AMERICAN INTERNATIONAL UNIVERSITY-BANGLADESH

(AIUB)

Project Name : **Ice Cream Shop Management System**

Course Name : Introduction to Database

Course Instructor : Sifat Rahman Ahona

Section : J

Group Members Name & ID :

1. Rudro, Rifat Al Mamum 19-39909-1
2. Mushfiq Muhtadir 19-40067-1
3. Mahjabin Khondokar 19-40499-1
4. Fahmida Haque 19-40408-1

Content List:

Introduction of the Project:

The project is generally used where the all the work is done manually or paper. The project manage all the work of **Ice Cream shop Management System** like:

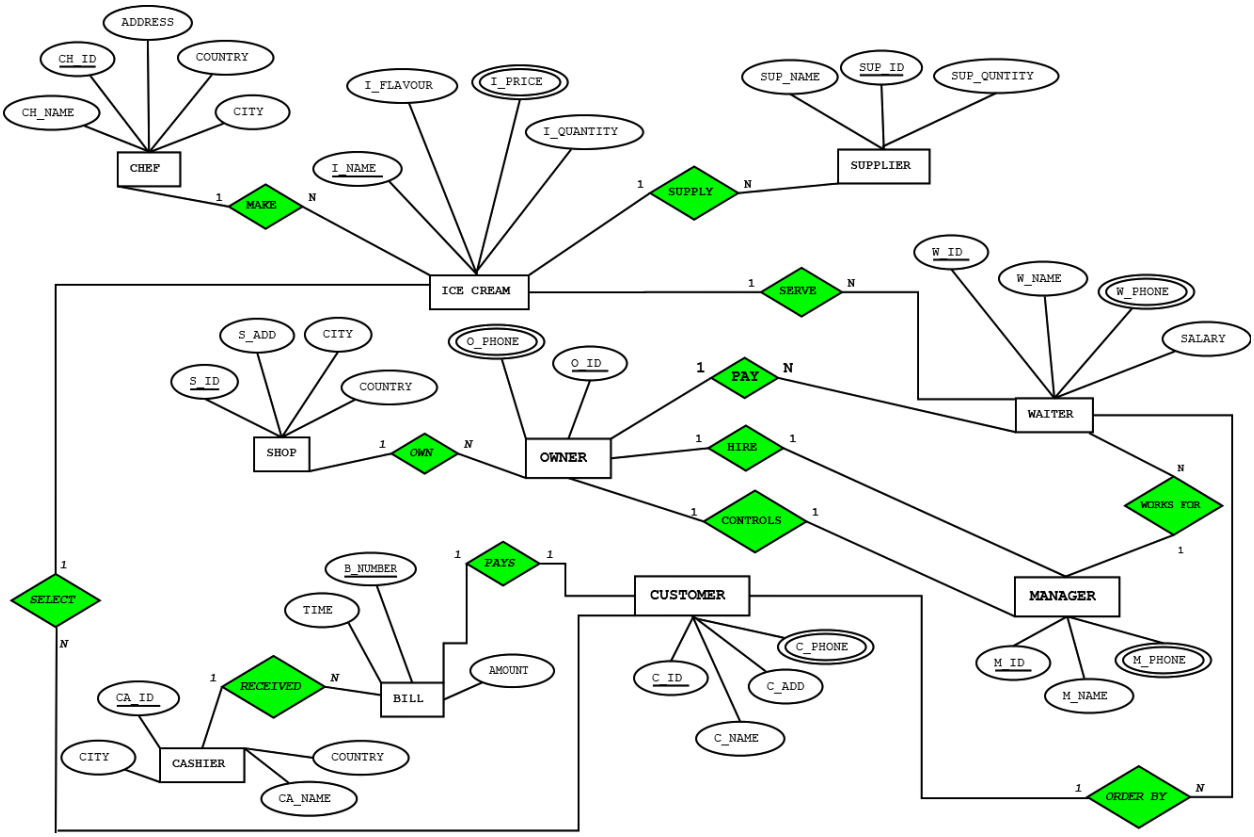
- The project is helpful for managing information of Customers like add customer information and customer reports.
- The database is also helpful for store the information of different type of ice cream names and their price. Sale out the ice cream quantity and bill information.
- The database also generate the customer reports, staff reports, ice cream price and names and bill records of the shop and the records of the shop owner.

For these we use the database system to handle all the records on it and save all the entities for further operation.

Scenario:

The ice cream shop management system includes the major function of planning, staffing, developing other variables effecting various ice-cream. The ice cream shop store the data of the shop by their id, address, city and country. The ice cream shop has under the control of manager and the data store by id, name and phone number. Ice cream has owner and store the data by owner id and phone. The manager is under controlled by the owner and also hire by shop owner. The manager control many waiter and they has id, name, phone and salary. The owner pay the salary to waiter. The ice cream shop has various flavor ice cream and identified by name, flavor, price and quantity of that and the ice cream served by the waiter. Many Ice cream are made by the chef and they has id, name, address, city and country. Ice cream are supplied by many supplier who contain the name, id and quantity of the ice cream. The shop has many customer who has id, name, phone and address. The customer pay the bills of the ice cream that will be store by the number, amount and time of the bill. The bill can be received by a cashier who has id, name, city and country. Exactly one cashier can receive many bills of the customers.

ER Diagram Model:



Normalization

1. **Make** (CH_ID CH_NAME, ADDRESS, COUNTRY, CITY, I_NAME, I_FLAVOUR, I_PRICE, I_QUNTITY)

1NF: I_PRICE multivalued attribute

2NF: CH_ID, CH_NAME, ADDRESS, COUNTRY, CITY

I_NAME, I_FLAVOUR, I_PRICE, I_QUNTITY, CH_ID,

3NF: CH_ID, CH_NAME, ADDRESS

I_NAME, I_FLAVOUR, I_PRICE, I_QUNTITY, CH_ID

A_ID, COUNTRY, CITY

TABLE

1. CH_ID, CH_NAME, ADDRESS,
2. I_NAME, I_FLAVOUR, I_PRICE, I_QUNTITY, CH_ID
3. A_ID, COUNTRY, CITY

2. **SUPPLY** (I_NAME, I_FLAVOUR, I_PRICE, I_QUNTITY, SUP_ID, SUP_NAME, SUP_QUNTITY)

1NF: I_PRICE multivalued attribute

2NF: I_NAME, I_FLAVOUR, I_PRICE, I_QUNTITY

SUP_ID, SUP_NAME, SUP_QUNTITY, I_NAME

3NF: I_NAME, I_FLAVOUR, I_PRICE, I_QUNTITY

SUP_ID, SUP_NAME, SUP_QUNTITY, I_NAME

Table

1. I_NAME, I_FLAVOUR, I_PRICE, I_QUNTITY
2. SUP_ID, SUP_NAME, SUP_QUNTITY,I_NAME

3. **SERVE** (I_NAME, I_FLAVOUR, I_PRICE, I_QUNTITY, W_ID, W_NAME, W_PHONE, SALARY)

1NF: W_PHONE multivalued attribute

2NF:I_NAME, I_FLAVOUR, I_PRICE, I_QUNTITY

W_ID, W_NAME, W_PHONE, W_SALARY, I_NAME

3NF: I_NAME, I_FLAVOUR, I_PRICE, I_QUNTITY

W_ID, W_NAME, W_PHONE, SALARY, I_NAME

TABLE:

1. I_NAME, I_FLAVOUR, I_PRICE, I_QUNTITY
2. W_ID, W_NAME, W_PHONE, SALARY, I_NAME

4. **WORKS FOR** (W_ID, W_NAME, W_PHONE, SALARY, M_ID, M_NAME, M_PHONE)

