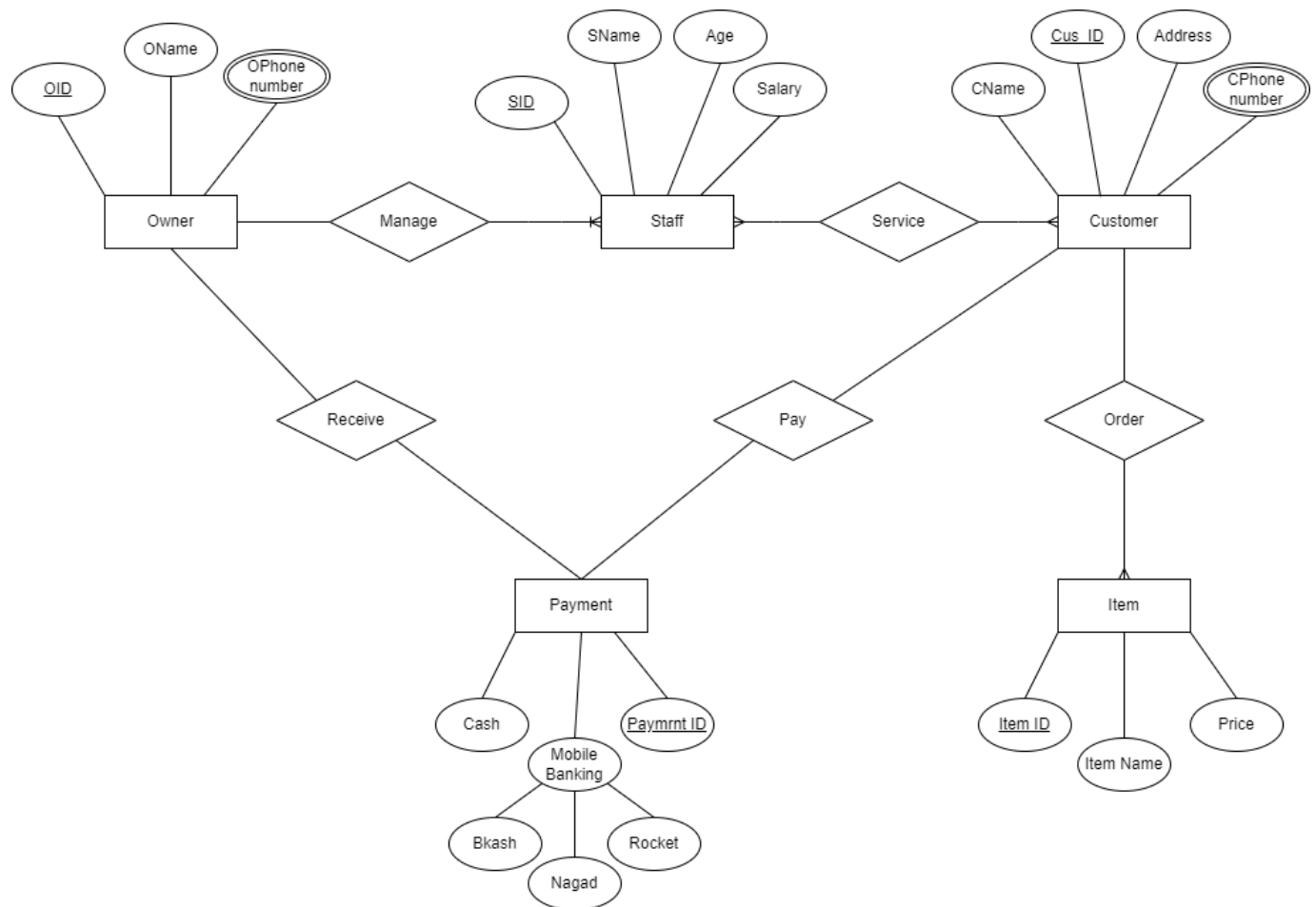


Tea Stall Management System

Case Study

In tea stall management system customers can order or buy the item. Item has name, ID, and price. Customers can order one or many items. Staff takes order from customer. Customers can choose items and view prices. All Customer has a unique ID. Customer can pay the bill in cash or by mobile banking like nagad, bkaash, and rocket. Staff has name, ID, and salary. Staff are paid by the owner. The owner manages staff and receives payment from the customer. The owner has name, phone number, and a unique ID. Staff serves the items to customers. Customers pay the bill to the owner through cash or mobile banking and every transaction has a ID number.

ER Diagram



Normalization

Manage:

UNF:1st: O_ID, O_Name, Ophone_Number, S_ID, S_Name, Age, Salary

1NF:1st: O_ID, S_ID, Ophone_Number, O_Name, S_Name, Age, Salary

2NF:1st: O_ID, O_Name, Ophone_Number

2nd: S_ID, S_Name, Age, Salary

3NF: There no transitive dependency. This is already in 3NF.

