Introduction to database

Group members:

1. Abir ,Abusufiun (19-39991-1)

2.MD. Ariful Islam (18-36842-1)

3.Prity, Shabrina Shahid Nur (19-40648-1)

4. Jannat, Sadia Arabia (19-39393-1)

Database project: El Classico Coffee

'El classico Coffee' is mainly a coffee catering company that offers coffee along with several other items. The coffee shop has name, address and license. There is one owner of the coffee shop. The system has saved the owner name as o_name, owner NID as o_nid, email, country and city , owner contacts as o_phone and o_email. Coffee shop have many branches. The system has stored the branches b_id,location,address as b_address and contact as b_phone. Every branch has one manager. The system stored manager's m_id, m_hiredate, contact as m_phone, salary. Under every manager there are some chefs and some chasier.

The attributes for cashier are identified as c_id, c_phone, c_salary ,c_hiredate. The attributes for cashier are identified as ca_id, ca_phone, ca_salary, ca_hiredate. The coffee shop offer many items. The coffee shop items are recognized by I_id, I_name and price. Those items are made by the chefs. The branches serve customers with these items . Attrributes for customers order are idenfied as C_id as date as C_id,C_date and total price as C_bills. A customer can order more than one items from items.

ER-Diagram:
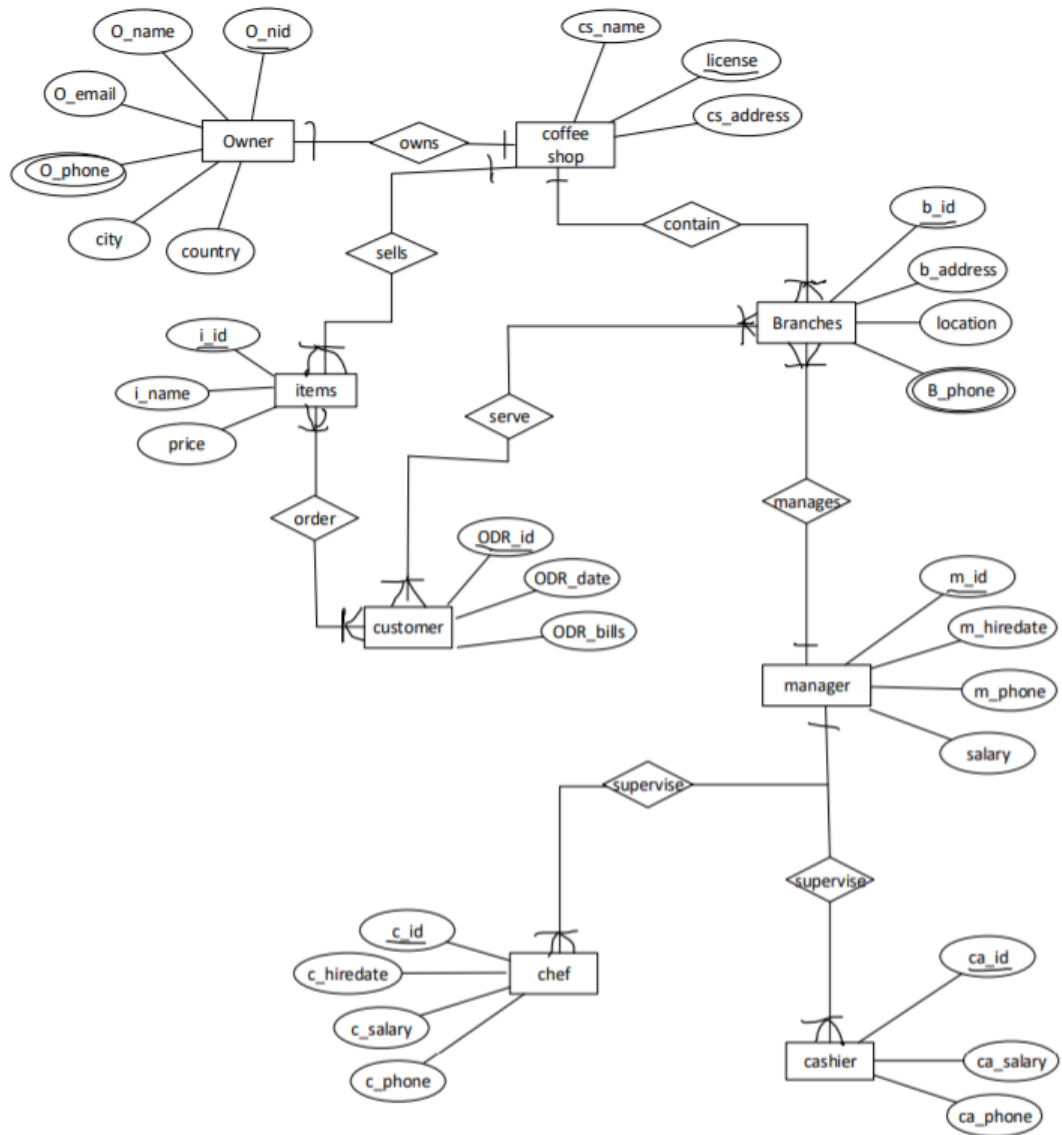
▪ <u>**Normalization:**</u>

Owner………………1…………………….Owns…………………1……………………COFFEE_SHOP

❖ Owns – (o_name, <u>o_NID</u>, o_ email, country, city, o_phone, <u>license</u>, cs_name, cs_address)

<u>**1NF**</u>:

❖ o_phone is a multivalued attribute

