ITE1003-DATABASE MANAGEMENT SYSTEMS

J component

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TITLE: RESTAURANT DATABASE MANAGEMENT SYSTEM

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Module 1: Analysis

Abstract:-

The primary objective of the project is to develop a database on RESTAURANT MANAGEMENT SYSTEM. This project on Restaurant DBMS helps us to understand how the databases work in restaurants and that every restaurant has many has entities and every entity has many attributes. By identifying the entities, attributes and relations in the Restaurant DBMS, it becomes easier to go forward and work on it. Since there is always so much data generated in an hour in a restaurant, it is important to provide access to a particular data field quickly and accurately as per requirements.

Description:-

- The restaurant has Chefs who have an ID(Chef_id), name(Chef_name), address(C_addr), salary(C_salary), birthdate(C_bdate), hiredate(C_hiredate) and age(C_age).
- Each waiter has an ID(W_id), name(W_name), address(W_addr), salary(W_salary), birthdate(W_bdate), hiredate(W_hiredate), age(W_age), and a Resignation.

- There is a head waiter who supervises the waiters and informs the chef about the orders given by the customers.

- All waiters serve food to the customers, who are identified by their table number(T_no), have a name(C_name), phone number(pno) ,Email, Number of persons(No_of_pax) and also give reviews for the food.

- Each customer is served by multiple waiters and the waiters can also serve food to multiple customers as per requirement.

- Orders given by customers have a unique ID(O_id), Time and status. Customers can give multiple orders but one order has an ID associated only to a particular Customer table.

- Meals have an ID(M_id), name(M_name),price(M_price) and quantity(M_quantity). Multiple meals are contained in an order and an order also may have multiple meals.

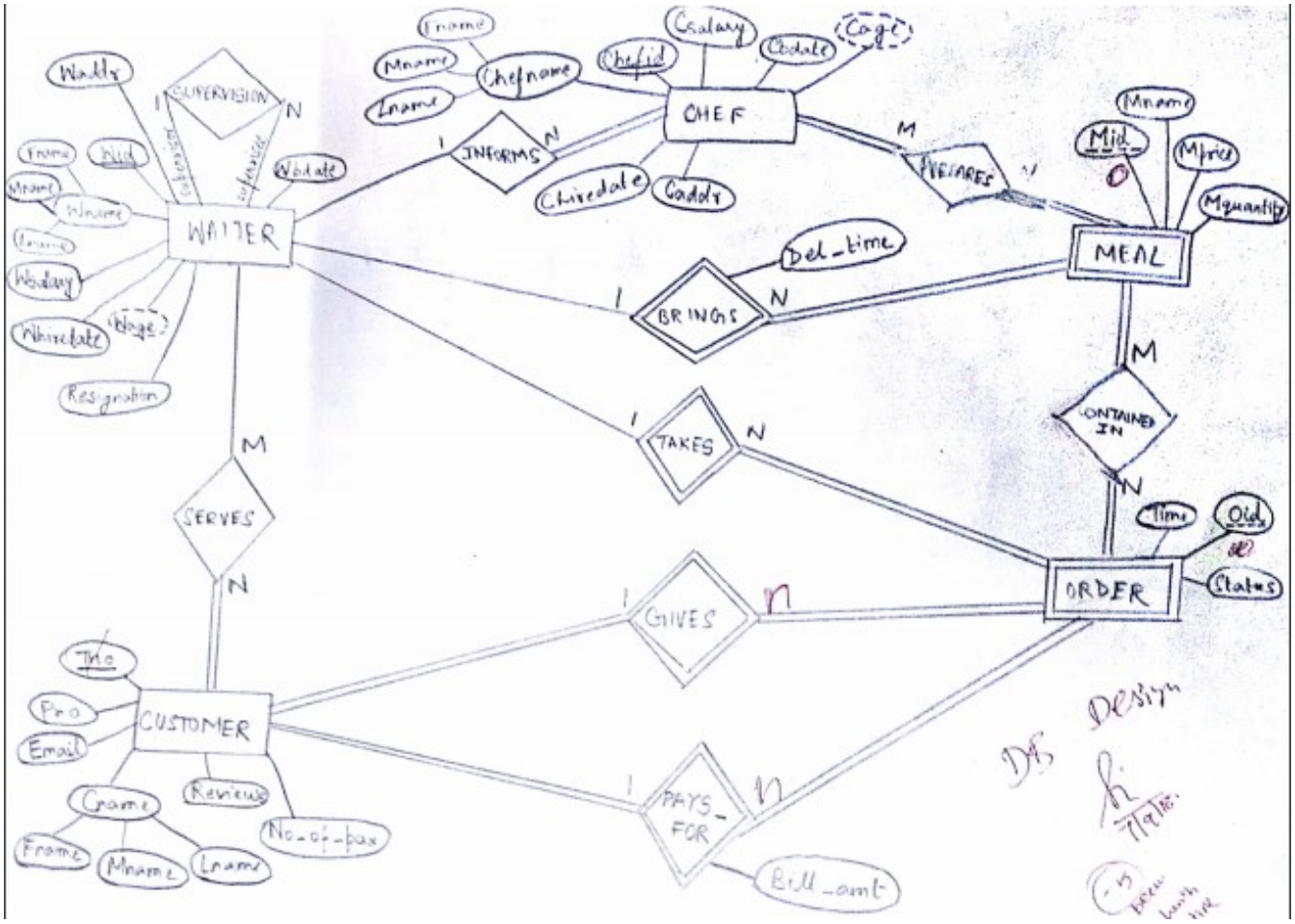
- A waiter can take multiple orders but a particular order is taken by only one waiter.

- A chef can prepare multiple meals and all meals are prepared my multiple chefs. After meal is prepared, waiters bring the meal to the customers and we keep track of the delivery time of the meal brought to the customer. A waiter can bring multiple meals.