1st: O_ID, O_Name, Ophone_Number

2nd: S_ID, , S_Name, Age, Salary

For table creation:

1st: O_ID, O_Name, Ophone_Number

2nd: S_ID, S_Name, Age, Salary, **O_ID**

Service:

UNF:1st: S_ID, S_Name, Age, Salary, Cus_ID, Cus_Name, Address, Phone_Number

1NF:1st: S_ID, Cus_ID, Phone_Number, S_Name, Age, Salary, Cus_Name, Address

2NF:1st: S_ID, S_Name, Age, Salary

2nd: Cus_ID, Cus_Name, Address, Phone_Number

3NF: There no transitive dependency. This is already in 3NF.

1st: S_ID, S_Name, Age, Salary

2nd: Cus_ID, Cus_Name, Address, Phone_Number

For table creation:

1st: S_ID, S_Name, Age, Salary

2nd: Cus_ID, Cus_Name, Address, Phone_Number, **S_ID**

Receive:

UNF:1st: O_ID, O_Name, Ophone_Number, Payment_ID, Cash, Bkash, Nagad, Rocket

1NF:1st: O_ID, Ophone_Number, Payment_ID, O_Name, Cash, Bkash, Nagad, Rocket

2NF:1st: O_ID, O_Name, Ophone_Number

2nd: Payment_ID, Cash, Bkash, Nagad, Rocket

3NF: There no transitive dependency. This is already in 3NF.

1st: O_ID, O_Name, Ophone_Number

2nd: Payment_ID, Cash, Bkash, Nagad, Rocket

For table creation:

1st: O_ID, O_Name, Ophone_Number

2nd: Payment_ID, Cash, Bkash, Nagad, Rocket, **O_ID**

Pay:

UNF:1st: Cus_ID, Cus_Name, Address, Phone_Number, Payment_ID, Cash, Bkash, Nagad, Rocket

1NF:1st: Cus_ID, Phone_Number, Payment_ID, Cus_Name, Address, Cash, Bkash, Nagad, Rocket

2NF:1st: Cus_ID, Cus_Name, Address, Phone_Number

2nd: Payment_ID, Cash, Bkash, Nagad, Rocket

3NF: There no transitive dependency. This is already in 3NF.

1st: Cus_ID, Cus_Name, Address, Phone_Number

2nd: Payment_ID, Cash, Bkash, Nagad, Rocket

For table creation:

1st: Cus_ID, Cus_Name, Address, Phone_Number, **Payment_ID**

2nd: Payment_ID, Cash, Bkash, Nagad, Rocket

Order:

UNF:1st: Cus_ID, Cus_Name, Address, Phone_Number, Item_ID, Item_Name, Price

1NF:1st: Cus_ID, Phone_Number, Item_ID, Cus_Name, Address, Item_Name, Price

2NF:1st: Cus_ID, Phone_Number, Cus_Name, Address

2nd: Item_ID, Item_Name, Price

3NF: There no transitive dependency. This is already in 3NF.

1st: Cus_ID, Phone_Number, Cus_Name, Address

2nd: Item_ID, Item_Name, Price

For table creation:

1st: Cus_ID, Phone_Number, Cus_Name, Address

2nd: Item_ID, Item_Name, Price, **Cus_ID**

Final Table

1st: O_ID, O_Name, Ophone_Number

2nd: Payment_ID, Cash, Bkash, Nagad, Rocket, **O_ID**, **Ophone_Number**

3rd: S_ID, S_Name, Age, Salary, **O_ID**, **Ophone_Number**

4th: Cus_ID, Cus_Name, Address, Phone_Number, **Payment_ID**, **S_ID**

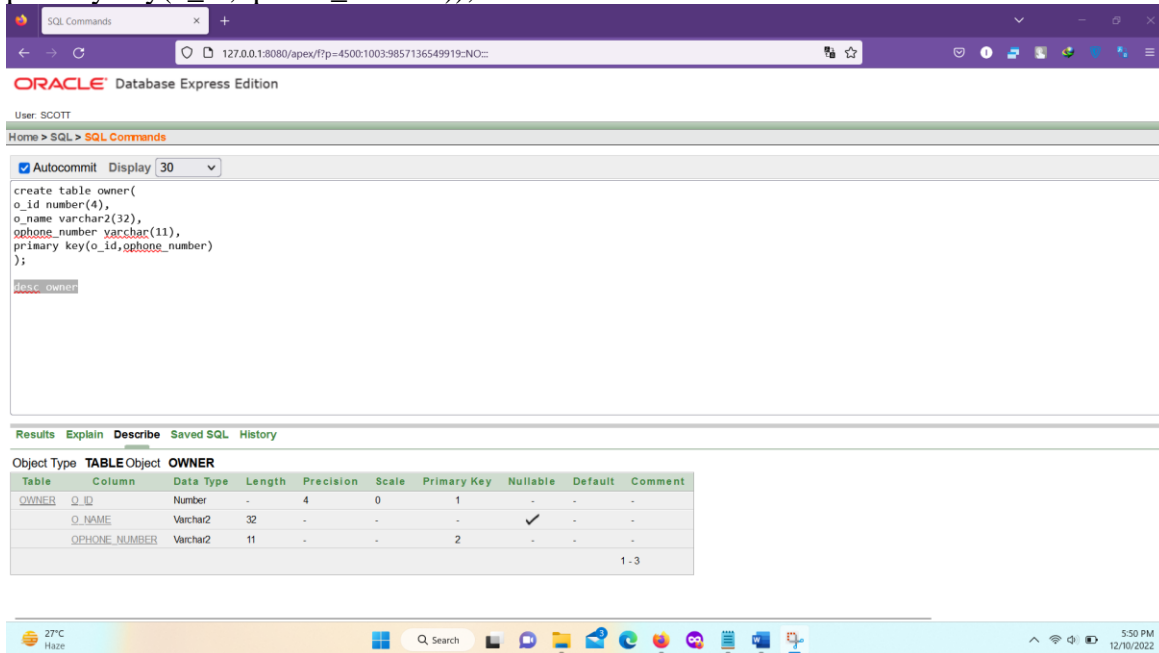
5th: Item_ID, Item_Name, Price, **Cus_ID**

Table Name & Attributrs:

Table No.	Table Name	Attributes
1	Owner	<u>O_ID</u> , O_Name, <u>Ophone_Number</u>
2	Payment	<u>Payment_ID</u> , Cash, Bkash, Nagad, Rocket, O_ID , Ophone_Number
3	Staff	<u>S_ID</u> , S_Name, Age, Salary, O_ID , Ophone_Number
4	Customer	<u>Cus_ID</u> , Cus_Name, Address, <u>Phone_Number</u> , Payment_ID , S_ID
5	Item	Item_ID, Item_Name, Price, Cus_ID

Table Creation:

create table owner(o_id number(4),o_name varchar2(32),ophone_number varchar(11),
primary key(o_id,ophone_number));



The screenshot shows the Oracle Database Express Edition interface. The SQL Commands window displays the following command:

```
create table owner(  
o_id number(4),  
o_name varchar2(32),  
ophone_number varchar(11),  
primary key(o_id,ophone_number)  
);
```

The command was executed successfully, and the results are shown in a table below:

Object Type	TABLE	Object	OWNER						
Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
OWNER	O_ID	Number	-	4	0	1	-	-	-
	O_NAME	Varchar2	32	-	-	-	✓	-	-
	OPHONE_NUMBER	Varchar2	11	-	-	2	-	-	-

The bottom of the screenshot shows the Windows taskbar with the date and time: 5:50 PM, 12/10/2022.

create table payment(payment_id number(4) primary key,cash float,bkash float,nagad float,
rocket float,o_id number(4),owner_number varchar(11));
alter table payment add foreign key (o_id,owner_number) references
owner(o_id,ophone_number);

SQL Commands

127.0.0.1:8080/apex/f?p=4500:1003:9857136549919::NO::

ORACLE Database Express Edition

User: SCOTT

Home > SQL > SQL Commands

☒ Autocommit Display 30

```
create table payment(
payment_id number(4) primary key,
cash float,
bkash float,
nagad float,
rocket float,
o_id number(4),
owner_number varchar(11),
FOREIGN KEY (o_id,owner_number) REFERENCES owner(o_id,ophone_number)
);
desc payment
```

Results Explain Describe Saved SQL History

Object Type TABLE Object PAYMENT

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
PAYMENT	PAYMENT_ID	Number	-	4	0	1	-	-	-
	CASH	Float	22	126	-	-	✓	-	-
	BKASH	Float	22	126	-	-	✓	-	-
	NAGAD	Float	22	126	-	-	✓	-	-
	ROCKET	Float	22	126	-	-	✓	-	-
	O_ID	Number	-	4	0	-	✓	-	-
	OWNER_NUMBER	Varchar2	11	-	-	-	✓	-	-

1 - 7

27°C Haze 6:40 PM 12/10/2022

create table staff(s_id number(4) primary key,s_name varchar2(32),age number(3),salary float, senior_staff number(4),o_id number(4),owner_number varchar(11), foreign key (o_id,owner_number) references owner(o_id,ophone_number));

SQL Commands

127.0.0.1:8081/apex/f?p=4500:1003:8201476762409077::NO::

User: SCOTT

Home > SQL > SQL Commands

☒ Autocommit Display 50

```
create table staff(
s_id number(4) primary key,
s_name varchar2(32),
age number(3),
salary float,
senior_staff number(4),
o_id number(4),
owner_number varchar(11),
FOREIGN KEY (o_id,owner_number) REFERENCES owner(o_id,ophone_number)
);
desc staff
```