<u>**2NF**</u>:

❖ o_name, <u>o_NID</u>, email, o_phone, country, city
❖ <u>License</u>, cs_name, cs_address

<u>**3NF**</u>:

❖ o_name, <u>o_NID</u>, email
❖ city, country, <u>city_id</u>
❖ <u>License</u>, cs_name, cs_address

Table list for owns:
▪ o_name, <u>o_NID</u>, o_email, city_id
▪ <u>o_phone</u>, o_NID

- <u>city_id</u>, city, country
- <u>license</u>, cs_name, cs_address, o_NID

Coffee Shop…………1……………………..Contain…………………*……………………Branch

❖ Contain (<u>license</u>, cs_name, cs_address, <u>b_id</u>, location, b_address, b_phone)

1NF:

❖ b_phone is a multivalued attribute

2NF:

❖ <u>license</u>, cs_name, cs_address
❖ <u>b_id</u>, location, b_address, b_phone

3NF:

❖ <u>license</u>, cs_name, cs_address
❖ <u>b_id</u>, b_address, location, b_phone

Table list for Contains:

▪ <u>license</u>, cs_name, cs_address,

▪ <u>b_id</u>, b_address, location, license

▪ b_id, <u>b_phone</u>

Branch…………*……………………manages…………………1……………………Manager

❖ manages (<u>b_id</u>, b_address, location, b_phone, <u>m_id</u>, m_phone, salary, m_ hiredate)

1NF:

❖ b_phone is a multivalued attribute

2NF:

❖ <u>b_id</u>, location, b_address, b_phone

❖ <u>m_id</u>, m_phone, salary, m_hiredate

3NF:

❖ <u>b_id</u>, location, b_address, b_phone
❖ <u>m_id</u>, m_phone, salary, m_ hiredate

   Table list for Manages:

    ▪ <u>b_id</u>, location, b_address, m_id
    ▪ <u>m_id</u>, m_phone, salary, m_ hiredate,
    ▪ b_id ,<u>b_phone</u>

   Coffee_Shop…………1………………..Sells …………………*…………………………Item

   ❖ Sells (<u>license</u>, cs_name, cs_address, price, <u>i_id</u>, i_name)

1NF:

❖ There is no multivalued attribute

2NF:

