



RESTAURANT MANAGEMENT SYSTEM

Course: Advanced Database Management System

Section: A

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INTRODUCTION

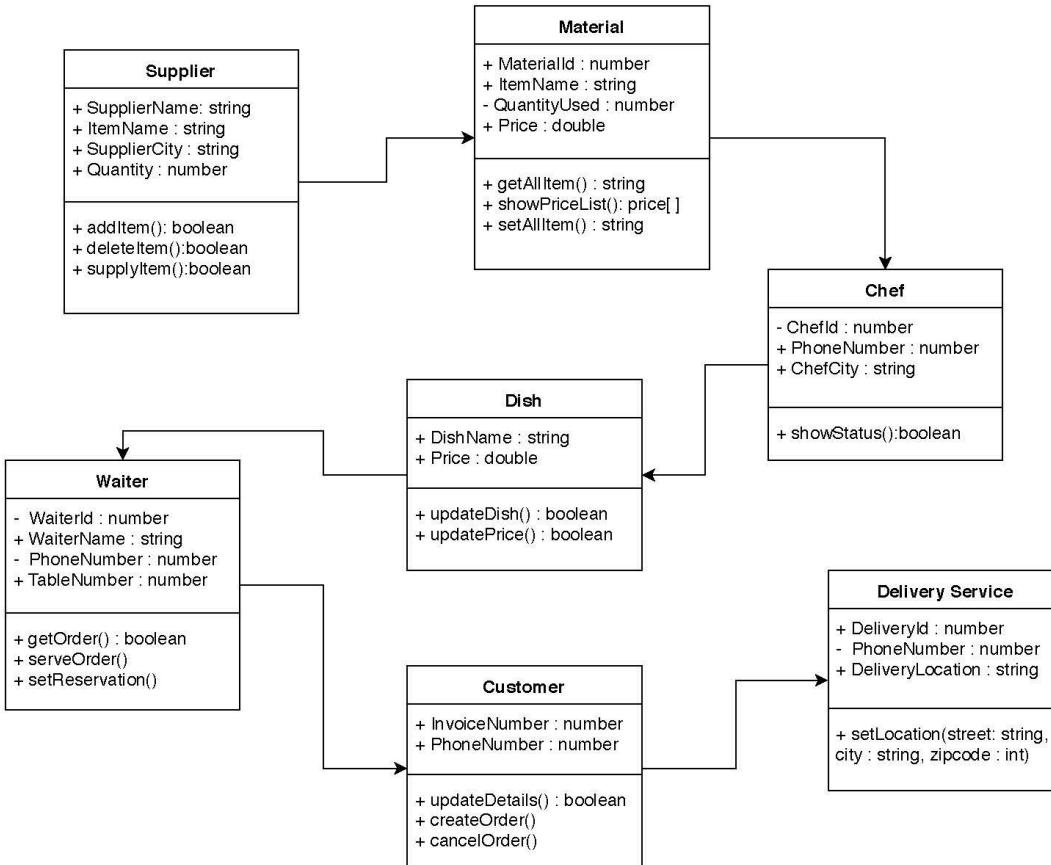
A **Restaurant management system** (RMS) is an essential tool for any new restaurant. A restaurant management system is designed with capabilities and features to help operate and manage the restaurant hassle free. These systems are designed to keep your restaurant running by tracking employees, inventory 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

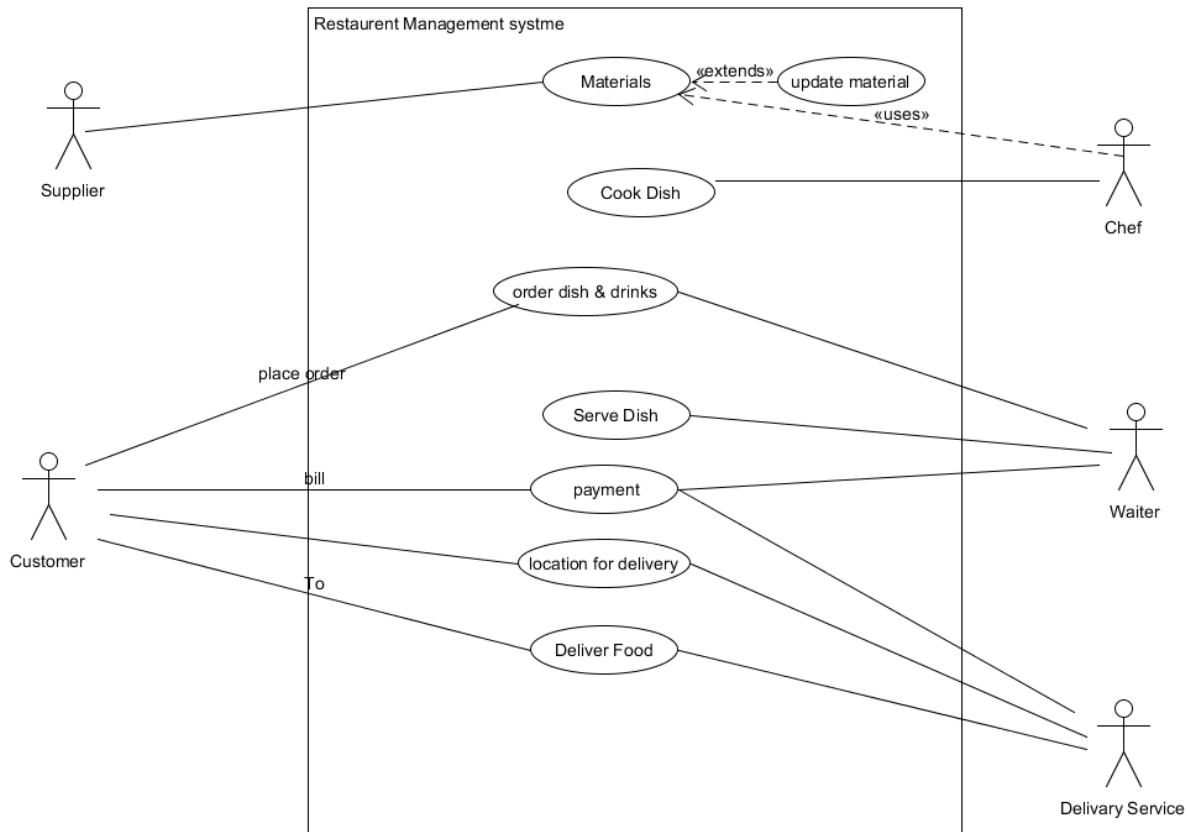
In this management system, information of stakeholders in a restaurant will be stored. One of the stakeholders of a restaurant is a waiter. So when a waiter is hired, all its details like employee id, name, phone number will be recorded. Then all supplier's information who will supply materials will 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

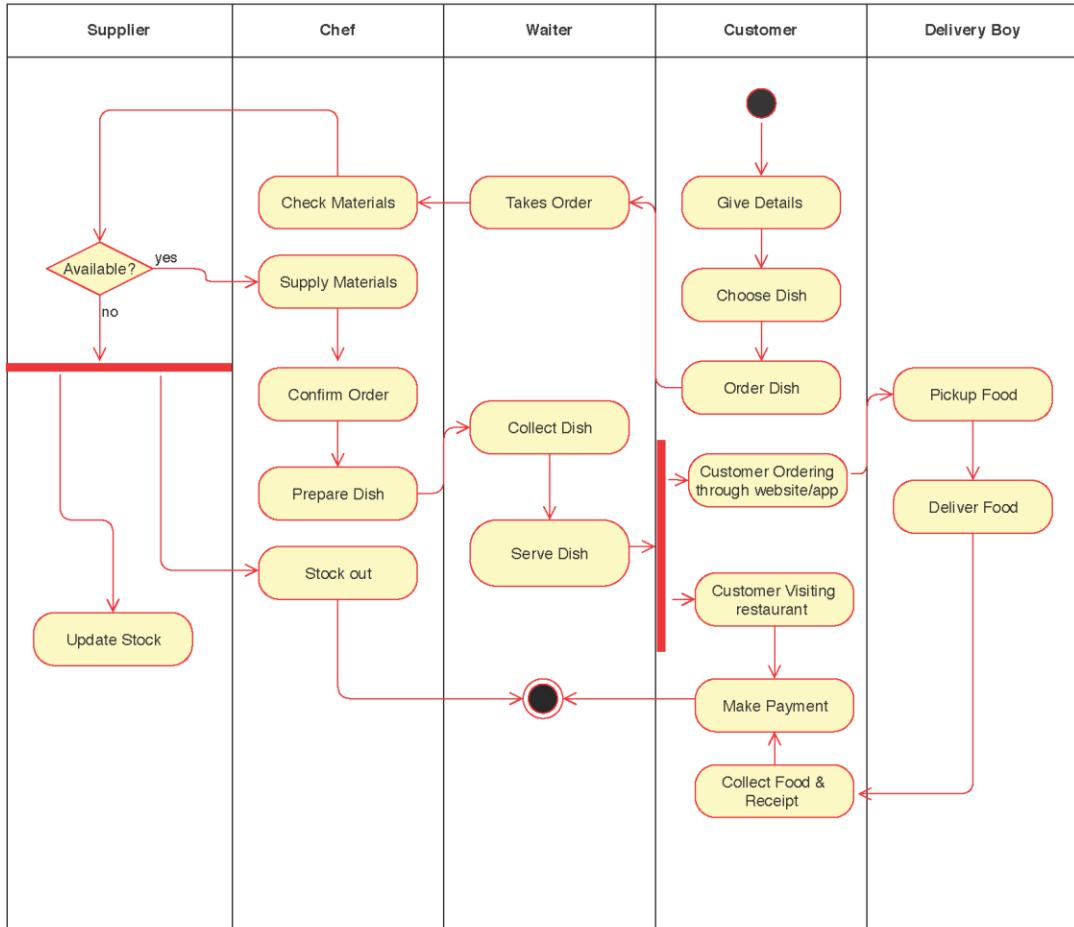
Restaurant Management System



Use Case Diagram



Activity Diagram



User Interface

Log in:

The image shows a user interface for a system. On the left, there is a vertical sidebar with the following menu items:

- Show menu
- Order management
- Manage employees
- Manage menu items
- Show total sales
- Show payments

Below the sidebar, a message says "Please login first." To the right of this message is a "Clock out" button. The main area contains a login form with the following fields:

User ID:

Password:

Login as manager

At the bottom of the main area, there is a large input field with the placeholder text "Enter your login ID and password."