Results Explain Describe Saved SQL History

Object Type TABLE Object STAFF

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
STAFF	S_ID	Number	-	4	0	1	-	-	-
	S_NAME	Varchar2	32	-	-	-	✓	-	-
	AGE	Number	-	3	0	-	✓	-	-
	SALARY	Float	22	126	-	-	✓	-	-
	SENIOR_STAFF	Number	-	4	0	-	✓	-	-
	O_ID	Number	-	4	0	-	✓	-	-
	OWNER_NUMBER	Varchar2	11	-	-	-	✓	-	-

1 - 7

24°C Haze 12:15 AM 2022-12-12

create table customer(cus_id number(4),cus_name varchar2(32),address varchar2(56),cphone_number number(11),s_id number(4),payment_id number(4),

primary key(cus_id,cphone_number),
foreign key (s_id) references staff(s_id),
foreign key (payment_id) references payment(payment_id));

The screenshot shows the Oracle Database Express Edition interface. The SQL Commands window contains the following code:

```
create table customer(
  cus_id number(4) primary key,
  cus_name varchar2(32),
  address varchar2(56),
  cphone_number number(11),
  s_id number(4),
  payment_id number(4),
  FOREIGN KEY (s_id) REFERENCES staff(s_id),
  FOREIGN KEY (payment_id) REFERENCES payment(payment_id )
);
```

Below the code, the command `desc customer` has been executed. The results are displayed in a table:

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
CUSTOMER	CUS_ID	Number	-	4	0	1	-	-	-
	CUS_NAME	Varchar2	32	-	-	-	✓	-	-
	ADDRESS	Varchar2	56	-	-	-	✓	-	-
	CPHONE_NUMBER	Number	-	11	0	-	✓	-	-
	S_ID	Number	-	4	0	-	✓	-	-
	PAYMENT_ID	Number	-	4	0	-	✓	-	-

The bottom of the screenshot shows the Windows taskbar with the date 12/10/2022 and time 7:02 PM.

create table item(item_id number(4) primary key,item_name varchar2(32),price float,
cus_id number(4),foreign key (cus_id) references customer(cus_id));

The screenshot shows the Oracle Database Express Edition interface. The SQL Commands window contains the following code:

```
create table item(
  item_id number(4) primary key,
  item_name varchar2(32),
  price float,
  cus_id number(4),
  FOREIGN KEY (cus_id) REFERENCES customer(cus_id)
);
```

Below the code, the command `desc item` has been executed. The results are displayed in a table:

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
ITEM	ITEM_ID	Number	-	4	0	1	-	-	-
	ITEM_NAME	Varchar2	32	-	-	-	✓	-	-
	PRICE	Float	22	126	-	-	✓	-	-
	CUS_ID	Number	-	4	0	-	✓	-	-

The bottom of the screenshot shows the Windows taskbar with the date 12/10/2022 and time 7:04 PM.

Data Insertion:

Value insertion for Owner

```
insert into owner values(001,'Tasrif',01764592690);
```

```
insert into owner values(002,'Yeasin',01864592690);
```

```
insert into owner values(003,'Idris',01964592690);
```

```
insert into owner values(004,'Yeamin',01664592690);
```

```
insert into owner values(005,'Rakib',01364592690);
```

The screenshot shows the Oracle SQL Developer interface. The top bar indicates the user is 'SCOTT'. The main window displays a SQL script with five insert statements for the 'owner' table, followed by a select statement. The script is as follows:

```
insert into owner values(001,'Tasrif',01764592690);
insert into owner values(002,'Yeasin',01864592690);
insert into owner values(003,'Idris',01964592690);
insert into owner values(004,'Yeamin',01664592690);
insert into owner values(005,'Rakib',01364592690);
select* from owner;
```

Below the script, the 'Results' tab is active, showing a table with 5 rows of data:

O_ID	O_NAME	OPHONE_NUMBER
1	Tasrif	1764592690
2	Yeasin	1864592690
3	Idris	1964592690
4	Yeamin	1664592690
5	Rakib	1364592690

At the bottom of the results section, it states '5 rows returned in 0.02 seconds' and provides a 'CSV Export' link. The Windows taskbar at the very bottom shows the system clock as 7:13 PM on 12/10/2022.