❖ <u>license</u>, cs_name, cs_address
❖ price,<u>i_id</u>, i_name

3NF:

❖ <u>license</u>, cs_name, cs_address
❖ price, <u>i_id</u>, i_name

   Table list for Sells:

▪ <u>license</u>, cs_name, cs_address

▪ price, i_id, i_name, license

Branches………………………*……………serve……………………………*……………….customers

❖ serve (b_id , b_address, location, b_phone, C_id, C_date, C_bills)

1NF:

❖ b_phone is a multivalued attribute

2NF:

❖ b_id , b_address, location, b_phone
❖ C_id, C_date, C_bills

3NF:

❖ b_id , b_address, location, b_phone
❖ C_id, C_date, C_bills

Table list for Serve:

▪ b_id, b_address, location,

▪ C_id, C_date, C_bills

▪ b_id, b_phone

▪ b_id, C_id, BC_id

customer……………………*……………order…………………………*……………….items

❖ Order (C_id, C_date, C_bills, i_id, i_name, price)

1NF:

❖ there is no multivalued attribute

2NF:

❖ C_id, C_date, C_bills
❖ i_id, i_name, price

3NF:

❖ C_id, C_date, C_bills
❖ i_id, i_name, price

Table list for Order:

▪ C_id, C_date, C_bills

▪ i_id, i_name, price

▪ i_id, C_id, IP_id

Manager…………………1……………… …supervise…………………*……………………Chef

❖ Supervise (m_id, m_phone, salary, m_ hiredate, ch_id , ch_phone, ch_salary, ch_hiredate)

1NF:

❖ There is no multivalued attributes

2NF:

❖ m_id, m_phone, salary, m_hiredate

❖ <u>ch_id</u> , ch_phone, ch_salary, ch_hiredate

3NF:

❖ <u>m_id</u>, m_phone, salary, m_hiredate
❖ <u>ch_id</u> , ch_phone, ch_salary, ch_hiredate

Table list for Supervise:

▪ <u>m_id</u>, m_phone, salary, m_hiredate,

▪ <u>ch_id</u> , ch_phone, ch_salary, ch_hiredate, m_id

Manager…………………1……………supervise…………………*……………………Cashier

❖ Supervise(<u>m_id</u>, m_phone, salary, m_ hiredate, <u>Ca_id</u> , Ca_phone, Ca_salary, Ca_hiredate)
   1NF:
   ❖ There is no multivalued attributes
   2NF:
   ❖ <u>m_id</u>, m_phone, salary, m_hiredate
   ❖ <u>Ca_id</u> , Ca_phone, Ca_salary, Ca_hiredate
   3NF:
     ❖ <u>m_id</u>, m_phone, salary, m_hiredate
     ❖ <u>Ca_id</u> , Ca_phone, Ca_salary, Ca_hiredate

Table list for Supervise:

▪ <u>m_id</u>, m_phone, salary, m_hiredate,

▪ <u>Ca_id</u> , Ca_phone, Ca_salary, Ca_hiredate, m_id

Final table list:

- o_name, <u>o_NID</u>, o_email, city_id
  - <u>o_phone</u>, o_NID
  - <u>city_id</u>, city, country
  - <u>license</u>, cs_name, cs_address, o_NID

- <u>license</u>, cs_name, cs_address ×

- <u>b_id</u>, b_address, location, license, m_id

- b_id, <u>b_phone</u>

- <u>b_id</u>, location, b_address, m_id ×

- <u>m_id</u>, m_phone, salary, m_ hiredate

- b_id , <u>b_phone</u> ×

- <u>license</u>, cs_name, cs_address ×

- price, <u>i_id</u>, i_name, license

- <u>b_id</u>, b_address, location ×

- <u>C_id</u>, C_date, C_bills

- b_id, <u>b_phone</u> ×

- b_id, C_id, <u>BC_id</u>

- <u>C_id</u>, C_date, C_bills ×

- <u>i_id</u>, i_name, price ×

- i_id, C_id, <u>IP_id</u>

- <u>m_id</u>, m_phone, salary, m_hiredate ×

- <u>ch_id</u> , ch_phone, ch_salary, ch_hiredate, m_id

- <u>m_id</u>, m_phone, salary, m_hiredate, ×

- <u>Ca_id</u>, Ca_phone, Ca_salary, Ca_hiredate, m_id

Final Table:

