



RESTAURANT MANAGEMENT SYSTEM

Course: Advanced Database Management System

Section: A

Group members:

<i>NAME</i>	<i>ID</i>
Alif Shahriar Sakin	18-37930-2
Jeba Fawzia	19-39815-1
MD. Samsuddoha	16-33068-3
Md Tayebuzzaman	18-38376-2
Ratul Hasan Rahat	19-40647-1

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INTRODUCTION

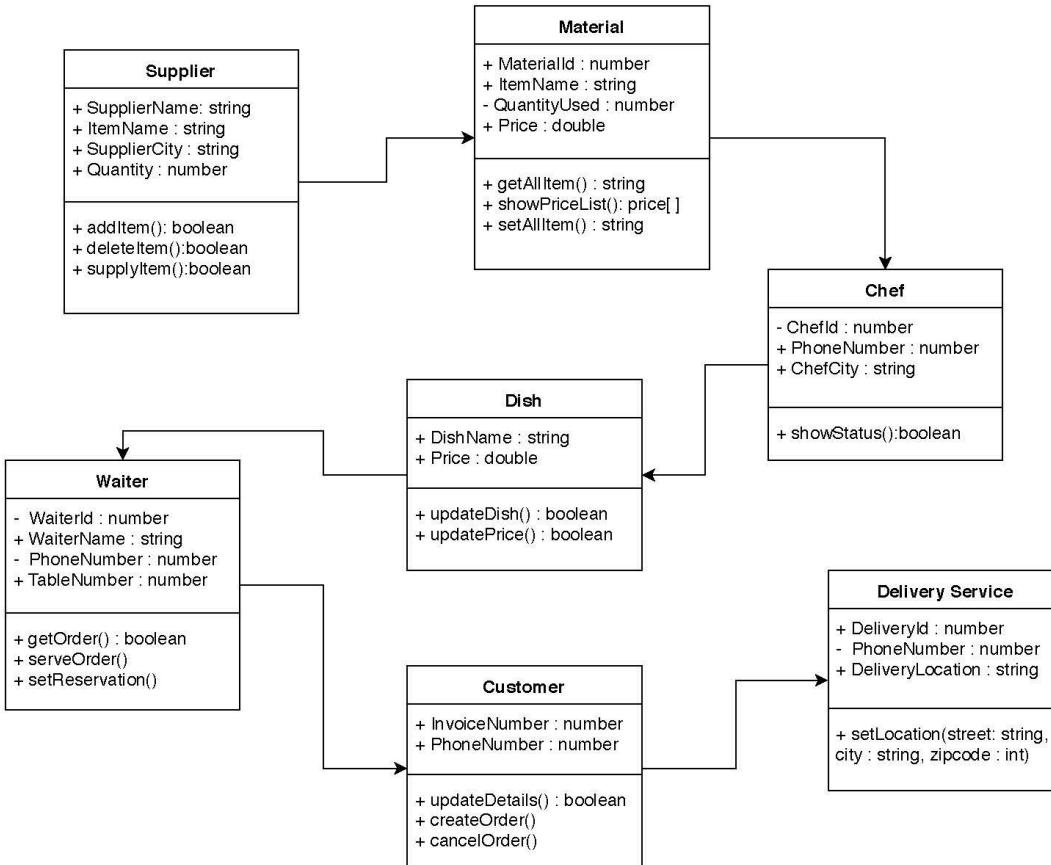
A **Restaurant management system** (RMS) is an essential tool for any new restaurant. A restaurant management system is designed with capabilities and features to help operate and manage the restaurant hassle free. These systems are designed to keep your restaurant running by tracking employees, inventory and sales. The **Restaurant Management System** helps the restaurant manager to manage the restaurant more effectively and efficiently by computerizing meal ordering, billing and inventory control. Having such information stored will enable users to know if materials are finishing up, if they are having profit or loss, what items on the menu are being sold more or less and lastly it will also help know if all employees are coming to the restaurant regularly which will help users evaluate employee performance.

PROJECT PROPOSAL

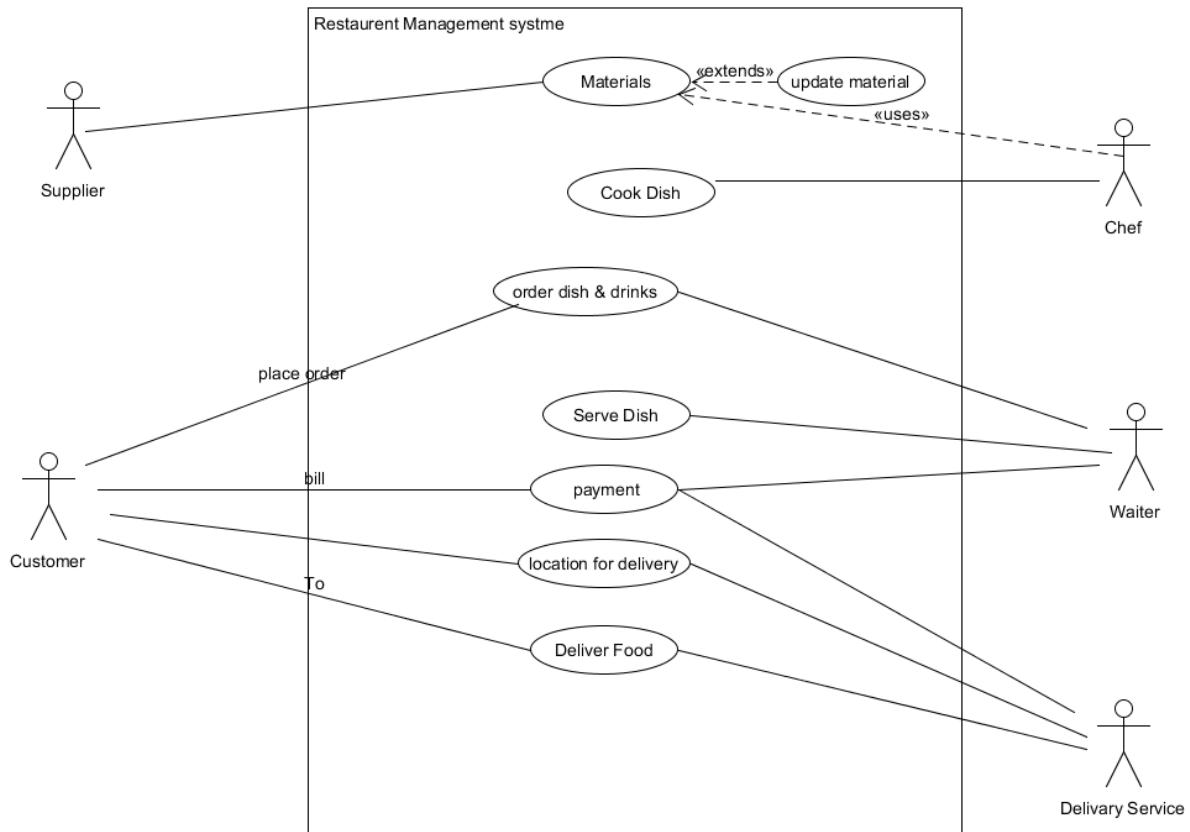
In this management system, information of stakeholders in a restaurant will be stored. One of the stakeholders of a restaurant is a waiter. So when a waiter is hired, all its details like employee id, name, phone number will be recorded. Then all supplier's information who will supply materials will be recorded which will help contact with the supplies whenever stock will need to be restocked. All the materials that will be stocked also has unique M_id, quantity and a price that can also be stored. This will help users know how much materials are left and if stock needs to be restocked. Also with the help of price, user can calculate the total cost of the material purchased for the month/year, which will help calculate profit and loss for the month/year. Therefore this system eliminates the need to go to warehouse and count the number of materials left for future use and can rather just see the materials table and see the quantity of materials available. Later using these materials chefs will make dishes, whose information like has unique C_nsme C_id, speciality, city, and phone number is also recorded. The customers information that comes in the restaurant will also be recorded. Each customer has an unique invoice number and c_phone number. The phone number of a customer will help users know if the customers comes back again later. Regular customer always get some discount . Also if customers order online or by phone, an unique id number, phone number of customer and location of where it is supposed to be delivered is recorded. Lastly using a restaurant management system will help allow manage data efficiently and allow users to perform multiple tasks with ease. Using such information users can easily find out cost of the restaurant for the year. This helps users estimate future costs and take loans from bank if required. It will also help user to decide if whether they should expand or shut the restaurant down to prevent future losses.