Welcome page:

Show menu

Order management

Manage employees

Manage menu items

Show total sales

Show payments

Please login first.

Clock out

Welcome!!



Home:

- Show menu
- Order management
- Manage employees
- Manage menu items
- Show total sales
- Show payments

Login user
Hello Java

Clock out

Main paanel change :Home



- Show menu
- Order management
- Manage employees
- Manage menu items
- Show total sales
- Show payments

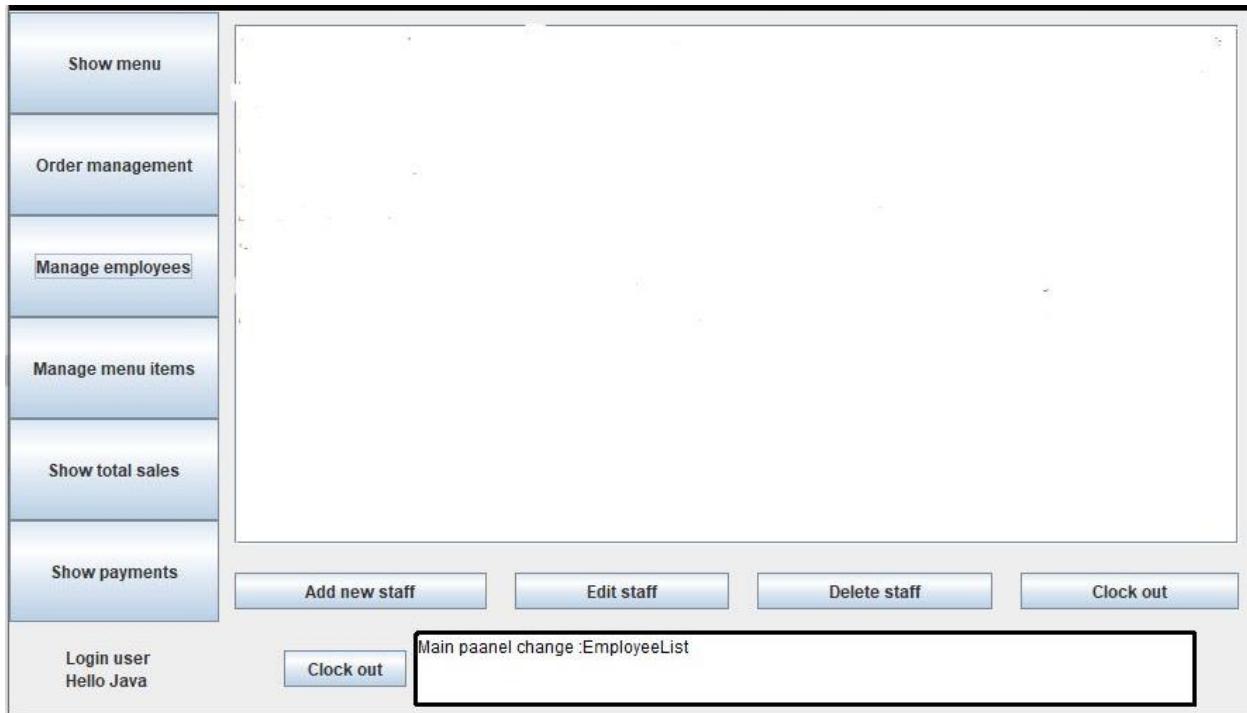
Add new menu item Edit menu item Delete menu item

Login user
Hello Java

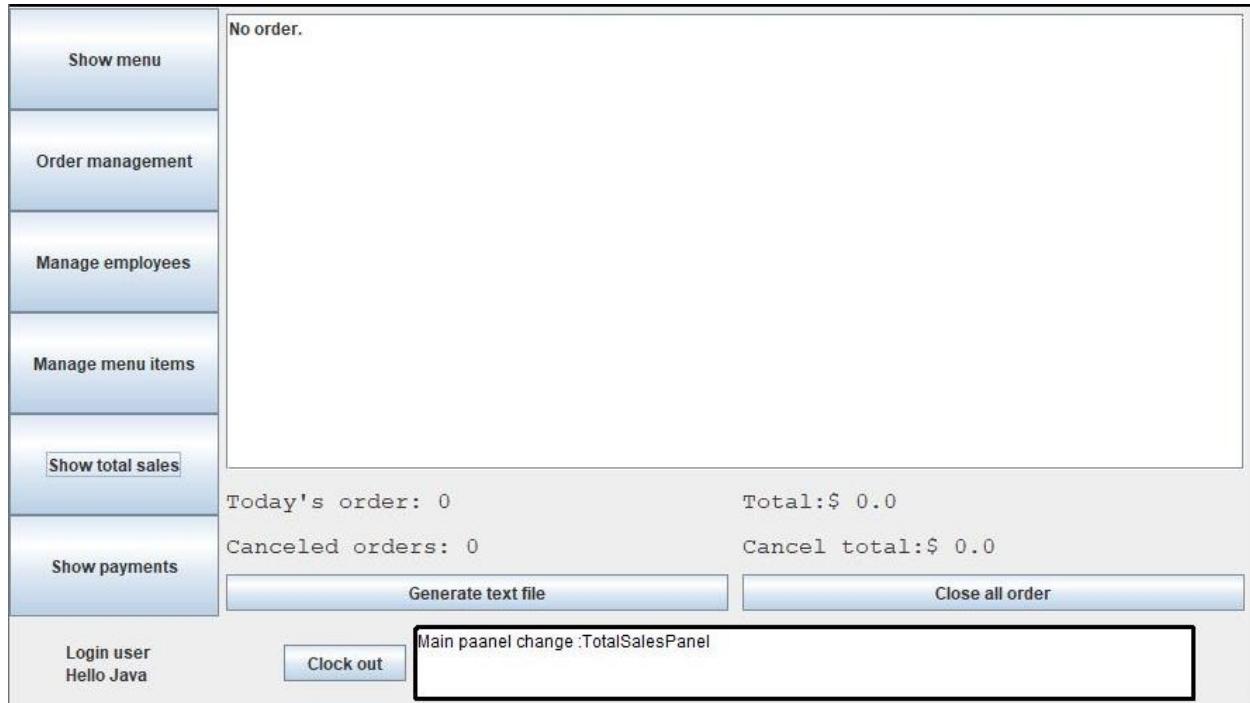
Clock out

Main paanel change :MenuManagement

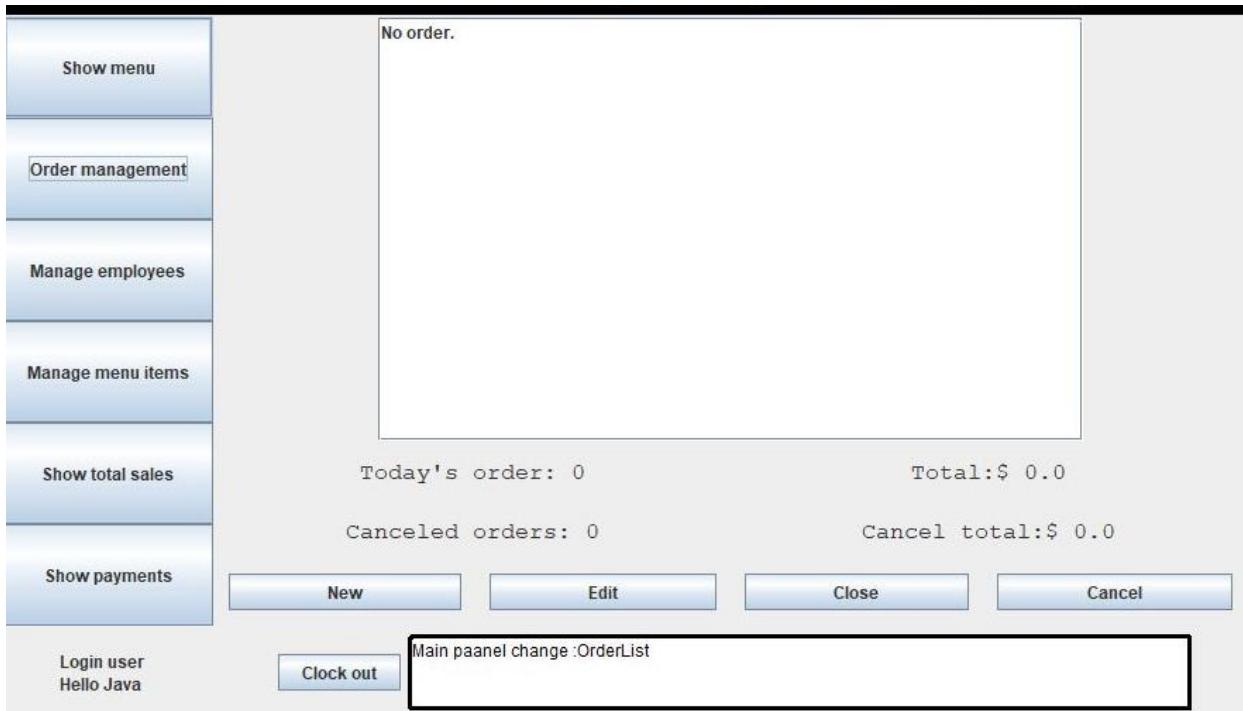
Employee:



Sales:



