CASE STUDY

Report submitted to

Department of Computer Science and Engineering

By

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Under The Guidance of

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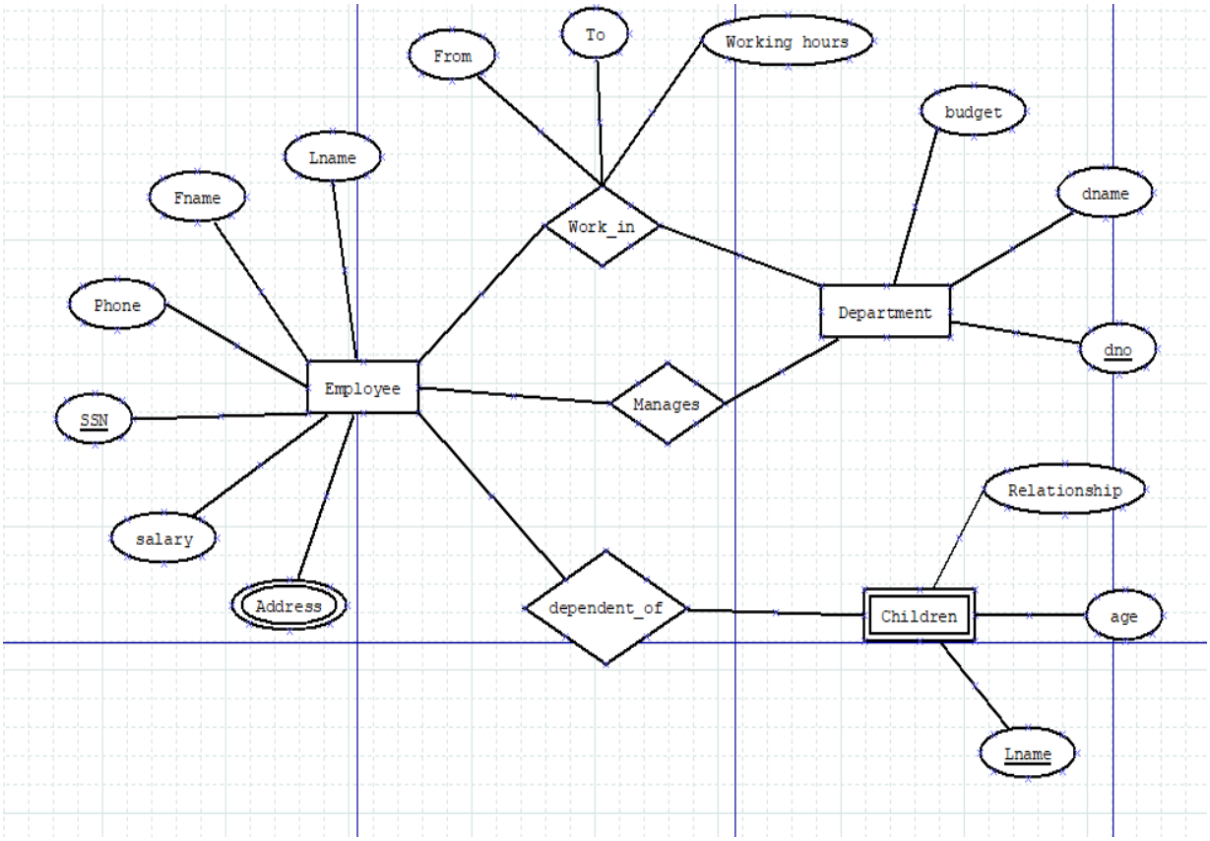
DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

GITAM Institute of Technology

AIM: To Create a Company Database

Description: A company database needs to store information about employees (identified by ssn, with salary and phone as attributes), departments (identified by dno, with dname and budget as attributes), and children of employees (with name and age as attributes). Employees work in departments; each department is managed by an employee; a child must be identified uniquely by name when the parent (who is an employee; assume that only one parent works for the company) is known. (Assume if any data is required)

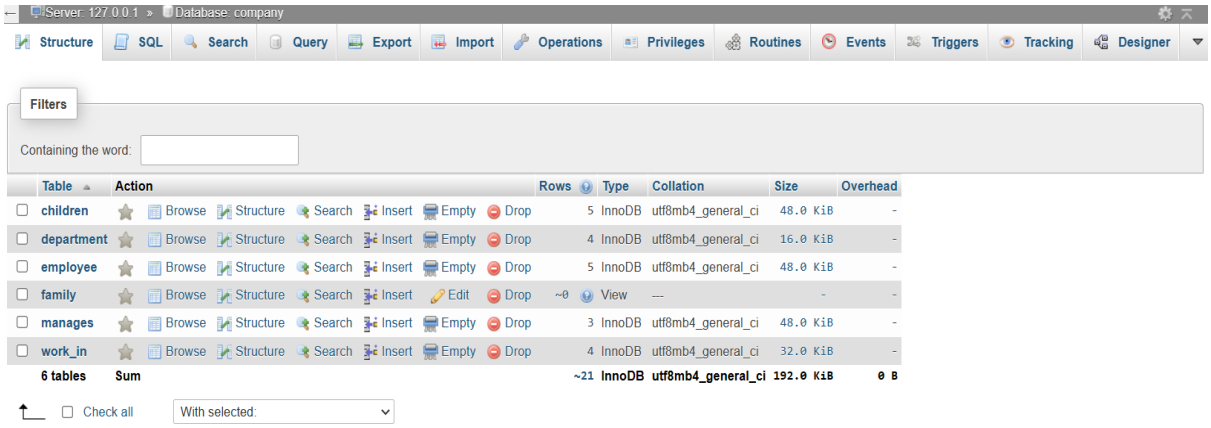
ER Diagram for Company Data base



MYSQL USING XAMPP

To Create Database :

CREATE DATABASE company;