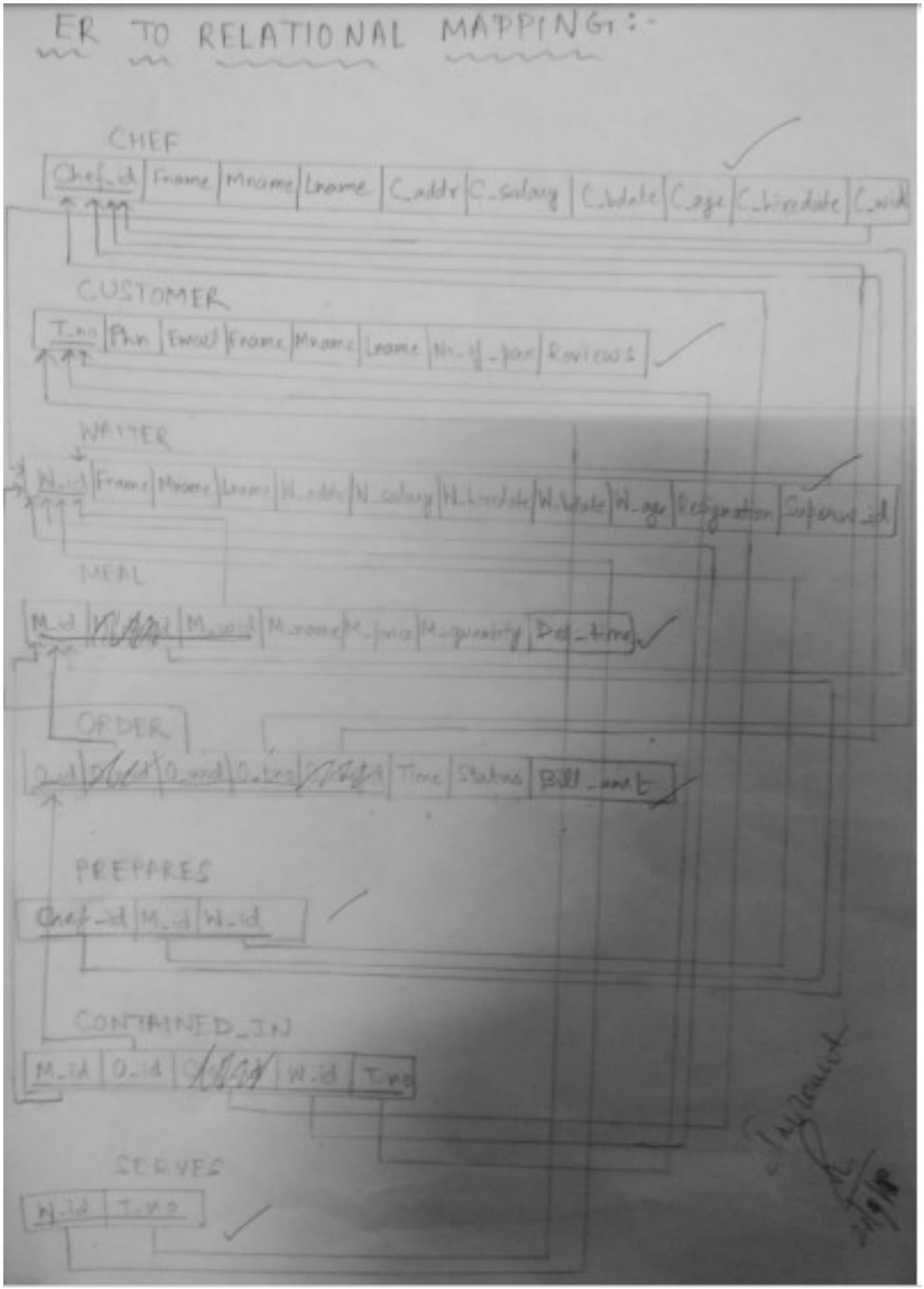
- Finally, the customer pays for the order, for which we keep a bill_amt associated. A customer may pay for multiple orders.

Module 2: Design

ENTITY RELATIONSHIP DIAGRAM (ERD) :-



Module 3: Mapping



Module 4: Implementation (Simple Queries)

Creating Tables:-

```
SQL> CREATE TABLE CUSTOMER
  2  (T_no number(2) primary key,
  3  Phn number(10),
  4  Email varchar(50),
  5  Fname varchar(30),
  6  Mname varchar(30),
  7  Lname varchar(30),
  8  No_of_pax number(2),
  9  Reviews varchar(50));

Table created.

SQL> CREATE TABLE WAITER
  2  (W_id number(2) primary key,
  3  Fname varchar(30),
  4  Mname varchar(30),
  5  Lname varchar(30),
  6  W_addr varchar(50),
  7  W_salary number(5),
  8  W_hiredate date,
  9  W_bdate date,
 10  W_age number(2),
 11  Resignation varchar(30),
 12  Superw_id number(2) references WAITER(W_id));

Table created.

SQL> CREATE TABLE CHEF
  2  (Chef_id number(2) primary key,
  3  Fname varchar(30),
  4  Mname varchar(30),
  5  Lname varchar(30),
  6  C_addr varchar(50),
  7  C_salary number(5),
  8  C_hiredate date,
  9  C_bdate date,
 10  C_age number(2),
 11  C_wid number(2) references WAITER(W_id));

Table created.
```

```
SQL> CREATE TABLE MEAL
  2  (M_id number(3),
  3  M_wid number(2) references WAITER(W_id),
  4  M_name varchar(30),
  5  M_price number(3),
  6  M_quantity number(2),
  7  Del_time timestamp,
  8  primary key(M_id,M_wid));

Table created.

SQL> CREATE TABLE ORDERS
  2  (O_id number(3),
  3  O_wid number(2) references WAITER(W_id),
  4  O_tno number(2) references CUSTOMER(T_no),
  5  Time timestamp,
  6  Status varchar(20),
  7  Bill_amt number(5),
  8  primary key(O_id,O_wid,O_tno));

Table created.

SQL> CREATE TABLE PREPARES
  2  (Chef_id number(2) references CHEF(Chef_id),
  3  M_id number(3),
  4  W_id number(2) references WAITER(W_id),
  5  constraint fk1 foreign key(M_id,W_id) references MEAL(M_id,M_wid),
  6  primary key(Chef_id,M_id,W_id));

Table created.

SQL> CREATE TABLE CONTAINED_IN
  2  (M_id number(3),
  3  O_id number(3),
  4  W_id number(2) references WAITER(W_id),
  5  T_no number(2) references CUSTOMER(T_no),
  6  constraint fk2 foreign key(M_id,W_id) references MEAL(M_id,M_wid),
  7  constraint fk3 foreign key(O_id,W_id,T_no) references
ORDERS(O_id,O_wid,O_tno),
  8  primary key(M_id,O_id,W_id,T_no));

Table created.

SQL> CREATE TABLE SERVES
  2  (W_id number(2) references WAITER(W_id),
  3  T_no number(2) references CUSTOMER(T_no),
  4  primary key(W_id,T_no));

Table created.
```