Class Diagram

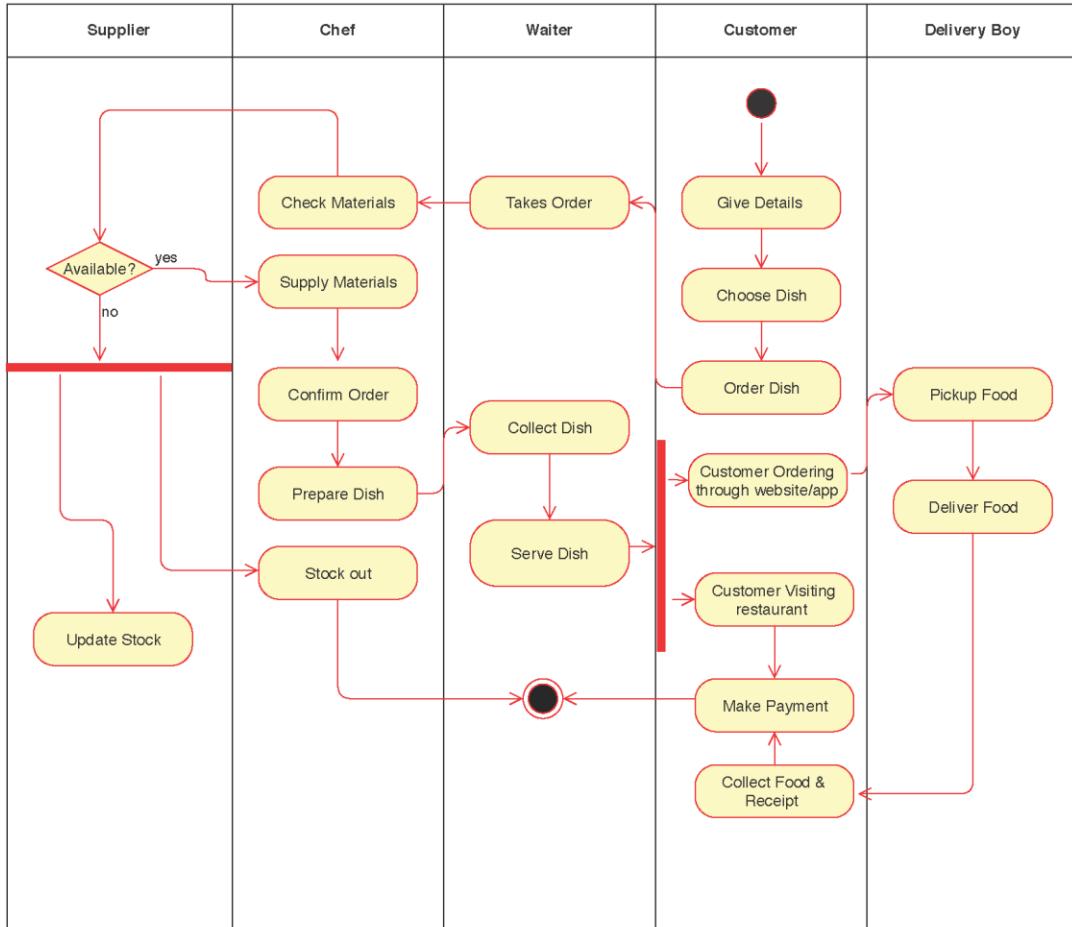
Restaurant Management System



Use Case Diagram



Activity Diagram

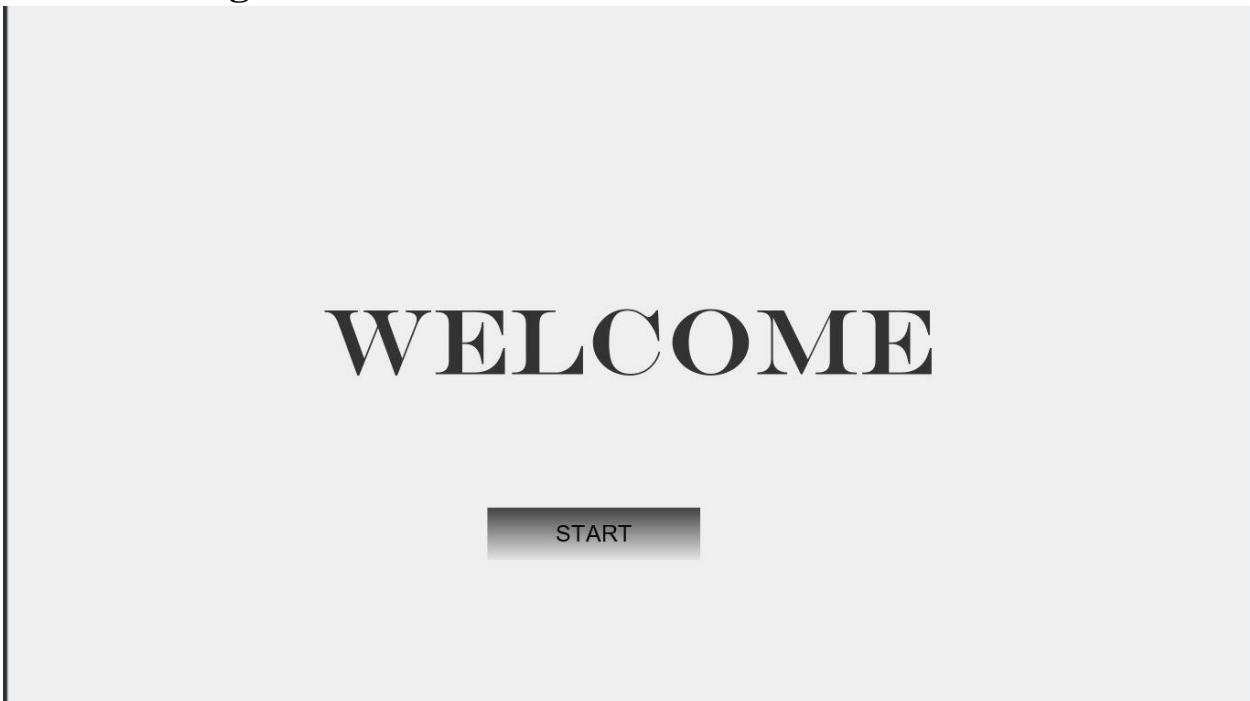


User Interface

Front Page:

The image shows a placeholder for the front page of a Restaurant Management System. It features a light gray background with a dark gray header bar at the top containing the text "RESTAURANT MANAGEMENT SYSTEM". Below the header, there are two input fields: one for "USERNAME" and one for "PASSWORD", both represented by light gray rectangles. A dark gray button labeled "LOG IN" is positioned below the password field.

Welcome Page:



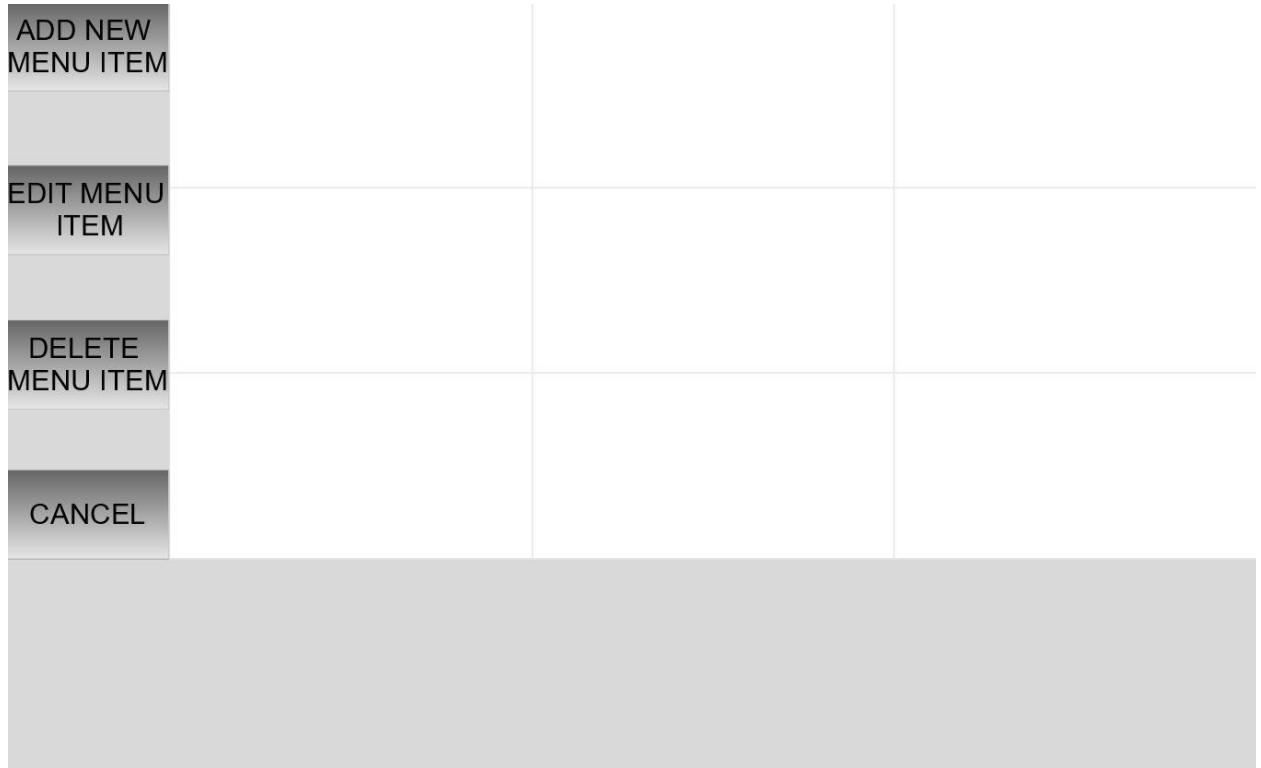
First Page :



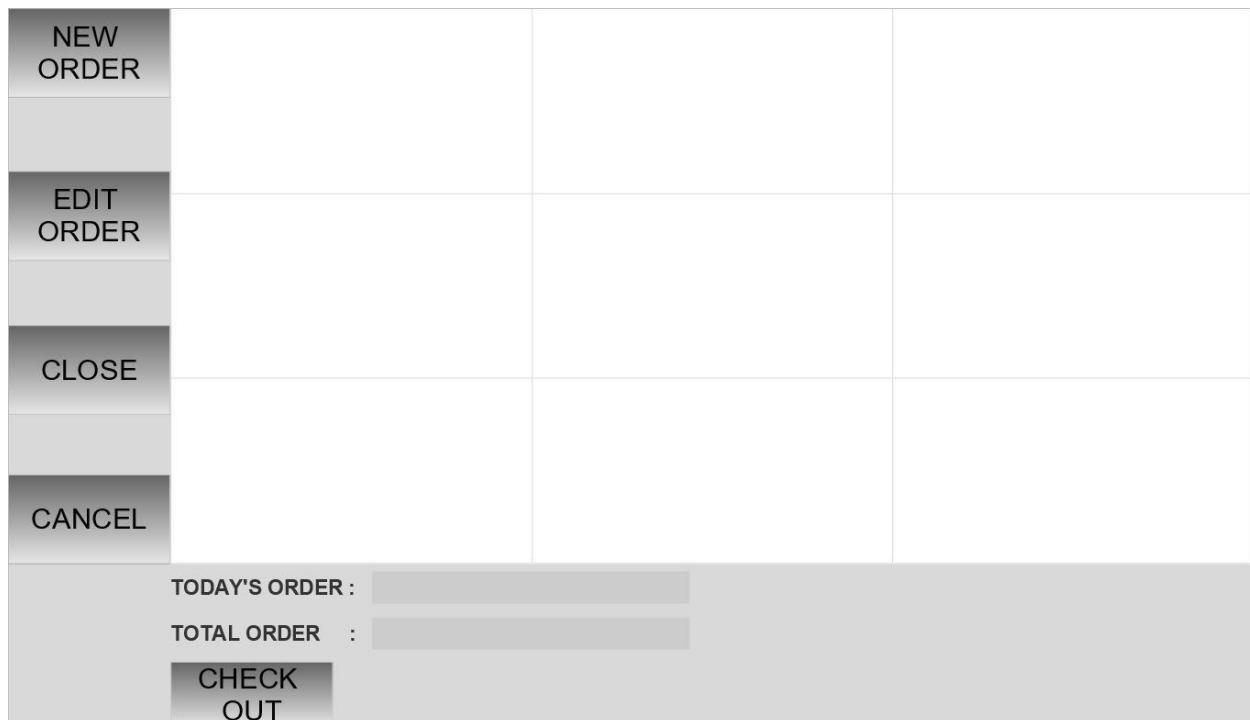
Menu :

ALL			
MAIN			
DRINKS			
DESSERT			

Manage Menu:



Order:



Employee:

ALL		
MANAGER		
STAFF		
CLEANER		
COOK		

Manage Employee:

ALL		
MANAGER		
STAFF		
CLEANER		
COOK		

ADD	DELETE	EDIT
-----	--------	------

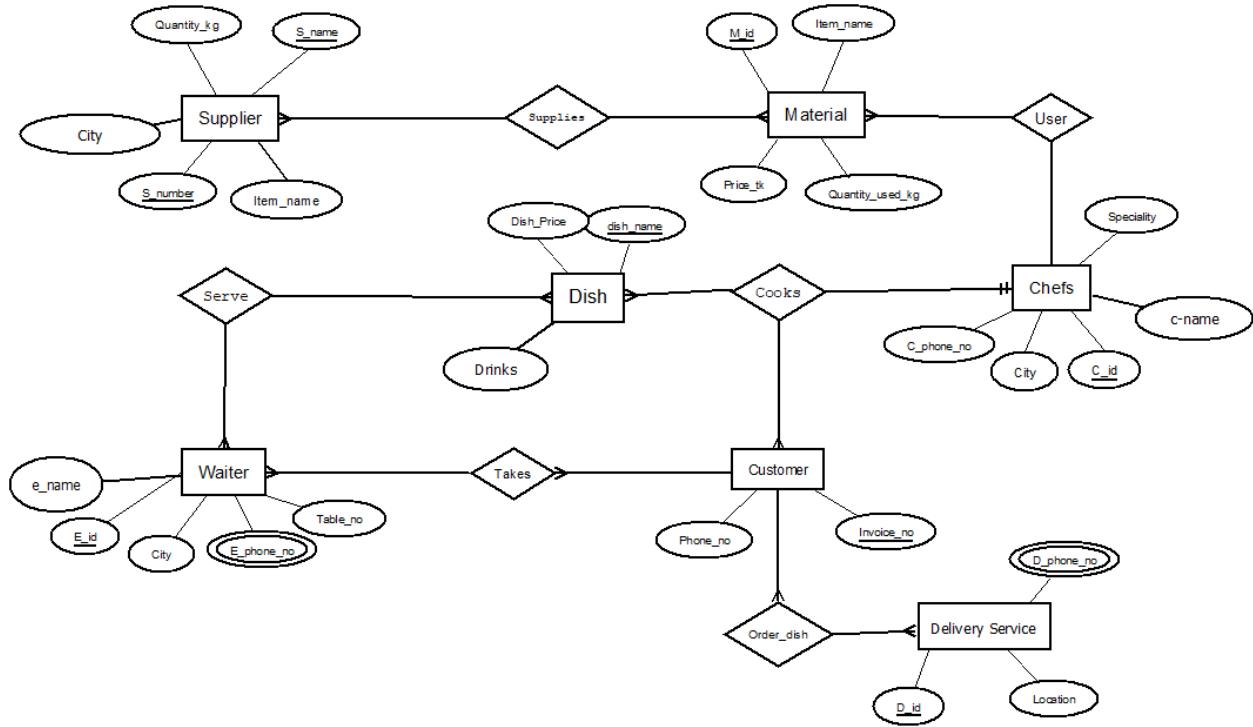
Sales:

TODAYS ORDER			
TOTAL ORDER			
CANCEL ORDER			
TOTAL CANCEL ORDER			
PROFIT			
	PRINT		

SCENARIO

In a restaurant the supplier is very important as they supply all the materials that is needed in order to make a dish. Each supplier has a unique name ,id, phone number, Item_Name and can supply a fixed quantity of each material. A supplier can supply more than one material and a material can be supplied by more than one supplier. A material has unique M_id, Quantity used, Item_Name and a price. Also more than one supplier can be located in the same city. A chef uses many materials supplied to cook dishes which is then served by waiter to the customers. Each chef has unique c_name, C_id, city, speciality and C_Phone no. One chef may cook dishes for many customers. Also many Dishes are served by many Waiters to avoid customers from waiting for food. Each dishes has a unique Dish_name, dish_price. All Waiters have an unique E_id, E_name, E_Phone no, Table no. Lastly, the restaurant has a food delivery service which allows customers to order online or by phone. Every delivery service has a unique id, D_Phone.no and location of where each delivery service is supposed to order. Every customer that comes in the restaurant should have a unique invoice number and Phone no.

ER-Diagram



NOMALIZATION:

1. Supply(S_Name_, Quantity_Kg,S_number, City, Item_Name ,M_id, Price_tk , Quantity_Used_Kg , Item_Name)

1NF = No multiple attribute.

2NF = S_Name_,S_number, Quantity_Kg ,
City,Item_Name ,M_id, Price_tk ,
Quantity_Used_Kg, Item_Name.

3NF = S_Name_,S_number ,Quantity_Kg ,
City , Item_Name,M_id, Price_tk ,
Quantity_Used_Kg, Item_Name.

Final Tables

1. S_Name_, S_number, Quantity_Kg , City ,
Item_Name
2. M_id, Price_tk , Quantity_Used_Kg, Item_Name.
3. Tb_1, S_Name , M_id.

PK FK PK

2.

Uses (C_Id , c_name, Speciality, City, C_Phone.no,
M_id , Price_tk , Quantity_Used_Kg)

1NF = No multiple attribute.

2NF= C_Id, Speciality, City, C_Phone_no,
M_id, Price_tk , Quantity_Used_Kg ,
Item_Name, c_name

3NF = C_Id, Speciality, City , C_Phone_no
M_id, Price_tk , Quantity_Used_Kg,
Item_Name,c_name

Final Tables:

1. <u>C_Id</u> , c_name, Speciality, City , C_Phone_no	
2. <u>M_id</u> , Quantity_Used_Kg , Price_tk , Item_Name , <u>C_Id</u>	
PK	FK

3.

Cook (C_Id , c_name, Speciality, City ,C_ Phone.no ,
Dish_Name , Price_tk , Invoice_no ,Phone_no)

1NF = Phone.no multiple attribute

2NF = C_Id , Speciality, City ,C_ Phone_no ,c_name,
Dish_Name , Price_tk ,
Invoice_no , Phone_no

3NF = C_Id , Speciality , City , C_Phone_no ,
c_name, Dish_Name , Price_tk
Invoice_no , Phone_no

Final Tables:

1. C_Id , Speciality, City , C_Phone.no

2. Invoice_no, Phone.no

3. Dish_Name, Price_tk, C_Id

PK FK

4. Tb_2, Dish_Name, Invoice_no

PK FK FK

4.

Served (Dish_Name, Price_tk, E_Id, e_name, Table_no, City, E_Phone_no)

1NF = E_Phone_no multiple attribute

2NF = Dish_Name, Price_tk, e_name,
E_Id, Table_no, City, E_Phone_no

3NF = Dish_Name, Price_tk, e_name,
E_Id, Table_no, City, E_Phone_no

Final Tables :

1. Dish_Name, Price_tk

2. E_Id, e_name, Table_no, City, E_Phone_no

3. Tb_3, Dish_Name, E_Id

PK FK FK

5.

To (E_Id, e_name, Table_no, City, E_Phone_no, Invoice_no, Phone_no)

1NF = E_Phone_no, Phone_no multiple attribute

2NF = E_Id, Table_no, City, E_Phone_no
Invoice.no, Phone_no, e_name

3NF = E_Id, Table_no, City, E_Phone_no, Invoice_no,
Phone_no, e_name,

Final Tables:

1. E_Id , e_name, Table_no , City , E_Phone_no

2. Invoice_no , Phone_no

3. Tb_4 , E_Id , Invoice_no

PK FK FK

6.

Order online or by phone(Invoice_no,Phone_no,D_id,Loction_id,Phpone_no)

1NF = D_Phone_no multiple attribute

2NF = Invoice_no , Phone_no

D_id , Location,D_Phone_no

3NF = Invoice_no , Phone.no

D_id , Location , D_Phone_no

Final Tables:

1.Invoice_no , Phone_no

2.D_id , Location , D_Phone_no

3.Tb_5, Invoice_no , D_Id

PK FK FK

Final Tables :

1. S_Name ,S_number, City , Quantity_Kg, Item_Name.

2. C_Id , c_name, Speciality , City , C_Phone_no

3. M_id , Quantity_Used_Kg , Price_tk , Item_Name , C_Id

4. Tb_1, S_Name , M_id .

5. Dish_Name , Price_tk , C_Id

6. Invoice_no , Phone_no

7. Tb_2 , Dish_Name , Invoice.no

8. E_Id ,e_name, Table.no , City , E_Phone_no

9. Tb_3, Dish_Name , E_Id

10. Tb_4 , E_Id , Invoice_no

11. D_id , Location , D_Phone_no

12. Tb_5, Invoice_no , D_Id

SCHEMA DIAGRAM

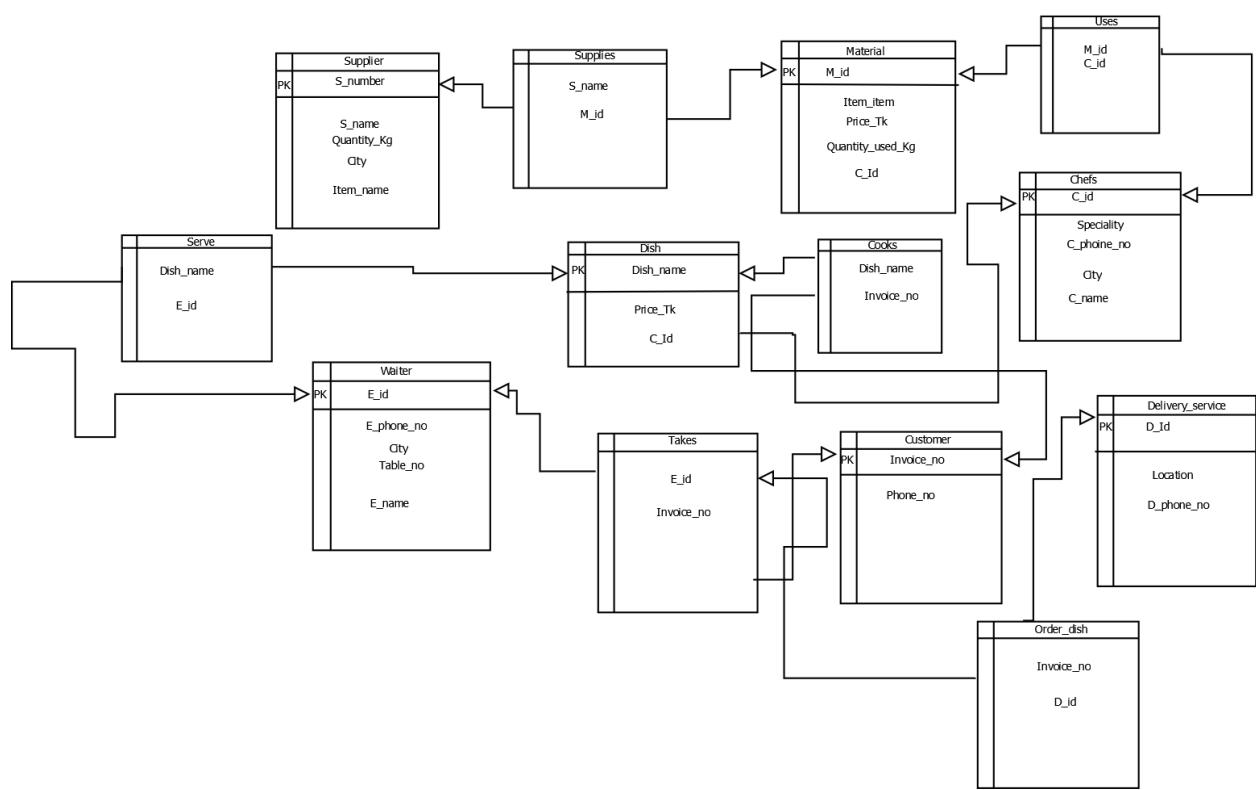
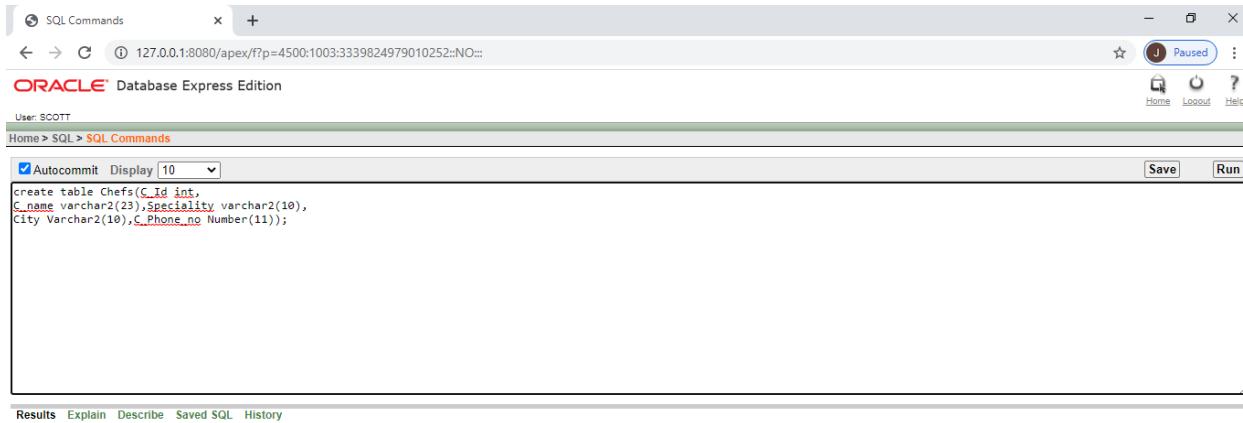