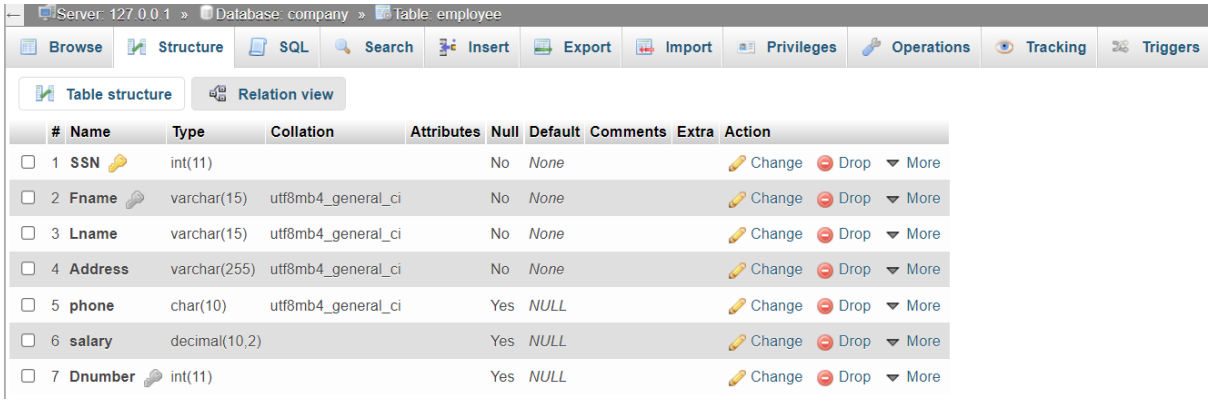
Relational Database Schema:

To Create Table Employee :

```
CREATE TABLE employee(
        SSN int PRIMARY KEY,
         Fname varchar(15) NOT null UNIQUE,
         Lname varchar(15) NOT null,
        Address varchar(255) not null,
        phone char(10),
        salary decimal(10,2)
);
```

To Add into Table Employee :

```
ALTER TABLE employee add Dnumber int;
Alter table employee add foreign key (Dnumber) references Department (Dno);
```



Insert Values into Employee Table:

INSERT INTO `employee` (`SSN`, `Fname`, `Lname`, `Address`, `phone`, `salary`, `Dnumber`) VALUES

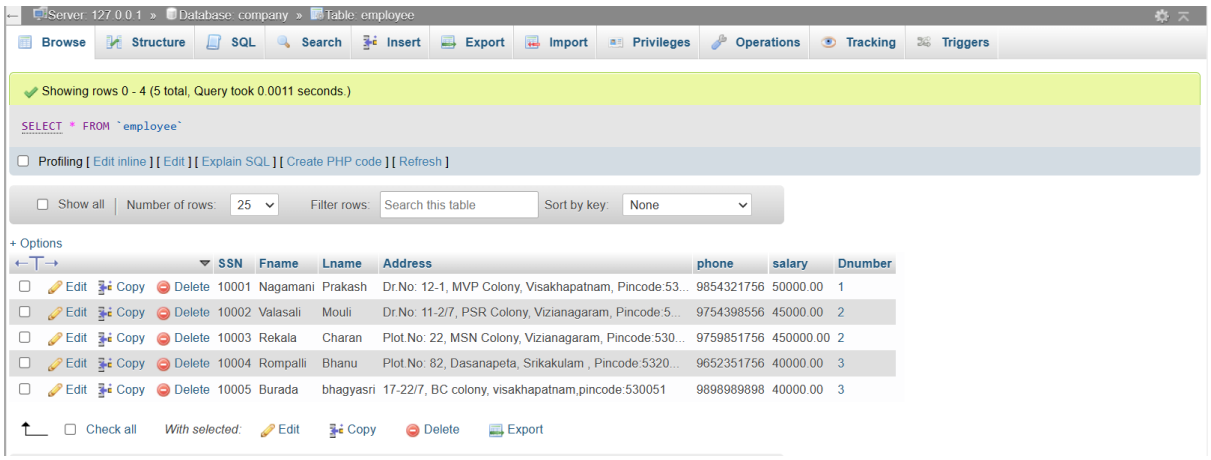
(10001, 'Nagamani', 'Prakash', 'Dr.No: 12-1, MVP Colony, Visakhapatnam, Pincode:530017', '9854321756', '50000.00', 1),

(10002, 'Valasali', 'Mouli', 'Dr.No: 11-2/7, PSR Colony, Vizianagaram, Pincode:530051', '9754398556', '45000.00', 2),

(10003, 'Rekala', 'Charan', 'Plot.No: 22, MSN Colony, Vizianagaram, Pincode:530051', '9759851756', '450000.00', 2),

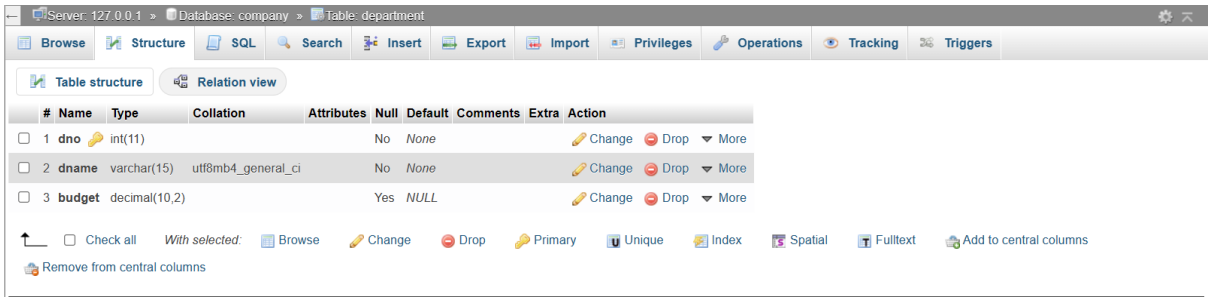
(10004, 'Rompalli', 'Bhanu', 'Plot.No: 82, Dasanapeta, Srikakulam , Pincode:532001', '9652351756', '40000.00', 3),