1) o_name, <u>o_NID</u>, o_email, city_id - owner
2) <u>o_phone</u>, o_NID – owner_contacts
3) <u>city_id</u>, city, country – owner_address
4) <u>license</u>, cs_name, cs_address, o_NID – coffee shop
5) <u>b_id</u>, b_address, location, license - Branches
6) b_id, <u>b_phone</u> – Branch_contacts
7) <u>m_id</u>, m_phone, salary, m_hiredate - Manager
8) price, <u>i_id</u>, i_name, license - Items
9) <u>C_id</u>, C_date, C_bills – Customer_details

10) b_id, C_id, <u>BC_id</u> – Consumer_detail

11) i_id, C_id, <u>IP_id</u> – Item_purchased

12) <u>ch_id</u>, ch_phone, ch_salary, ch_hiredate, m_id -Chefs

13) <u>Ca_id</u>, Ca_phone, Ca_salary, Ca_hiredate, m_id – Cashier

Table creation:

1. owner:

Desc   owner

Object Type **TABLE** Object **OWNER**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
OWNER	O_NAME	Varchar2	20	-	-	-	✓	-	-
	O_NID	Number	-	15	0	1	-	-	-
	O_EMAIL	Varchar2	18	-	-	-	-	-	-
	CITY_ID	Number	-	10	0	-	✓	-	-
									1 - 4

Select* From owner

O_NAME	O_NID	O_EMAIL	CITY_ID
Jannat Arabia	39981	jannat098@gmail	210

2. owner_contacts:

Desc owner_contacts

Object Type **TABLE** Object **OWNER_CONTACTS**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
OWNER_CONTACTS	O_NID	Number	-	15	0	-	✓	-	-
	O_PHONE	Number	-	12	0	1	-	-	-
									1 - 2

Select* from owner_contacts

O_NID	O_PHONE
39981	1736854470
39981	1846864475

3. **owner_address**:

Desc owner_address

Object Type **TABLE** Object **OWNER_ADDRESS**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
OWNER_ADDRESS	CITY_ID	Number	-	15	0	1	-	-	-
	CITY	Varchar2	12	-	-	-	✓	-	-
	COUNTRY	Varchar2	14	-	-	-	✓	-	-
									1 - 3

Select* from owner_address

CITY_ID	CITY	COUNTRY
210	dhaka	bangladesh
110	comilla	bangladesh

4. **coffee_shop**:

Desc coffee_shop

Object Type **TABLE** Object **COFFEE_SHOP**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
COFFEE_SHOP	LICENSE	Number	-	19	0	1	-	-	-
	CS_NAME	Varchar2	25	-	-	-	-	-	-
	CS_ADDRESS	Varchar2	264	-	-	-	-	-	-
	O_NID	Number	-	20	0	-	-	-	-
									1 - 4

Select* from coffee_shop

LICENSE	CS_NAME	CS_ADDRESS	O_NID
18273645	elclassico coffee	12/b kandirpur,comilla	39981

5.Branches:

Desc branches

Object Type **TABLE** Object **BRANCHES**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
BRANCHES	B_ID	Number	-	19	0	1	-	-	-
	B_ADDRESS	Varchar2	38	-	-	-	-	-	-
	LOCATION	Varchar2	20	-	-	-	✓	-	-
	LICENSE	Number	-	19	0	-	-	-	-
	M_ID	Number	-	16	0	-	✓	-	-
									1 - 5