Table creation



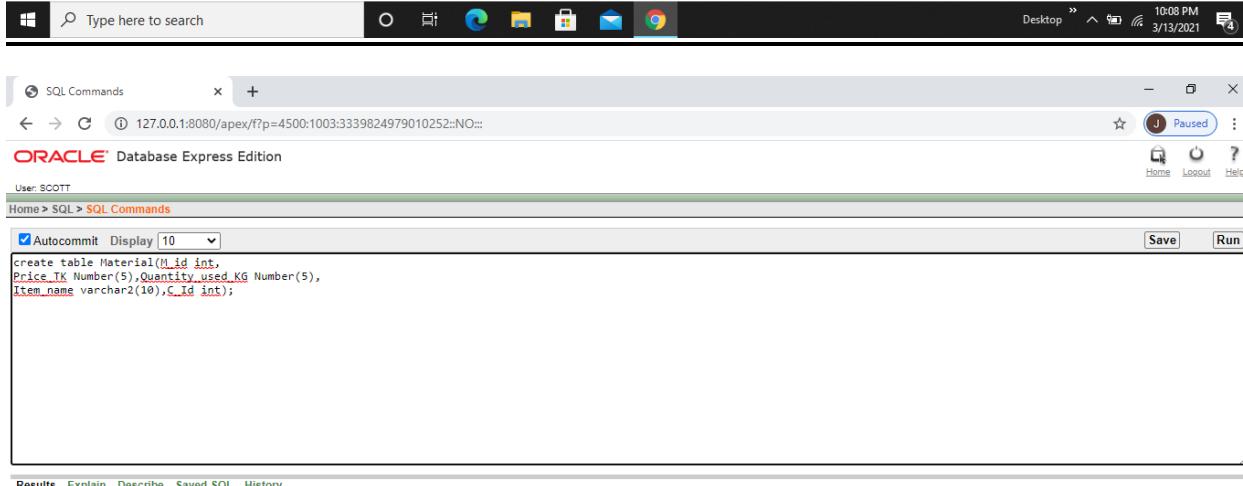
The screenshot shows the Oracle Database Express Edition SQL Commands interface. The URL is 127.0.0.1:8080/apex/?p=4500:1003:3339824979010252::NO::. The user is SCOTT. The SQL command entered is:

```
create table Chefs(C_Id int,
C_name varchar2(23),Speciality varchar2(10),
City Varchar2(10),C_Phone_no Number(11));
```

Results Explain Describe Saved SQL History

Table created.

0.00 seconds



The screenshot shows the Oracle Database Express Edition SQL Commands interface. The URL is 127.0.0.1:8080/apex/?p=4500:1003:3339824979010252::NO::. The user is SCOTT. The SQL command entered is:

```
create table Material(M_id int,
Price_TK Number(5),Quantity_used_KG Number(5),
Item_name varchar2(10),C_Id int);
```

Results Explain Describe Saved SQL History

Table created.

0.04 seconds



SQL Commands

User: SCOTT

Home > SQL > SQL Commands

Autocommit: Display: 10

```
create table Supplies(Tb_1 int,s_name varchar2(21),M_id int);
```

Save Run

Results Explain Describe Saved SQL History

Table created.

0.02 seconds

Activate Window Application Express 2.1.0.00.39
Copyright © 1999, 2006, Oracle. All rights reserved.
Go to Start

SQL Commands

User: SCOTT

Home > SQL > SQL Commands

Autocommit: Display: 10

```
create table Dish(Dish_name varchar2(12),  
Price_TK Number(7),C_Id int);
```

Save Run

Results Explain Describe Saved SQL History

Table created.

0.02 seconds

Activate Window Application Express 2.1.0.00.39
Copyright © 1999, 2006, Oracle. All rights reserved.
Go to Start



User: SCOTT

Home > SQL > SQL Commands

Autocommit Display 10

```
create table Customer(Invoice_no int,Phone_no Number(7));
```

Save Run

Results Explain Describe Saved SQL History

Table created.

0.01 seconds

Language: en-us

Activate Windows Application Express 2.1.0.00.39
Copyright © 1999, 2006, Oracle. All rights reserved.
Go to Settings

Type here to search

10:38 PM 3/13/2021

User: SCOTT

Home > SQL > SQL Commands

Autocommit Display 10

```
create table Supplier(S_Name varchar2(10),  
S_Number int,City Varchar(10),  
Quantity_Kg Number(5),  
Item_Name varchar2(10));
```

Save Run

Results Explain Describe Saved SQL History

Table created.

0.13 seconds

Language: en-us

Activate Windows Application Express 2.1.0.00.39
Copyright © 1999, 2006, Oracle. All rights reserved.
Go to Settings

Type here to search

1:04 AM 3/14/2021

User: SCOTT

Home > SQL > SQL Commands

Autocommit Display 10

```
create table Supplier(S_Name varchar2(10),  
S_Number int,City Varchar(10),  
Quantity_Kg Number(5),  
Item_Name varchar2(10));
```

Save Run

Results Explain Describe Saved SQL History

User: SCOTT

Home > SQL > SQL Commands

Autocommit Display 10

```
create table Cooks(Tb_2 int,
Dish_name varchar2(12),Invoice_no int);
```

Save Run

Results Explain Describe Saved SQL History

Table created.

0.01 seconds



User: SCOTT

Home > SQL > SQL Commands

Autocommit Display 10

```
create table Waiter(E_id int,
E_name varchar2(12),
Table_no int,
City varchar2(10),
E_phone_no Number(5));
```

Save Run

Results Explain Describe Saved SQL History

Table created.

0.03 seconds



The screenshot shows the Oracle Database Express Edition SQL Commands interface. The user is connected as SCOTT. In the SQL editor, the following SQL command is entered:

```
create table Serve(Tb_3 int,
Dish_name varchar2(12),E_id int);
```

The 'Run' button is highlighted in blue. Below the editor, the results show:

Table created.

0.02 seconds



The screenshot shows the Oracle Database Express Edition SQL Commands interface. The user is connected as SCOTT. In the SQL editor, the following SQL command is entered:

```
create table Takes(Tb_4 int,
E_id int,Invoice_no int);
```

The 'Run' button is highlighted in blue. Below the editor, the results show:

Table created.

0.02 seconds



The screenshot shows the Oracle Database Express Edition SQL Commands window. The URL is 127.0.0.1:8080/apex/f?p=4500:1003:3339824979010252::NO:::. The user is SCOTT. The SQL editor contains the following code:

```
create table Delivery_service(D_id int,
Location varchar2(12),D_Phone_no Number(7));
```

Buttons at the top right include Save, Run, Home, Logout, and Help. The status bar at the bottom shows Results, Explain, Describe, Saved SQL, and History.

Table created.

0.05 seconds



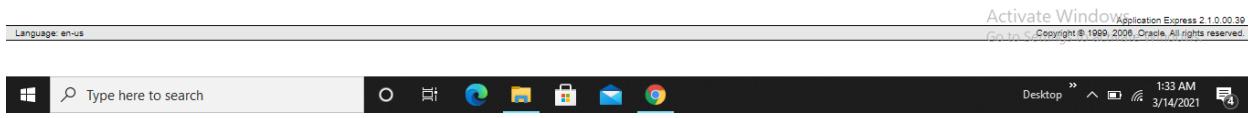
The screenshot shows the Oracle Database Express Edition SQL Commands window. The URL is 127.0.0.1:8080/apex/f?p=4500:1003:3339824979010252::NO:::. The user is SCOTT. The SQL editor contains the following code:

```
create table Order_dish(Tb_5 int,
Invoice_no int,D_id int);
```

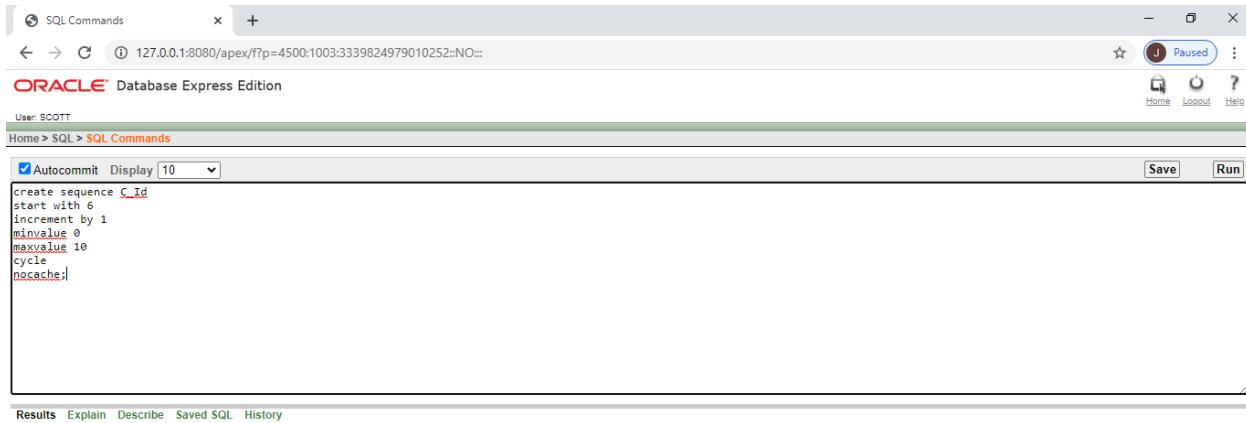
Buttons at the top right include Save, Run, Home, Logout, and Help. The status bar at the bottom shows Results, Explain, Describe, Saved SQL, and History.

Table created.