Value insertion for Payment

```
insert into payment values(629,NULL,280,NULL,NULL,2,01864592690);
```

```
insert into payment values(633,300,NULL,NULL,NULL,1,01764592690);
```

```
insert into payment values(631,480,NULL,NULL,NULL,3,01964592690);
```

```
insert into payment values(630,NULL,NULL,100,NULL,4,01664592690);
```

```
insert into payment values(632,NULL,NULL,NULL,380,3,01964592690);
```


SQL Commands

127.0.0.1:8080/apex/?p=4500:1003:9857136549919:NO=

ORACLE Database Express Edition

User: SCOTT

Home > SQL > SQL Commands

☒ Autocommit Display 30

```

insert into payment values(629,NULL,280,NULL,NULL,2,'01864592690');
insert into payment values(633,300,NULL,NULL,NULL,1,'01764592690');
insert into payment values(631,480,NULL,NULL,NULL,3,'01964592690');
insert into payment values(630,NULL,NULL,100,NULL,4,'01664592690');
insert into payment values(632,NULL,NULL,NULL,380,3,'01964592690');
select* from payment;

```

Results Explain Describe Saved SQL History

PAYMENT_ID	CASH	BKASH	NAGAD	ROCKET	O_ID	OWNER_NUMBER
629	-	280	-	-	2	1864592690
633	300	-	-	-	1	1764592690
631	480	-	-	-	3	1964592690
630	-	-	100	-	4	1664592690
632	-	-	-	380	3	1964592690

5 rows returned in 0.00 seconds [CSV Export](#)

27°C Haze 7:31 PM 12/10/2022

Value insertion for Staff

```

insert into staff values(101,'Nahid',25,12000,NULL,2,01864592690);
insert into staff values(105,'Siam',27,15000,102,1,01764592690);
insert into staff values(103,'Shuvo',24,9000,104,3,01964592690);
insert into staff values(104,'Tawhid',29,11000,101,4,01664592690);
insert into staff values(102,'Mahin',23,12000,103,5,01364592690);

```

SQL Commands

127.0.0.1:8081/apex/?p=4500:1003:8201476762409077:NO=

ORACLE Database Express Edition

User: SCOTT

Home > SQL > SQL Commands

☒ Autocommit Display 50

```

insert into staff values(101,'Nahid',25,12000,NULL,2,01864592690);
insert into staff values(105,'Siam',27,15000,102,1,01764592690);
insert into staff values(103,'Shuvo',24,9000,104,3,01964592690);
insert into staff values(104,'Tawhid',29,11000,101,4,01664592690);
insert into staff values(102,'Mahin',23,12000,103,5,01364592690);
select* from staff;

```

Results Explain Describe Saved SQL History

S_ID	S_NAME	AGE	SALARY	SENIOR_STAFF	O_ID	OWNER_NUMBER
101	Nahid	25	12000	-	2	1864592690
105	Siam	27	15000	102	1	1764592690
103	Shuvo	24	9000	104	3	1964592690
104	Tawhid	29	11000	101	4	1664592690
102	Mahin	23	12000	103	5	1364592690

5 rows returned in 0.00 seconds [CSV Export](#)

24°C Haze 12:23 AM 2022-12-12

Value insertion for Customer

insert into customer values(9776,'Yeasin','Cumilla',0176785690,101,629);

insert into customer values(7674,'Newaz','Dhaka',0176685730,105,633);

insert into customer values(9883,'Idris','Barisal',0137648689,103,631);

insert into customer values(9094,'Yeamin','Cumilla',0180986854,104,630);

insert into customer values(4578,'Rakib','Chittagong',01965592690,104,632);

The screenshot shows the Oracle SQL Developer interface. The top bar indicates the user is 'SCOTT' and the database is 'ORACLE Database Express Edition'. The main window displays a SQL script with five INSERT statements and a SELECT statement. The script is as follows:

```
insert into customer values(9776,'Yeasin','Cumilla',0176785690,101,629);
insert into customer values(7674,'Newaz','Dhaka',0176685730,105,633);
insert into customer values(9883,'Idris','Barisal',0137648689,103,631);
insert into customer values(9094,'Yeamin','Cumilla',0180986854,104,630);
insert into customer values(4578,'Rakib','Chittagong',01965592690,104,632);
select* from customer;
```

Below the script, the 'Results' tab is active, showing a table with 5 rows. The table has the following columns: CUS_ID, CUS_NAME, ADDRESS, CPHONE_NUMBER, S_ID, and PAYMENT_ID.

CUS_ID	CUS_NAME	ADDRESS	CPHONE_NUMBER	S_ID	PAYMENT_ID
9776	Yeasin	Cumilla	176785690	101	629
7674	Newaz	Dhaka	176685730	105	633
9883	Idris	Barisal	137648689	103	631
9094	Yeamin	Cumilla	180986854	104	630
0546	Rakib	Chittagong	1965592690	104	632

At the bottom of the interface, the status bar shows the system temperature as 27°C, the time as 7:55 PM, and the date as 12/10/2022.