Select* from branches

B_ID	B_ADDRESS	LOCATION	LICENSE	M_ID
2110	16/c police line,comilla	comilla	18273645	1201
2111	19/b cantonment,dhaka	dhaka	18273645	1202

6.branch_contacts:

Desc branch_contact

Object Type **TABLE** Object **BRANCH_CONTACTS**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
BRANCH_CONTACTS	B_ID	Number	-	19	0	-	-	-	-
	B_PHONE	Number	-	16	0	1	-	-	-
									1 - 2

Select* from branch_contact

B_ID	B_PHONE
2110	177896990
2111	185896990
2112	197696990

7.**manager:**

Desc manager

Object Type **TABLE** Object **MANAGER**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
MANAGER	M_ID	Number	-	19	0	1	-	-	-
	M_PHONE	Number	-	16	0	-	-	-	-
	SALARY	Number	-	12	0	-	✓	0	-
	M_HIREDATE	Date	7	-	-	-	✓	-	-
									1 - 4

Select* from manager

M_ID	M_PHONE	SALARY	M_HIREDATE
1201	17654321	40000	09-JUN-20
1202	18976257	30000	09-JUN-20

8. **items**:

Desc items

Object Type **TABLE** Object **ITEMS**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
ITEMS	I_ID	Number	-	16	0	1	-	-	-
	I_NAME	Varchar2	25	-	-	-	✓	-	-
	PRICE	Number	-	8	0	-	✓	0	-
	LICENSE	Number	-	22	0	-	✓	-	-
									1 - 4

Select* from items

I_ID	I_NAME	PRICE	LICENSE
401	mocha	180	18273645
402	cappuccino	150	18273645
403	latte	180	18273645
404	fruit muffin	100	18273645

9.**Customer_details**:

Desc customer_details

Object Type	TABLE Object	CUSTOMER_DETAILS							
Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
CUSTOMER_DETAILS	C_ID	Number	-	16	0	1	-	-	-
	C_DATE	Date	7	-	-	-	✓	sysdate	-
	C_BILLS	Number	-	8	0	-	✓	-	-
									1 - 3

Select* from customer_details

C_ID	C_DATE	C_BILLS
21	24-NOV-20	240
22	23-NOV-20	280
23	25-NOV-20	180
24	26-NOV-20	250

10. **consumer_detail**:

Desc consumer_detail

Object Type **TABLE** Object **CONSUMER_DETAIL**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
CONSUMER_DETAIL	BC_ID	Number	-	15	0	1	-	-	-
	C_ID	Number	-	16	0	-	✓	-	-
	B_ID	Number	-	14	0	-	✓	-	-
									1 - 3

Select* from consumer_detail

BC_ID	C_ID	B_ID
801	21	2110
802	11	2111

11. **item_purchased**:

Desc item_purchased

Object Type **TABLE** Object **ITEM_PURCHASED**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
ITEM_PURCHASED	IP_ID	Number	-	15	0	1	-	-	-
	I_ID	Number	-	16	0	-	✓	-	-
	C_ID	Number	-	14	0	-	✓	-	-
									1 - 3

Select* from item_purchased

IP_ID	I_ID	C_ID
3001	401	21
3002	402	11
3003	403	14

12. **chefs**:

Desc chefs

Object Type **TABLE** Object **CHEFS**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
CHEFS	CH_ID	Number	-	15	0	1	-	-	-
	CH_PHONE	Number	-	16	0	-	-	-	-
	CH_SALARY	Number	-	14	0	-	✓	0	-
	CH_HIREDATE	Date	7	-	-	-	✓	-	-
	M_ID	Number	-	14	0	-	✓	-	-
									1 - 5

Select* from chefs

CH_ID	CH_PHONE	CH_SALARY	CH_HIREDATE	M_ID
501	17909401	30000	01-NOV-19	1101
502	19549401	25000	01-NOV-19	1102
503	18709401	30000	01-NOV-19	1103