INSERTING INTO 'CUSTOMER' TABLE:-

```
SQL> INSERT INTO CUSTOMER
VALUES(&T_no,&Phn,'&Email','&Fname','&Mname','&Lname',&No_of_pax,'&Reviews');
Enter value for t_no: 1
Enter value for phn: 9876543210
Enter value for email: raj@gmail.com
Enter value for fname: RAJ
Enter value for mname: ''
Enter value for lname: SINGH
Enter value for no_of_pax: 4
Enter value for reviews: Nice Food
old   1: INSERT INTO CUSTOMER
VALUES(&T_no,&Phn,'&Email','&Fname','&Mname','&Lname',&No_of_pax,'&Reviews')
new   1: INSERT INTO CUSTOMER
VALUES(1,9876543210,'raj@gmail.com','RAJ','''','SINGH',4,'Nice Food')
1 row created.

SQL> INSERT INTO CUSTOMER
VALUES(&T_no,&Phn,'&Email','&Fname','&Mname','&Lname',&No_of_pax,'&Reviews');
Enter value for t_no: 2
Enter value for phn: 9988775432
Enter value for email: kaushik@yahoo.com
Enter value for fname: KAUSHIK
Enter value for mname: KUM
Enter value for lname: RAO
Enter value for no_of_pax: 7
Enter value for reviews: Burger was great
old   1: INSERT INTO CUSTOMER
VALUES(&T_no,&Phn,'&Email','&Fname','&Mname','&Lname',&No_of_pax,'&Reviews')
new   1: INSERT INTO CUSTOMER
VALUES(2,9988775432,'kaushik@yahoo.com','KAUSHIK','KUM','RAO',7,'Burger was
great')

1 row created.

SQL> INSERT INTO CUSTOMER
VALUES(&T_no,&Phn,'&Email','&Fname','&Mname','&Lname',&No_of_pax,'&Reviews');
Enter value for t_no: 4
Enter value for phn: 8299250288
Enter value for email: rashi.s@gmail.com
Enter value for fname: RASHI
Enter value for mname: ''
Enter value for lname: SHANKAR
Enter value for no_of_pax: 6
Enter value for reviews: Good Service
old   1: INSERT INTO CUSTOMER
VALUES(&T_no,&Phn,'&Email','&Fname','&Mname','&Lname',&No_of_pax,'&Reviews')
```

```
new   1: INSERT INTO CUSTOMER
VALUES(4,8299250288,'rashi.s@gmail.com','RASHI','''','SHANKAR',6,'Good
Service')

1 row created.

SQL> INSERT INTO CUSTOMER
VALUES(&T_no,&Phn,'&Email','&Fname','&Mname','&Lname',&No_of_pax,'&Reviews');
Enter value for t_no: 3
Enter value for phn: 9774327890
Enter value for email: rahul.g@gmail.com
Enter value for fname: RAHUL
Enter value for mname: KUMAR
Enter value for lname: GUPTA
Enter value for no_of_pax: 9
Enter value for reviews: Great Experience
old   1: INSERT INTO CUSTOMER
VALUES(&T_no,&Phn,'&Email','&Fname','&Mname','&Lname',&No_of_pax,'&Reviews')
new   1: INSERT INTO CUSTOMER
VALUES(3,9774327890,'rahul.g@gmail.com','RAHUL','KUMAR','GUPTA',9,'Great
Experience')

1 row created.
```

INSERTING INTO 'WAITER' TABLE:-

```
SQL> INSERT INTO WAITER
VALUES(&W_id,'&Fname','&Mname','&Lname','&W_addr',&W_salary,'&W_hiredate','&W
_bdate',&W_age,'&Resignation',&Superw_id);
Enter value for w_id: 05
Enter value for fname: RAMESH
Enter value for mname: SINGH
Enter value for lname: RAJPUT
Enter value for w_addr: Russel Street
Enter value for w_salary: 8000
Enter value for w_hiredate: 21-JAN-2016
Enter value for w_bdate: 5-OCT-1993
Enter value for w_age: 25
Enter value for resignation: Supervisor
Enter value for superw_id: ''
old   1: INSERT INTO WAITER
VALUES(&W_id,'&Fname','&Mname','&Lname','&W_addr',&W_salary,'&W_hiredate','&W
_bdate',&W_age,'&Resignation',&Superw_id)
new   1: INSERT INTO WAITER VALUES(05,'RAMESH','SINGH','RAJPUT','Russel
Street',8000,'21-JAN-2016','5-OCT-1993',25,'Supervisor','')

1 row created.
```

```
SQL> INSERT INTO WAITER
VALUES(&W_id,'&Fname','&Mname','&Lname','&W_addr',&W_salary,'&W_hiredate','&W
_bdate',&W_age,'&Resignation',&Superw_id);
Enter value for w_id: 02
Enter value for fname: VIRAJ
Enter value for mname: ''
Enter value for lname: KUMAR
Enter value for w_addr: Andheri
Enter value for w_salary: 5000
Enter value for w_hiredate: 09-NOV-2017
Enter value for w_bdate: 19-DEC-1995
Enter value for w_age: 22
Enter value for resignation: Supervisee
Enter value for superw_id: 05
old   1: INSERT INTO WAITER
VALUES(&W_id,'&Fname','&Mname','&Lname','&W_addr',&W_salary,'&W_hiredate','&W
_bdate',&W_age,'&Resignation',&Superw_id)
new   1: INSERT INTO WAITER
VALUES(02,'VIRAJ','''','KUMAR','Andheri',5000,'09-NOV-2017','19-DEC-
1995',22,'Supervisee',05)

1 row created.

SQL> INSERT INTO WAITER
VALUES(&W_id,'&Fname','&Mname','&Lname','&W_addr',&W_salary,'&W_hiredate','&W
_bdate',&W_age,'&Resignation',&Superw_id);
Enter value for w_id: 01
Enter value for fname: SURENDRA
Enter value for mname: ''
Enter value for lname: RAJ
Enter value for w_addr: Kanchan Bagh
Enter value for w_salary: 5500
Enter value for w_hiredate: 31-DEC-2016
Enter value for w_bdate: 09-NOV-1994
Enter value for w_age: 23
Enter value for resignation: Supervisee
Enter value for superw_id: 05
old   1: INSERT INTO WAITER
VALUES(&W_id,'&Fname','&Mname','&Lname','&W_addr',&W_salary,'&W_hiredate','&W
_bdate',&W_age,'&Resignation',&Superw_id)
new   1: INSERT INTO WAITER VALUES(01,'SURENDRA','''','RAJ','Kanchan
Bagh',5500,'31-DEC-2016','09-NOV-1994',23,'Supervisee',05)

1 row created.

SQL> INSERT INTO WAITER
VALUES(&W_id,'&Fname','&Mname','&Lname','&W_addr',&W_salary,'&W_hiredate','&W
_bdate',&W_age,'&Resignation',&Superw_id);
Enter value for w_id: 04
Enter value for fname: ALEEM
```

```
Enter value for mname: ''
Enter value for lname: DAR
Enter value for w_addr: Park Street
Enter value for w_salary: 6000
Enter value for w_hiredate: 15-FEB-2017
Enter value for w_bdate: 24-OCT-1996
Enter value for w_age: 22
Enter value for resignation: Supervisee
Enter value for superw_id: 05
old   1: INSERT INTO WAITER
VALUES(&W_id,'&Fname','&Mname','&Lname','&W_addr',&W_salary,'&W_hiredate','&W
_bdate',&W_age,'&Resignation',&Superw_id)
new   1: INSERT INTO WAITER VALUES(04,'ALEEM','''','DAR','Park
Street',6000,'15-FEB-2017','24-OCT-1996',22,'Supervisee',05)

1 row created.
```