1NF: M_PHONE multivalued attribute

2NF: W_ID, W_NAME, W_PHONE, SALARY

M_ID, M_NAME, M_PHONE, W_ID

3NF: W_ID, W_NAME, W_PHONE, SALARY

M_ID, M_NAME, M_PHONE, W_ID

TABLE:

1. W_ID, W_NAME, W_PHONE, SALARY
2. M_ID, M_NAME, M_PHONE, W_ID

5. **CONTROLS** (M_ID, M_NAME, M_PHONE, O_ID, O_PHONE)

1NF: O_PHONE multivalued attribute

2NF: M_ID, M_NAME, M_PHONE, O_ID

O_ID, O_PHONE

3NF: M_ID, M_NAME, M_PHONE, O_ID

O_ID, O_PHONE

TABLE:

1. O_ID, O_PHONE
2. M_ID, M_NAME, M_PHONE, O_ID

6. **HIRE** (M_ID, M_NAME, M_PHONE, O_ID, O_PHONE)

1NF: O_PHONE multivalued attribute

2NF: M_ID, M_NAME, M_PHONE, O_ID

O_ID, O_PHONE

3NF: M_ID, M_NAME, M_PHONE

O_ID, O_PHONE, M_ID

TABLE:

1. O_ID, O_PHONE, M_ID
2. M_ID, M_NAME, M_PHONE

7. **PAY** (O_ID, O_PHONE, W_ID, W_NAME, W_PHONE, SALARY)

1NF: O_PHONE multivalued attribute

2NF: O_ID, O_PHONE

W_ID, W_NAME, W_PHONE, SALARY, O_ID

3NF: O_ID, O_PHONE

W_ID, W_NAME, W_PHONE, SALARY, O_ID

TABLE:

1. O_ID, O_PHONE
2. W_ID, W_NAME, W_PHONE, SALARY, O_ID

8. **OWN** (O_ID, O_PHONE, S_ID, S_ADD, CITY, COUNTRY)

1NF: O_PHONE multivalued attribute

2NF: O_ID, O_PHONE, S_ID

S_ID, S_ADD, CITY, COUNTRY

3NF: O_ID, O_PHONE, S_ID

S_ID, S_ADD

A_ID, CITY, COUNTRY

TABLE:

1. O_ID, O_PHONE, S_ID
2. S_ID, S_ADD
3. A_ID, CITY, COUNTRY

9. **SELECT** (C_ID, C_NAME, C_ADD, C_PHONE, I_NAME, I_FLAVOUR, I_PRICE, I_QUNTITY)

1NF: C_PHONE multivalued attribute

2NF: C_ID, C_NAME, C_ADD, C_PHONE, I_NAME

I_NAME, I_FLAVOUR, I_PRICE, I_QUNTITY

3NF: C_ID, C_NAME, C_ADD, C_PHONE, I_NAME

I_NAME, I_FLAVOUR, I_PRICE, I_QUNTITY

TABLE:

1. C_ID, C_NAME, C_ADD, C_PHONE, I_NAME
2. I_NAME, I_FLAVOUR, I_PRICE, I_QUNTITY

10. **ORDER BY** (C_ID, C_NAME, C_ADD, C_PHONE, W_ID, W_NAME, W_PHONE, SALARY)

1NF: C_PHONE, W_PHONE are multivalued attribute

2NF: C_ID, C_NAME, C_ADD, C_PHONE

W_ID, W_NAME, W_PHONE, SALARY, C_ID

3NF: C_ID, C_NAME, C_ADD, C_PHONE

W_ID, W_NAME, W_PHONE, SALARY, C_ID

TABLE:

1. C_ID, C_NAME, C_ADD, C_PHONE
2. W_ID, W_NAME, W_PHONE, SALARY, C_ID

11. **PAYS** (C_ID, C_NAME, C_ADD, C_PHONE, B_NUMBER , AMOUNT, TIME)

1NF: C_PHONE multivalued attribute

2NF: C_ID, C_NAME, C_ADD, C_PHONE

B_NUMBER, AMOUNT, TIME, C_ID

3NF: C_ID, C_NAME, C_ADD, C_PHONE

B_NUMBER, AMOUNT, TIME, C_ID

TABLE:

1. C_ID, C_NAME, C_ADD, C_PHONE
2. B_NUMBER , AMOUNT, TIME, C_ID

12. **RECEIVED** (B_NUMBER, AMOUNT, TIME, CA_ID ,CA_NAME, CITY, COUNTRY)

1NF: No Multivalued attribute

2NF: B_NUMBER, AMOUNT, TIME, CA_ID

CA_ID ,CA_NAME, CITY, COUNTRY

3NF: B_NUMBER, AMOUNT, TIME, CA_ID

CA_ID, CA_NAME

A_ID, CITY, COUNTRY

TABLE:

1. B_NUMBER, AMOUNT, TIME, CA_ID
2. CA_ID ,CA_NAME
3. A_ID, CITY, COUNTRY

TOTAL TABLE

1. CH_ID, CH_NAME, ADDRESS
2. I_NAME, I_FLAVOUR, I_PRICE, I_QUNTITY, CH_ID
3. ~~A_ID, COUNTRY, CITY~~
4. ~~I_NAME, I_FLAVOUR, I_PRICE, I_QUNTITY~~
5. SUP_ID, SUP_NAME, SUP_QUNTITY,I_NAME
6. ~~I_NAME, I_FLAVOUR, I_PRICE, I_QUNTITY~~
7. W_ID, W_NAME, W_PHONE, SALARY, I_NAME
8. ~~W_ID, W_NAME, W_PHONE, SALARY~~
9. M_ID, M_NAME, M_PHONE, W_ID
10. ~~O_ID, O_PHONE~~
11. M_ID, M_NAME, M_PHONE, O_ID
12. O_ID, O_PHONE, M_ID
13. ~~M_ID, M_NAME, M_PHONE~~
14. ~~O_ID, O_PHONE~~
15. W_ID, W_NAME, W_PHONE, SALARY, O_ID
16. O_ID, O_PHONE, S_ID
17. S_ID, S_ADD
18. A_ID, CITY, COUNTRY
19. C_ID, C_NAME, C_ADD, C_PHONE, I_NAME
20. ~~I_NAME, I_FLAVOUR, I_PRICE, I_QUNTITY~~
21. ~~C_ID, C_NAME, C_ADD, C_PHONE~~
22. B_NUMBER , AMOUNT, TIME, C_ID
23. B_NUMBER, AMOUNT, TIME, CA_ID
24. CA_ID ,CA_NAME
25. ~~A_ID, CITY, COUNTRY~~

FINAL TABLE

1. CH_ID, CH_NAME, ADDRESS
2. I_NAME, I_FLAVOUR, I_PRICE, I_QUNTITY, CH_ID
3. SUP_ID, SUP_NAME, SUP_QUNTITY,I_NAME
4. W_ID, W_NAME, W_PHONE, SALARY, I_NAME
5. M_ID, M_NAME, M_PHONE, W_ID
6. M_ID, M_NAME, M_PHONE, O_ID
7. O_ID, O_PHONE, M_ID
8. W_ID, W_NAME, W_PHONE, SALARY, O_ID
9. O_ID, O_PHONE, S_ID
10. S_ID, S_ADD
11. A_ID, CITY, COUNTRY
12. C_ID, C_NAME, C_ADD, C_PHONE, I_NAME
13. B_NUMBER , AMOUNT, TIME, C_ID
14. B_NUMBER, AMOUNT, TIME, CA_ID
15. CA_ID ,CA_NAME

1. create table Chef

   (CH_ID NUMBER(10) constraint Chef_pk Primary key,

   CH_NAME VARCHAR2(25),

   ADDRESS VARCHAR2(25))