Value insertion for Item

insert into item values(265,'Cold Coffee',200,9776);

insert into item values(329,'Malay Cha',80,7674);

insert into item values(465,'Hot Coffee',180,9883);

insert into item values(962,'Kashmiri Cha',200,9094);

insert into item values(562,'Masala Cha',80,7674);

Oracle Database Express Edition interface showing SQL Commands. The user is SCOTT. The query executed is:

```
insert into item values(265,'Cold Coffee',200,9776);
insert into item values(329,'Malay Cha',80,7674);
insert into item values(465,'Hot Coffee',180,9883);
insert into item values(962,'Kashmiri Cha',200,9094);
insert into item values(562,'Masala Cha',80,7674);
select* from item;
```

The results show 5 rows returned in 0.00 seconds:

ITEM_ID	ITEM_NAME	PRICE	CUS_ID
265	Cold Coffee	200	9776
329	Malay Cha	80	7674
465	Hot Coffee	180	9883
962	Kashmiri Cha	200	9094
562	Masala Cha	80	7674

Query Writing:

➤ Joining

Equijoin

1.Display name & Address of all the Customer who is served by Tawhid.

```
select cus_name,address
from customer c,staff s
where c.s_id=s.s_id and s.s_name='Tawhid';
```

Oracle Database Express Edition interface showing SQL Commands. The user is SCOTT. The query executed is:

```
1.Display name & Address of all the Customer who is served by Tawhid.

select cus_name,address
from customer c,staff s
where c.s_id=s.s_id and s.s_name='Tawhid';
```

The results show 2 rows returned in 0.00 seconds:

CUS_NAME	ADDRESS
Yeamin	Cumilla
Rakib	Chittagong

2. Display Name, ID & Age of all Staff who is work under Idris.

```
select s_id,s_name,age
from staff e,owner d
where e.o_id=d.o_id and d.o_name ='Idris';
```

The screenshot shows a web browser window with the URL `127.0.0.1:8080/apex/f?p=4500:1003:9857136549919::NO::`. The user is SCOTT. The SQL Commands window displays the following query:

```
2.      Display Name, ID & Age of all Staff who is work under Idris.

select s_id,s_name,age
from staff e,owner d
where e.o_id=d.o_id and d.o_name ='Idris';
```

The Results tab shows the following table:

S_ID	S_NAME	AGE
103	Shuvo	24

1 rows returned in 0.00 seconds

Outer join

1. Display all the Owner information for all the existing Staff and if a Owner has no employees display it as “No Staff”.

```
select d.*,nvl(to_char(e.s_id),'NO Staff')
from staff e,owner d
where e.o_id(+)=d.o_id;
```

The screenshot shows a web browser window with the URL `127.0.0.1:8080/apex/f?p=4500:1003:9857136549919::NO::`. The user is SCOTT. The SQL Commands window displays the following query:

```
1. Display all the Owner information for all the existing Staff and if a Owner has no employees display it as "No Staff".

select d.*,nvl(to_char(e.s_id),'NO Staff')
from staff e,owner d
where e.o_id(+)=d.o_id;
```

The Results tab shows the following table:

O_ID	O_NAME	OPHONE_NUMBER	NVL(TO_CHAR(E.S_ID),'NOSTAFF')
2	Yeasin	1964592690	101
1	Tasrif	1764592690	105
3	Idris	1964592690	103
4	Yeamin	1664592690	104
5	Rakib	1364592690	102
6	Ryhan	1764532690	NO Staff

6 rows returned in 0.00 seconds

2. Get all the matching & non-matching records from Owner & Staff tables.

```
select *  
from owner o, staff s  
where s.o_id(+) = o.o_id
```

The screenshot shows the SQL Developer interface with the following components:

- SQL Commands Window:** Contains the query: `select *
from owner o, staff s
where s.o_id(+) = o.o_id`
- Results Window:** Displays the query results in a table with 10 columns: O_ID, O_NAME, OPHONE_NUMBER, S_ID, S_NAME, AGE, SALARY, O_ID, OWNER_NUMBER, and SENIOR_STAFF. The results are as follows:

O_ID	O_NAME	OPHONE_NUMBER	S_ID	S_NAME	AGE	SALARY	O_ID	OWNER_NUMBER	SENIOR_STAFF
2	Yassin	1864592690	101	Nahid	25	12000	2	1864592690	-
1	Tasnef	1764592690	105	Siam	27	-	1	1764592690	102
3	Idris	1964592690	103	Shuvo	24	-	3	1964592690	104
4	Yeamin	1664592690	104	Tawhid	29	-	4	1664592690	101
5	Rakib	1364592690	102	Mahin	23	-	5	1364592690	103
6	Ryhan	1764532690	-	-	-	-	-	-	-

6 rows returned in 0.02 seconds. CSV Export button is available.

Non Equijoin

1. Display Name and Salary of all Staff who get salary more than Kashmiri Cha.

```
select s.s_name, s.salary  
from staff s, item i  
where s.salary > i.price and item_name = 'Kashmiri Cha';
```

The screenshot shows the SQL Developer interface with the following components:

- SQL Commands Window:** Contains the query: `select s.s_name, s.salary
from staff s, item i
where s.salary > i.price and item_name = 'Kashmiri Cha';`
- Results Window:** Displays the query results in a table with 2 columns: S_NAME and SALARY. The results are as follows:

S_NAME	SALARY
Nahid	12000
Siam	15000
Shuvo	9000
Tawhid	11000
Mahin	12000

5 rows returned in 0.00 seconds. CSV Export button is available.