(10005, 'Burada', 'bhagyasri', '17-22/7, BC colony, visakhapatnam,pincode:530051', '9898989898', '40000.00', 3);



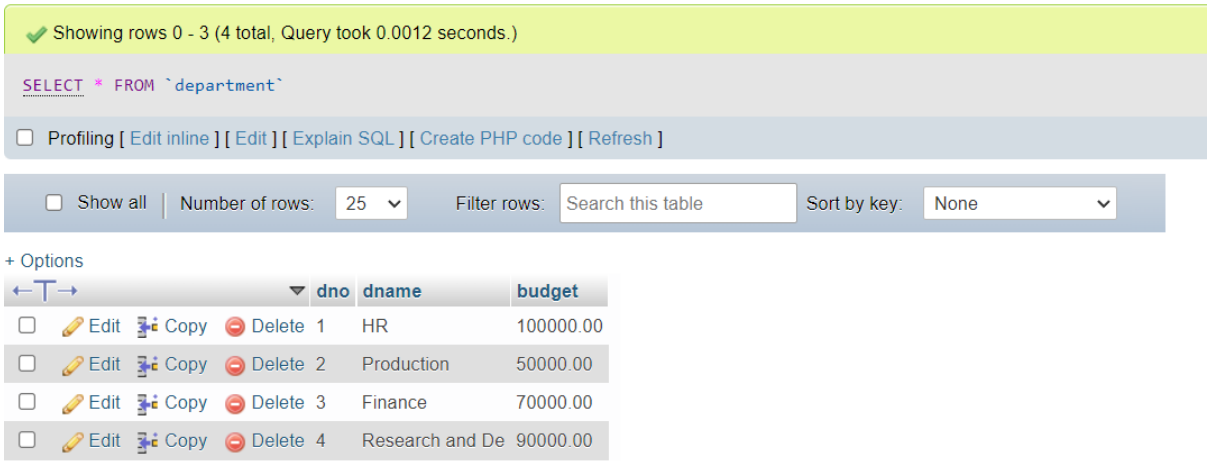
To Create Table department :

```
CREATE TABLE department(
        dno int PRIMARY KEY,
        dname varchar(15) NOT null,
        budget decimal(10,2));
```



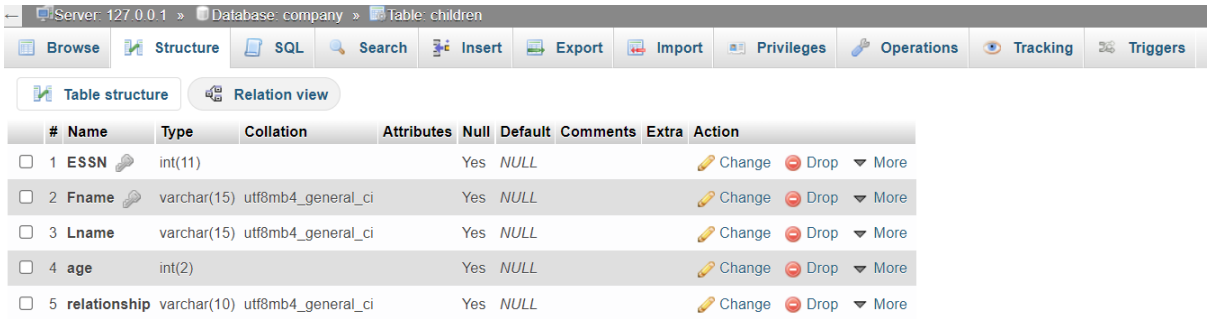
Insert Values into Department Table:

```
INSERT INTO `department` (`dno`, `dname`, `budget`) VALUES
(1, 'HR', '100000.00'),
(2, 'Production', '50000.00'),
(3, 'Finance', '70000.00')
(4, 'Research and De','900000')
```



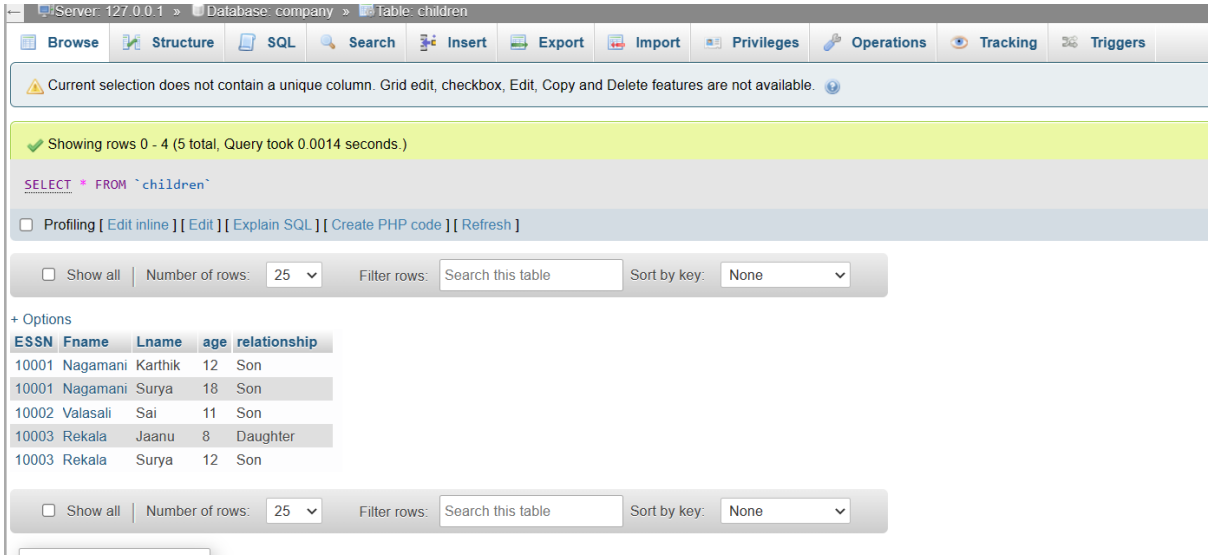
To Create Table children:

```
CREATE TABLE children(
        ESSN int,
        Fname varchar(15),
        Lname varchar(15),
        age int(2),
        relationship varchar(10),
        PRIMARY KEY(ESSN, Lname),
        FOREIGN KEY (ESSN) REFERENCES employee(SSN) ON DELETE CASCADE,
        FOREIGN KEY (Fname) REFERENCES employee (Fname) ON DELETE CASCADE
);
```