Results Explain **Describe** Saved SQL History

Object Type **TABLE** Object **CHEF**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
CHEF	CH_ID	Number	-	10	0	1	-	-	-
	CH_NAME	Varchar2	25	-	-	-	✓	-	-
	ADDRESS	Varchar2	25	-	-	-	✓	-	-

1 - 3

2. create table ICE_CREAM

   (I_NAME VARCHAR2(25) constraint ICE_pk Primary key,

   I_FLAVOUR VARCHAR2(25),

   I_PRICE VARCHAR2(25),

   I_QUANTITY VARCHAR2(25),

   CH_ID NUMBER(10) CONSTRAINT ICE_FK REFERENCES CHEF(CH_ID))

Results Explain **Describe** Saved SQL History

Object Type **TABLE** Object **ICE_CREAM**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
ICE_CREAM	I_NAME	Varchar2	25	-	-	1	-	-	-
	I_FLAVOUR	Varchar2	25	-	-	-	✓	-	-
	I_PRICE	Varchar2	25	-	-	-	✓	-	-
	I_QUANTITY	Varchar2	25	-	-	-	✓	-	-
	CH_ID	Number	-	10	0	-	✓	-	-

1 - 5

3. create table SUPPLY

   (SUP_ID NUMBER(10) CONSTRAINT SUPPLY_PK PRIMARY KEY,

   SUP_NAME VARCHAR2(25) DEFAULT 'ER GROUP',

   SUP_QUANTITY NUMBER(7),

   I_NAME VARCHAR2(25) CONSTRAINT SUPPLY_FK REFERENCES ICE_CREAM(I_NAME))

Results Explain Describe Saved SQL History

Object Type **TABLE** Object **SUPPLY**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
SUPPLY	SUP_ID	Number	-	10	0	1	-	-	-
	SUP_NAME	Varchar2	25	-	-	-	✓	'ER GROUP'	-
	SUP_QUANTITY	Number	-	7	0	-	✓	-	-
	I_NAME	Varchar2	25	-	-	-	✓	-	-

1 - 4

4. create table WAITER

   (W_ID NUMBER(10) CONSTRAINT WAITER_PK PRIMARY KEY,

   W_NAME VARCHAR2(25),

   W_PHONE NUMBER(11),

   SALARY NUMBER (7),

   I_NAME VARCHAR2(25) CONSTRAINT WAITER_FK REFERENCES ICE_CREAM(I_NAME))

Results Explain Describe Saved SQL History

Object Type **TABLE** Object **WAITER**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
WAITER	W_ID	Number	-	10	0	1	-	-	-
	W_NAME	Varchar2	25	-	-	-	✓	-	-
	W_PHONE	Number	-	11	0	-	✓	-	-
	SALARY	Number	-	7	0	-	✓	-	-
	I_NAME	Varchar2	25	-	-	-	✓	-	-

1 - 5

5. create table Manager

   (M_ID number(10) constraint Manager_pk Primary key,

   M_name varchar2(25),

   M_phone number(11),

   W_ID number(10) constraint manager_fk references Waiter(w_id))

Results Explain Describe Saved SQL History

Object Type TABLE Object MANAGER

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
MANAGER	M_ID	Number	-	10	0	1	-	-	-
	M_NAME	Varchar2	25	-	-	-	✓	-	-
	M_PHONE	Number	-	11	0	-	✓	-	-
	W_ID	Number	-	10	0	-	✓	-	-

1 - 4

6. create table OWNER

   (O_ID number(10) constraint Owner_pk primary key,

   O_Phone number(11),

   M_ID number(10) constraint owner_fk references Manager(M_ID))

Results Explain Describe Saved SQL History

Object Type TABLE Object OWNER

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
OWNER	O_ID	Number	-	10	0	1	-	-	-
	O_PHONE	Number	-	11	0	-	✓	-	-
	M_ID	Number	-	10	0	-	✓	-	-

1 - 3

7. create table Manager_Owner

   (M_ID number(10) constraint Man_pk Primary key,

   M_NAME varchar2(25),

   M_PHONE number(11),

   O_ID NUMBER(10) constraint man_fk references Owner(O_ID))

Results Explain Describe Saved SQL History

Object Type TABLE Object MANAGER_OWNER

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
MANAGER_OWNER	M_ID	Number	-	10	0	1	-	-	-
	M_NAME	Varchar2	25	-	-	-	✓	-	-
	M_PHONE	Number	-	11	0	-	✓	-	-
	O_ID	Number	-	10	0	-	✓	-	-

1 - 4

8. create table Waiter_owner

   (W_ID number(10) constraint wait_pk Primary key,

   W_name varchar2(25),

   W_Phone number(11),

   salary number(5),

   O_ID number(10) constraint wait_fk references owner(o_id))

Results Explain Describe Saved SQL History

Object Type TABLE Object WAITER_OWNER

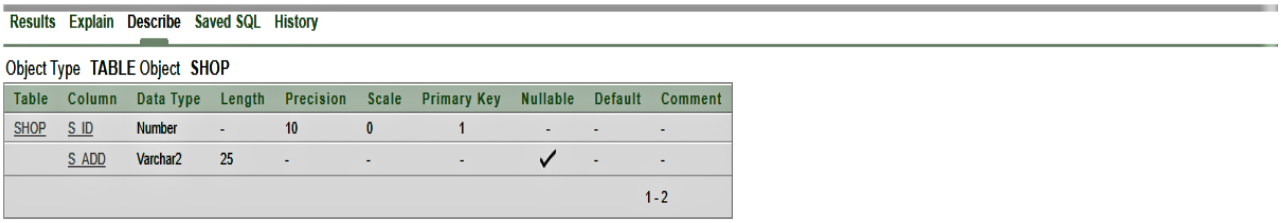
Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
WAITER_OWNER	W_ID	Number	-	10	0	1	-	-	-
	W_NAME	Varchar2	25	-	-	-	✓	-	-
	W_PHONE	Number	-	11	0	-	✓	-	-
	SALARY	Number	-	5	0	-	✓	-	-
	O_ID	Number	-	10	0	-	✓	-	-

1 - 5

9. create table shop

   (s_id number(10) constraint shop_pk primary key,

   s_add varchar2(25))



Results Explain Describe Saved SQL History

Object Type TABLE Object SHOP

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
SHOP	S_ID	Number	-	10	0	1	-	-	-
	S_ADD	Varchar2	25	-	-	-	✓	-	-

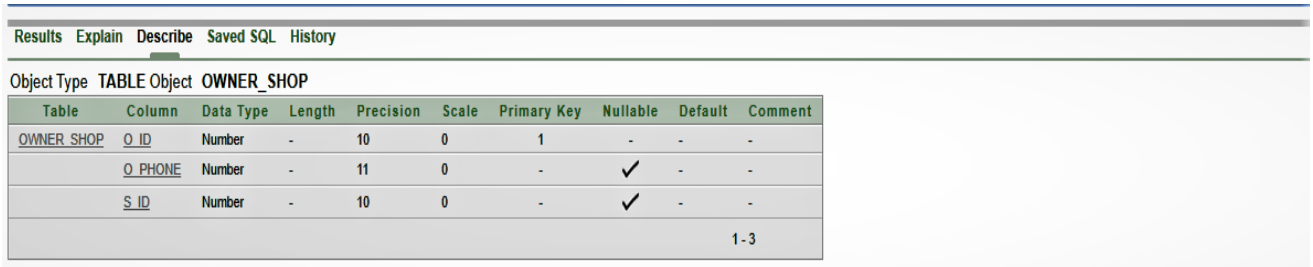
1 - 2

10. create table owner_shop

    (O_ID number(10) constraint Ownshop_pk primary key,

    O_Phone number(11),

    s_id number(10) constraint ownshop_fk references shop(s_id))