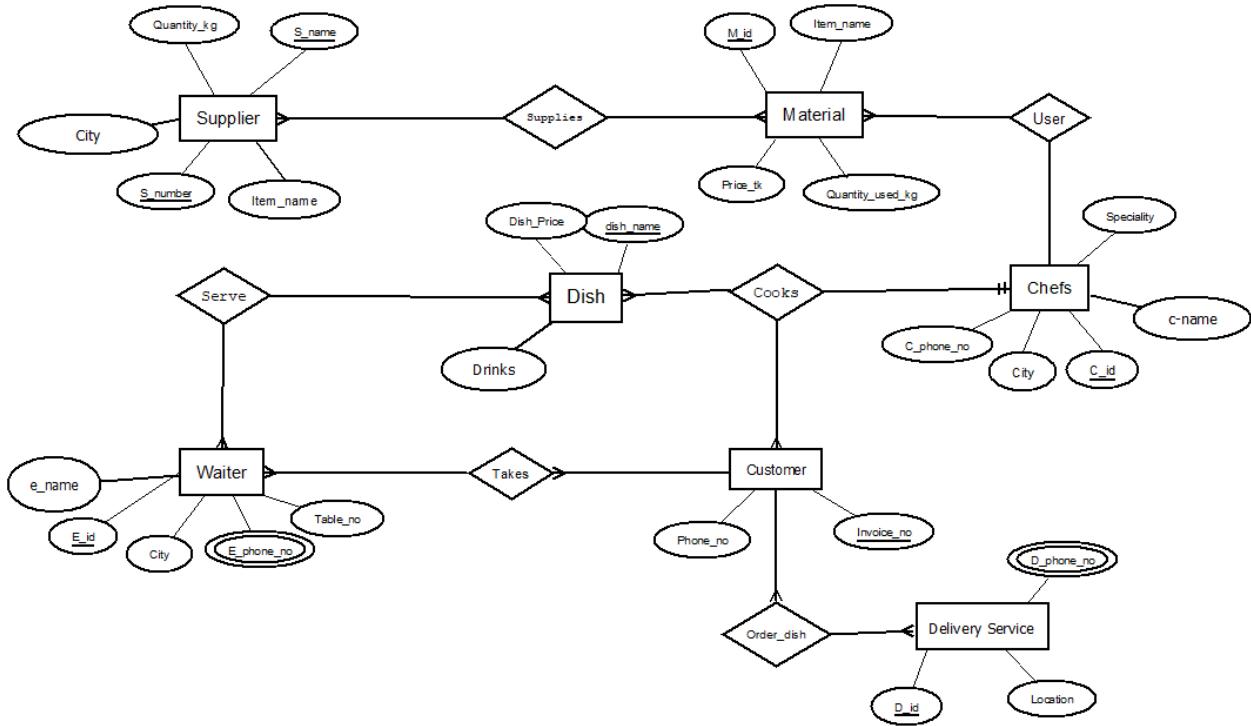
Order:



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 ,
E_Phone_no) City,

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

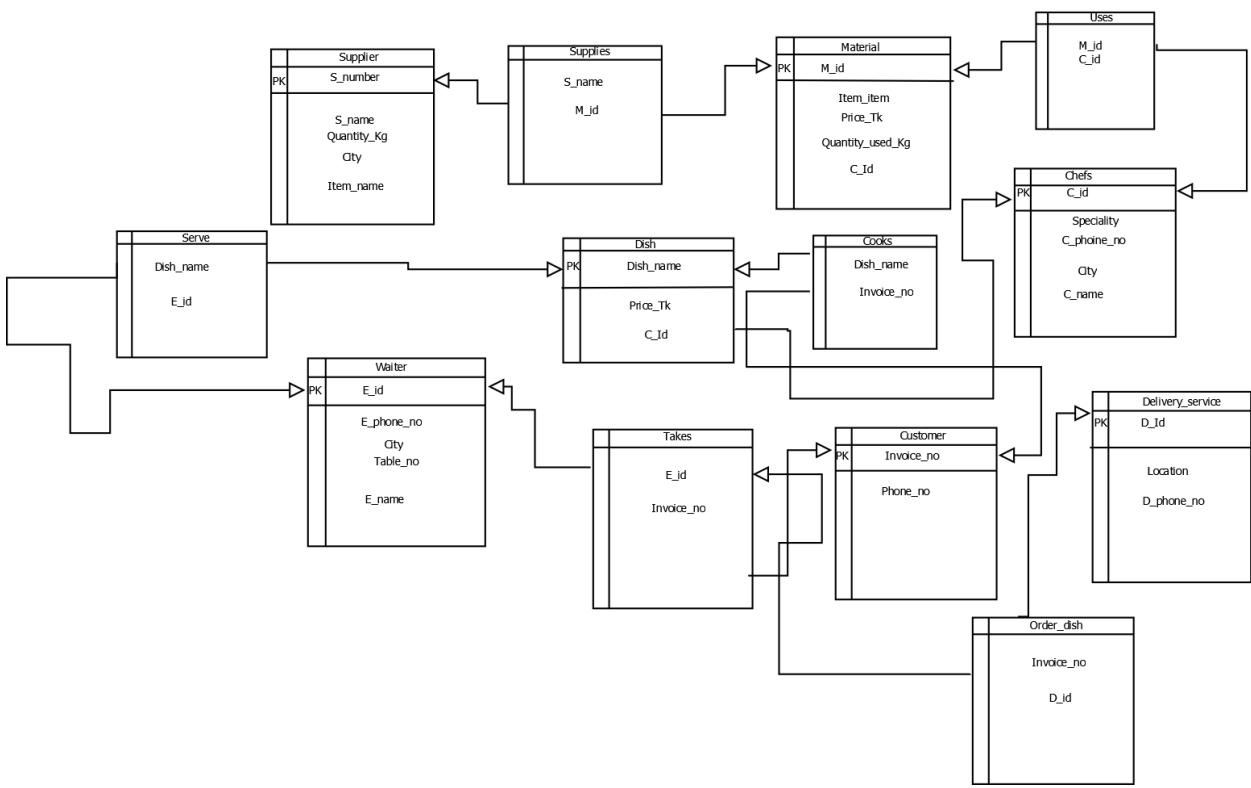
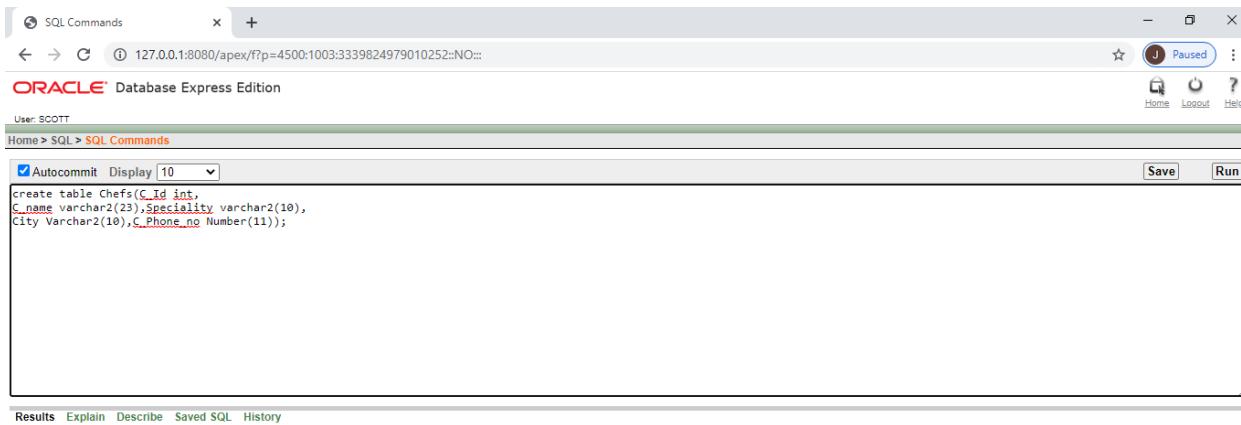


Table creation



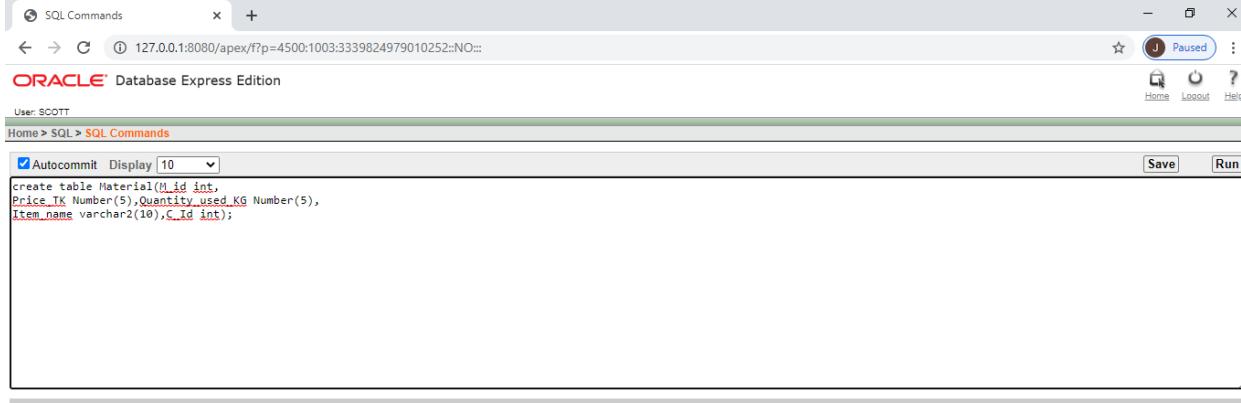
The screenshot shows the Oracle Database Express Edition SQL Commands interface. The URL is 127.0.0.1:8080/apex/?p=4500:1003:3339824979010252::NO::. The user is SCOTT. The SQL command entered is:

```
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

Activate Windows Application Express 2.1.0.0.39
Language: en-us Go to Settings Copyright © 1999, 2008, Oracle. All rights reserved.



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

Activate Windows Application Express 2.1.0.0.39
Language: en-us Go to Settings Copyright © 1999, 2008, Oracle. All rights reserved.



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
Language: en-us Go to Start Copyright © 1999, 2006, Oracle. All rights reserved.



SQL Commands

User: SCOTT

Home > SQL > SQL Commands

Autocommit: Display: 10

```
create table Dish(Dish_name varchar2(12),  
Price_TK Number(?,?);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
Language: en-us Go to Start Copyright © 1999, 2006, Oracle. All rights reserved.