Self Join

1. Display all staff name concatenate with his junior staff.(Example: Staff x Junior than Staff y).

```
SELECT j.s_name||' Junior than '||s.s_name
FROM      staff s, staff j
WHERE     s.s_id= j.senior_staff;
```

The screenshot shows the SQL Developer interface with a query window titled 'SQL Commands'. The query is as follows:

```
1. Display all staff name concatenate with his junior staff.(Example: Staff x Junior than Staff y).

SELECT j.s_name||' Junior than '||s.s_name
FROM      staff s, staff j
WHERE     s.s_id= j.senior_staff;
```

The 'Results' tab is selected, showing the following output:

J.S_NAME 'JUNIORTHAN' S.S_NAME
Slam Junior than Mahin
Shuvo Junior than Tawhid
Tawhid Junior than Nahid
Mahin Junior than Shuvo

4 rows returned in 0.00 seconds [CSV Export](#)

➤ Sub Query

1.Display all the staff who are earning more than Tawhid.

select*

from staff

where salary>(select salary from staff where s_name='Tawhid');

The screenshot shows the SQL Developer interface with a query window titled 'SQL Commands'. The query is as follows:

```
1.Display all the staff who are earning more than Tawhid.

select*
from staff
where salary>(select salary from staff where s_name='Tawhid');
```

The 'Results' tab is selected, showing the following output:

S_ID	S_NAME	AGE	O_ID	OWNER_NUMBER	SENIOR_STAFF	SALARY
101	Nahid	25	2	1864592690	-	12000
105	Slam	27	1	1764592690	102	15000
102	Mahin	23	5	1364592690	103	12000

3 rows returned in 0.02 seconds [CSV Export](#)

2.Display all the customer who are located at Dhaka.

select*

from customer

where address=(select address from customer where address='Dhaka');

The screenshot shows a web browser window with the URL `127.0.0.1:8080/apex/?p=4500:1003:9857136549919:NO=`. The page title is "SQL Commands". The user is logged in as "User: SCOTT". The interface shows a query editor with the following SQL code:

```
2.Display all the customer who are located at Dhaka.

select*
from customer
where address=(select address from customer where address='Dhaka');
```

Below the query editor, there are tabs for "Results", "Explain", "Describe", "Saved SQL", and "History". The "Results" tab is selected, showing a table with the following data:

CUS_ID	CUS_NAME	ADDRESS	CPHONE_NUMBER	S_ID	PAYMENT_ID
7674	Newaz	Dhaka	176685730	105	633

Below the table, it says "1 rows returned in 0.00 seconds" and there is a link for "CSV Export".

3.Display all the item information which price is less than Hot coffee.

select*

from item

where price<(select price from item where item_name='Hot Coffee');

The screenshot shows a web browser window with the URL `127.0.0.1:8080/apex/?p=4500:1003:9857136549919:NO=`. The page title is "SQL Commands". The user is logged in as "User: SCOTT". The interface shows a query editor with the following SQL code:

```
3.Display all the item information which price is less than Hot coffee.

select*
from item
where price<(select price from item where item_name='Hot Coffee');
```

Below the query editor, there are tabs for "Results", "Explain", "Describe", "Saved SQL", and "History". The "Results" tab is selected, showing a table with the following data:

ITEM_ID	ITEM_NAME	PRICE	CUS_ID
329	Malay Cha	80	7674
562	Masala Cha	80	7674

Below the table, it says "2 rows returned in 0.00 seconds" and there is a link for "CSV Export".

4. Display the first maximum salary from Staff Table.

```
SELECT*  
FROM staff  
WHERE salary=(SELECT MAX(salary) FROM staff);
```

The screenshot shows the Oracle SQL Developer interface. The top bar indicates the user is 'SCOTT'. The main window displays the SQL command: `SELECT*
FROM staff
WHERE salary=(SELECT MAX(salary) FROM staff);`. Below the command, the 'Results' tab is active, showing a table with 1 row and 7 columns: S_ID, S_NAME, AGE, O_ID, OWNER_NUMBER, SENIOR_STAFF, and SALARY. The data row shows S_ID 105, S_NAME Siam, AGE 27, O_ID 1, OWNER_NUMBER 1764592690, SENIOR_STAFF 102, and SALARY 15000. The status bar at the bottom indicates '1 rows returned in 0.00 seconds'.