Results Explain Describe Saved SQL History

Object Type TABLE Object OWNER_SHOP

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
OWNER_SHOP	O_ID	Number	-	10	0	1	-	-	-
	O_PHONE	Number	-	11	0	-	✓	-	-
	S_ID	Number	-	10	0	-	✓	-	-

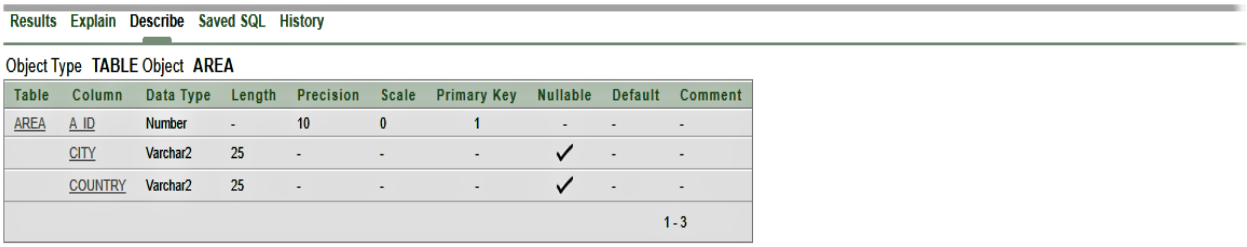
1 - 3

11. create table Area

(a_id number(10) constraint area_pk primary key,

city varchar2(25),

country varchar2(25))



Results Explain Describe Saved SQL History

Object Type TABLE Object AREA

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
AREA	A_ID	Number	-	10	0	1	-	-	-
	CITY	Varchar2	25	-	-	-	✓	-	-
	COUNTRY	Varchar2	25	-	-	-	✓	-	-

1 - 3

12. create table Customer

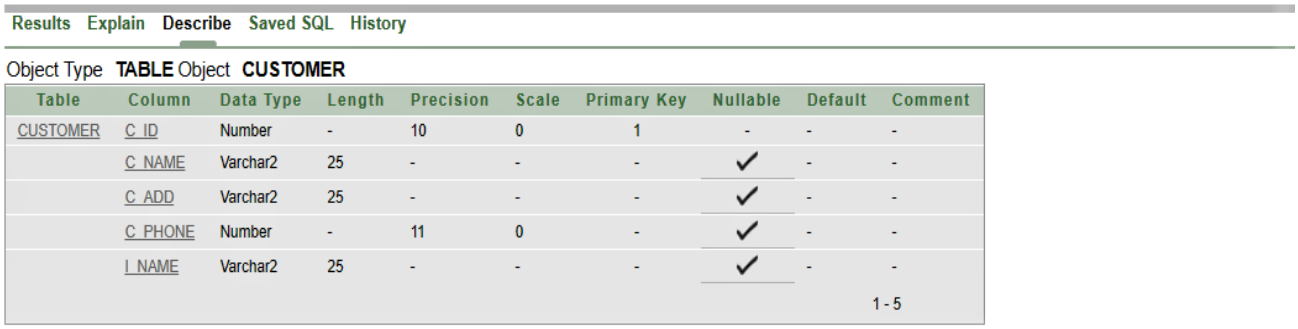
(c_id number(10) constraint customer_pk primary key,

C_name varchar2(25),

c_add varchar2(25),

c_phone number(11),

i_name varchar2(25) constraint customer_fk references Ice_cream(i_name))



Results Explain Describe Saved SQL History

Object Type TABLE Object CUSTOMER

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
CUSTOMER	C_ID	Number	-	10	0	1	-	-	-
	C_NAME	Varchar2	25	-	-	-	✓	-	-
	C_ADD	Varchar2	25	-	-	-	✓	-	-
	C_PHONE	Number	-	11	0	-	✓	-	-
	I_NAME	Varchar2	25	-	-	-	✓	-	-

1 - 5

13. create table bill

(b_number number(10) constraint bill_pk primary key,

amount number(5),

time number(4,2),

c_id number(10) constraint bill_fk references customer(c_id))

Results Explain Describe Saved SQL History

Object Type **TABLE** Object **BILL**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
BILL	B_NUMBER	Number	-	10	0	1	-	-	-
	AMOUNT	Number	-	5	0	-	✓	-	-
	TIME	Number	-	4	2	-	✓	-	-
	C_ID	Number	-	10	0	-	✓	-	-

1 - 4

14. create table cashier

(ca_id number(10) constraint cashier_pk primary key,

ca_name varchar2(25))

Results Explain Describe Saved SQL History

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

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
CASHIER	CA_ID	Number	-	10	0	1	-	-	-
	CA_NAME	Varchar2	25	-	-	-	✓	-	-

1 - 2

15. create table cashier_bill

(b_number number(10) constraint cashbill_pk primary key,

amount number(5),

time number(4,2),

ca_id number(10) constraint cashier_Fk references cashier(ca_id))

Results Explain Describe Saved SQL History

Object Type TABLE Object CASHIER_BILL

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
CASHIER_BILL	B_NUMBER	Number	-	10	0	1	-	-	-
	AMOUNT	Number	-	5	0	-	✓	-	-
	TIME	Number	-	4	2	-	✓	-	-
	CA_ID	Number	-	10	0	-	✓	-	-

1 - 4

1. **CHEF Table**

create sequence sq

start with 101

increment by 1

maxvalue 105

minvalue 100

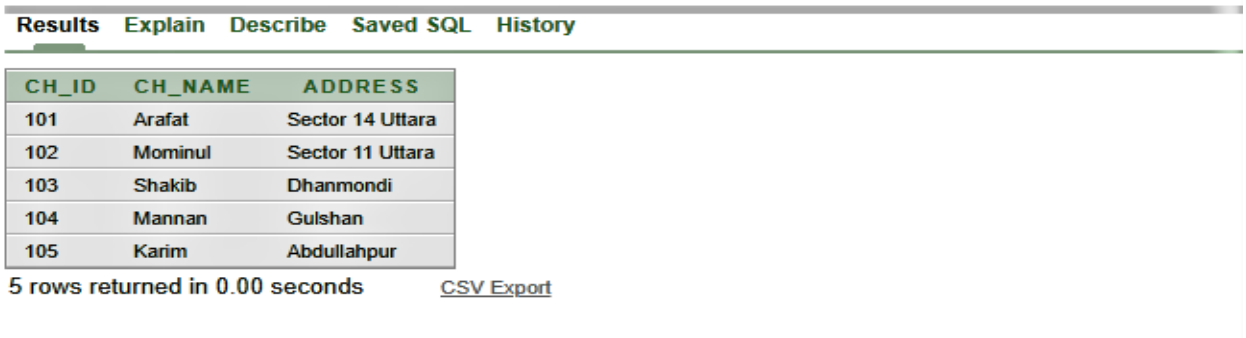
insert into chef (ch_id, ch_name, address) values (sq.nextval, 'Arafat', 'Sector 14 Uttara')

insert into chef (ch_id, ch_name, address) values (sq.nextval, 'Mominul', 'Sector 11 Uttara')

insert into chef (ch_id, ch_name, address) values (sq.nextval, 'Shakib', 'Dhanmondi')

insert into chef (ch_id, ch_name, address) values (sq.nextval, 'Mannan', 'Gulshan')

insert into chef (ch_id, ch_name, address) values (sq.nextval, 'Karim', 'Abdullahpur')



Results Explain Describe Saved SQL History

CH_ID	CH_NAME	ADDRESS
101	Arafat	Sector 14 Uttara
102	Mominul	Sector 11 Uttara
103	Shakib	Dhanmondi
104	Mannan	Gulshan
105	Karim	Abdullahpur