SQL Commands

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

Activate Windows Application Express 2.1.0.00.39
Copyright © 1999, 2006, Oracle. All rights reserved.
Language: en-us

Type here to search

10:38 PM 3/13/2021

SQL Commands

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

Activate Windows Application Express 2.1.0.00.39
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Language: en-us

Type here to search

1:04 AM 3/14/2021

SQL Commands

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 status bar shows 'Table created.' and '0.02 seconds'. The system tray at the bottom right shows the date and time as 3/14/2021 1:23 AM.



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 status bar shows 'Table created.' and '0.02 seconds'. The system tray at the bottom right shows the date and time as 3/14/2021 1:26 AM.



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 code entered is:

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

The results show "Table created." and "0.05 seconds".



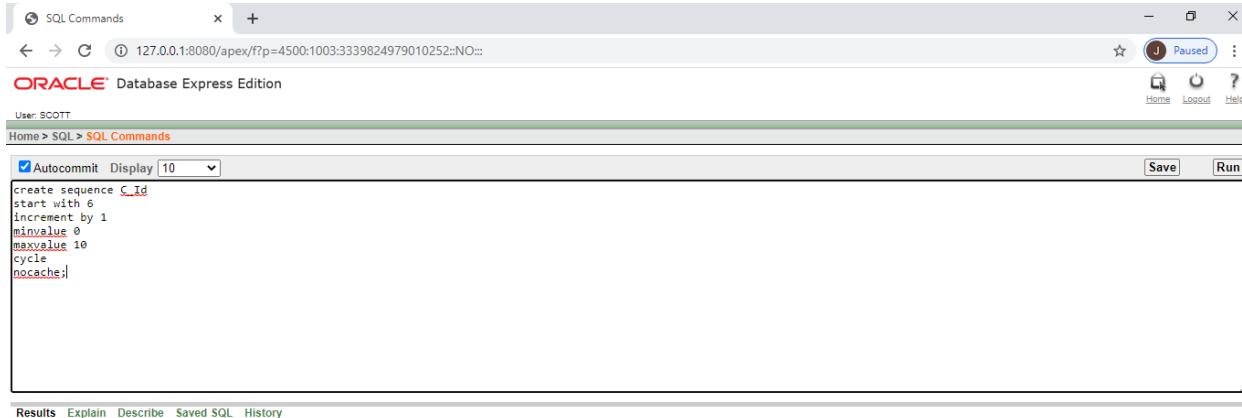
The screenshot shows the Oracle Database Express Edition SQL Commands window. The URL is 127.0.0.1:8080/apex/f?p=4500:1003:3339824979010252::NO:::. The user is SCOTT. The SQL code entered is:

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

The results show "Table created." and "0.02 seconds".



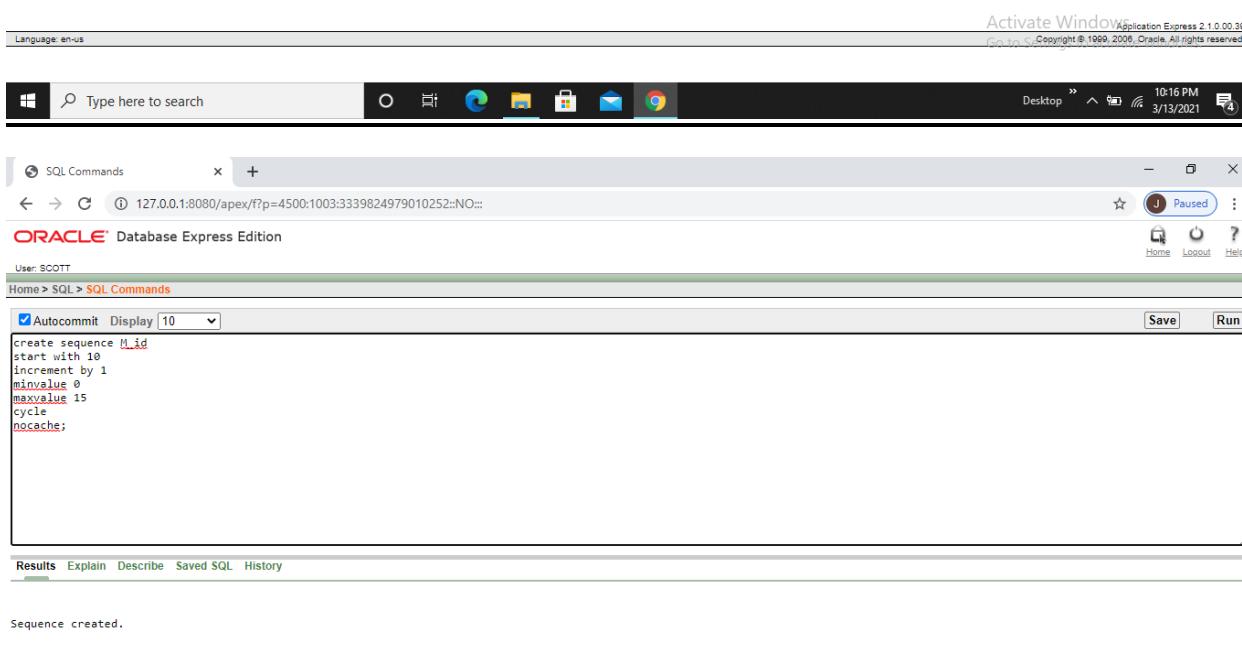
Sequence for primary key



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 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 sequence Tb_1
start with 16
increment by 1
minvalue 0
maxvalue 23
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 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 sequence Invoice_no
start with 4
increment by 1
minvalue 0
maxvalue 12
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 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 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 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 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 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 sequence Tb_2
start with 7
increment by 1
minvalue 0
maxvalue 17
cycle
nocache;
```

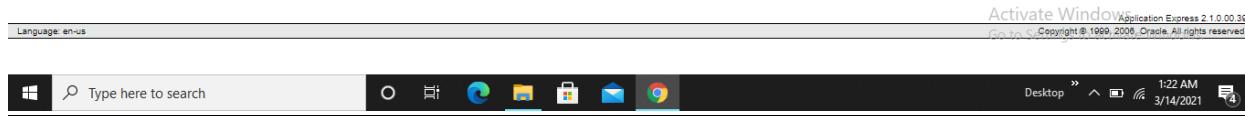
The screenshot shows the Oracle Database Express Edition SQL Commands interface. The URL is 127.0.0.1:8080/apex/f?p=4500:1003:3339824979010252::NO::. The user is SCOTT. The SQL editor contains the following code:

```
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



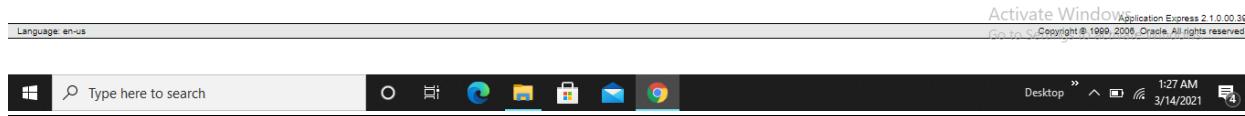
The screenshot shows the Oracle Database Express Edition SQL Commands interface. The URL is 127.0.0.1:8080/apex/f?p=4500:1003:3339824979010252::NO::. The user is SCOTT. The SQL editor contains the following code:

```
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

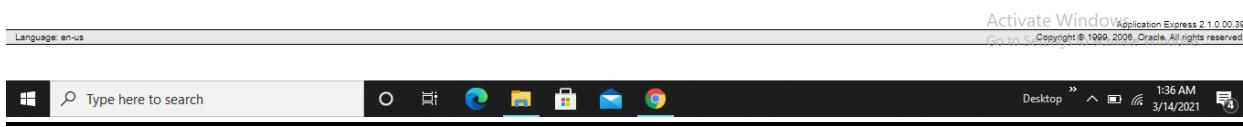
The screenshot shows the Oracle Database Express Edition SQL Commands window. The user is SCOTT. The command entered is:

```
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

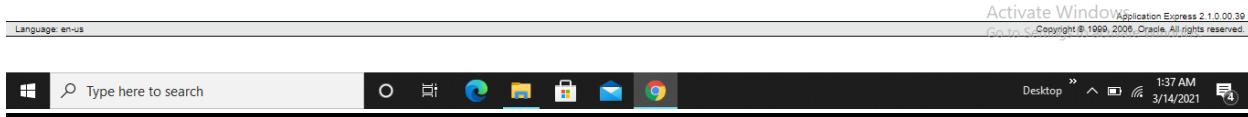
```
alter table Material add constraint c3 primary key(M_id);
```

Save Run

Results Explain Describe Saved SQL History

Table altered.

0.03 seconds



SQL Commands

User: SCOTT

Home > SQL > SQL Commands

Autocommit Display 10

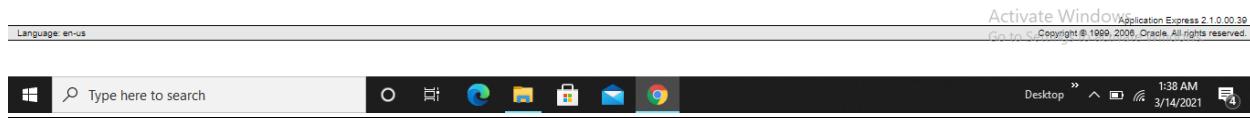
alter table Material add constraint c4 foreign key(C_Id) references Chefs(C_Id);

Save Run

Results Explain Describe Saved SQL History

Table altered.