Insert Values into Children Table:

```
INSERT INTO `children` (`ESSN`, `Fname`, `Lname`, `age`, `relationship`) VALUES
(10001, 'Nagamani', 'Karthik', 12, 'Son'),
(10001, 'Nagamani', 'Surya', 18, 'Son'),
(10002, 'Valasali', 'Sai', 11, 'Son'),
(10003, 'Rekala', 'Jaanu', 8, 'Daughter'),
(10003, 'Rekala', 'Surya', 12, 'Son');
```



To Create Table work_in:

CREATE TABLE work_in(

ESSN int PRIMARY KEY,

Dnumber int,

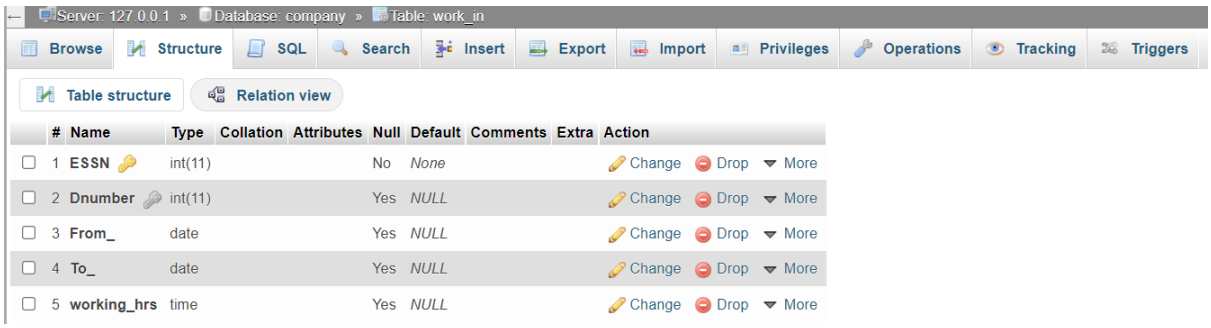
From_ date;

To_ date;

Working_hrs time,

FOREIGN KEY (ESSN) REFERENCES employee(SSN) ON DELETE CASCADE,

FOREIGN KEY (Dnumber) REFERENCES department(dno) ON DELETE CASCADE ON UPDATE CASCADE);



Insert Values into Work_in Table:

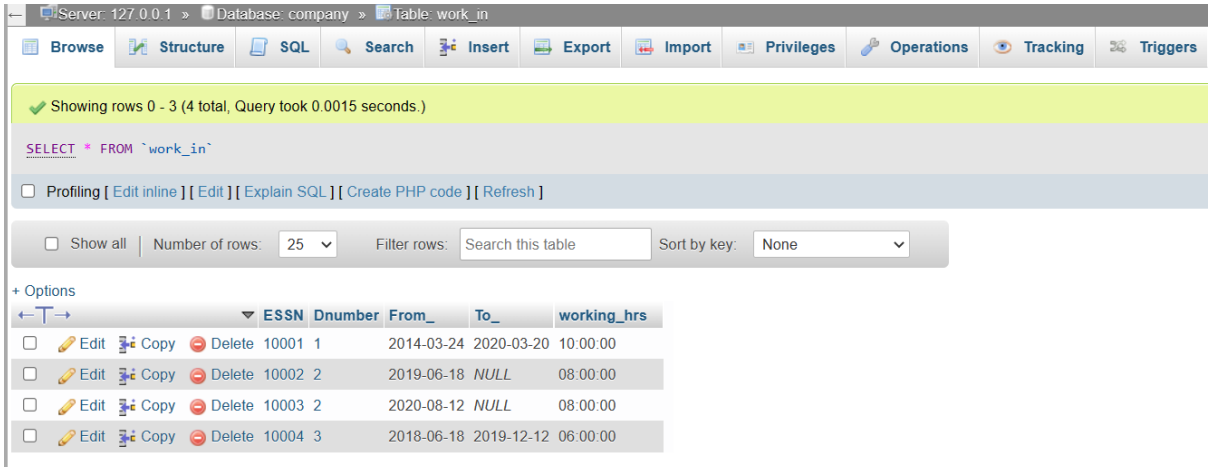
INSERT INTO `work_in` (`ESSN`, `Dnumber`, `From_`, `To_`, `working_hrs`) VALUES

(10001, 1, '2014-03-24', '2020-03-20', '10:00:00'),

(10002, 2, '2019-06-18', NULL, '08:00:00'),

(10003, 2, '2020-08-12', NULL, '08:00:00'),

(10004, 3, '2018-06-18', '2019-12-12', '06:00:00');



To Create Table manages:

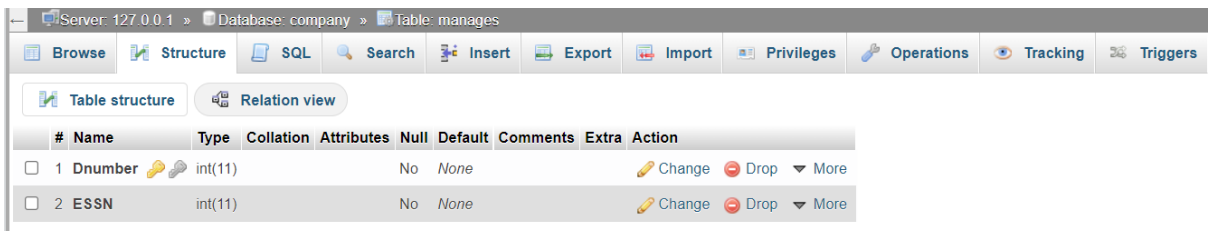
CREATE TABLE manages(

ESSN int UNIQUE NOT null,

Dnumber int PRIMARY KEY,

FOREIGN KEY (ESSN) REFERENCES employee (SSN) ON DELETE CASCADE ON UPDATE CASCADE,

FOREIGN KEY (Dnumber) REFERENCES department (dno));



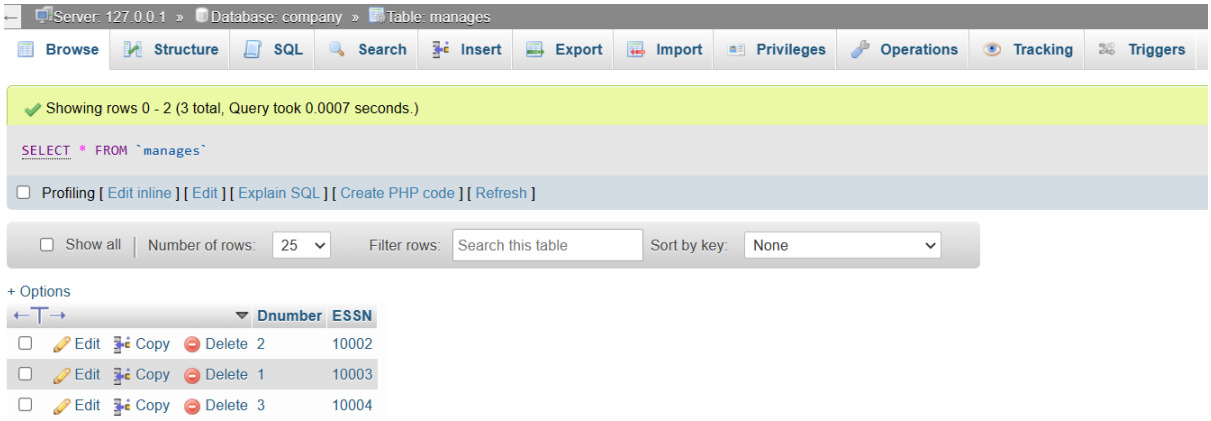
Insert Values into manages Table:

INSERT INTO `manages` (`Dnumber`, `ESSN`) VALUES

(1, 10003),

(2, 10002),

(3, 10004);

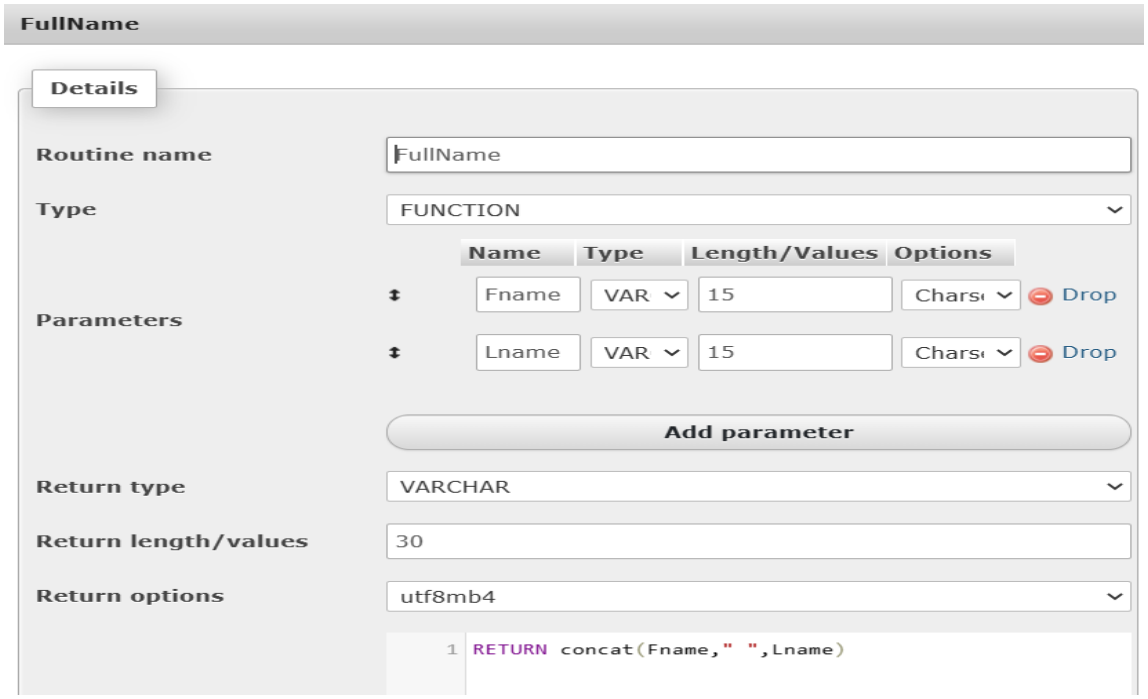


To Create Function:

CREATE FUNCTION Name(Fname varchar(15),Lname varchar(15))