13. **cashier**:

Desc cashier

Object Type **TABLE** Object **CASHIER**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
CASHIER	CA_ID	Number	-	15	0	1	-	-	-
	CA_PHONE	Number	-	16	0	-	-	-	-
	CA_SALARY	Number	-	14	0	-	✓	0	-
	CA_HIREDATE	Date	7	-	-	-	✓	-	-
	M_ID	Number	-	14	0	-	✓	-	-
									1 - 5

Select* from cashier

CA_ID	CA_PHONE	CA_SALARY	CA_HIREDATE	M_ID
601	18709401	15000	02-NOV-19	1101
602	17709401	17000	02-NOV-19	1102
603	19873546	13000	03-NOV-19	1103

Constraints:

alter table owner add constraint o1 primary key(o_nid)

alter table owner modify(o_email not null)

alter table owner_contacts add constraint o2 primary key(o_phone)

alter table owner_address add constraint o3 primary key(city_id)

alter table owner add constraint o foreign key(city_id) references owner_address(city_id)

alter table coffee_shop add constraint s1 primary key(license)

alter table coffee_shop modify(cs_name not null)

alter table coffee_shop modify(cs_address not null)

alter table coffee_shop modify(o_nid not null)

alter table coffee_shop add constraint s2 foreign key(o_nid) references owner(o_nid)

alter table branches add constraint b1 primary key(b_id)

alter table branches modify(b_address not null)

alter table branches modify(license not null)

alter table branches add constraint b2 foreign key(license) references coffee_shop(license)

alter table branch_contacts add constraint b3 primary key(b_phone)

alter table branch_contacts modify(b_id not null)

alter table branch_contacts add constraint b4 foreign key(b_id) references branches(b_id)

alter table manager add constraint m1 primary key(m_id)

alter table branches add constraint b5 foreign key(m_id) references manager(m_id)

alter table manager modify(m_phone not null)

alter table manager modify(salary default 0)

alter table items add constraint i1 primary key(i_id)

alter table items modify(price default 0)

alter table items add constraint i2 foreign key(license) references
coffee_shop(license)

alter table c_detail add constraint c1 primary key(c_id)

alter table c_detail modify(c_date default sysdate)

alter table consumer_detail add constraint cn1 primary key(bc_id)

alter table consumer_detail add constraint cn2 foreign key(b_id) references
branches(b_id)

alter table consumer_detail add constraint cn3 foreign key(odr_id) references

order_detail(odr_id)

alter table item_purchased add constraint ip1 primary key(ip_id)

alter table item_purchased add constraint ip2 foreign key(i_id) references
items(i_id)

alter table item_purchased add constraint ip3 foreign key(c_id) references

c_detail(odr_id)

alter table chefs add constraint ch1 primary key(ch_id)

alter table chefs modify(ch_phone not null)

alter table chefs modify(ch_salary default 0)

alter table chefs add constraint c2 foreign key(m_id) references manager(m_id)

alter table cashier add constraint c3 primary key(ca_id)

alter table cashier modify(ca_phone not null)

alter table cashier modify(ca_salary default 0)

alter table cashier add constraint c4 foreign key(m_id) references manager(m_id)

Question:

Single row function:

1. Show the id of all chefs whose salary is above or equal to 25000.

2. Show the id of all cashier who joined between 2-NOV-2019 TO 3-NOV-2019.

Group function:

3. Find the average salary of the Managers.

4. Find out maximum paid chefs using group function.

Sub query:

5. Find the items which are expensive than i_id= 402

6. Find the manager who gets more salary then m_id= 1202

Join:

7. show manager with their assigned branch location where manager salary>30000. (EQUI join)

8. show item purchased by c_id 21 &22.

Relational Algebra:

9. Show item names expensive than 100 tk.

10. Rename table manager to branch_manager