0.41 seconds



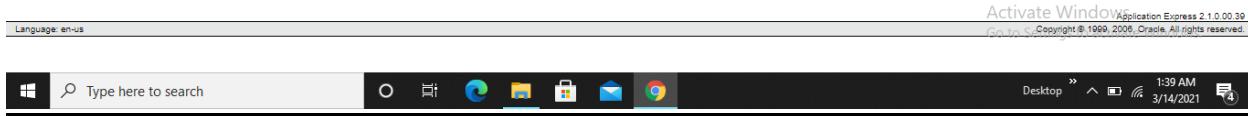
The screenshot shows the Oracle Database Express Edition SQL Commands interface. The user is connected as SCOTT. In the SQL editor, the following command is entered and executed:

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

The output shows the table was altered successfully.

Table altered.

0.09 seconds



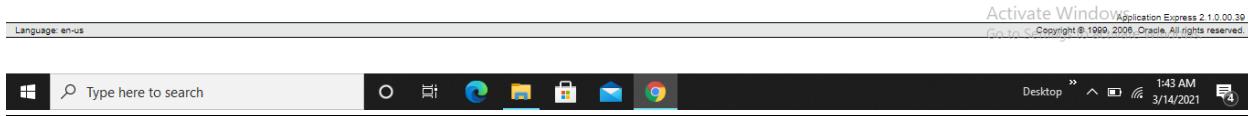
The screenshot shows the Oracle Database Express Edition SQL Commands interface. The user is connected as SCOTT. In the SQL editor, the following command is entered and executed:

```
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 URL is 127.0.0.1:8080/apex/f?p=4500:1003:3537442484433705::NO::. The user is SCOTT. In the SQL editor, the following command is entered:

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

The results show the command was successful:

```
Table altered.
```

0.11 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. In the SQL editor, the following command is entered:

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

The results show the command was successful:

```
Table altered.
```

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 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 SQL command entered is:

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

The results show the table was altered successfully:

```
Table altered.
```

0.08 seconds



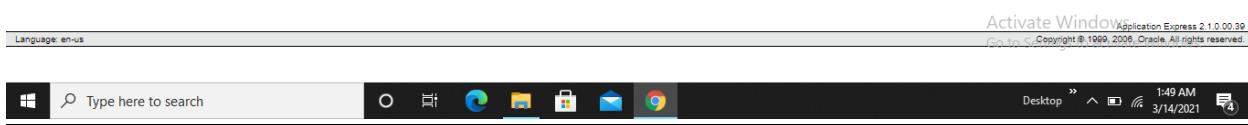
The screenshot shows the Oracle Database Express Edition SQL Commands window. The SQL command entered is:

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

The results show the table was altered successfully:

```
Table altered.
```

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:

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

The results pane shows the output:

```
Table altered.
```

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:

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

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 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 connected as SCOTT. In the SQL editor, the following command is entered and executed:

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

The output shows the message "Table altered." and a execution time of "0.11 seconds".



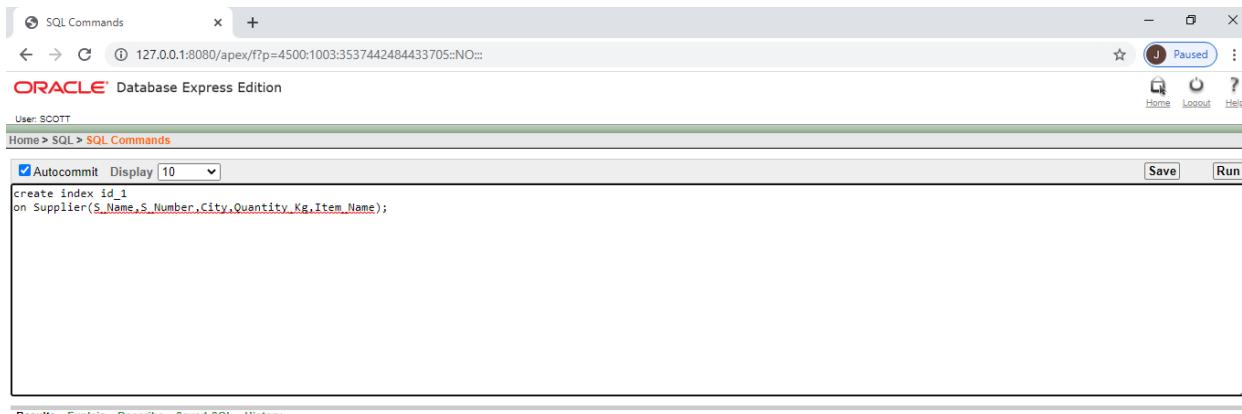
The screenshot shows the Oracle Database Express Edition SQL Commands interface. The user is connected as SCOTT. In the SQL editor, the following command is entered and executed:

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

The output shows the message "Table altered." and a execution time of "0.01 seconds".



Index



SQL Commands

User: SCOTT

Home > SQL > SQL Commands

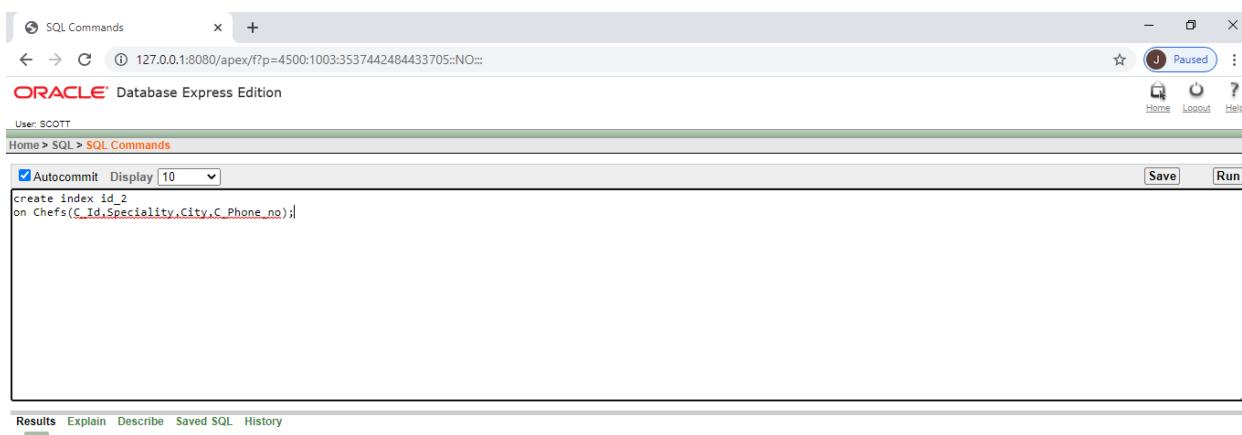
Autocommit Display 10 Save Run

```
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

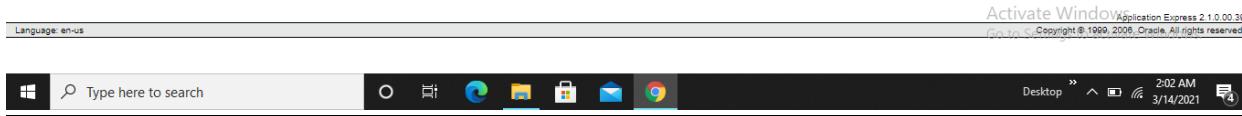
Autocommit Display 10 Save Run

```
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);
```

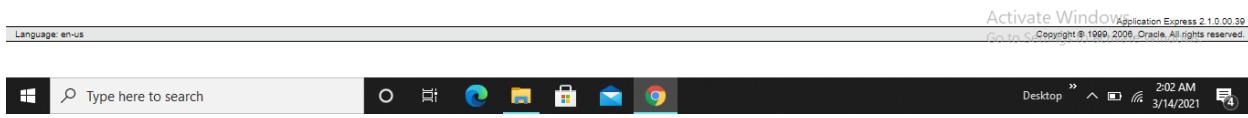
The results show "Index created." and "0.05 seconds".



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);
```

The results show "Index created." and "0.00 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_5
on Dish(Dish_name,Price_TK,C_Id);
```

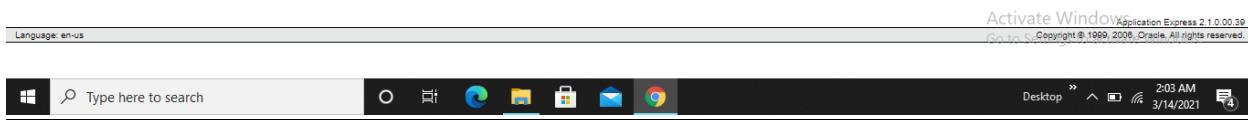
The results show "Index created." and "0.03 seconds".