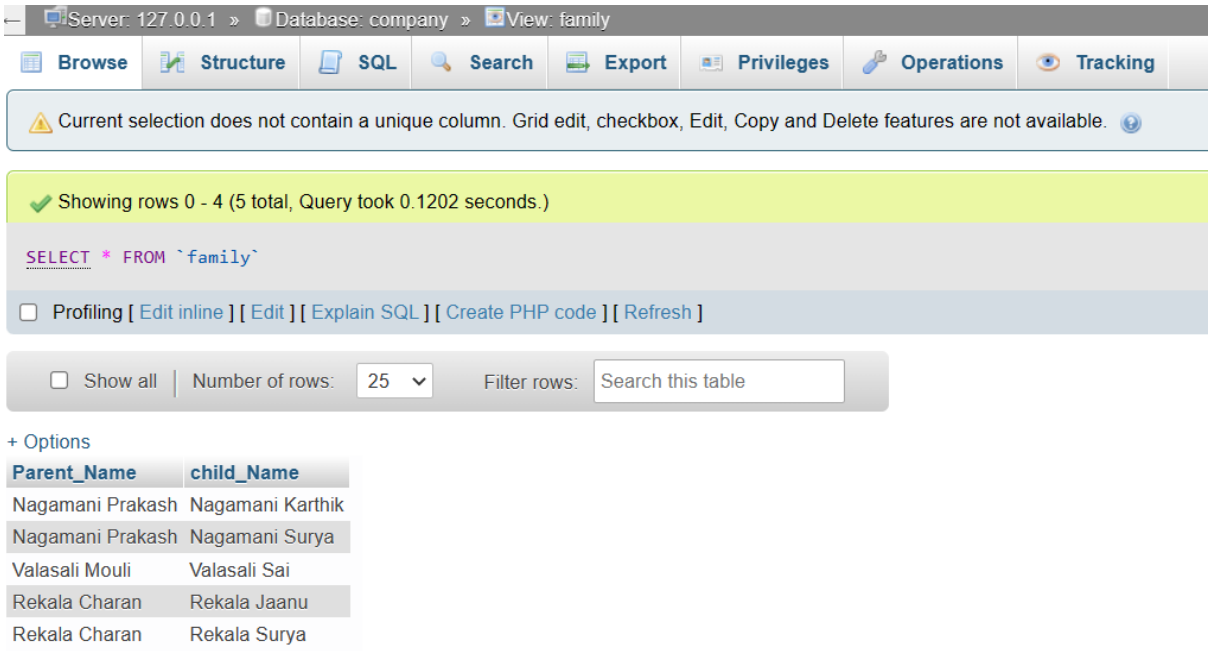
RETURNS varchar(30) DETERMINISTIC

RETURN concat(Fname,' ',Lname);



To Create View:

```
CREATE VIEW family AS
    SELECT FullName(e.Fname,e.Lname)
Parent_Name,FullName(c.Fname,c.Lname) child_Name
    FROM children c,employee e
    WHERE e.SSN=c.ESSN
```



Parent_Name	child_Name
Nagamani Prakash	Nagamani Karthik
Nagamani Prakash	Nagamani Surya
Valasali Mouli	Valasali Sai
Rekala Charan	Rekala Jaanu
Rekala Charan	Rekala Surya

Data Connectivity:

For Connection:

```
import mysql.connector as c

con = c.connect(host="localhost", user="root", passwd="", database="company")

if con.is_connected():

    print("sucessfully connected")

cursor = con.cursor()
```

For Employee Table:

```
def employee():

    def insert():

        SSN = int(input("Enter Employee ID: "))

        Fname = input("First Name: ")

        Lname = input("Last Name: ")

        Address = input("Address: ")

        phone = input("phone: ")

        salary = int(input("Enter Salary: "))

        Dnumber = int(input("Enter Department No: "))

        query = "insert into employee values
({},'{}','{}','{}','{}',{},{})".format(SSN,Fname,Lname,Address,phone,salary,Dnumber)

        cursor.execute(query)

        con.commit()

        print("Data Inserted Sucessfully")



    def update():

        def update_salary():

            SSN = int(input("Enter Employee ID: "))

            salary = int(input("Enter Salary: "))

            query = "update employee set salary = {} where SSN={}".format(salary,SSN)

            cursor.execute(query)

            con.commit()

            if cursor.rowcount>0:

                print("salary of {} Updated Sucessfully".format(SSN))

            else:

                print("No Data Found")

        def update_phone():

            SSN = int(input("Enter Employee ID: "))

            phone = input("Enter New phone no.: ")

            query = "update employee set phone = '{}' where SSN={}".format(phone,SSN)

            cursor.execute(query)

            con.commit()
```

```
            if cursor.rowcount>0:
                print("Phone no. of {} Updated Sucessfully".format(SSN))
            else:
                print("No Data Found")
        def update_Deptno():
            SSN = int(input("Enter Employee ID: "))
            Dnumber = int(input("Enter New Dept no.: "))
            query = "update employee set Dnumber = {} where SSN={}".format(Dnumber,SSN)
            cursor.execute(query)
            con.commit()
            if cursor.rowcount>0:
                print("Dept no. of {} Updated Sucessfully".format(SSN))
            else:
                print("No Data Found")
        def update_Address():
            SSN = int(input("Enter Employee ID: "))
            Address = input("Enter New Address: ")
            query = "update employee set Address = '{}' where SSN={}".format(Address,SSN)
            cursor.execute(query)
            con.commit()
            if cursor.rowcount>0:
                print("Address of {} Updated Sucessfully".format(SSN))
            else:
                print("No Data Found")
        print("Updating Employee Details.")
        while True:
            n = int(input("1:Update Salary 2:Update Phone no. 3:Dept no. 4:Address 5:Exit\nEnter
Choice: "))
            if n == 1:
                update_salary()
            elif n ==2:
                update_phone()
            elif n ==3:
```

```
            update_Deptno()
        elif n == 4:
            update_Address()
        elif n ==5:
            break
        else:
            print("Enter a valid number")
def delete():
    SSN = int(input("Enter Employee ID: "))
    query = "Delete from employee where SSN={}".format(SSN)
    cursor.execute(query)
    con.commit()
    if cursor.rowcount>0:
        print("Deleted employee ID = {} Sucessfully".format(SSN))
    else:
        print("No Data Found")
while True:
    a = int(input("1:insert 2:Update 3:Delete 4:Exit "))
    if a == 1:
        insert()
    elif a == 2:
        update()
    elif a == 3:
        delete()
    elif n ==4:
        break
    else:
        print("Enter valid number")
```