INSERTING INTO 'CHEF' TABLE:-

```
SQL> INSERT INTO CHEF
VALUES(&Chef_id,'&Fname','&Mname','&Lname','&C_addr',&C_salary,'&C_hiredate',
'&C_bdate',&C_age,&C_wid);
Enter value for chef_id: 11
Enter value for fname: VIKAS
Enter value for mname: ''
Enter value for lname: KHANNA
Enter value for c_addr: Camac Street
Enter value for c_salary: 30000
Enter value for c_hiredate: 25-FEB-2016
Enter value for c_bdate: 02-JAN-1988
Enter value for c_age: 30
Enter value for c_wid: 04
old   1: INSERT INTO CHEF
VALUES(&Chef_id,'&Fname','&Mname','&Lname','&C_addr',&C_salary,'&C_hiredate',
'&C_bdate',&C_age,&C_wid)
new   1: INSERT INTO CHEF VALUES(11,'VIKAS','''','KHANNA','Camac
Street',30000,'25-FEB-2016','02-JAN-1988',30,04)

1 row created.

SQL> INSERT INTO CHEF
VALUES(&Chef_id,'&Fname','&Mname','&Lname','&C_addr',&C_salary,'&C_hiredate',
'&C_bdate',&C_age,&C_wid);
Enter value for chef_id: 12
Enter value for fname: KUNAL
Enter value for mname: RAJ
Enter value for lname: KAUSHIK
Enter value for c_addr: Theatre Road
```

```
Enter value for c_salary: 35000
Enter value for c_hiredate: 29-DEC-2015
Enter value for c_bdate: 02-OCT-1983
Enter value for c_age: 35
Enter value for c_wid: 02
old   1: INSERT INTO CHEF
VALUES(&Chef_id,'&Fname','&Mname','&Lname','&C_addr',&C_salary,'&C_hiredate',
'&C_bdate',&C_age,&C_wid)
new   1: INSERT INTO CHEF VALUES(12,'KUNAL','RAJ','KAUSHIK','Theatre
Road',35000,'29-DEC-2015','02-OCT-1983',35,02)

1 row created.

SQL> INSERT INTO CHEF
VALUES(&Chef_id,'&Fname','&Mname','&Lname','&C_addr',&C_salary,'&C_hiredate',
'&C_bdate',&C_age,&C_wid);
Enter value for chef_id: 13
Enter value for fname: JUNAID
Enter value for mname: ''
Enter value for lname: KHAN
Enter value for c_addr: Theatre Road
Enter value for c_salary: 27000
Enter value for c_hiredate: 28-DEC-2016
Enter value for c_bdate: 03-AUG-1990
Enter value for c_age: 28
Enter value for c_wid: 01
old   1: INSERT INTO CHEF
VALUES(&Chef_id,'&Fname','&Mname','&Lname','&C_addr',&C_salary,'&C_hiredate',
'&C_bdate',&C_age,&C_wid)
new   1: INSERT INTO CHEF VALUES(13,'JUNAID','''','KHAN','Theatre
Road',27000,'28-DEC-2016','03-AUG-1990',28,01)

1 row created.

SQL> INSERT INTO CHEF
VALUES(&Chef_id,'&Fname','&Mname','&Lname','&C_addr',&C_salary,'&C_hiredate',
'&C_bdate',&C_age,&C_wid);
Enter value for chef_id: 15
Enter value for fname: SANJEEV
Enter value for mname: KUMAR
Enter value for lname: SINGH
Enter value for c_addr: CIT road
Enter value for c_salary: 25000
Enter value for c_hiredate: 24-FEB-2017
Enter value for c_bdate: 09-MAR-1991
Enter value for c_age: 27
Enter value for c_wid: 05
old   1: INSERT INTO CHEF
VALUES(&Chef_id,'&Fname','&Mname','&Lname','&C_addr',&C_salary,'&C_hiredate',
'&C_bdate',&C_age,&C_wid)
```

```
new   1: INSERT INTO CHEF VALUES(15,'SANJEEV','KUMAR','SINGH','CIT
road',25000,'24-FEB-2017','09-MAR-1991',27,05)

1 row created.
```