5 rows returned in 0.00 seconds CSV Export

2. ICE_CREAM Table

create sequence sq1

start with 101

increment by 1

maxvalue 105

minvalue 101

insert into Ice_cream (i_name, i_flavour, i_price, i_quantity, ch_id) values ('Chery ice cream', 'Chery', 200, 01, sq1.nextval)

insert into Ice_cream (i_name, i_flavour, i_price, i_quantity, ch_id) values ('Chocolate ice cream', 'Chocolate', 190, 03, sq1.nextval)

insert into Ice_cream (i_name, i_flavour, i_price, i_quantity, ch_id) values ('Cone ice cream', 'vanilla', 180, 05, sq1.nextval)

insert into Ice_cream (i_name, i_flavour, i_price, i_quantity, ch_id) values ('Cup ice cream', 'Black forest', 210, 4, sq1.nextval)

insert into Ice_cream (i_name, i_flavour, i_price, i_quantity, ch_id) values ('Blue Moon ice cream', ' Dark Blue', 380, 2, sq1.nextval)

Results Explain Describe Saved SQL History

I_NAME	I_FLAVOUR	I_PRICE	I_QUANTITY	CH_ID
Chery ice cream	Chery	200	1	101
Chocolate ice cream	Chocolate	190	3	102
Cone ice cream	vanilla	180	5	103
Cup ice cream	Black forest	210	4	104
Blue Moon ice cream	Dark Blue	380	2	105

5 rows returned in 0.00 seconds CSV Export

3. **SUPPLY Table**

create sequence sq2

start with 201

increment by 1

maxvalue 205

minvalue 201

insert into Supply (sup_id, sup_name, sup_quantity, I_name) values(sq2.nextval, 'Polar', 1000, 'Chery ice cream')

insert into Supply (sup_id, sup_name, sup_quantity, I_name) values(sq2.nextval, 'Igloo', 1500, 'Chocolate ice cream')

insert into Supply (sup_id, sup_name, sup_quantity, I_name) values(sq2.nextval, 'Bellisimo', 500, 'Cone ice cream')

insert into Supply (sup_id, sup_name, sup_quantity, I_name) values(sq2.nextval, 'Quality', 1200, 'Cup ice cream')

insert into Supply (sup_id, sup_name, sup_quantity, I_name) values(sq2.nextval, 'Za & Ze', 200, 'Blue Moon ice cream')

Results Explain Describe Saved SQL History

SUP_ID	SUP_NAME	SUP_QUANTITY	I_NAME
201	Polar	1000	Chery ice cream
202	Igloo	1500	Chocolate ice cream
203	Bellisimo	500	Cone ice cream
204	Quality	1200	Cup ice cream
205	Za & Ze	200	Blue Moon ice cream

5 rows returned in 0.00 seconds CSV Export

4. **Waiter Table**

create sequence sq3

start with 301

increment by 1

maxvalue 305

minvalue 301

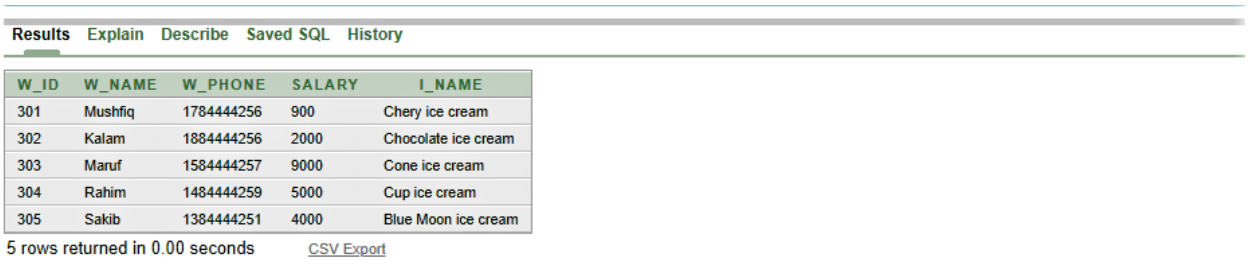
insert into Waiter(W_id, W_name, W_phone, Salary, I_name) values (sq3.nextval, 'Mushfiq', 01784444256, 900, 'Chery ice cream')

insert into Waiter(W_id, W_name, W_phone, Salary, I_name) values (sq3.nextval, 'Kalam', 01884444256, 2000, 'Chocolate ice cream')

insert into Waiter(W_id, W_name, W_phone, Salary, I_name) values (sq3.nextval, 'Maruf', 01584444257, 9000, 'Cone ice cream')

insert into Waiter(W_id, W_name, W_phone, Salary, I_name) values (sq3.nextval, 'Rahim', 01484444259, 5000, 'Cup ice cream')

insert into Waiter(W_id, W_name, W_phone, Salary, I_name) values (sq3.nextval, 'Sakib', 01384444251, 4000, 'Blue Moon ice cream')



Results Explain Describe Saved SQL History

W_ID	W_NAME	W_PHONE	SALARY	I_NAME
301	Mushfiq	1784444256	900	Chery ice cream
302	Kalam	1884444256	2000	Chocolate ice cream
303	Maruf	1584444257	9000	Cone ice cream
304	Rahim	1484444259	5000	Cup ice cream
305	Sakib	1384444251	4000	Blue Moon ice cream

5 rows returned in 0.00 seconds CSV Export

5. Manager Table

create sequence sq4

start with 401

increment by 1

maxvalue 405

minvalue 401

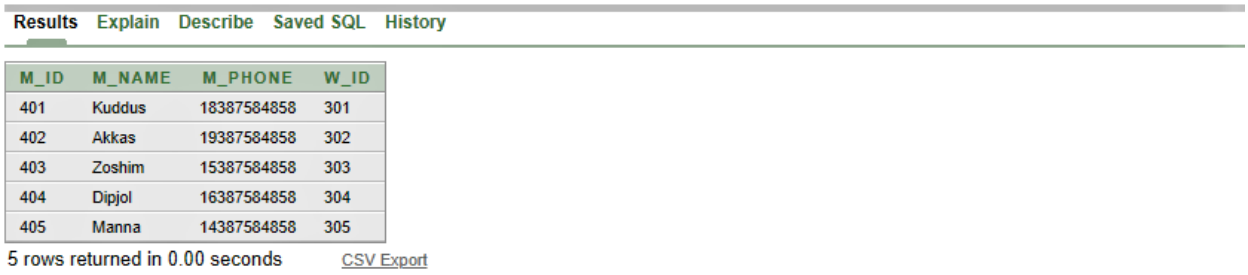
insert into manager (M_id, M_name, M_phone, W_id) values (sq4.nextval, 'Kuddus', 018387584858, 301)

insert into manager (M_id, M_name, M_phone, W_id) values (sq4.nextval, 'Akkas', 019387584858, 302)

insert into manager (M_id, M_name, M_phone, W_id) values (sq4.nextval, 'Zoshim', 015387584858, 303)

insert into manager (M_id, M_name, M_phone, W_id) values (sq4.nextval, 'Dipjol', 016387584858, 304)

insert into manager (M_id, M_name, M_phone, W_id) values (sq4.nextval, 'Manna', 014387584858, 305)



Results Explain Describe Saved SQL History

M_ID	M_NAME	M_PHONE	W_ID
401	Kuddus	18387584858	301
402	Akkas	19387584858	302
403	Zoshim	15387584858	303
404	Dipjol	16387584858	304
405	Manna	14387584858	305