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_6
on Customer(invoice_no,Phone_no);
```

The results show "Index created." and "0.00 seconds".



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

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

The results show:

Index created.

0.03 seconds



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

```
create index id_8  
on Serve(Tb_3,Dish_name,E_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_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



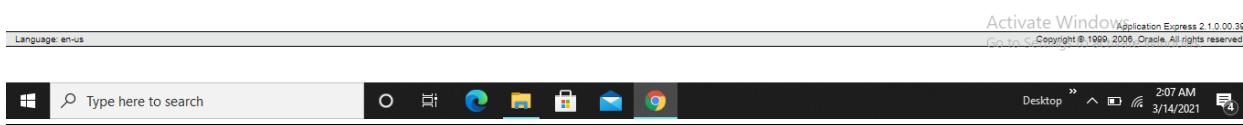
The screenshot shows the Oracle Database Express Edition SQL Commands interface. The user is SCOTT. The command entered is:

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

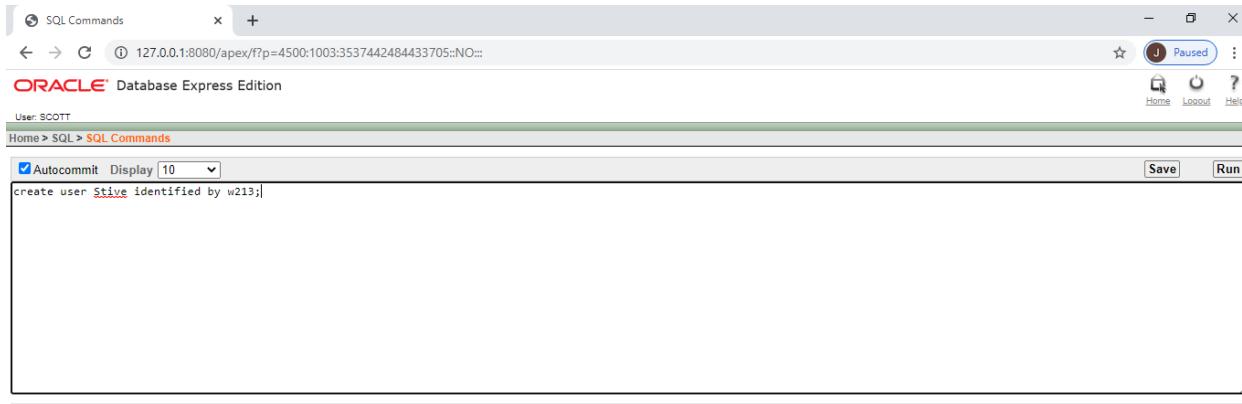
The results show:

Index created.

0.03 seconds



Create users



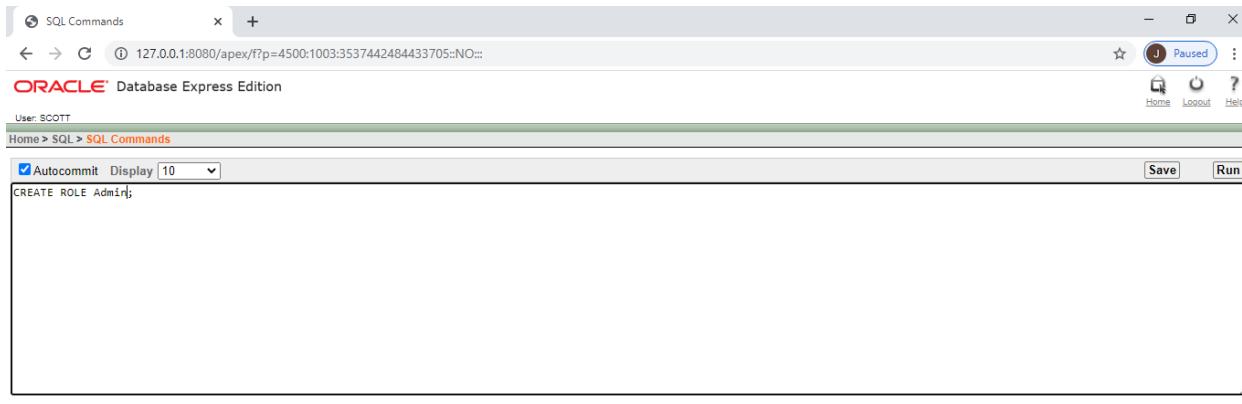
User: SCOTT
Home > SQL > SQL Commands
Autocommit Display 10
create user Steve identified by w213;

Results Explain Describe Saved SQL History

User created.
0.73 seconds



Assign roles



User: SCOTT
Home > SQL > SQL Commands
Autocommit Display 10
CREATE ROLE Admin;

Results Explain Describe Saved SQL History

Role created.
0.09 seconds



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 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 command entered is:

```
insert into Chefs values(C_Id.nextval,'Rahman','Bangali','Mirpur',0138989880);  
insert into Chefs values(C_Id.nextval,'Kabir','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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Language: en-us

Type here to search

Desktop 2:23 AM 3/14/2021

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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Desktop 2:33 AM 3/14/2021

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,586,12,'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	586	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

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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Type here to search

Desktop 2:37 AM 3/14/2021

SQL Commands

User: SCOTT

ORACLE Database Express Edition

```
Autocommit Display 10
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

ORACLE Database Express Edition

```
Autocommit Display 10
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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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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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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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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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

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 Explain Describe Saved SQL History

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](#)

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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 Explain Describe Saved SQL History

1 row(s) inserted.

0.00 seconds

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[Go to Server Status](#)



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](#)

Activate Window Application Express 2.1.0.0.39
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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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Go to Start

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

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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

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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

Activate Windows Application Express 2.1.0.0.39
Go to Site Copyright © 1999, 2008, Oracle. All rights reserved.

Language: en-us

Type here to search

Desktop 3:16 AM 3/14/2021

The screenshot shows the Oracle Database Express Edition SQL Commands interface. 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.

At the bottom, the Windows taskbar shows the search bar, pinned icons for File Explorer, Edge, Mail, and Google Chrome, and the system tray with the date and time (3/14/2021, 3:16 AM).

Query Writing

SQL

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;

① 127.0.0.1:8080/apex/f?p=4500:1003:574341310857580::NO::

ORACLE Database Express Edition

User: SCOTT

Home > SQL > SQL Commands

Autocommit Display 10

```
select UPPER(City) from Waiter;
```

Results Explain Describe Saved SQL History

UPPER(CITY)
DHAKA
MIRPUR
RANGAMATI
DHAKA
MIRPUR

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

① 127.0.0.1:8080/apex/f?p=4500:1003:574341310857580::NO::

ORACLE Database Express Edition

User: SCOTT

Home > SQL > SQL Commands

Autocommit Display 10

```
select CONCAT(E_ID,Table_no) from Waiter;
```

Results Explain Describe Saved SQL History

CONCAT(E_ID,TABLE_NO)
153
161
172
191
203

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

The screenshot shows the Oracle Database Express Edition SQL Command window. The URL is 127.0.0.1:8080/apex/f?p=4500:1003:574341310857580::NO:::. The user is SCOTT. The SQL command entered is:

```
select LOWER(Dish_name) from Serve;
```

The results show the following data:

LOWER(DISH_NAME)
bangali
chinese dish
tehari
italian dish
thai soup

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

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;

User: SCOTT

Home > SQL > SQL Commands

Autocommit Display 10

```
select MAX(Price_TK) from Dish;
```

Results Explain Describe Saved SQL History

MAX(PRICE_TK)
3749

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

User: SCOTT

Home > SQL > SQL Commands

Autocommit Display 10

```
select MIN(Price_TK) from Dish;
```

User: SCOTT

Home > SQL > SQL Commands

Autocommit Display 10

```
select AVG(Price_TK) from Dish;
```

Results Explain Describe Saved SQL History

AVG(PRICE_TK)
1981

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

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);
```

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

```
select Table_no,Dish_Name from Waiter,Dish where Waiter.E_id=Dish.E_id;

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

select Quantity_KG,Quantity_Used_Kg from Supplier,Material where Supplier.Item_Name=Material.Item_Name;
select Item_Name from Material where Price_TK >(select Price_TK from Material where Price_TK=588);
select Dish_Name from Dish where Price_TK >(select Price_TK from Dish where Price_TK =600);
select Dish_Name from Dish where Price_TK= (select MAX (Price_TK) from Dish);
select Dish_Name from Dish where Price_TK= (select MIN (Price_TK) from Dish);
```

The results pane shows a single row:

DISH_NAME
Italian dish

1 rows returned in 0.00 seconds CSV Export

The screenshot shows the Oracle Database Express Edition SQL Commands interface. The SQL editor contains the same code as the previous screenshot:

```
select Table_no,Dish_Name from Waiter,Dish where Waiter.E_id=Dish.E_id;

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

select Quantity_KG,Quantity_Used_Kg from Supplier,Material where Supplier.Item_Name=Material.Item_Name;
select Item_Name from Material where Price_TK >(select Price_TK from Material where Price_TK=588);
select Dish_Name from Dish where Price_TK >(select Price_TK from Dish where Price_TK =600);
select Dish_Name from Dish where Price_TK= (select MAX (Price_TK) from Dish);
select Dish_Name from Dish where Price_TK= (select MIN (Price_TK) from Dish);
```

The results pane shows a single row:

DISH_NAME
Italian dish

1 rows returned in 0.00 seconds CSV Export

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;
```

The screenshot shows the Oracle Database Express Edition interface. The SQL command window contains the following query:

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

The results pane shows two rows of data:

E_NAME
Karin
Fatin

Below the results, it says "2 rows returned in 0.04 seconds".

The screenshot shows the Oracle Database Express Edition interface. The SQL command window contains the following query:

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

The results pane shows six rows of data:

INVOICE_NO	DISH_NAME
5	Bangali
6	Chinese dish
6	Chinese dish
8	Tehari
10	Italian dish
12	Thai soup

Below the results, it says "6 rows returned in 0.26 seconds".

User: SCOTT

Home > SQL > SQL Commands

Autocommit Display 10

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

Results Explain Describe Saved SQL History

QUANTITY_KG	QUANTITY_USED_KG
32	5
3	12
1	54
5	51
32	9

5 rows returned in 0.12 seconds

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;

User: SCOTT

Home > SQL > SQL Commands

Autocommit Display 10

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

Results Explain Describe Saved SQL History

View created.

0.20 seconds

The screenshot shows the Oracle Database Express Edition SQL Commands interface. The URL is 127.0.0.1:8080/apex/f?p=4500:1003:3537442484433705::NO:::. The user is SCOTT. In the SQL editor, the command 'Drop view mats;' is entered. The results show 'View dropped.' and a execution time of 0.12 seconds.