INSERTING INTO 'MEAL' TABLE:-

```
SQL> INSERT INTO MEAL
VALUES(&M_id,&M_wid,'&M_name',&M_price,&M_quantity,'&Del_time');
Enter value for m_id: 100
Enter value for m_wid: 01
Enter value for m_name: Burger
Enter value for m_price: 140
Enter value for m_quantity: 2
Enter value for del_time: 24-OCT-2017 12:47:34
old   1: INSERT INTO MEAL
VALUES(&M_id,&M_wid,'&M_name',&M_price,&M_quantity,'&Del_time')
new   1: INSERT INTO MEAL VALUES(100,01,'Burger',140,2,'24-OCT-2017
12:47:34')

1 row created.

SQL> INSERT INTO MEAL
VALUES(&M_id,&M_wid,'&M_name',&M_price,&M_quantity,'&Del_time');
Enter value for m_id: 102
Enter value for m_wid: 04
Enter value for m_name: Pasta
Enter value for m_price: 220
Enter value for m_quantity: 3
Enter value for del_time: 12-JAN-2018 09:23:21
old   1: INSERT INTO MEAL
VALUES(&M_id,&M_wid,'&M_name',&M_price,&M_quantity,'&Del_time')
new   1: INSERT INTO MEAL VALUES(102,04,'Pasta',220,3,'12-JAN-2018 09:23:21')

1 row created.

SQL> INSERT INTO MEAL
VALUES(&M_id,&M_wid,'&M_name',&M_price,&M_quantity,'&Del_time');
Enter value for m_id: 109
Enter value for m_wid: 02
Enter value for m_name: Kadhai Paneer
Enter value for m_price: 250
Enter value for m_quantity: 1
Enter value for del_time: 18-JAN-2018 08:54:45
old   1: INSERT INTO MEAL
VALUES(&M_id,&M_wid,'&M_name',&M_price,&M_quantity,'&Del_time')
new   1: INSERT INTO MEAL VALUES(109,02,'Kadhai Paneer',250,1,'18-JAN-2018
08:54:45')
```

```
1 row created.

SQL> INSERT INTO MEAL
VALUES(&M_id,&M_wid,'&M_name',&M_price,&M_quantity,'&Del_time');
Enter value for m_id: 107
Enter value for m_wid: 04
Enter value for m_name: Masala Dosa
Enter value for m_price: 110
Enter value for m_quantity: 4
Enter value for del_time: 26-MAR-2018 07:02:16
old   1: INSERT INTO MEAL
VALUES(&M_id,&M_wid,'&M_name',&M_price,&M_quantity,'&Del_time')
new   1: INSERT INTO MEAL VALUES(107,04,'Masala Dosa',110,4,'26-MAR-2018
07:02:16')

1 row created.
```

INSERTING INTO 'ORDERS' TABLE:-

```
SQL> INSERT INTO ORDERS
VALUES(&O_id,&O_wid,&O_tno,'&Time','&Status',&Bill_amt);
Enter value for o_id: 111
Enter value for o_wid: 02
Enter value for o_tno: 2
Enter value for time: 23-JUNE-2017 09:30:02
Enter value for status: Delivered
Enter value for bill_amt: 1240
old   1: INSERT INTO ORDERS
VALUES(&O_id,&O_wid,&O_tno,'&Time','&Status',&Bill_amt)
new   1: INSERT INTO ORDERS VALUES(111,02,2,'23-JUNE-2017
09:30:02','Delivered',1240)

1 row created.

SQL> INSERT INTO ORDERS
VALUES(&O_id,&O_wid,&O_tno,'&Time','&Status',&Bill_amt);
Enter value for o_id: 127
Enter value for o_wid: 01
Enter value for o_tno: 3
Enter value for time: 27-OCT-2018 08:45:00
Enter value for status: Pending
Enter value for bill_amt: 1560
old   1: INSERT INTO ORDERS
VALUES(&O_id,&O_wid,&O_tno,'&Time','&Status',&Bill_amt)
new   1: INSERT INTO ORDERS VALUES(127,01,3,'27-OCT-2018
08:45:00','Pending',1560)

1 row created.
```

```
SQL> INSERT INTO ORDERS
VALUES(&O_id,&O_wid,&O_tno,'&Time','&Status',&Bill_amt);
Enter value for o_id: 118
Enter value for o_wid: 04
Enter value for o_tno: 4
Enter value for time: 16-AUG-2018 07:20:45
Enter value for status: Delivered
Enter value for bill_amt: 980
old   1: INSERT INTO ORDERS
VALUES(&O_id,&O_wid,&O_tno,'&Time','&Status',&Bill_amt)
new   1: INSERT INTO ORDERS VALUES(118,04,4,'16-AUG-2018
07:20:45','Delivered',980)

1 row created.

SQL> INSERT INTO ORDERS
VALUES(&O_id,&O_wid,&O_tno,'&Time','&Status',&Bill_amt);
Enter value for o_id: 151
Enter value for o_wid: 01
Enter value for o_tno: 2
Enter value for time: 09-JUN-2018 08:56:20
Enter value for status: Delivered
Enter value for bill_amt: 1930
old   1: INSERT INTO ORDERS
VALUES(&O_id,&O_wid,&O_tno,'&Time','&Status',&Bill_amt)
new   1: INSERT INTO ORDERS VALUES(151,01,2,'09-JUN-2018
08:56:20','Delivered',1930)

1 row created.
```

INSERTING INTO 'PREPARES' TABLE:-

```
SQL> INSERT INTO PREPARES VALUES(&Chef_id,&M_id,&W_id);
Enter value for chef_id: 15
Enter value for m_id: 109
Enter value for w_id: 02
old   1: INSERT INTO PREPARES VALUES(&Chef_id,&M_id,&W_id)
new   1: INSERT INTO PREPARES VALUES(15,109,02)

1 row created.

SQL> INSERT INTO PREPARES VALUES(&Chef_id,&M_id,&W_id);
Enter value for chef_id: 11
Enter value for m_id: 102
Enter value for w_id: 04
old   1: INSERT INTO PREPARES VALUES(&Chef_id,&M_id,&W_id)
new   1: INSERT INTO PREPARES VALUES(11,102,04)
```

```
1 row created.

SQL> INSERT INTO PREPARES VALUES(&Chef_id,&M_id,&W_id);
Enter value for chef_id: 12
Enter value for m_id: 100
Enter value for w_id: 01
old   1: INSERT INTO PREPARES VALUES(&Chef_id,&M_id,&W_id)
new   1: INSERT INTO PREPARES VALUES(12,100,01)

1 row created.

SQL> INSERT INTO PREPARES VALUES(&Chef_id,&M_id,&W_id);
Enter value for chef_id: 15
Enter value for m_id: 107
Enter value for w_id: 04
old   1: INSERT INTO PREPARES VALUES(&Chef_id,&M_id,&W_id)
new   1: INSERT INTO PREPARES VALUES(15,107,04)

1 row created.
```