0.02 seconds



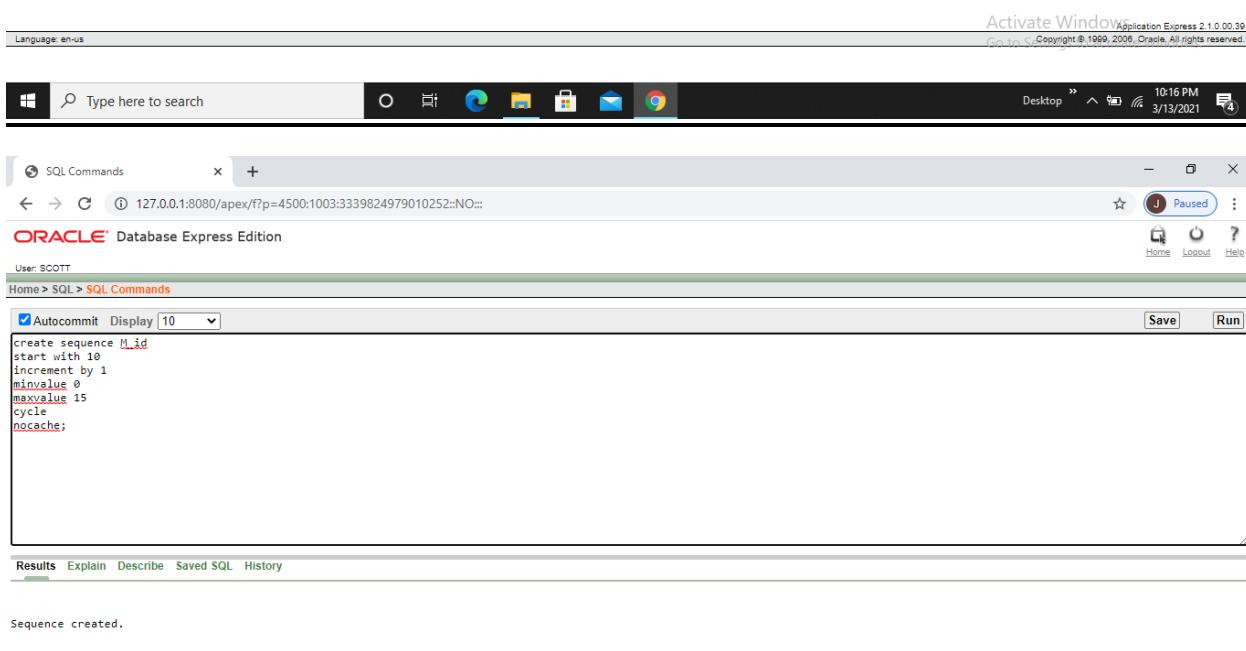
Sequence for primary key



The screenshot shows the Oracle Database Express Edition SQL Commands interface. The URL is 127.0.0.1:8080/apex/f?p=4500:1003:3339824979010252::NO:::. The user is SCOTT. The SQL command entered is:

```
create sequence C_Id
start with 6
increment by 1
minvalue 0
maxvalue 10
cycle
nocache;
```

The results show "Sequence created." and a execution time of "0.03 seconds".



The screenshot shows the Oracle Database Express Edition SQL Commands interface. The URL is 127.0.0.1:8080/apex/f?p=4500:1003:3339824979010252::NO:::. The user is SCOTT. The SQL command entered is:

```
create sequence M_Id
start with 10
increment by 1
minvalue 0
maxvalue 15
cycle
nocache;
```

The results show "Sequence created." and a execution time of "0.03 seconds".



The screenshot shows the Oracle Database Express Edition SQL Commands interface. The URL is 127.0.0.1:8080/apex/f?p=4500:1003:3339824979010252::NO:::. The user is SCOTT. The SQL command entered is:

```
create sequence M_Id
start with 10
increment by 1
minvalue 0
maxvalue 15
cycle
nocache;
```

The screenshot shows the Oracle Database Express Edition SQL Commands interface. The user is SCOTT. The command entered is:

```
create sequence Tb_1
start with 16
increment by 1
minvalue 0
maxvalue 23
cycle
nocache;
```

The results show:

Sequence created.



The screenshot shows the Oracle Database Express Edition SQL Commands interface. The user is SCOTT. The command entered is:

```
create sequence Invoice_no
start with 4
increment by 1
minvalue 0
maxvalue 12
cycle
nocache;
```

The results show:

Sequence created.



The screenshot shows the Oracle Database Express Edition SQL Commands interface. The URL is 127.0.0.1:8080/apex/f?p=4500:1003:3339824979010252::NO:::. The user is SCOTT. The SQL editor contains the following code:

```
create sequence S_Number
start with 1
increment by 1
minvalue 0
maxvalue 10
cycle
nocache;
```

The results show the sequence was created successfully.

Sequence created.

0.03 seconds

The screenshot shows the Oracle Database Express Edition SQL Commands interface. The URL is 127.0.0.1:8080/apex/f?p=4500:1003:3339824979010252::NO:::. The user is SCOTT. The SQL editor contains the following code:

```
create sequence Tb_2
start with 7
increment by 1
minvalue 0
maxvalue 17
cycle
nocache;
```

The results show the sequence was created successfully.

Sequence created.

0.01 seconds

The screenshot shows the Oracle Database Express Edition SQL Commands interface. The URL is 127.0.0.1:8080/apex/f?p=4500:1003:3339824979010252::NO:::. The user is SCOTT. The SQL editor contains the following code:

```
create sequence Tb_2
start with 7
increment by 1
minvalue 0
maxvalue 17
cycle
nocache;
```

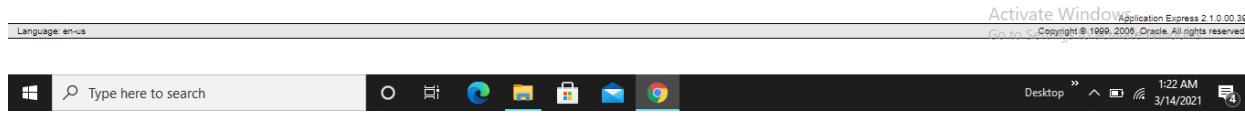
The screenshot shows the Oracle Database Express Edition SQL Commands interface. The URL is 127.0.0.1:8080/apex/f?p=4500:1003:3339824979010252::NO::. The user is SCOTT. The SQL editor contains the following code:

```
create sequence E_id
start with 12
increment by 1
minvalue 0
maxvalue 30
cycle
nocache;
```

The results show the sequence was created successfully.

Sequence created.

0.01 seconds



The screenshot shows the Oracle Database Express Edition SQL Commands interface. The URL is 127.0.0.1:8080/apex/f?p=4500:1003:3339824979010252::NO::. The user is SCOTT. The SQL editor contains the following code:

```
create sequence Tb_3
start with 17
increment by 1
minvalue 0
maxvalue 30
cycle
nocache;
```

The results show the sequence was created successfully.

Sequence created.

0.00 seconds



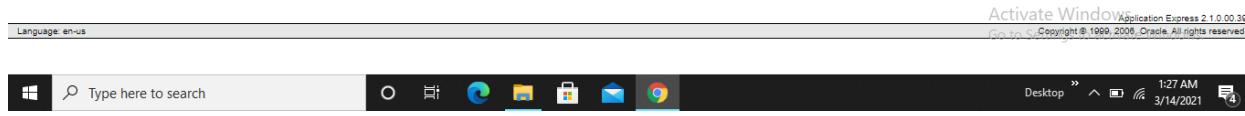
The screenshot shows the Oracle Database Express Edition SQL Commands interface. The URL is 127.0.0.1:8080/apex/f?p=4500:1003:3339824979010252::NO::. The user is SCOTT. The SQL editor contains the following code:

```
create sequence Tb_4
start with 5
increment by 1
minvalue 0
maxvalue 14
cycle
nocache;
```

The results show the sequence was created successfully.

Sequence created.

0.03 seconds



The screenshot shows the Oracle Database Express Edition SQL Commands interface. The URL is 127.0.0.1:8080/apex/f?p=4500:1003:3339824979010252::NO::. The user is SCOTT. The SQL editor contains the following code:

```
create sequence D_id
start with 3
increment by 1
minvalue 0
maxvalue 10
cycle
nocache;
```

The results show the sequence was created successfully.

Sequence created.

0.02 seconds



The screenshot shows the Oracle Database Express Edition SQL Commands window. The user is SCOTT. The command entered is:

```
create sequence Tb_5
start with 6
increment by 1
minvalue 0
maxvalue 18
cycle
nocache;
```

The results show:

Sequence created.

0.04 seconds



Constraints

The screenshot shows the Oracle Database Express Edition SQL Commands window. The user is SCOTT. The command entered is:

```
alter table Supplier add constraint c1 primary key(S_Number);
```

The results show:

Table altered.

1.22 seconds



User: SCOTT

Home > SQL > SQL Commands

Autocommit Display 10

```
alter table Chefs add constraint c2 primary key(C_Id);
```

Save Run

Results Explain Describe Saved SQL History

Table altered.

0.08 seconds



User: SCOTT

Home > SQL > SQL Commands

Autocommit Display 10

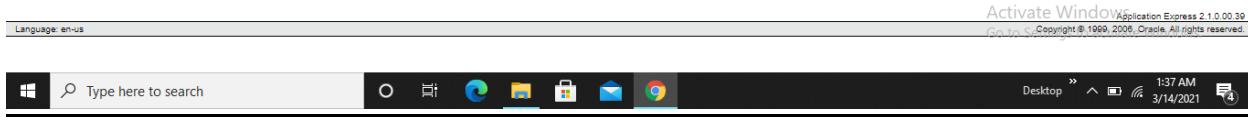
```
alter table Material add constraint c3 primary key(M_id);
```

Save Run

Results Explain Describe Saved SQL History

Table altered.

0.03 seconds



SQL Commands

127.0.0.1:8080/apex/f?p=4500:1003:3339824979010252::NO::

ORACLE Database Express Edition

User: SCOTT

Home > SQL > SQL Commands

Autocommit Display 10

alter table Material add constraint c4 foreign key(C_Id) references Chefs(C_Id);

Save Run

Results Explain Describe Saved SQL History

Table altered.

0.41 seconds



The screenshot shows the Oracle Database Express Edition SQL Commands interface. The user is connected as SCOTT. In the SQL editor, the following command is entered and executed:

```
alter table Supplies add constraint c5 primary key(Tb_1);
```

The output shows the table was altered successfully.

Table altered.

0.09 seconds



The screenshot shows the Oracle Database Express Edition SQL Commands interface. The user is connected as SCOTT. In the SQL editor, the following command is entered and executed:

```
alter table Supplies add constraint c7 foreign key(M_id) references Material(M_id);
```

The output shows the table was altered successfully.

Table altered.

0.04 seconds



The screenshot shows the Oracle Database Express Edition SQL Commands window. The title bar reads "SQL Commands" and the URL is "127.0.0.1:8080/apex/f?p=4500:1003:3537442484433705::NO::". The user is "SCOTT". The main area contains the following SQL command:

```
alter table Dish add constraint c8 primary key(Dish_name);
```

Below the command, the status bar shows "Table altered.", "0.11 seconds", and the system tray indicates it's 1:43 AM on 3/14/2021.