```
Drop view mats;
```

View dropped.
0.12 seconds

The screenshot shows the Oracle Database Express Edition SQL Commands interface. The URL is 127.0.0.1:8080/apex/f?p=4500:1003:574341310857580::NO:::. The user is SCOTT. In the SQL editor, the command 'create or replace view mats(Price,mat_id,I_Name) as select Price.TK.M_id,Item_Name from material;' is entered. The results show 'View created.' and a execution time of 1.06 seconds.

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

View created.
1.06 seconds

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;

The screenshot shows the Oracle Database Express Edition SQL Commands interface. 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 synonym mat for Material;
```

The screenshot shows the Oracle Database Express Edition SQL Commands interface. 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 synonym ta for Takes;
```

The screenshot shows the Oracle Database Express Edition SQL Commands interface. The URL is 127.0.0.1:8080/apex/f?p=4500:1003:3537442484433705::NO::. The session user is SCOTT. The SQL command entered is 'create synonym wat for Waiters;'. The results show 'Synonym created.' and a execution time of '0.06 seconds'.

```
create synonym wat for Waiters;
```

PL/SQL

- **Function**

1. **Create a function that returns the total number of Dish serve in the restaurant.**

```
CREATE OR REPLACE FUNCTION totalDish
RETURN number IS
    total number(12) := 0;
BEGIN
    SELECT count(*) into total
    FROM dish;
    RETURN total;
END;
```

2. **Create a function that can show the number of Speciality the Chefs has.**

```
CREATE OR REPLACE FUNCTION Speciality
RETURN number IS
    total number :=0 ;
BEGIN
    SELECT count(*) into total
    FROM chefs;
    RETURN total;
END;
```

3. **Create a function that will show where Chefs ID 101 live in.**

```
CREATE OR REPLACE FUNCTION City
RETURN VARCHAR IS
```

```

    city_name VARCHAR(20);
BEGIN
    SELECT City INTO city_name
    FROM Chefs WHERE C_ID = '101';
    RETURN city_name;
END;

```

- **Procedure**

1. **Due to over price of onions the restaurant owner updated the price of Biryani. So create a procedure to update the value of the dish From tk500 to tk700.**

```

CREATE OR REPLACE PROCEDURE Update_price(
    in_price IN dish.price_tk%TYPE)
IS
BEGIN
    UPDATE dish
    SET price_tk ='700'
    WHERE price_tk= in_price;
END;
Begin
Update_price('500');
end;

```

2. **Waiter whose phone number was 0192556780 has lost his phone and brought a new phone with new number. Now create a procedure to change the number from 01915682515 to 01912616888.**

```

CREATE OR REPLACE PROCEDURE Update_Phone(
    in_phone IN waiter.e_phone_no%TYPE)
IS
BEGIN
    UPDATE waiter
    SET e_phone_no ='1912616888'
    WHERE e_phone_no= in_phone;
END;
begin
Update_phone('1915682515');
end;

```

3. Create a procedure to change the delivery service location from Kuril to Baridhara.

```
CREATE OR REPLACE PROCEDURE Update_loc(
    in_loc IN delivery_service.location%TYPE)
IS
BEGIN
    UPDATE delivery_service
    SET location='Baridhara'
    WHERE location= in_loc;
END;
begin
Update_loc('Kuril');
end;
```

- **Records**

1. Create a record that can output the city name whose c_id is '104'.

```
declare
chefs_rec chefs%rowtype;
begin
select * into chefs_rec
from chefs
where c_id='104';
dbms_output.put_line(chefs_rec.city);
end
```

2. Create a record that can output the city name of all the chefs inside the Restaurants.

```
declare
chefs_rec chefs%rowtype;
begin
for chefs_rec in(select * from chefs)
loop
dbms_output.put_line('Chefs ID ='||chefs_rec.c_id||' from'||chefs_rec.city);
end loop; end
```

3. Create a record that show the dish which price is 350tk.

```
declare
dish_rec dish%rowtype;
begin
select * into dish_rec
```

```

from dish
where price_tk='350';
dbms_output.put_line(dish_rec.Dish_Name);
end
close c_dish;
end

```

- **Cursor**

1. **Create a cursor that can output the dish_name and price_tk of all categories.**

```

declare
dish_name dish.dish_name%type;
price_tk dish.price_tk%type;
cursor c_dish is
select dish_name,price_tk from dish;
begin
open c_dish;
loop
fetch c_dish into dish_name,price_tk;
exit when c_dish%notfound;
dbms_output.put_line('Dish name'||dish_name||' Price'||price_tk||'Tk');
end loop;

```

2. Create a cursor that can output the first Chefs ID with speciality.

```

declare
c_id chefs.c_id%type;
speciality chefs.speciality%type;
cursor c_chefs is
select c_id,speciality from chefs;
begin
open c_chefs;
fetch c_chefs into c_id,speciality;
dbms_output.put_line('Chef ID'||c_id||' Speciality is'||speciality);
close c_chefs;

```

```
end
```

3. Create a cursor that can output the 2nd delivery_services ID and place of Delivery.

Declare

```
d_id delivery_service.d_id%type;
location delivery_service.location%type;
cursor c_service is
select d_id,location from delivery_service;
begin
open c_service;
fetch c_service into d_id,location;
fetch c_service into d_id,location;
dbms_output.put_line('ID'||d_id||' location is'||location);
close c_service;
end
```

Trigger:

1.Create a trigger in such a way that whenever a new row is inserted into the Supplies table an output ‘New Supplies Added’ is generated.

```
CREATE OR REPLACE TRIGGER ADD_SUPPLIES
```

```
after INSERT ON Supplies
```

```
FOR EACH ROW
```

```
BEGIN
```

```
dbms_output.put_line('New Supplies Added');
```

```
END;
```

2.Create a trigger in such a way that whenever a id deleted from the Order_dish table an output ‘New Order Canceled’ is generated.

```
CREATE OR REPLACE TRIGGER Order_cancel  
after delete ON Order_dish  
FOR EACH ROW  
BEGIN  
    dbms_output.put_line('New Order Canceled');  
END;
```

3.Create a trigger to update trigger Deleted for showing output ‘New Order Canceled’ to ‘Removed’.

```
CREATE OR REPLACE TRIGGER Order_remove  
after update ON Order_dish  
FOR EACH ROW  
BEGIN  
    dbms_output.put_line('Removed');  
END;
```

The screenshot shows the Oracle Database Express Edition SQL Commands window. The URL in the address bar is 127.0.0.1:8080/apex/f?p=4500:1003:2620217866288273:NOC:. The SQL code entered is:

```
CREATE OR REPLACE FUNCTION City
  RETURN VARCHAR IS
  C_ID NUMBER(2);
BEGIN
  SELECT city_name
  FROM Chefs WHERE C_ID = 101;
  RETURN city_name;
END;]
```

The results pane shows the message "Function created." and "0.00 seconds".

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The screenshot shows the Oracle Database Express Edition SQL Commands window. The URL in the address bar is 127.0.0.1:8080/apex/f?p=4500:1003:2620217866288273:NOC:. The PL/SQL block entered is:

```
DECLARE
  c VARCHAR(20);
BEGIN
  c := City();
  dbms_output.put_line('Chef ID 101 live in : ' || c);
END;
```

The results pane shows the output "Chef ID 101 live in : Dhaka" and "Statement processed." with a time of "0.00 seconds".

Application Express 2.1.0.0.39
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ORAQUEL Database Express Edition

```
CREATE OR REPLACE PROCEDURE update_price(
    in_price IN dish.price%TYPE
)
IS
BEGIN
    UPDATE dish
    SET price_tk = '700'
    WHERE price_tk= in_price;
END;
```

Results Explain Describe Saved SQL History

Procedure created.

0.00 seconds

Language: en-US Application Express 2.1.0.0.39 Copyright © 1999-2005, Oracle. All rights reserved.

ORAQUEL Database Express Edition

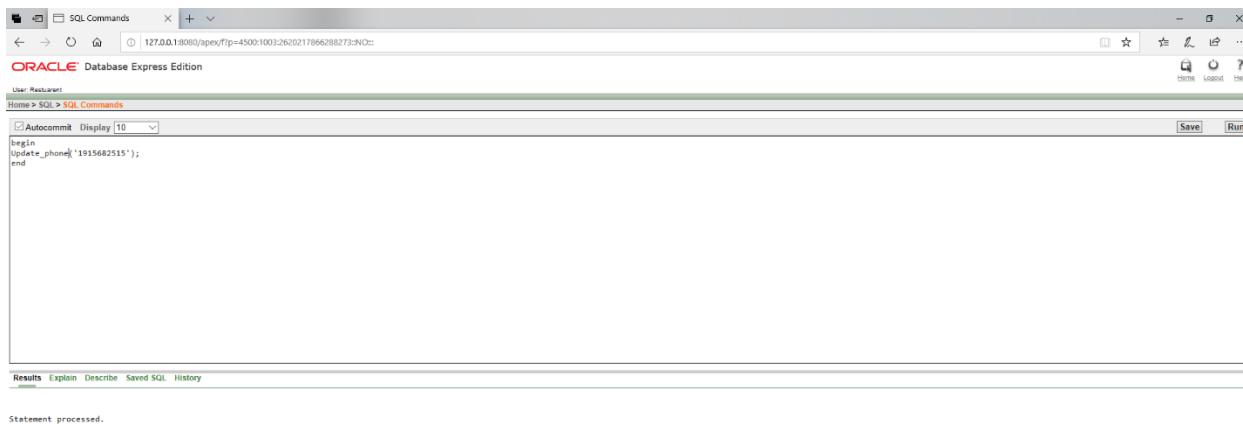
```
begin
update_price('500');
end;
```

Results Explain Describe Saved SQL History

Statement processed.

0.00 seconds

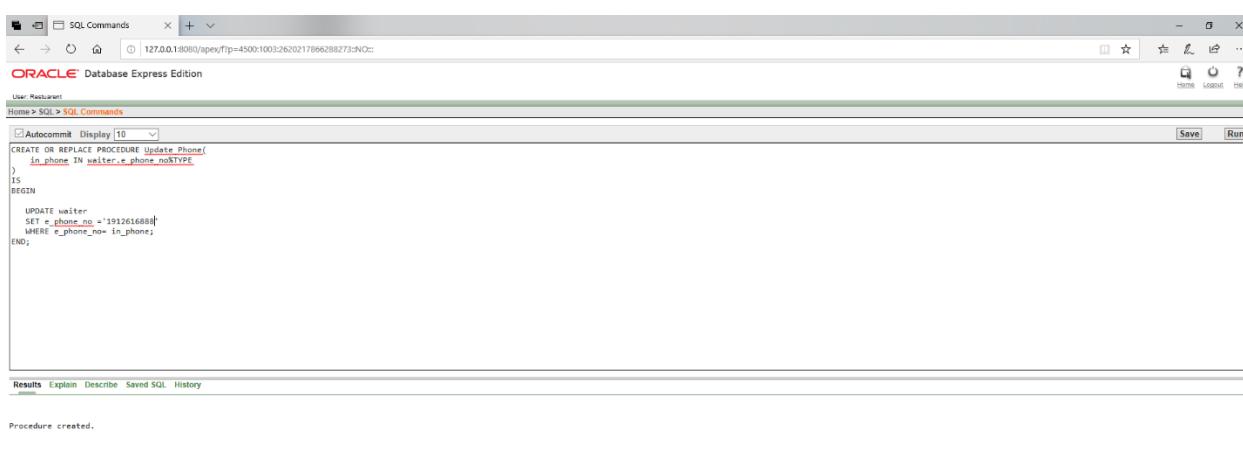
Language: en-US Application Express 2.1.0.0.39 Copyright © 1999-2005, Oracle. All rights reserved.