INSERTING INTO 'CONTAINED_IN' TABLE:-

```
SQL> INSERT INTO CONTAINED_IN VALUES(&M_id,&O_id,&W_id,&T_no);
Enter value for m_id: 100
Enter value for o_id: 127
Enter value for w_id: 01
Enter value for t_no: 3
old   1: INSERT INTO CONTAINED_IN VALUES(&M_id,&O_id,&W_id,&T_no)
new   1: INSERT INTO CONTAINED_IN VALUES(100,127,01,3)

1 row created.

SQL> INSERT INTO CONTAINED_IN VALUES(&M_id,&O_id,&W_id,&T_no);
Enter value for m_id: 102
Enter value for o_id: 118
Enter value for w_id: 04
Enter value for t_no: 4
old   1: INSERT INTO CONTAINED_IN VALUES(&M_id,&O_id,&W_id,&T_no)
new   1: INSERT INTO CONTAINED_IN VALUES(102,118,04,4)

1 row created.

SQL> INSERT INTO CONTAINED_IN VALUES(&M_id,&O_id,&W_id,&T_no);
Enter value for m_id: 107
Enter value for o_id: 118
Enter value for w_id: 04
Enter value for t_no: 4
```

```
old   1: INSERT INTO CONTAINED_IN VALUES(&M_id,&O_id,&W_id,&T_no)
new   1: INSERT INTO CONTAINED_IN VALUES(107,118,04,4)

1 row created.

SQL> INSERT INTO CONTAINED_IN VALUES(&M_id,&O_id,&W_id,&T_no);
Enter value for m_id: 109
Enter value for o_id: 111
Enter value for w_id: 02
Enter value for t_no: 2
old   1: INSERT INTO CONTAINED_IN VALUES(&M_id,&O_id,&W_id,&T_no)
new   1: INSERT INTO CONTAINED_IN VALUES(109,111,02,2)

1 row created.
```

INSERTING INTO 'SERVES' TABLE:-

```
SQL> INSERT INTO SERVES VALUES(&W_id,&T_no);
Enter value for w_id: 02
Enter value for t_no: 4
old   1: INSERT INTO SERVES VALUES(&W_id,&T_no)
new   1: INSERT INTO SERVES VALUES(02,4)

1 row created.

SQL> INSERT INTO SERVES VALUES(&W_id,&T_no);
Enter value for w_id: 01
Enter value for t_no: 3
old   1: INSERT INTO SERVES VALUES(&W_id,&T_no)
new   1: INSERT INTO SERVES VALUES(01,3)

1 row created.

SQL> INSERT INTO SERVES VALUES(&W_id,&T_no);
Enter value for w_id: 04
Enter value for t_no: 2
old   1: INSERT INTO SERVES VALUES(&W_id,&T_no)
new   1: INSERT INTO SERVES VALUES(04,2)

1 row created.

SQL> INSERT INTO SERVES VALUES(&W_id,&T_no);
Enter value for w_id: 05
Enter value for t_no: 1
old   1: INSERT INTO SERVES VALUES(&W_id,&T_no)
new   1: INSERT INTO SERVES VALUES(05,1)

1 row created.
```

Alter, Delete and update:-

```
SQL> ALTER TABLE CHEF
  2  MODIFY C_age number(3);

Table altered.

SQL> ALTER TABLE MEAL
  2  RENAME COLUMN M_name TO Meal_name;

Table altered.

SQL> ALTER TABLE PREPARES
  2  DROP CONSTRAINT fk1;

Table altered.

SQL> ALTER TABLE PREPARES
  2  ADD CONSTRAINT prepares_fk1 FOREIGN KEY(M_id,W_id) REFERENCES
MEAL(M_id,M_wid);

Table altered.


SQL> DELETE FROM SERVES
  2  WHERE W_id=02;

1 row deleted.

SQL> DELETE FROM CONTAINED_IN
  2  WHERE M_id=100;

1 row deleted.

SQL> UPDATE WAITER
  2  SET W_salary=26000
  3  WHERE W_id=04;

1 row updated.

SQL> UPDATE MEAL
  2  SET M_price=&M_price
  3  WHERE M_id=107;
Enter value for m_price: 145
old   2: SET M_price=&M_price
new   2: SET M_price=145
```

```
1 row updated.
```

Primary key and foreign key constraint:-

Already added during table creation.

Select with Where clause:-

```
SQL> SELECT CUSTOMER.Fname NAME,CUSTOMER.T_no TABLE_NUMBER
  2  FROM CUSTOMER WHERE T_no=3;


NAME                           TABLE_NUMBER
------------------------------ ------------
RAHUL                                     3
```

Any five comparison operators:-

```
SQL> SELECT W_id WAITER_ID,W_age AGE
  2  FROM WAITER
  3  WHERE W_salary<6000;

 WAITER_ID        AGE
---------- ----------
         2         22
         1         23

SQL> SELECT O_id ORDER_ID,Bill_amt BILL_AMOUNT
  2  FROM ORDERS
  3  WHERE Bill_amt BETWEEN 1000 AND 1500;

  ORDER_ID BILL_AMOUNT
---------- -----------
       111        1240

SQL> SELECT M_id MEAL_ID,Meal_name
  2  FROM MEAL
  3  WHERE Meal_name LIKE 'B%';

   MEAL_ID MEAL_NAME
---------- ------------------------------
       100 Burger
```

```
SQL> SELECT Chef_id CHEF_ID,C_hiredate HIREDATE,C_salary SALARY
  2  FROM CHEF
  3  WHERE C_age!=35;

   CHEF_ID HIREDATE      SALARY
---------- --------- ----------
        11 25-FEB-16      30000
        13 28-DEC-16      27000
        15 24-FEB-17      25000

SQL> SELECT * FROM PREPARES
  2  WHERE W_id NOT IN(01,04);

   CHEF_ID       M_ID       W_ID
---------- ---------- ----------
        15        109          2
```

Any five Aggregate functions:-

```
SQL> SELECT AVG(W_salary) AVERAGE_WAITER_SALARY
  2  FROM WAITER;

AVERAGE_WAITER_SALARY
---------------------
                11125

SQL> SELECT COUNT(*) FROM CHEF;

  COUNT(*)
----------
         4

SQL> SELECT MIN(C_age) YOUNGEST_CHEF_AGE
  2  FROM CHEF;

YOUNGEST_CHEF_AGE
-----------------
               27

SQL> SELECT VARIANCE(C_salary) VARIANCE_IN_CHEF_SAL
  2  FROM CHEF;

VARIANCE_IN_CHEF_SAL
--------------------
          18916666.7

SQL> SELECT SUM(No_of_pax)
  2  FROM CUSTOMER;
```

```
SUM(NO_OF_PAX)
--------------
            26
```