5 rows returned in 0.00 seconds CSV Export

6. **Owner Table**

create sequence sq5

start with 501

increment by 1

maxvalue 505

minvalue 501

insert into Owner(O_id, O_phone, M_id) values (sq5.nextval, 01632113754, 401)

insert into Owner(O_id, O_phone, M_id) values (sq5.nextval, 01632113755, 402)

insert into Owner(O_id, O_phone, M_id) values (sq5.nextval, 01632113756, 403)

insert into Owner(O_id, O_phone, M_id) values (sq5.nextval, 01632113757, 404)

insert into Owner(O_id, O_phone, M_id) values (sq5.nextval, 01632113756, 405)

Results Explain Describe Saved SQL History

O_ID	O_PHONE	M_ID
501	1632113754	401
502	1632113755	402
503	1632113756	403
504	1632113757	404
505	1632113756	405

5 rows returned in 0.00 seconds CSV Export

7. **Manager_Owner**

create sequence sq6

start with 401

increment by 1

maxvalue 405

minvalue 401

insert into manager_owner (M_id, M_name, M_phone, o_id) values (sq6.nextval, 'Kuddus', 018387584858, 501)

insert into manager_owner (M_id, M_name, M_phone, o_id) values (sq6.nextval, 'Akkas', 019387584858, 502)

insert into manager_owner (M_id, M_name, M_phone, o_id) values (sq6.nextval, 'Zoshim', 015387584858, 503)

insert into manager_owner (M_id, M_name, M_phone, o_id) values (sq6.nextval, 'Dipjol', 016387584858, 504)

insert into manager_owner (M_id, M_name, M_phone, o_id) values (sq6.nextval, 'Manna', 014387584858, 505)

Results Explain Describe Saved SQL History

M_ID	M_NAME	M_PHONE	O_ID
401	Kuddus	18387584858	501
402	Akkas	19387584858	502
403	Zoshim	15387584858	503
404	Dipjol	16387584858	504
405	Manna	14387584858	505

5 rows returned in 0.00 seconds CSV Export

8. **Waiter_owner**

create sequence sq7

start with 301

increment by 1

maxvalue 305

minvalue 301

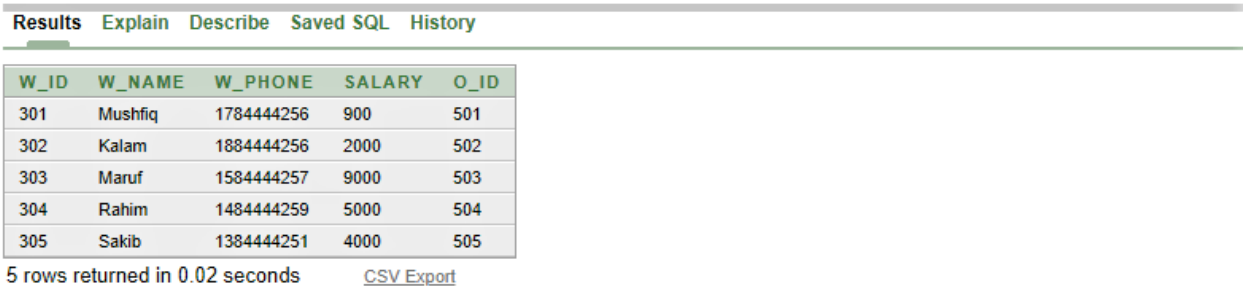
insert into waiter_owner(W_id, W_name, W_phone, Salary, O_id) values(sq7.nextval, 'Mushfiq', 01784444256, 900, 501)

insert into waiter_owner(W_id, W_name, W_phone, Salary, O_id) values(sq7.nextval, 'Kalam', 01884444256, 2000,502)

insert into waiter_owner(W_id, W_name, W_phone, Salary, O_id) values(sq7.nextval,'Maruf', 01584444257, 9000, 503)

insert into waiter_owner(W_id, W_name, W_phone, Salary, O_id) values(sq7.nextval,'Rahim', 01484444259, 5000,504)

insert into waiter_owner(W_id, W_name, W_phone, Salary, O_id) values(sq7.nextval,'Sakib', 01384444251, 4000,505)



Results Explain Describe Saved SQL History

W_ID	W_NAME	W_PHONE	SALARY	O_ID
301	Mushfiq	1784444256	900	501
302	Kalam	1884444256	2000	502
303	Maruf	1584444257	9000	503
304	Rahim	1484444259	5000	504
305	Sakib	1384444251	4000	505

5 rows returned in 0.02 seconds CSV Export

9. **Shop**

create sequence sq8

start with 701

increment by 1

maxvalue 705

minvalue 701

insert into shop(s_id, s_add) values (sq8.nextval, 'Gulshan 2')

insert into shop(s_id, s_add) values (sq8.nextval, 'Dhanmondi 32')

insert into shop(s_id, s_add) values (sq8.nextval, 'Mirpur 10')

insert into shop(s_id, s_add) values (sq8.nextval, 'Baily Road')

insert into shop(s_id, s_add) values (sq8.nextval, 'Uttara')

10. **Owner_shop**

create sequence sq9

start with 501

increment by 1

maxvalue 505

minvalue 501

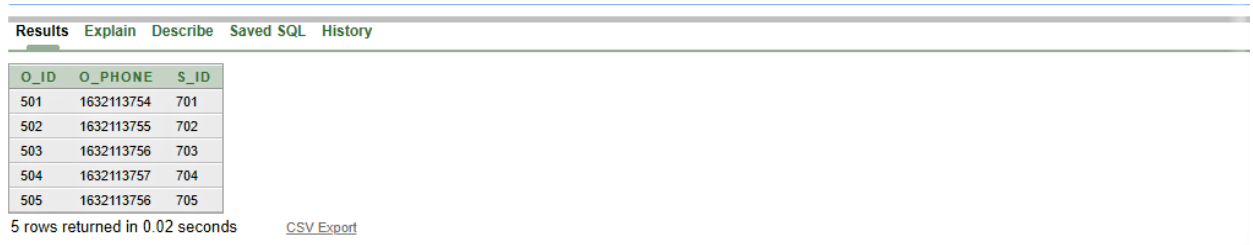
insert into Owner_shop(O_id, O_phone,s_id) values (sq9.nextval, 01632113754,701)

insert into Owner_shop(O_id, O_phone,s_id) values (sq9.nextval,01632113755,702)

insert into Owner_shop(O_id, O_phone,s_id) values (sq9.nextval,01632113756,703)

insert into Owner_shop(O_id, O_phone,s_id) values (sq9.nextval,01632113757,704)

insert into Owner_shop(O_id, O_phone,s_id) values (sq9.nextval,01632113756,705)



11. **Area**

insert into Area (a_id, city, country) values (1200,'Dhaka', 'Bangladesh')

insert into Area (a_id, city, country) values (1210,'Dhaka', 'Bangladesh')

insert into Area (a_id, city, country) values (1220,'Dhaka', 'Bangladesh')

insert into Area (a_id, city, country) values (1230,'Dhaka', 'Bangladesh')

insert into Area (a_id, city, country) values (1240,'Dhaka', 'Bangladesh')

Results Explain Describe Saved SQL History

A_ID	CITY	COUNTRY
1200	Dhaka	Bangladesh
1210	Dhaka	Bangladesh
1220	Dhaka	Bangladesh
1230	Dhaka	Bangladesh
1240	Dhaka	Bangladesh