```
ORACLE Database Express Edition
User: Restaurant
Home > SQL > SQL Commands
 Autocommit Display 10  
begin
update_phonenum('1913682515');
end
```

Statement processed.
0.00 seconds

Language: english Application Express 2.1.0.0.3 Copyright © 1999-2005, Oracle. All rights reserved.



```
ORACLE Database Express Edition
User: Restaurant
Home > SQL > SQL Commands
 Autocommit Display 10  Save 
CREATE OR REPLACE PROCEDURE update_Phones(
    in_phone IN waiter.e_phone_no%TYPE
) IS
BEGIN
    UPDATE waiter
    SET e_phone_no = '1913616888'
    WHERE e_phone_no= in_phone;
END;
```

Procedure created.
0.00 seconds

Language: english Application Express 2.1.0.0.39 Copyright © 1999-2005, Oracle. All rights reserved.

SQL Commands

127.0.0.1:8080/apex/f?p=4500:1003:67769410276517::NO::

ORACLE Database Express Edition

User SCOTT

Home > SQL > SQL Commands

Autocommit

```
CREATE OR REPLACE TRIGGER ADD_SUPPLIES
after INSERT ON Supplies
FOR EACH ROW
BEGIN
    dbms_output.put_line('New Supplies Added');
END;
```

Results Explain Describe Saved SQL History

Trigger created.

0.07 seconds

Activate Windows Application Express 2.1.0.00.39
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Go to Setup

SQL Commands

127.0.0.1:8080/apex/f?p=4500:1003:67769410276517::NO::

ORACLE Database Express Edition

User SCOTT

Home > SQL > SQL Commands

Autocommit

```
CREATE OR REPLACE TRIGGER Order_cancel
after delete ON Order_dish
FOR EACH ROW
BEGIN
    dbms_output.put_line('New Order Canceled');
END; |
```

Results Explain Describe Saved SQL History

Trigger created.

0.11 seconds

Activate Windows Application Express 2.1.0.00.39
Language: en-us Copyright © 1999, 2008, Oracle. All rights reserved.
Go to Setup

The screenshot shows the Oracle Database Express Edition SQL Commands interface. The user is SCOTT. The page title is "SQL Commands". The URL is "127.0.0.1:8080/apex/f?p=4500:1003:67769410276517::NO:::". The menu bar includes Home, Logout, and Help. The main content area shows the following SQL code:

```

CREATE OR REPLACE TRIGGER Order_remove
after update ON Order_dish
FOR EACH ROW
BEGIN
    dbms_output.put_line('Removed');
END;

```

The "Run" button has been clicked, and the results show:

Trigger created.

0.11 seconds

At the bottom right, there are links for "Activate Window", "Application Express 2.1.0.00.39", "Go to Site", and "Copyright © 1999-2008, Oracle. All rights reserved."

Package:

1.Create a package that contains a procedure which can display the Chef Name of any Chef whose City is passed as its parameter.

```

CREATE PACKAGE chefs_pack AS
  PROCEDURE display_c_name(c_id chefs.city%type);
END chefs_pack;

```

```

CREATE OR REPLACE PACKAGE BODY chefs_pack AS
  PROCEDURE display_c_name(c_id chefs.city%TYPE) IS
    e_chefs chefs.c_name%TYPE;
  BEGIN
    SELECT c_name INTO e_chefs
    FROM chefs
    WHERE city = c_id;
  END;

```

```
dbms_output.put_line('Chef Name is :'|| e_chefs);
END display_c_name;
END chefs_pack;
/
```

2.Create a package that contains a procedure which can display the item name of any material whose price is passed as its parameter.

```
CREATE PACKAGE material_pack AS
PROCEDURE display_item_name(m_id dish.price_tk%type);
END material_pack;
```

```
CREATE OR REPLACE PACKAGE BODY material_pack AS
PROCEDURE display_item_name(m_id dish.price_tk%TYPE) IS
e_material material.item_name%TYPE;
BEGIN
  SELECT item_name INTO e_material
  FROM material
  WHERE price_tk = m_id;
  dbms_output.put_line('Item is :'|| e_material);
END display_item_name;
END material_pack;
```

3.Create a package that contains a procedure which can display the waiter name when city of the waiter is passed.

```
CREATE PACKAGE waiter_pack AS
PROCEDURE display_e_name(e_id waiter.city%type);
END waiter_pack;
```

```
CREATE OR REPLACE PACKAGE BODY waiter_pack AS
PROCEDURE display_e_name(e_id waiter.city%TYPE) IS
e_waiter waiter.e_name%TYPE;
BEGIN
```

```

SELECT e_name INTO e_waiter
FROM waiter
WHERE city = e_id;
dbms_output.put_line('Waiter Name : || e_waiter);
END display_e_name;
END waiter_pack;

```

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

```

CREATE PACKAGE chefs_pack AS
  PROCEDURE display_chefs_name(c_id chefs.city%type);
END chefs_pack;

```

The results pane shows the message "Package created." and execution time "0.03 seconds". The status bar at the bottom right indicates "Activate Window" and "Copyright © 1999, 2006, Oracle. All rights reserved."

SQL Commands

User: SCOTT

ORACLE Database Express Edition

Home > SQL > SQL Commands

Autocommit Display 10

```
CREATE OR REPLACE PACKAGE BODY chefs_pack AS
  PROCEDURE display_c_name(c_id chefs.c_name%TYPE) IS
    e_chefs chefs.c_name%TYPE;
  BEGIN
    SELECT c_name INTO e_chefs
    FROM chefs
    WHERE city = c_id;

    dbms_output.put_line('Chef Name is : '|| e_chefs);
  END display_c_name;
END chefs_pack;
/
```

Results Explain Describe Saved SQL History

Statement processed.

0.06 seconds

Activate Window Application Express 2.1.0.0.39
Language: en-us Go to Source Copyright © 1999, 2008, Oracle. All rights reserved.

SQL Commands

User: SCOTT

ORACLE Database Express Edition

Home > SQL > SQL Commands

Autocommit Display 10

```
CREATE PACKAGE material_pack AS
  PROCEDURE display_item_name(m_id dish.price_tk%type);
END material_pack;
```

Results Explain Describe Saved SQL History

Package created.

0.15 seconds

SQL Commands

127.0.0.1:8080/apex/?p=4500:1003:67769410276517:NO::

ORACLE Database Express Edition

User: SCOTT

Home > SQL > SQL Commands

```
Autocommit Display 10 Save Run
CREATE OR REPLACE PACKAGE BODY material_pack AS
    PROCEDURE display_item_name(m_id dish.price_tk%TYPE) IS
        e_material material.item_name%TYPE;
    BEGIN
        SELECT item_name INTO e_material
        FROM material
        WHERE price_tk = m_id;
        dbms_output.put_line('Item is : '|| e_material);
    END display_item_name;
END material_pack;
```

Results Explain Describe Saved SQL History

Package Body created.

0.08 seconds

SQL Commands

127.0.0.1:8080/apex/?p=4500:1003:67769410276517:NO::

ORACLE Database Express Edition

User: SCOTT

Home > SQL > SQL Commands

```
Autocommit Display 10 Save Run
CREATE PACKAGE waiter_pack AS
    PROCEDURE display_e_id(e_id waiter.e_name%type);
END waiter_pack;
```

Results Explain Describe Saved SQL History

Package created.

0.00 seconds

The screenshot shows the Oracle Database Express Edition SQL Commands interface. The user is SCOTT. The page title is "SQL Commands" and the URL is "127.0.0.1:8080/apex/f?p=4500:1003:67769410276517::NO:::". The main content area contains the following PL/SQL code:

```
CREATE OR REPLACE PACKAGE BODY waiter_pack AS
PROCEDURE display_e_name(e_id waiter.city%TYPE) IS
e_waiter waiter.e_name%TYPE;
BEGIN
SELECT e_name INTO e_waiter
FROM waiter
WHERE city = e_id;
dbms_output.put_line('Waiter Name : '|| e_waiter);
END display_e_name;
END waiter_pack;
```

Below the code, the results are displayed:

Package Body created.
0.05 seconds

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.