The screenshot shows the Oracle Database Express Edition SQL Commands window. The title bar reads "SQL Commands" and the URL is "127.0.0.1:8080/apex/f?p=4500:1003:3537442484433705::NO::". The user is "SCOTT". The main area contains the following SQL command:

```
alter table Dish add constraint c9 foreign key(C_Id) references Chefs(C_id);
```

Below the command, the status bar shows "Table altered.", "0.03 seconds", and the system tray indicates it's 1:44 AM on 3/14/2021.



The screenshot shows the Oracle Database Express Edition SQL Commands interface. The user is connected as SCOTT. In the SQL editor, the following command is entered and executed:

```
alter table Customer add constraint c10 primary key(Invoice_no);
```

The output shows the message "Table altered." and a execution time of "0.08 seconds".



The screenshot shows the Oracle Database Express Edition SQL Commands interface. The user is connected as SCOTT. In the SQL editor, the following command is entered and executed:

```
alter table Cooks add constraint c11 primary key(Tb_2);
```

The output shows the message "Table altered." and a execution time of "0.09 seconds".



The screenshot shows the Oracle Database Express Edition SQL Commands interface. The user is connected as SCOTT. In the SQL editor, the following command is entered and executed:

```
alter table Cooks add constraint c13 foreign key(Invoice_no) references Customer(Invoice_no);
```

The output shows the message "Table altered." and a execution time of "0.04 seconds".



The screenshot shows the Oracle Database Express Edition SQL Commands interface. The user is connected as SCOTT. In the SQL editor, the following command is entered and executed:

```
alter table Waiter add constraint c14 primary key(E_id);
```

The output shows the message "Table altered." and a execution time of "0.06 seconds".



The screenshot shows the Oracle Database Express Edition SQL Commands window. The URL is 127.0.0.1:8080/apex/f?p=4500:1003:3537442484433705::NO::. The user is SCOTT. The SQL editor contains the following command:

```
alter table Serve add constraint c15 primary key(Tb_3);
```

The results show the message "Table altered." and a execution time of "0.08 seconds".



The screenshot shows the Oracle Database Express Edition SQL Commands window. The URL is 127.0.0.1:8080/apex/f?p=4500:1003:3537442484433705::NO::. The user is SCOTT. The SQL editor contains the following command:

```
alter table Serve add constraint c16 foreign key(Dish_name) references Dish(Dish_name);
```

The results show the message "Table altered." and a execution time of "0.04 seconds".



The screenshot shows the Oracle Database Express Edition SQL Commands interface. The user is connected as SCOTT. In the SQL editor, the following SQL command is entered and executed:

```
alter table Serve add constraint c17 foreign key(E_id) references Waiter(E_id);
```

The output shows the message "Table altered." and a execution time of "0.04 seconds".



The screenshot shows the Oracle Database Express Edition SQL Commands interface. The user is connected as SCOTT. In the SQL editor, the following SQL command is entered and executed:

```
alter table Takes add constraint c18 primary key(Tb_4);
```

The output shows the message "Table altered." and a execution time of "0.06 seconds".



The screenshot shows the Oracle Database Express Edition SQL Commands interface. The user is connected as SCOTT. In the SQL editor, the following SQL command is entered:

```
alter table Cooks add constraint c12 foreign key(Dish_name) references Dish(Dish_name);
```

The results pane shows the output:

```
Table altered.
```

0.06 seconds



The screenshot shows the Oracle Database Express Edition SQL Commands interface. The user is connected as SCOTT. In the SQL editor, the following SQL command is entered:

```
alter table Supplies add constraint c6 foreign key(S_Name) references Supplier(S_Name);
```

The results pane shows the output:

```
Table altered.
```

0.06 seconds



The screenshot shows the Oracle Database Express Edition SQL Commands interface. The user is connected as SCOTT. In the SQL editor, the following SQL command is entered:

```
alter table Takes add constraint c19 foreign key(E_id) references Waiter(E_id);
```

The command is run, and the output shows:

```
Table altered.
```

0.01 seconds



The screenshot shows the Oracle Database Express Edition SQL Commands interface. The user is connected as SCOTT. In the SQL editor, the following SQL command is entered:

```
alter table Takes add constraint c20 foreign key(Invoice_no) references Customer(Invoice_no);
```

The command is run, and the output shows:

```
Table altered.
```

0.02 seconds



The screenshot shows the Oracle Database Express Edition SQL Commands interface. The user is SCOTT. The command entered is:

```
alter table Delivery_service add constraint c21 primary key(D_id);
```

The results show:

```
Table altered.
```

0.11 seconds



The screenshot shows the Oracle Database Express Edition SQL Commands interface. The user is SCOTT. The command entered is:

```
alter table Order_dish add constraint c22 foreign key(Invoice_no) references Customer(Invoice_no);
```

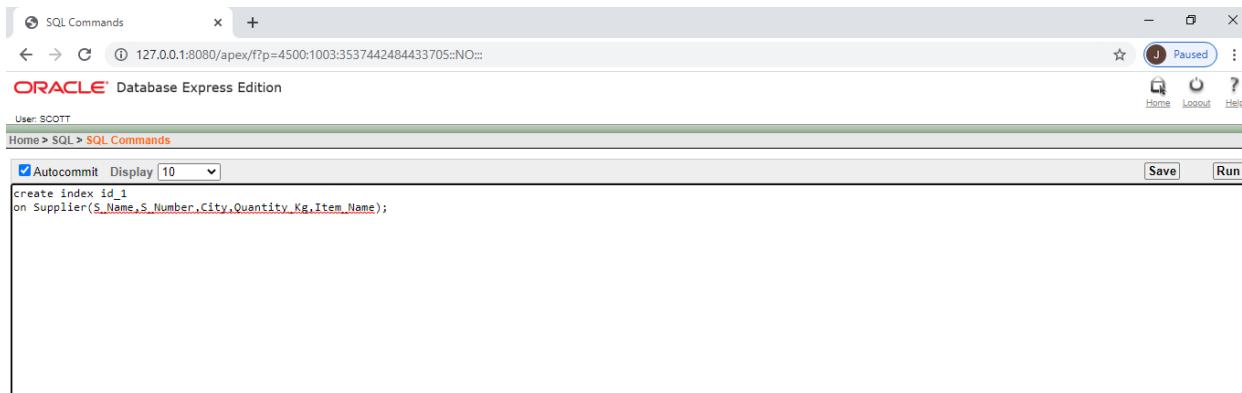
The results show:

```
Table altered.
```

0.01 seconds



Index



SQL Commands

User: SCOTT

Home > SQL > SQL Commands

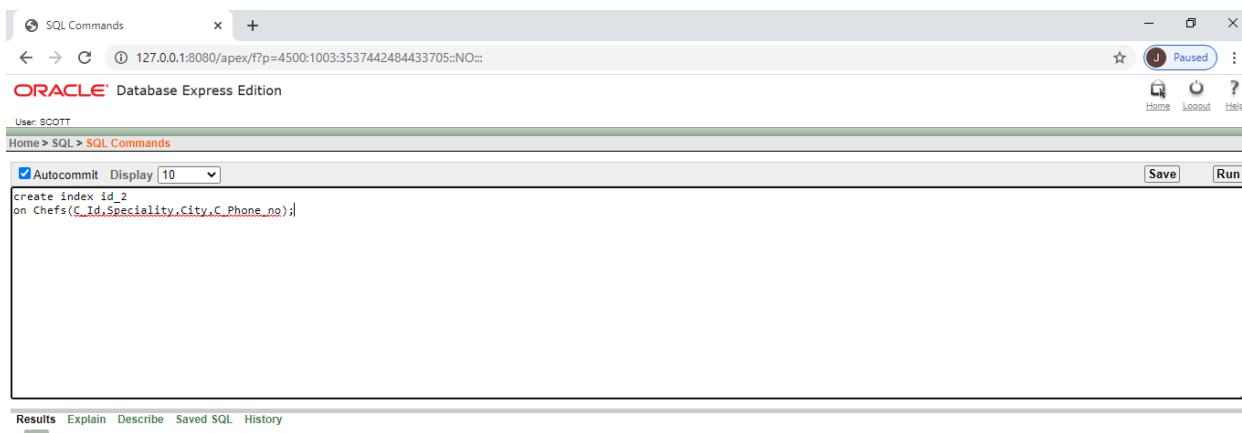
Autocommit Display 10 Save Run

```
create index id_1
on Supplier(S_Name,S_Number,City,Quantity,Kg,Item_Name);
```

Results Explain Describe Saved SQL History

Index created.

0.05 seconds



SQL Commands

User: SCOTT

Home > SQL > SQL Commands

Autocommit Display 10 Save Run

```
create index id_2
on Chefs(C_Id,Speciality,City,C_Phone_no);
```

Results Explain Describe Saved SQL History

Index created.

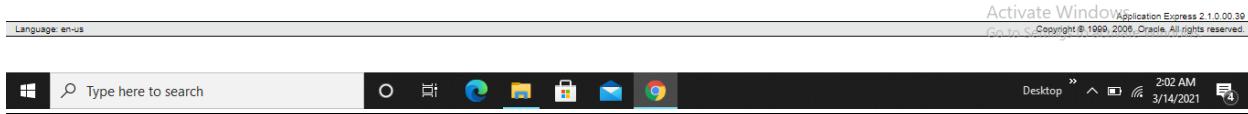
0.02 seconds



The screenshot shows the Oracle Database Express Edition SQL Commands window. The URL is 127.0.0.1:8080/apex/f?p=4500:1003:3537442484433705::NO:::. The user is SCOTT. The SQL command entered is:

```
create index id_3  
on Material(M_id,Price_TK,Quantity_used_KG,Item_name,C_Id);
```

Index created.
0.05 seconds



The screenshot shows the Oracle Database Express Edition SQL Commands window. The URL is 127.0.0.1:8080/apex/f?p=4500:1003:3537442484433705::NO:::. The user is SCOTT. The SQL command entered is:

```
create index id_4  
on Supplies(Tb_1,S_name,M_id);
```

Index created.
0.00 seconds



SQL Commands

User: SCOTT

ORACLE Database Express Edition

Home > SQL > SQL Commands

Autocommit: Display: 10

```
create index id_5
on Dish(Dish_name,Price_TK,C_Id);
```

Save Run

Results Explain Describe Saved SQL History

Index created.

0.03 seconds



SQL Commands

User: SCOTT

ORACLE Database Express Edition

Home > SQL > SQL Commands

Autocommit: Display: 10

```
create index id_6
on Customer(invoice_no,Phone_no);
```

Save Run

Results Explain Describe Saved SQL History

Index created.

0.00 seconds



User: SCOTT

Home > SQL > SQL Commands

Autocommit Display 10 Save Run

```
create index id_7
on Cooks(Tb_2,Dish_name,Invoice_no);
```

Results Explain Describe Saved SQL History

Index created.

0.03 seconds



User: SCOTT

Home > SQL > SQL Commands

Autocommit Display 10 Save Run

```
create index id_8
on Serve(Tb_3,Dish_name,E_id);
```

Results Explain Describe Saved SQL History

Index created.

0.02 seconds



The screenshot shows the Oracle Database Express Edition SQL Commands interface. The user is SCOTT. The command entered is:

```
create index id_9
on Takes(Tb_4,E_id,Invoice_no);
```

The results show:

Index created.