For Department Table:

```
def department():

    def insert():

        dno = input("Department Number: ")

        dname = input("Department Name: ")

        budget = input("Budget: ")

        query = "insert into department values ({},'{}',{})".format(dno,dname,budget)

        cursor.execute(query)

        con.commit()

        print("Data Inserted Sucessfully")

    def delete():

        dno = int(input("Enter department Number: "))

        query = "Delete from department where dno={}".format(dno)

        cursor.execute(query)

        con.commit()

        if cursor.rowcount>0:

            print("Deleted department number {} Sucessfully".format(dno))

        else:

            print("No Data Found")

    def update():

        def update_dept_name():

            dno = int(input("Enter department No. : "))

            dname = input("Enter New dept Name: ")

            query = "update department set dname = '{}' where dno={}".format(dname,dno)

            cursor.execute(query)

            con.commit()

            if cursor.rowcount>0:

                print("department Name of {} Updated Sucessfully".format(dno))

            else:

                print("No Data Found")

        def update_budget():

            dno = int(input("Enter department No. : "))
```

```
            budget = int(input("Enter New budget: "))
            query = "update department set budget = {} where dno={}".format(budget,dno)
            cursor.execute(query)
            con.commit()
            if cursor.rowcount>0:
                print("budget of {} Updated Sucessfully".format(dno))
            else:
                print("No Data Found")


        print("Updating department Details.")
        while True:
            n = int(input("1:Update department Name 2:Update budget 3:Exit\nEnter Choice: "))
            if n == 1:
                update_dept_name()
            elif n ==2:
                update_budget()
            elif n ==3:
                break
            else:
                print("Enter a valid number")
    while True:
        a = int(input("1:insert 2:Update 3:Delete 4:Exit "))
        if a == 1:
            insert()
        elif a == 2:
            update()
        elif a == 3:
            delete()
        elif a ==4:
            break
        else:
            print("Enter valid number")
```

For Work in Table:

```
def work_in():

    def insert():

        ESSN = int(input("Enter Employee ID: "))

        Dnumber = input("Department Number: ")

        From_ = input("Date of Joining: ")

        To_ = input("Date of Leaving: ")

        working_hrs = input("No. Of Hrs/Day: ")

        query = "insert into work_in values
({},{},'{}','{}','{}')".format(ESSN,Dnumber,From_,To_,working_hrs)

        cursor.execute(query)

        con.commit()

        if cursor.rowcount>0:

            print("Data Inserted Sucessfully")

        else:

            print("No Data Found")

    def delete():

        ESSN = int(input("Enter Employee ID: "))

        query = "Delete from work_in where ESSN={}".format(ESSN)

        cursor.execute(query)

        con.commit()

        if cursor.rowcount>0:

            print("Deleted employee ID = {} Sucessfully".format(ESSN))

        else:

            print("No Data Found")

    def update():

        def update_dept_no():

            ESSN = int(input("Enter Employee ID: "))

            Dnumber = int(input("Enter New department No. : "))

            query = "update work_in set Dnumber = {} where ESSN={}".format(Dnumber,ESSN)

            cursor.execute(query)

            con.commit()

            if cursor.rowcount>0:
```

```
                print("department Number of {} Updated Sucessfully".format(ESSN))
            else:
                print("No Data Found")
        def update_dateOfjoining():
            ESSN = int(input("Enter Employee ID: "))
            From_ = input("Enter Date of Joining : ")
            query = "update work_in set From_ = '{}' where ESSN={}".format(From_,ESSN)
            cursor.execute(query)
            con.commit()
            if cursor.rowcount>0:
                print("Date of Joining  {} Updated Sucessfully".format(ESSN))
            else:
                print("No Data Found")
        def update_dateOfleaving():
            ESSN = int(input("Enter Employee ID: "))
            To_ = input("Enter Date of Leaving  : ")
            query = "update work_in set To_ = '{}' where ESSN={}".format(To_,ESSN)
            cursor.execute(query)
            con.commit()
            if cursor.rowcount>0:
                print("Date of Leaving  {} Updated Sucessfully".format(ESSN))
            else:
                print("No Data Found")
        print("Updating Work Details.")


        while True:
            n = int(input("1:Update department Name 2:Update dateOfjoining 3: update dateOfleaving
4:Exit\nEnter Choice: "))
            if n == 1:
                update_dept_no()
            elif n ==2:
                update_dateOfjoining()
            elif n ==3:
```

```
                update_dateOfleaving()
            elif n ==4:
                break
            else:
                print("Enter a valid number")
    while True:
        a = int(input("1:insert 2:Update 3:Delete 4:Exit "))
        if a == 1:
            insert()
        elif a == 2:
            update()
        elif a == 3:
            delete()
        elif a ==4:
            break
        else:
            print("Enter valid number")
```

For manages Table:

```
def manages():
    def insert():
        ESSN = int(input("Enter Employee ID: "))
        Dnumber = input("Department Number: ")
        query = "insert into manages values ({},{})".format(Dnumber,ESSN)
        cursor.execute(query)
        con.commit()
        if cursor.rowcount>0:
            print("Data Inserted Sucessfully")
        else:
            print("No Data Found")
    def delete():
        ESSN = int(input("Enter Employee ID to Delete: "))
```

```
        query = "delete from manages where ESSN={}".format(ESSN)
        cursor.execute(query)
        con.commit()
        if cursor.rowcount>0:
            print("Data Deleted Sucessfully")
        else:
            print("No Data Found")
    def update():
        Dnumber = int(input("Enter department No. : "))
        ESSN = int(input("Enter New Manager ID: "))
        query = "update manages set ESSN = {} where Dnumber={}".format(ESSN,Dnumber)
        cursor.execute(query)
        con.commit()
        if cursor.rowcount>0:
            print("Manager of Department {} Updated Sucessfully".format(Dnumber))
        else:
            print("No Data Found")
    while True:
        a = int(input("1:insert 2:Update 3:Delete 4:Exit "))
        if a == 1:
            insert()
        elif a == 2:
            update()
        elif a == 3:
            delete()
        elif a ==4:
            break
        else:
            print("Enter valid number")
```