5 rows returned in 0.00 seconds CSV Export

12. **Customer**

create sequence sq11

start with 1000

increment by 5

maxvalue 1020

minvalue 1000

insert into customer(C_id,C_name,C_add,C_phone,i_name) values
(sq11.nextval,'Niloy','Uttara',01961951934,'Chery ice cream')

insert into customer (C_id,C_name,C_add,C_phone,i_name) values
(sq11.nextval,'kalam','gulshan',01961953456,'Chocolate ice cream')

insert into customer(C_id,C_name,C_add,C_phone,i_name) values
(sq11.nextval,'Amit','uttara',01961951935,'Cone ice cream')

insert into customer(C_id,C_name,C_add,C_phone,i_name) values
(sq11.nextval,'Rudro','Badda',01961951935,'Cup ice cream')

insert into customer(C_id,C_name,C_add,C_phone,i_name) values
(sq11.nextval,'Rokeya','Badda',01961951935,'Blue Moon ice cream')

Results Explain Describe Saved SQL History

C_ID	C_NAME	C_ADD	C_PHONE	I_NAME
1000	Niloy	Uttara	1961951934	Chery ice cream
1005	kalam	gulshan	1961953456	Chocolate ice cream
1010	Amit	uttara	1961951935	Cone ice cream
1015	Rudro	Badda	1961951935	Cup ice cream
1020	Rokeya	Badda	1961951935	Blue Moon ice cream

5 rows returned in 0.02 seconds CSV Export

13. **Bill**

create sequence sq12

start with 1201

increment by 1

maxvalue 1205

minvalue 1201

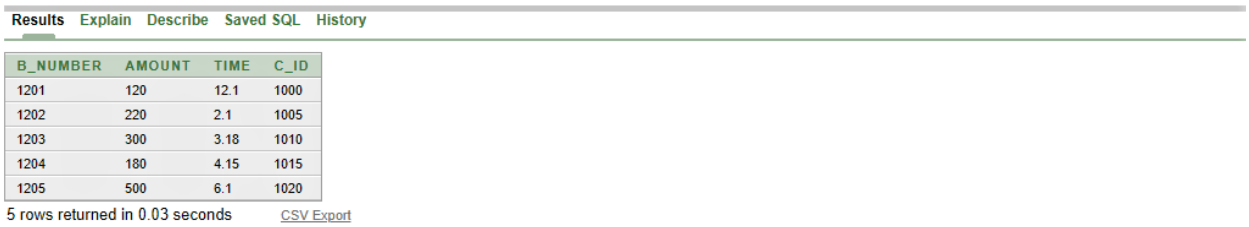
insert into bill (b_number, amount, time, c_id) values (sq12.nextval, 120, 12.10, 1000)

insert into bill (b_number, amount, time, c_id) values (sq12.nextval, 220, 2.10, 1005)

insert into bill (b_number, amount, time, c_id) values (sq12.nextval, 300, 3.18, 1010)

insert into bill (b_number, amount, time, c_id) values (sq12.nextval, 180, 4.15, 1015)

insert into bill (b_number, amount, time, c_id) values (sq12.nextval, 500, 6.10, 1020)



Results Explain Describe Saved SQL History

B_NUMBER	AMOUNT	TIME	C_ID
1201	120	12.1	1000
1202	220	2.1	1005
1203	300	3.18	1010
1204	180	4.15	1015
1205	500	6.1	1020

5 rows returned in 0.03 seconds CSV Export

14. **Cashier**

create sequence sq13

start with 900

increment by 1

maxvalue 904

minvalue 900

insert into cashier (ca_id, ca_name) values(sq13.nextval, 'Dildar')

insert into cashier (ca_id, ca_name) values(sq13.nextval, 'Kazi')

insert into cashier (ca_id, ca_name) values(sq13.nextval, 'Maruf')

insert into cashier (ca_id, ca_name) values(sq13.nextval, 'Motin')

insert into cashier (ca_id, ca_name) values(sq13.nextval, 'Abbas')

Results Explain Describe Saved SQL History

CA_ID	CA_NAME
900	Dildar
901	Kazi
902	Maruf
903	Motin
904	Abbas

5 rows returned in 0.02 seconds CSV Export

15. **Cashier_bill**

create sequence sq14

start with 1201

increment by 1

maxvalue 1205

minvalue 1201

insert into cashier_bill (b_number, amount, time, ca_id) values (sq14.nextval, 120, 12.10,900)

insert into cashier_bill (b_number, amount, time, ca_id) values (sq14.nextval, 120, 2.10,901)

insert into cashier_bill (b_number, amount, time, ca_id) values (sq14.nextval, 120, 3.18,902)

insert into cashier_bill (b_number, amount, time, ca_id) values (sq14.nextval, 120, 4.15,903)

insert into cashier_bill (b_number, amount, time, ca_id) values (sq14.nextval, 120, 6.10,904)

Results Explain Describe Saved SQL History

B_NUMBER	AMOUNT	TIME	CA_ID
1201	120	12.1	900
1202	120	2.1	901
1203	120	3.18	902
1204	120	4.15	903
1205	120	6.1	904

5 rows returned in 0.19 seconds CSV Export

QUERY WRITING:

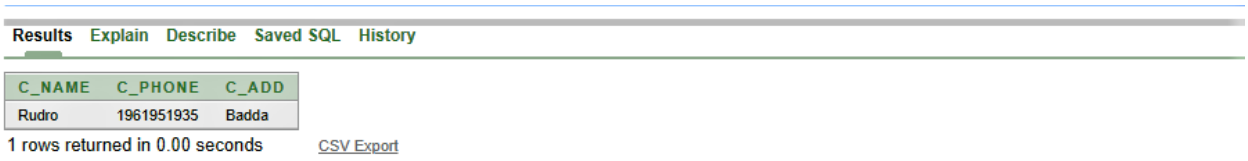
1. **Single-Row function:**

Ques: Display the customer name, phone and address who are order the cup ice-cream

Ans: select c_name, c_phone, c_add

from customer

where i_name='Cup ice cream'



Results Explain Describe Saved SQL History

C_NAME	C_PHONE	C_ADD
Rudro	1961951935	Badda

1 rows returned in 0.00 seconds CSV Export

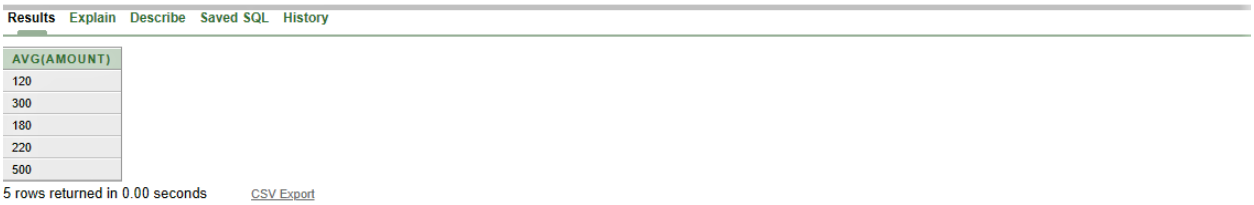
2. Group function:

Ques: Display the average amount of bill by customer number

Ans: select avg(amount)

from bill

group by c_id



Results Explain Describe Saved SQL History

AVG(AMOUNT)
120
300
180
220
500

5 rows returned in 0.00 seconds CSV Export

3. Group function:

Ques: Display the Sum of the salary of waiter as Total_salary by their name

Ans: select sum(salary) as total_salary

from waiter

group by w_name

Results Explain Describe Saved SQL History

TOTAL_SALARY
2000
900
9000
4000
5000

5 rows returned in 0.00 seconds CSV Export

4. **Subquery:**

Ques: Display the manager name and manager number for all manager whose waiter number is 301

Ans: select m_name, m_id

from manager

where w_id= (select w_id from waiter where w_id=301)