0.01 seconds



The screenshot shows the Oracle Database Express Edition SQL Commands interface. The user is SCOTT. The command entered is:

```
create index id_10
on Delivery_service(D_id,Location,D_Phone_no);
```

The results show:

Index created.

0.02 seconds



The screenshot shows the Oracle Database Express Edition SQL Commands interface. The user is SCOTT. The command entered is:

```
create index id_11
on Order_dish(Tb_5,Invoice_no,D_id);
```

The results show:

Index created.

0.02 seconds



The screenshot shows the Oracle Database Express Edition SQL Commands interface. The user is SCOTT. The command entered is:

```
create index id_12
on Walter(E_id,E_name,Table_no,City,E_phone_no);
```

The results show:

Index created.

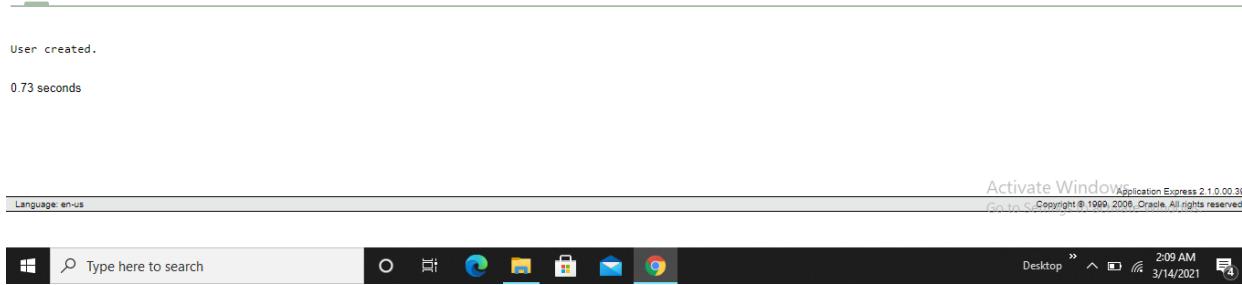
0.03 seconds



Create users

The screenshot shows the Oracle Database Express Edition SQL Commands window. The URL is 127.0.0.1:8080/apex/f?p=4500:1003:3537442484433705::NO::. The command entered is "create user Steve identified by w213;". The results show "User created." and a execution time of "0.73 seconds".

```
create user Steve identified by w213;
```



Assign roles

The screenshot shows the Oracle Database Express Edition SQL Commands window. The URL is 127.0.0.1:8080/apex/f?p=4500:1003:3537442484433705::NO::. The command entered is "CREATE ROLE Admin;". The results show "Role created." and a execution time of "0.09 seconds".

```
CREATE ROLE Admin;
```



Grant Privileges

The screenshot shows the Oracle Database Express Edition SQL Commands window. The URL is 127.0.0.1:8080/apex/f?p=4500:1003:3537442484433705::NO:::. The user is SCOTT. The SQL command entered is:

```
Grant create table,create view,create sequence to Stive;
```

The results show "Statement processed." and a duration of "1.03 seconds".



Data Insertion

The screenshot shows the Oracle Database Express Edition SQL Commands window. The URL is 127.0.0.1:8080/apex/f?p=4500:1003:3537442484433705::NO::. The user is SCOTT. The SQL command entered is:

```
insert into Chefs values(C_Id.nextval,'Rahman','Bangali','Mirpur',0138989880);  
insert into Chefs values(C_Id.nextval,'Kabin','Chinese','Mirpur',0145898288);  
insert into Chefs values(C_Id.nextval,'Karim','Tehari','Dhaka',0138923408);  
insert into Chefs values(C_Id.nextval,'Iqbal','Italian','Gulshan',013893878);  
insert into Chefs values(C_Id.nextval,'Mustafizur','soup','Banani',013892556);
```

The results show "1 row(s) inserted." and a duration of "0.01 seconds".



SQL Commands

User: SCOTT

ORACLE Database Express Edition

Home > SQL > SQL Commands

Autocommit

```
select * from Chefs;
```

Results Explain Describe Saved SQL History

C_ID	C_NAME	SPECIALITY	CITY	C_PHONE_NO
7	Rahman	Bangali	Mirpur	136989860
8	Kabir	Chinese	Mirpur	145998268
9	Karim	Tehari	Dhaka	138923408
10	Iqbal	Italian	Gulshan	13693878
0	Mustafizur	soup	Banani	13692556

5 rows returned in 0.13 seconds [CSV Export](#)

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Go to SQL Go to Home

Type here to search

Desktop 2:23 AM 3/14/2021 4

SQL Commands

User: SCOTT

ORACLE Database Express Edition

Home > SQL > SQL Commands

Autocommit

```
insert into Material values(M_id.nextval,32,5,'Potato',7);
insert into Material values(M_id.nextval,588,12,'Onion',8);
insert into Material values(M_id.nextval,3444,54,'Ginger',9);
insert into Material values(M_id.nextval,3212,51,'Rice',10);
insert into Material values(M_id.nextval,325,9,'Potato',0);
```

Results Explain Describe Saved SQL History

1 row(s) inserted.

0.02 seconds

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Go to SQL Go to Home

Type here to search

Desktop 2:33 AM 3/14/2021 4

SQL Commands

User: SCOTT

Home > SQL > SQL Commands

Autocommit Display 10 Save Run

```
insert into Material values(M_id.nextval,32,5,'Potato',7);
insert into Material values(M_id.nextval,588,12,'Onion',8);
insert into Material values(M_id.nextval,3444,54,'Ginger',9);
insert into Material values(M_id.nextval,3212,51,'Rice',10);
insert into Material values(M_id.nextval,325,9,'Potato',9);

select* from Material;
```

Results Explain Describe Saved SQL History

M_ID	PRICE_TK	QUANTITY_USED_KG	ITEM_NAME	C_ID
11	32	5	Potato	7
12	588	12	Onion	8
13	3444	54	Ginger	9
14	3212	51	Rice	10
15	325	9	Potato	0

5 rows returned in 0.01 seconds [CSV Export](#)

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Go to Start

Type here to search

Desktop 2:39 AM 3/14/2021 4

SQL Commands

User: SCOTT

Home > SQL > SQL Commands

Autocommit Display 10 Save Run

```
insert into Supplier values('Rahman',S_Number.nextval,'Mirpur',2,'Pepper');
insert into Supplier values('Iqbal',S_Number.nextval,'Comilla',3,'Onion');
insert into Supplier values('Rahman',S_Number.nextval,'Barishal',1,'Ginger');
insert into Supplier values('Mushfiq',S_Number.nextval,'Sylhet',5,'Rice');
insert into Supplier values('Kabir',S_Number.nextval,'Mirpur',32,'Potato');
```

Results Explain Describe Saved SQL History

1 row(s) inserted.

0.02 seconds

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Go to Start

Type here to search

Desktop 2:37 AM 3/14/2021 4

SQL Commands

User: SCOTT

Home > SQL > SQL Commands

Autocommit

```
insert into Supplier values('Rahman',S_Number.nextval,'Mirpur',2,'Pepper');
insert into Supplier values('Iqbal',S_Number.nextval,'Comilla',3,'Onion');
insert into Supplier values('Rahman',S_Number.nextval,'Barishal',1,'Ginger');
insert into Supplier values('Mushfiq',S_Number.nextval,'Sylhet',5,'Rice');
insert into Supplier values('Kabir',S_Number.nextval,'Mirpur',32,'Potato');
select * from Supplier;
```

Results Explain Describe Saved SQL History

S_NAME	S_NUMBER	CITY	QUANTITY_KG	ITEM_NAME
Rahman	1	Mirpur	2	Pepper
Iqbal	2	Comilla	3	Onion
Rahman	3	Barishal	1	Ginger
Mushfiq	4	Sylhet	5	Rice
Kabir	5	Mirpur	32	Potato

5 rows returned in 0.03 seconds [CSV Export](#)

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SQL Commands

User: SCOTT

Home > SQL > SQL Commands

Autocommit

```
insert into Supplies values(Tb_1.nextval,'Mahadi',11);
insert into Supplies values(Tb_1.nextval,'Rahman',12);
insert into Supplies values(Tb_1.nextval,'Iqbal',13);
insert into Supplies values(Tb_1.nextval,'Rahman',14);
insert into Supplies values(Tb_1.nextval,'Kabir',15);
```

Results Explain Describe Saved SQL History

1 row(s) inserted.

0.00 seconds

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SQL Commands

User: SCOTT

ORACLE Database Express Edition

Home > SQL > SQL Commands

Autocommit

```
insert into Supplies values(Tb_1.nextval,'Mahadi',11);
insert into Supplies values(Tb_1.nextval,'Rahman',12);
insert into Supplies values(Tb_1.nextval,'Iqbal',13);
insert into Supplies values(Tb_1.nextval,'Rahman',14);
insert into Supplies values(Tb_1.nextval,'Kabir',15);
select* from Supplies;
```

Results Explain Describe Saved SQL History

TB_1	S_NAME	M_ID
16	Mahadi	11
17	Rahman	12
18	Iqbal	13
19	Rahman	14
20	Kabir	15

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

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Type here to search

Desktop 2:44 AM 3/14/2021 4

SQL Commands

User: SCOTT

ORACLE Database Express Edition

Home > SQL > SQL Commands

Autocommit

```
insert into Dish values('Bangali',1048,7);
insert into Dish values('Chinese dish',3444,8);
insert into Dish values('Tehari',3749,9);
insert into Dish values('Italian dish',665,10);
insert into Dish values('Thai soup',999,0);
```

Results Explain Describe Saved SQL History

1 row(s) inserted.

0.00 seconds

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Type here to search

Desktop 2:47 AM 3/14/2021 4

SQL Commands

User: SCOTT

Home > SQL > SQL Commands

Autocommit

```
insert into Dish values('Bangali',1048,7);
insert into Dish values('Chinese dish',3444,8);
insert into Dish values('Tehari',3749,9);
insert into Dish values('Italian dish',665,10);
insert into Dish values('Thai soup',999,0);
select* from Dish;
```

Results Explain Describe Saved SQL History

DISH_NAME	PRICE_TK	C_ID
Bangali	1048	7
Chinese dish	3444	8
Tehari	3749	9
Italian dish	665	10
Thai soup	999	0

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

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Language: en-us

Type here to search

Desktop 2:48 AM 3/14/2021

SQL Commands

User: SCOTT

Home > SQL > SQL Commands

Autocommit

```
insert into Customer values(Invoice_no.nextval,01637656);
insert into Customer values(Invoice_no.nextval,01643213);
insert into Customer values(Invoice_no.nextval,01937656);
insert into Customer values(Invoice_no.nextval,01437655);
insert into Customer values(Invoice_no.nextval,01726536);
```

Results Explain Describe Saved SQL History

1 row(s) inserted.