S_ID	S_NAME	AGE	O_ID	OWNER_NUMBER	SENIOR_STAFF	SALARY
105	Siam	27	1	1764592690	102	15000

➤ View

1. Create a view called CUS_VU based on the Customer ID, Customer name, and Payment ID from the Customer table. Change the heading for the Customer name to CUSTOMER.

```
CREATE VIEW CUS_VU  
AS select cus_id,cus_name CUSTOMER,payment_id  
from customer;
```

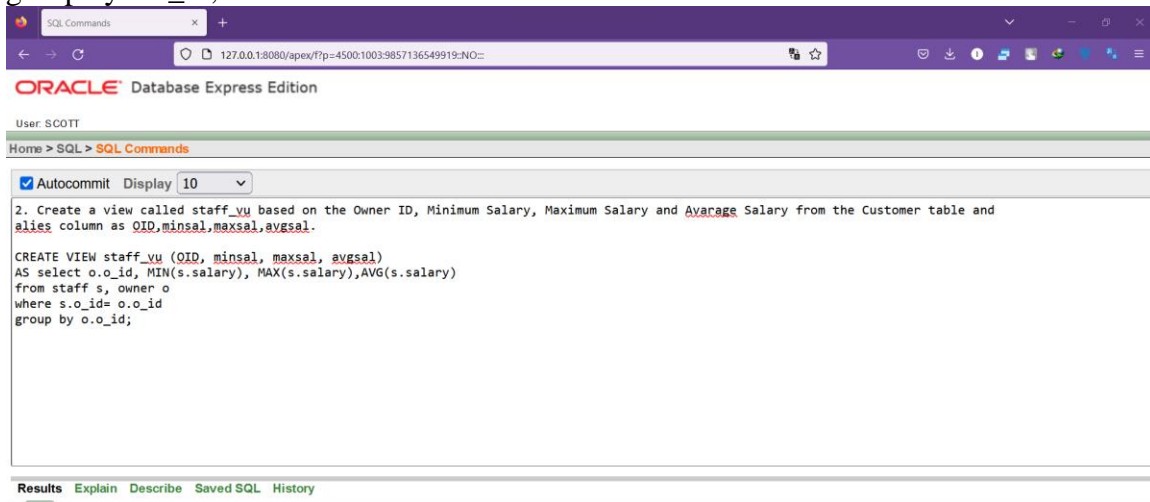
The screenshot shows the Oracle SQL Developer interface. The top bar indicates the user is 'SCOTT'. The main window displays the SQL command: `CREATE VIEW CUS_VU
AS select cus_id,cus_name CUSTOMER,payment_id
from customer;`. Below the command, the 'Results' tab is active, showing the message 'View created.' and the execution time '0.02 seconds'.

View created.

0.02 seconds

2. Create a view called staff_vu based on the Owner ID, Minimum Salary, Maximum Salary and Average Salary from the Customer table and alias column as OID, minsal, maxsal, avgsal.

```
CREATE VIEW staff_vu (OID, minsal, maxsal, avgsal)
AS select o.o_id, MIN(s.salary), MAX(s.salary), AVG(s.salary)
from staff s, owner o
where s.o_id= o.o_id
group by o.o_id;
```



View created.

0.01 seconds

Add Constraint to Staff Table

alter table staff modify salary constraint snl not null;

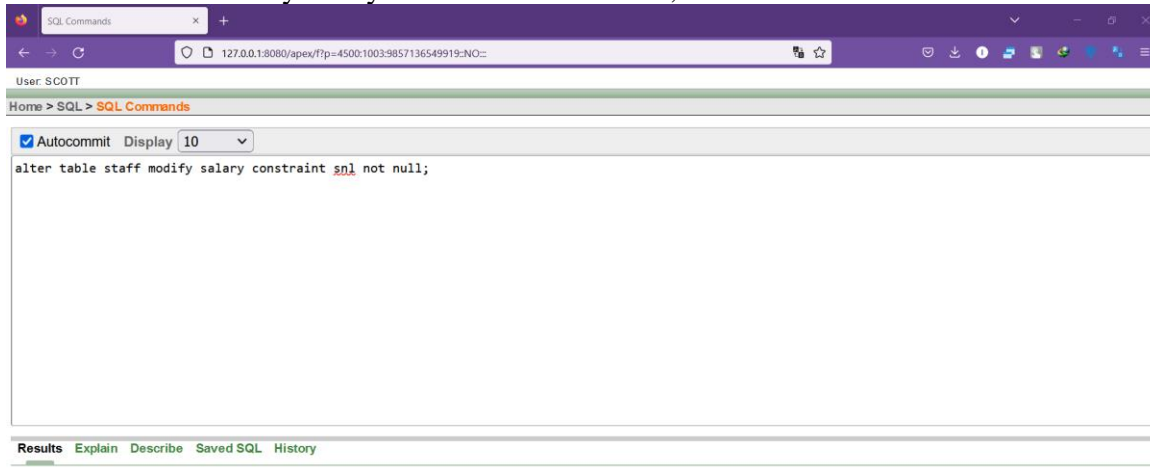


Table altered.

0.09 seconds