Any five numeric functions:-

```
SQL> SELECT ROUND(VARIANCE(C_salary))
  2  FROM CHEF;

ROUND(VARIANCE(C_SALARY))
-------------------------
                 18916667

SQL> SELECT FLOOR(STDDEV(Bill_amt))
  2  FROM ORDERS;

FLOOR(STDDEV(BILL_AMT))
-----------------------
                    410

SQL> SELECT SQRT(W_age)
  2  FROM WAITER;

SQRT(W_AGE)
-----------
          5
 4.69041576
 4.79583152
 4.69041576

SQL> SELECT EXP(T_NO)
  2  FROM CUSTOMER;

 EXP(T_NO)
----------
2.71828183
 7.3890561
20.0855369
  54.59815

SQL> SELECT TRUNC(AVG(No_of_pax),1)
  2  FROM CUSTOMER;

TRUNC(AVG(NO_OF_PAX),1)
-----------------------
                    6.5
```

Any five String Functions:-

```
SQL> SELECT LOWER(W_addr)
  2  FROM WAITER;

LOWER(W_ADDR)
--------------------------------------------------
russel street
andheri
kanchan bagh
park street

SQL> SELECT LTRIM(Meal_name,'Pa')
  2  FROM MEAL
  3  WHERE M_id=102;

LTRIM(MEAL_NAME,'PA')
------------------------------
sta

SQL> SELECT LPAD(Fname,10,'@')
  2  FROM CUSTOMER;

LPAD(FNAME
----------
@@@@@@@RAJ
@@@KAUSHIK
@@@@@RASHI
@@@@@RAHUL

SQL> SELECT INITCAP(Lname)
  2  FROM WAITER;

INITCAP(LNAME)
------------------------------
Rajput
Kumar
Raj
Dar

SQL> SELECT SUBSTR(C_addr,3,4)
  2  FROM CHEF;

SUBS
----
mac
eatr
```

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eatr
T ro

Any five date functions:-

```
SQL> SELECT ADD_MONTHS(W_hiredate,7)
  2  FROM WAITER;

ADD_MONTH
---------
21-AUG-16
09-JUN-18
31-JUL-17
15-SEP-17


SQL> SELECT LAST_DAY(C_bdate)
  2  FROM CHEF;

LAST_DAY(
---------
31-JAN-88
31-OCT-83
31-AUG-90
31-MAR-91

SQL> SELECT ROUND(W_bdate,'month')
  2  FROM WAITER;

ROUND(W_B
---------
01-OCT-93
01-JAN-96
01-NOV-94
01-NOV-96

SQL> SELECT NEXT_DAY(C_hiredate,'MONDAY')
  2  FROM CHEF;

NEXT_DAY(
---------
29-FEB-16
04-JAN-16
02-JAN-17
27-FEB-17

SQL> SELECT TRUNC(W_hiredate,'YEAR')
```

```
  2  FROM WAITER;

TRUNC(W_H
---------
01-JAN-16
01-JAN-17
01-JAN-16
01-JAN-17
```

Any three conversion functions:-

```
SQL> SELECT TO_CHAR(C_bdate,'DDTH MONTH YYYY')
  2  FROM CHEF;

TO_CHAR(C_BDATE,'DD
-------------------
02ND JANUARY   1988
02ND OCTOBER   1983
03RD AUGUST    1990
09TH MARCH     1991

SQL> SELECT TO_CHAR(W_hiredate,'dd/mm/yy')
  2  FROM WAITER;

TO_CHAR(
--------
21/01/16
09/11/17
31/12/16
15/02/17

SQL> SELECT TO_CHAR(W_bdate,'ddth month yy')
  2  FROM WAITER;

TO_CHAR(W_BDATE,'
-----------------
05th october   93
19th december  95
09th november  94
24th october   96
```

Three queries based on set operators:-

```
SQL> SELECT Chef_id FROM CHEF
  2  INTERSECT
  3  SELECT Chef_id FROM PREPARES;
```

```
   CHEF_ID
----------
        11
        12
        15

SQL> SELECT Chef_id FROM CHEF
  2  MINUS
  3  SELECT Chef_id FROM PREPARES;

   CHEF_ID
----------
        13

SQL> SELECT W_id FROM WAITER
  2  UNION ALL
  3  SELECT W_id FROM SERVES;

      W_ID
----------
         1
         2
         4
         5
         1
         4
         5

7 rows selected.
```

Group by and having:-

```
SQL> SELECT T_no,COUNT(*)
  2  FROM CONTAINED_IN
  3  GROUP BY T_no
  4  HAVING COUNT(*)>1;

      T_NO   COUNT(*)
---------- ----------
         4          2

SQL> SELECT W_id,COUNT(W_id)
  2  FROM PREPARES
  3  GROUP BY W_id
  4  HAVING COUNT(*)>=2;
```

```
      W_ID COUNT(W_ID)
---------- -----------
         4           2
```

Order by clause:-

```
SQL> SELECT W_id,Fname,W_age
  2  FROM WAITER
  3  ORDER BY W_age DESC;

      W_ID FNAME                           W_AGE
---------- ------------------------------ ----------
         5 RAMESH                             25
         1 SURENDRA                           23
         4 ALEEM                              22
         2 VIRAJ                              22
```

Join more than two tables (3 Queries):-

```
SQL> SELECT C.Chef_id CHEF_ID,C.Lname CHEF_NAME,W.W_id WAITER_ID,M.Meal_name
  2  FROM CHEF C,WAITER W,MEAL M
  3  WHERE C.C_wid=W.W_id AND M.M_wid=W.W_id AND Meal_name='Pasta';

   CHEF_ID CHEF_NAME                     WAITER_ID
---------- ------------------------------ ----------
MEAL_NAME
------------------------------
        11 KHANNA                                4
Pasta


SQL> SELECT O.O_id ORDER_ID,O.Bill_amt,C.T_no TABLE_NO,W.W_id WAITER_ID
  2  FROM ORDERS O,CUSTOMER C,WAITER W
  3  WHERE O.O_tno=C.T_no AND O.O_wid=W.W_id AND Bill_amt<1300;

  ORDER_ID   BILL_AMT   TABLE_NO  WAITER_ID
---------- ---------- ---------- ----------
       111       1240          2          2
       118        980          4          4


SQL> SELECT CU.T_no,C.Chef_id,O.O_id,W.W_id,O.Time
  2  FROM CUSTOMER CU,CHEF C,ORDERS O,WAITER W
  3  WHERE CU.T_no=O.O_tno AND O.O_wid=W.W_id AND W.W_id=C.C_wid AND
C.C_age<30;
```

```
      T_NO    CHEF_ID       O_ID       W_ID
---------- ---------- ---------- ----------
TIME
---------------------------------------------------------------------------
         3         13        127          1
27-OCT-18 08.45.00.000000 AM

         2         13        151          1
09-JUN-18 08.56.20.000000 AM
```