0.00 seconds

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Type here to search

Desktop 2:51 AM 3/14/2021

SQL Commands

User: SCOTT

ORACLE Database Express Edition

Home > SQL > SQL Commands

Autocommit

```
insert into Customer values(Invoice_no.nextval,01637656);
insert into Customer values(Invoice_no.nextval,01643213);
insert into Customer values(Invoice_no.nextval,01937656);
insert into Customer values(Invoice_no.nextval,01437655);
insert into Customer values(Invoice_no.nextval,01726536);
select*from Customer;
```

Results Explain Describe Saved SQL History

INVOICE_NO	PHONE_NO
5	1637656
6	1643213
8	1937656
10	1437655
12	1726536

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

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Go to Start

Type here to search

Desktop 2:51 AM 3/14/2021

SQL Commands

User: SCOTT

ORACLE Database Express Edition

Home > SQL > SQL Commands

Autocommit

```
insert into Cooks values(Tb_2.nextval,'Bangali',5);
insert into Cooks values(Tb_2.nextval,'Italian dish',6);
insert into Cooks values(Tb_2.nextval,'Thai soup',8);
insert into Cooks values(Tb_2.nextval,'Chinese dish',10);
insert into Cooks values(Tb_2.nextval,'Tehari',12);
```

Results Explain Describe Saved SQL History

1 row(s) inserted.

0.00 seconds

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Go to Start

Type here to search

Desktop 2:55 AM 3/14/2021

SQL Commands

User: SCOTT

Home > SQL > SQL Commands

Autocommit

```
insert into Cooks values(Tb_2.nextval,'Bangali',5);
insert into Cooks values(Tb_2.nextval,'Italian dish',6);
insert into Cooks values(Tb_2.nextval,'Thai soup',8);
insert into Cooks values(Tb_2.nextval,'Chinese dish',10);
insert into Cooks values(Tb_2.nextval,'Tehari',12);

select*from Cooks;
```

Results Explain Describe Saved SQL History

TB_2	DISH_NAME	INVOICE_NO
7	Bangali	5
8	Italian dish	6
9	Thai soup	8
10	Chinese dish	10
11	Tehari	12

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

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Language: en-us

Type here to search

Desktop 2:55 AM 3/14/2021

SQL Commands

User: SCOTT

Home > SQL > SQL Commands

Autocommit

```
insert into Waiter values(E_id.nextval,'Karim','3','Dhaka',01985);
insert into Waiter values(E_id.nextval,'Rahman','1','Mirpur',01985);
insert into Waiter values(E_id.nextval,'Rahman','2','rangamati',01985);
insert into Waiter values(E_id.nextval,'Fatin','1','Dhaka',01985);
insert into Waiter values(E_id.nextval,'Kabir','3','Mirpur',01985);
```

Results Explain Describe Saved SQL History

1 row(s) inserted.

0.00 seconds

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Type here to search

Desktop 3:00 AM 3/14/2021

```

SQL Commands
ORACLE Database Express Edition
User: SCOTT
Home > SQL > SQL Commands
Autocommit Display 10
insert into Waiter values(E_id.nextval,'Karim','3','Dhaka',01985);
insert into Waiter values(E_id.nextval,'Rahman','1','Mirpur',01985);
insert into Waiter values(E_id.nextval,'Rahman','2','rangamati',01985);
insert into Waiter values(E_id.nextval,'Fatim','1','Dhaka',01985);
insert into Waiter values(E_id.nextval,'Kabir','3','Mirpur',01985);
select*from Waiter;

```

Results

E_ID	E_NAME	TABLE_NO	CITY	E_PHONE_NO
15	Karim	3	Dhaka	1985
16	Rahman	1	Mirpur	1985
17	Rahman	2	rangamati	1985
19	Fatim	1	Dhaka	1985
20	Kabir	3	Mirpur	1985

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



```

SQL Commands
ORACLE Database Express Edition
User: SCOTT
Home > SQL > SQL Commands
Autocommit Display 10
insert into Serve values(Tb_3.nextval,'Bangali',15);
insert into Serve values(Tb_3.nextval,'Chinese dish',16);
insert into Serve values(Tb_3.nextval,'Tehari',17);
insert into Serve values(Tb_3.nextval,'Italian dish',19);
insert into Serve values(Tb_3.nextval,'Thai soup',20);

```

Results

1 row(s) inserted.



SQL Commands

User: SCOTT

ORACLE Database Express Edition

Home > SQL > SQL Commands

Autocommit Display 10

```
insert into Serve values(Tb_3.nextval,'Bangali',15);
insert into Serve values(Tb_3.nextval,'Chinese dish',16);
insert into Serve values(Tb_3.nextval,'Tehari',17);
insert into Serve values(Tb_3.nextval,'Italian dish',19);
insert into Serve values(Tb_3.nextval,'Thai soup',20);
select*from Serve;
```

Results Explain Describe Saved SQL History

TB_3	DISH_NAME	E_ID
19	Bangali	15
20	Chinese dish	16
21	Tehari	17
22	Italian dish	19
23	Thai soup	20

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

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Go to Start

Type here to search

Desktop 3:05 AM 3/14/2021

SQL Commands

User: SCOTT

ORACLE Database Express Edition

Home > SQL > SQL Commands

Autocommit Display 10

```
insert into Takes values(Tb_4.nextval,15,5);
insert into Takes values(Tb_4.nextval,16,6);
insert into Takes values(Tb_4.nextval,17,8);
insert into Takes values(Tb_4.nextval,19,10);
insert into Takes values(Tb_4.nextval,20,12);
```

Results Explain Describe Saved SQL History

1 row(s) inserted.

0.00 seconds

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Type here to search

Desktop 3:08 AM 3/14/2021

SQL Commands

User: SCOTT

Home > SQL > SQL Commands

Autocommit

```
insert into Takes values(Tb_4.nextval,15,5);
insert into Takes values(Tb_4.nextval,16,6);
insert into Takes values(Tb_4.nextval,17,8);
insert into Takes values(Tb_4.nextval,19,10);
insert into Takes values(Tb_4.nextval,20,12);
select*from Takes;
```

Results Explain Describe Saved SQL History

TB_4	E_ID	INVOICE_NO
5	15	5
6	16	6
7	16	6
8	17	8
9	19	10
10	20	12

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

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Language: en-us

Type here to search

Desktop 3:09 AM 3/14/2021

SQL Commands

User: SCOTT

Home > SQL > SQL Commands

Autocommit

```
insert into Delivery_service values(D_id.nextval,'Dhanmondi',0192556);
insert into Delivery_service values(D_id.nextval,'Mirpur',0171556);
insert into Delivery_service values(D_id.nextval,'Dhanmondi',0196255);
insert into Delivery_service values(D_id.nextval,'Rangamatti',0172556);
insert into Delivery_service values(D_id.nextval,'Gulshan',0192585);
```

Results Explain Describe Saved SQL History

1 row(s) inserted.

0.00 seconds

Activate Window Application Express 2.1.0.0.39
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Type here to search

Desktop 3:12 AM 3/14/2021

SQL Commands

User: SCOTT

Home > SQL > SQL Commands

Autocommit

```
insert into Delivery_service values(D_id.nextval,'Dhamondi',0192556);
insert into Delivery_service values(D_id.nextval,'Mirpur',0171556);
insert into Delivery_service values(D_id.nextval,'Dhamondi',0196255);
insert into Delivery_service values(D_id.nextval,'Rangamatti',0172556);
insert into Delivery_service values(D_id.nextval,'Gulshan',0192585);
select*from Delivery_service;
```

Results Explain Describe Saved SQL History

D_ID	LOCATION	D_PHONE_NO
5	Dhamondi	192556
6	Mirpur	171556
7	Dhamondi	196255
8	Gulshan	192585
9	Rangamatti	172556

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

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Language: en-us

Type here to search

Desktop 3:13 AM 3/14/2021

SQL Commands

User: SCOTT

Home > SQL > SQL Commands

Autocommit

```
insert into Order_dish values(Tb_5.nextval,5,5);
insert into Order_dish values(Tb_5.nextval,6,6);
insert into Order_dish values(Tb_5.nextval,8,7);
insert into Order_dish values(Tb_5.nextval,10,8);
insert into Order_dish values(Tb_5.nextval,12,9);
```

Results Explain Describe Saved SQL History

1 row(s) inserted.

0.00 seconds

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Language: en-us

Type here to search

Desktop 3:16 AM 3/14/2021

The screenshot shows the Oracle Database Express Edition SQL Commands window. The URL is 127.0.0.1:8080/apex/f?p=4500:1003:3537442484433705::NO::. The user is SCOTT. The query entered is:

```
insert into Order_dish values(Tb_5.nextval,5,5);
insert into Order_dish values(Tb_5.nextval,6,6);
insert into Order_dish values(Tb_5.nextval,8,7);
insert into Order_dish values(Tb_5.nextval,10,8);
insert into Order_dish values(Tb_5.nextval,12,9);
select*from Order_dish;
```

The results show a table with columns TB_5, INVOICE_NO, and D_ID. The data is:

TB_5	INVOICE_NO	D_ID
6	5	5
7	6	6
8	8	7
9	10	8
10	12	9

5 rows returned in 0.00 seconds. There is a CSV Export link.

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Language: en-us

Query Writing

Single Row Function:

1. Display City with all of the letters capitalized.

select UPPER(City) from Waiter;

2. Display E_ID and Table_no of waiters joined together.

select CONCAT(E_ID,Table_no) from Waiter;

3. Display Dish_name with all of the letters are small.

select LOWER(Dish_name) from Serve;

Group Function:

1. Display the minimum price among all of the dishes.

select MIN(Price_TK) from Dish;

2. Display the maximum price among all of the dishes.

select MAX (Price_TK) from Dish;

3. Display the average price of all the dishes.

select AVG(Price_TK) from Dish;

Subquery:

1. Display the item name of a material which has a price greater than TK 588.

select Item_Name from Material where Price_TK >(select Price_TK from Material where Price_TK=588);

2. Find the dish name which has the minimum price.

select Dish_Name from Dish where Price_TK= (select MIN (Price_TK) from Dish);

3. Find the dish name which has the maximum price.

select Dish_Name from Dish where Price_TK= (select MAX (Price_TK) from Dish);

Joining:

1. Display the name of all the employees who work in Dhaka.

select e_name from Waiter,Serve where Waiter.E_id=Serve.E_id and Waiter.City='Dhaka';

2. Display the invoice no along with dish name.

select Invoice_no,Dish_name from Takes,Serve where Takes.E_id=Serve.E_id;

3. Display the quantity in kg of the supplies that has been supplied along with the quantity that has been used.

select Quantity_KG,Quantity_Used_Kg from Supplier,Material where Supplier.Item_Name=Material.Item_Name;

Views:

1. Create a view called mats which will have price of materials, material id and item name.

create view mats as select Price_TK , M_id, Item_Name from material;

2. Display the contents of the view mat.

create or replace view mats(Price,mat_id,I_Name) as select Price_TK,M_id,Item_Name from material;

3. Drop view mat.

Drop view mats;

Synonym:

1.Create synonym for material.

create synonym mat for Material;

2.Create synonym for Takes.

create synonym ta for Takes;

3.Create synonym for waiter.

create synonym wat for Waiters;

CONCLUSION

In this restaurant management system, the user can easily record data about stakeholders which will make storing data much easier for a long period of time and will reduce the hassle of writing these data on paper. In future, it will also be possible to increase more features in this management system. For ex- The user will be able to calculate profit and loss for the month/year.