For Children Table:

```
def children():

    def insert():

        ESSN = int(input("Enter Employee ID: "))

        Fname = input("Enter First Name: ")

        Lname = input("Enter Last Name: ")

        age = int(input("Enter age: "))

        relationship  = input("Enter son/daughter/other: ")



        query = "insert into children values
({},'{}','{}',{},'{}')".format(ESSN,Fname,Lname,age,relationship)

        cursor.execute(query)

        con.commit()

        if cursor.rowcount>0:

            print("Data Inserted Sucessfully")

        else:

            print("No Data Found")

    def delete():

        ESSN = int(input("Enter Employee ID to Delete: "))

        Lname = input("Enter Child Name: ")

        query = "delete from children where ESSN={} and Lname='{}'".format(ESSN,Lname)

        cursor.execute(query)

        con.commit()

        if cursor.rowcount>0:

            print("Data Deleted Sucessfully")

        else:

            print("No Data Found")

    def update():

        ESSN = int(input("Enter Employee ID: "))

        Lname = input("Enter child Name: ")

        age = int(input("Enter current age: "))

        query = "update children set age = {} where ESSN={} and Lname='{}'".format(age,ESSN,Lname)

        cursor.execute(query)
```

```
        con.commit()
        if cursor.rowcount>0:
            print("Manager of Department {} Updated Sucessfully".format(ESSN))
        else:
            print("No Data Found")
    while True:
        a = int(input("1:insert 2:Update 3:Delete 4:Exit "))
        if a == 1:
            insert()
        elif a == 2:
            update()
        elif a == 3:
            delete()
        elif a ==4:
            break
        else:
            print("Enter valid number")
```

Main Function:

```
if __name__ == '__main__':


    print("Enter choice: ")
    while True:
        n = int(input("1:Employee 2:Department 3:Work In 4:Manages 5:Children 6:Exit "))
        if n == 1:
            employee()
        elif n ==2:
            department()
        elif n ==3:
            work_in()
        elif n == 4:
            manages()
```

```
    elif n == 5:

        children()

    elif n == 6:

        break
```

Output:

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL

Windows PowerShell
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Try the new cross-platform PowerShell https://aka.ms/pscore6

PS C:\xampp\htdocs\company> conda activate base
PS C:\xampp\htdocs\company> & C:/Users/praka/anaconda3/python.exe c:/xampp/htdocs/company/main.py
sucessfully connected
Enter choice:
1:Employee 2:Department 3:Work In 4:Manages 5:Children 6:Exit
```

Example:

Enter any Choice from 1 to 5:

```
Enter choice:
1:Employee 2:Department 3:Work In 4:Manages 5:Children 6:Exit 1
1:insert 2:Update 3:Delete 4:Exit
```

Now, You can Insert/Update/Delete any Tables You want.

If we Choose **1: Insert From Employee Table,** We need to Enter Following Details.

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL

1:Employee 2:Department 3:Work In 4:Manages 5:Children 6:Exit 1
1:insert 2:Update 3:Delete 4:Exit 1
Enter Employee ID: 111
First Name: prakash
Last Name: nagamani
Address: mvp colony
phone: 986856552
Enter Salary: 100000
Enter Department No: 2
Data Inserted Sucessfully
1:insert 2:Update 3:Delete 4:Exit
```

Output:

+ Options

	SSN	Fname	Lname	Address	phone	salary	Dnumber
Edit Copy Delete	111	prakash	nagamani	mvp colony	986856552	100000.00	2

If we Choose **2: Update From Employee Table,** We need to Enter Following Details.

We can Update Following Details:

1:Update Salary 2:Update Phone no. 3:Dept no. 4:Address 5:Exit

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL

Windows PowerShell
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Try the new cross-platform PowerShell https://aka.ms/pscore6

PS D:\prakash\SEM 5\DBMS\CASESTUDY> conda activate base
PS D:\prakash\SEM 5\DBMS\CASESTUDY> & C:/Users/praka/anaconda3/python.exe "d:/prakash/SEM 5/DBMS/CASESTUDY/main.py"
sucessfully connected
Enter choice:
1:Employee 2:Department 3:Work In 4:Manages 5:Children 6:Exit 1
1:insert 2:Update 3:Delete 4:Exit 2
Updating Employee Details.
1:Update Salary 2:Update Phone no. 3:Dept no. 4:Address 5:Exit
Enter Choice: 1
Enter Employee ID: 111
Enter Salary: 500000
salary of 111 Updated Sucessfully
1:Update Salary 2:Update Phone no. 3:Dept no. 4:Address 5:Exit
Enter Choice: 5
1:insert 2:Update 3:Delete 4:Exit
```

Output:

+ Options

	SSN	Fname	Lname	Address	phone	salary	Dnumber
Edit Copy Delete	111	prakash	nagamani	mvp colony	986856552	500000.00	2

If we Choose **3: Delete From Children Table,** We need to Enter Following Details.

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL

Windows PowerShell
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PS D:\prakash\SEM 5\DBMS\CASESTUDY> conda activate base
PS D:\prakash\SEM 5\DBMS\CASESTUDY> & C:/Users/praka/anaconda3/python.exe "d:/prakash/SEM 5/DBMS/CASESTUDY/main.py"
sucessfully connected
Enter choice:
1:Employee 2:Department 3:Work In 4:Manages 5:Children 6:Exit 5
1:insert 2:Update 3:Delete 4:Exit 3
Enter Employee ID to Delete: 10002
Enter Child Name: sai
Data Deleted Sucessfully
1:insert 2:Update 3:Delete 4:Exit
```