Sub Queries (3 Queries):-

```
SQL> SELECT O.O_id,O.Time,C.Email
  2  FROM ORDERS O,CUSTOMER C
  3  WHERE O.O_tno IN
  4  (SELECT C.T_no FROM CUSTOMER WHERE C.Fname='KAUSHIK');

      O_ID
----------
TIME
---------------------------------------------------------------------------
EMAIL
--------------------------------------------------
       111
23-JUN-17 09.30.02.000000 AM
kaushik@yahoo.com

       151
09-JUN-18 08.56.20.000000 AM
kaushik@yahoo.com


SQL> SELECT CU.T_no,C.Chef_id,O.O_id,W.W_id
  2  FROM CUSTOMER CU,CHEF C,ORDERS O,WAITER W
  3  WHERE CU.T_no IN
  4  (SELECT O.O_tno FROM ORDERS
  5  WHERE O.O_wid IN
  6  (SELECT W.W_id FROM WAITER
  7  WHERE W.W_id IN
  8  (SELECT C.C_wid FROM CHEF
  9  WHERE C.C_age<30)));

      T_NO    CHEF_ID       O_ID       W_ID
---------- ---------- ---------- ----------
         2         13        151          1
         3         13        127          1
```

```
SQL> SELECT C.Chef_id,C.Fname,W.W_id,M.M_id
  2  FROM CHEF C,WAITER W,MEAL M
  3  WHERE C.C_wid IN
  4  (SELECT W.W_id FROM WAITER
  5  WHERE W.W_id IN
  6  (SELECT M.M_wid FROM MEAL
  7  WHERE M.Meal_name='Masala Dosa'));


CHEF_ID FNAME                                W_ID       M_ID
---------- ------------------------------ ---------- ----------
        11 VIKAS                                   4        107
```

Create 2 views:-

```
SQL> CREATE VIEW SOME_WAITER AS
  2  (SELECT W_id,Fname,W_Age
  3  FROM WAITER WHERE W_salary<6000);

View created.


SQL> CREATE VIEW EMP_DETAILS AS
  2  (SELECT C.Chef_id,W.W_id
  3  FROM CHEF C,WAITER W
  4  WHERE C.C_wid=W.W_id AND W.Resignation='Supervisee');

View created.
```

Module 5: Implementation (Procedural Queries)

One PL/SQL block using Cursor:-

```
SQL> DECLARE
  2  CURSOR c1 IS SELECT W_id,W_age FROM WAITER;
  3  id WAITER.W_id%type;
  4  a WAITER.W_age%type;
  5  nu number:=&nu;
  6  ag WAITER.W_age%type;
  7  BEGIN
  8  ag:=0;
```

```
  9  open c1;
 10  LOOP
 11  fetch c1 into id,a;
 12  exit when c1%notfound;
 13  if(nu=id) then
 14  ag:=a;
 15  dbms_output.put_line(a);
 16  end if;
 17  end loop;
 18  if(ag=0) then
 19  dbms_output.put_line('NO DATA AVAILABLE');
 20  end if;
 21  close c1;
 22  END;
 23  /
Enter value for nu: 05
old   5: nu number:=&nu;
new   5: nu number:=05;
25

PL/SQL procedure successfully completed.
```

One PL/SQL block using Procedure:-

```
SQL> CREATE OR REPLACE PROCEDURE red_salary(Cnum CHEF.Chef_id%type) IS
  2  sal CHEF.C_salary%type;
  3  BEGIN
  4  SELECT C_salary INTO sal FROM CHEF
  5  WHERE Chef_id=Cnum;
  6  IF sal>32000 THEN
  7  UPDATE CHEF SET C_salary=C_salary*0.8 WHERE Chef_id=Cnum;
  8  ELSE dbms_output.put_line('NO UPDATE');
  9  END IF;
 10  EXCEPTION
 11  WHEN no_data_found THEN
 12  dbms_output.put_line('NO DATA FOUND');
 13  END;
 14  /

Procedure created.

SQL> EXEC red_salary(11);

PL/SQL procedure successfully completed.
```

One PL/SQL block using Function:-

```
SQL> CREATE OR REPLACE FUNCTION find_salary(id WAITER.W_id%type)
  2  RETURN number IS
  3  sal WAITER.W_salary%type;
  4  BEGIN
  5  SELECT W_salary into sal
  6  FROM WAITER WHERE W_id=id;
  7  RETURN sal;
  8  END;
  9  /

Function created.

SQL> DECLARE
  2  num WAITER.W_id%type;
  3  sal WAITER.W_salary%type;
  4  BEGIN
  5  num:=&num;
  6  sal:=find_salary(num);
  7  DBMS_OUTPUT.PUT_LINE('The Waiter having ID '||num||' has salary of
Rs'||sal);
  8  END;
  9  /
Enter value for num: 02
old   5: num:=&num;
new   5: num:=02;
The Waiter having ID 2 has salary of Rs5000

PL/SQL procedure successfully completed.
```

One PL/SQL block using Trigger

```
SQL> CREATE OR REPLACE TRIGGER DEL1
  2  BEFORE DELETE ON CUSTOMER
  3  FOR EACH ROW
  4  BEGIN
  5  DELETE FROM ORDERS WHERE O_tno=:old.T_no;
  6  DELETE FROM CONTAINED_IN WHERE T_no=:old.T_no;
  7  DELETE FROM SERVES WHERE T_no=:old.T_no;
  8  END;
  9  /

Trigger created.
```

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```
SQL> DELETE FROM CUSTOMER
  2  WHERE T_no=1;

1 row deleted.



SQL> SELECT T_no FROM CUSTOMER;

      T_NO
----------
         2
         3
         4

SQL> SELECT O_tno FROM ORDERS;

     O_TNO
----------
         2
         4
         3
         2

SQL> SELECT T_no FROM CONTAINED_IN;

      T_NO
----------
         4
         4
         2

SQL> SELECT T_no FROM SERVES;

      T_NO
----------
         3
         2
```

THUS, ALL CORRESPONDING MATCHING ROWS PRESENT IN THE CHILD TABLES WERE DELETED BEFORE DELETION FROM THE PARENT TABLE.
HENCE, THE TRIGGER DEL1 WAS EXECUTED SUCCESSFULLY.