Results Explain Describe Saved SQL History

M_NAME	M_ID
Kuddus	401

1 rows returned in 0.01 seconds CSV Export

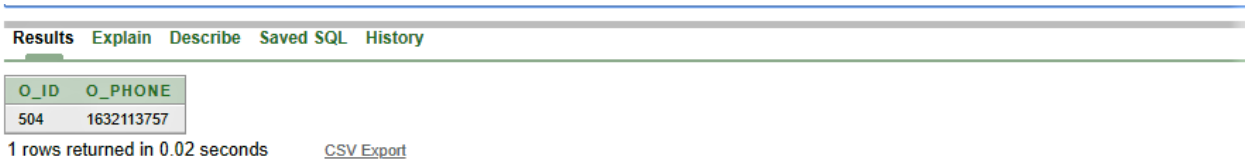
5. **Subquery:**

Ques: Display the owner number and phone number for all owners whose shop number is 704

Ans: select o_id, o_phone

from owner_shop

where s_id= (select s_id from shop where s_id=704)



6. **Subquery:**

Ques: Display the customer number, name, phone and address for all customers who are order the Blue moon ice-cream

Ans: select c_id,c_name, c_add, c_phone

from customer

where i_name= (select i_name from ice_cream where i_name='Blue Moon ice cream')

7. **Joining:**

Ques: Display the chef name, chef number, chef address and ice cream name for each chef

Ans: select c.ch_id, ch_name, address, I_name

from chef c, ice_cream i

where c.ch_id= i.ch_id

Results Explain Describe Saved SQL History

CH_ID	CH_NAME	ADDRESS	I_NAME
101	Arafat	Sector 14 Uttara	Chery ice cream
102	Mominul	Sector 11 Uttara	Chocolate ice cream
103	Shakib	Dhanmondi	Cone ice cream
104	Mannan	Gulshan	Cup ice cream
105	Karim	Abdullahpur	Blue Moon ice cream

5 rows returned in 0.02 seconds CSV Export

8. Joining:

Ques: Display the customer name, customer number, address with ice cream name and their price for each ice cream

Ans: select c_id, c_name, c_add, c.I_name, i_price

from customer c, ice_cream i

where c.i_name= i.i_name

Results Explain Describe Saved SQL History

C_ID	C_NAME	C_ADD	I_NAME	I_PRICE
1000	Niloy	Uttara	Chery ice cream	200
1005	kalam	gulshan	Chocolate ice cream	190
1010	Amit	uttara	Cone ice cream	180
1015	Rudro	Badda	Cup ice cream	210
1020	Rokeya	Badda	Blue Moon ice cream	380

5 rows returned in 0.01 seconds CSV Export

9. Joining

Ques: Display waiter name, salary and owner number for those waiter who earn more than 2000

Ans: select w.w_name, w.salary, w.o_id

from waiter_owner w, owner o

where w.o_id= o.o_id and w.salary>2000

Results Explain Describe Saved SQL History

W_NAME	SALARY	O_ID
Maruf	9000	503
Rahim	5000	504
Sakib	4000	505

3 rows returned in 0.00 seconds CSV Export

10.View

Ques: Create a view to see specific column customer name, customer number and their address

Ans: create or replace view C1

as

select c_name,c_id,c_add

from customer

Results Explain Describe Saved SQL History

C_NAME	C_ID	C_ADD
Niloy	1000	Uttara
kalam	1005	gulshan
Amit	1010	uttara
Rudro	1015	Badda
Rokeya	1020	Badda

5 rows returned in 0.00 seconds CSV Export

Relational Algebra

Selection:

Ques: Find out all the details of Manager having Id more than 401

Ans: $\sigma_{M\_id>401}(Manager)$

Projection:

Ques: Find out Ice cream name and price

Ans: $\pi_{I\_name,I\_price}(Ice\_cream)$

Selection & Projection:

Ques: Find out the manager number whose name is Zoshim

Ans: $\pi_{m\_id}[\sigma_{m\_name='Zoshim'}(Manager)]$

Selection & Projection With condition:

1. **Ques:** Find out all Waiter and all Manager's name

   Ans: $\pi_{w\_name,m\_name}[\sigma_{w.w\_id=m.w\_id \text{ or } (salary>1000)}(waiter \times manager)]$

2. **Ques**: Find out the customer name and ice cream name where amount of bill are more than 200

   Ans: $\pi_{c\_name,I\_name}[\sigma_{c.c\_id=b.c\_id \text{ or } (amount>200)}(customer \times bill)]$

Natural Join

1. **Ques:** Find out the chef name and ice cream

Ans: $\pi_{Ch\_name,I\_name}(Chef \bowtie Ice\_cream)$

2. Find out the customer name, phone, id and amount of the bill

Ans: π C_name,C_phone,C_ID,Amount (Customer $\bowtie$ Bill)

Left outer Join:

1. Find the owner id and shop address and also find those shop whose owner number is not assigned

Ans: π o_id, s_add (owner ⟕ shop)

2. Find out the customer name, phone number and bill number and also find those customer who are not pay bills yet.

Ans: π c_name, c_phone,b_number (customer ⟕ bill)

Right outer Join:

1. Find out the e supplier name and ice cream name and also find those ice cream name which are not supplied by the supplier yet

Ans: : π sup_name, i_name (Supply ⟖ Ice_cream)

2. Find the cashier name and bill amount and also find the bill amount those bill which are not receive yet by cashier

Ans: π ca_name, b_amount (cashier ⟖ bill)

Full outer Join:

1. Find out the waiter name and manager name

Ans: π W_name,M_name(Waiter $\bowtie$ Manager)

2. Find out the ice cream name and supply quantity of the ice cream

Ans: π I_name,Sup_quantity(Ice_cream $\bowtie$ Supply)

Cartesian:

S_ID	S_ADD	A_ID
701	Gulshan 2	1200
701	Gulshan 2	1210
701	Gulshan 2	1220
701	Gulshan 2	1230
701	Gulshan 2	1240
702	Dhanmondi 32	1200
702	Dhanmondi 32	1210
702	Dhanmondi 32	1220
702	Dhanmondi 32	1230
702	Dhanmondi 32	1240
703	Mirpur 10	1200
703	Mirpur 10	1210
703	Mirpur 10	1220
703	Mirpur 10	1230
703	Mirpur 10	1240
704	Baily Road	1200
704	Baily Road	1210
704	Baily Road	1220
704	Baily Road	1230
704	Baily Road	1240
705	Uttara	1200
705	Uttara	1210
705	Uttara	1220
705	Uttara	1230
705	Uttara	1240

25 rows returned in 0.02 seconds CSV Export

1. Find out the Cartesian product of Shop number, address and area number.

Ans: $\pi_{s\_id,\ s\_add,a\_id}$(Shop X Area)

Results Explain Describe Saved SQL History

B_NUMBER	AMOUNT	CA_NAME
1201	120	Dildar
1201	120	Kazi
1201	120	Maruf
1201	120	Motin
1201	120	Abbas
1202	220	Dildar
1202	220	Kazi
1202	220	Maruf
1202	220	Motin
1202	220	Abbas
1203	300	Dildar
1203	300	Kazi
1203	300	Maruf
1203	300	Motin
1203	300	Abbas
1204	180	Dildar
1204	180	Kazi
1204	180	Maruf
1204	180	Motin
1204	180	Abbas
1205	500	Dildar
1205	500	Kazi
1205	500	Maruf
1205	500	Motin
1205	500	Abbas

25 rows returned in 0.04 seconds CSV Export

2. Find out the Cartesian product of bill number, amount and cashier name

Ans: $\pi_{b\_number,\ amount,\ ca\_name}$(bill X cashier)

Conclusion:

After the efforts by all our group members we created our database management project "**Ice Cream Management System**." Initially we faced some problems but then we were able to overcome that.

Hopefully in future we will be able to create real database system for institutes and organizations.

THE END