Case study
Employer Database

INTRODUCTION :

Certainly! An employer database typically helps organizations manage and organize their workforce-related data efficiently. Here's an explanation of how the tables you mentioned might be structured and their purposes:

Departments Table

Purpose: To store information about the different departments within an organization.

Employees Table

Purpose: To store details about the employees working in the organization.

EmployeeAddresses Table

Purpose: To store the addresses of employees, which might be necessary for correspondence, benefits, or records.

JobTitles Table

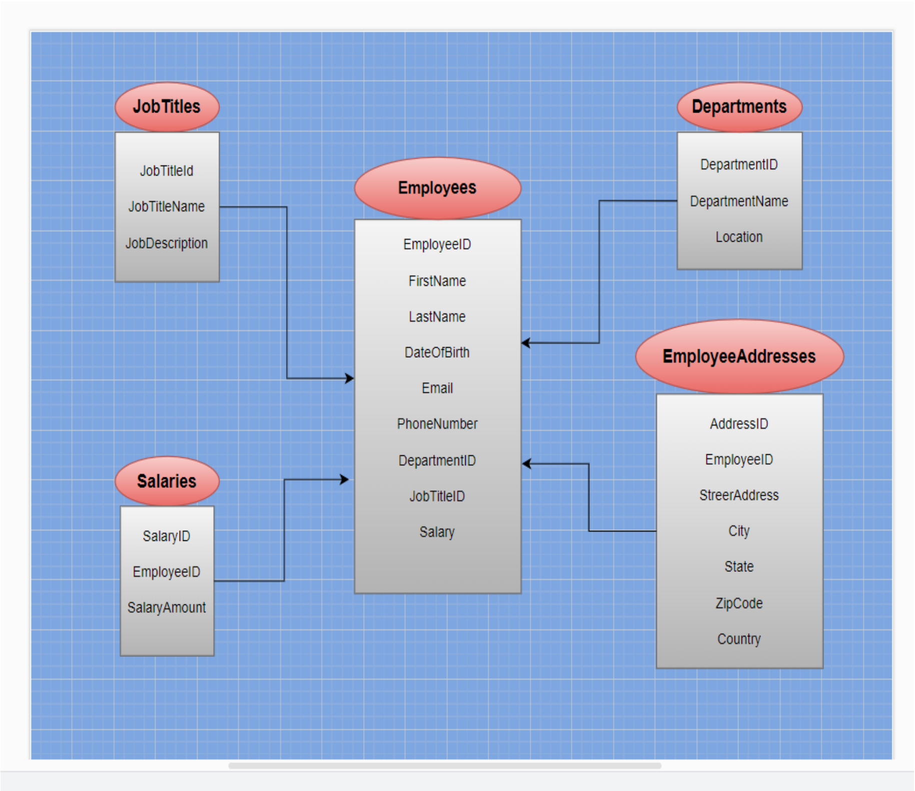
Purpose: To define various job titles within the organization and their related roles.

Salaries Table

Purpose: To track the salary details of employees, which may include historical salary data.

By organizing data into these tables, an organization can efficiently manage and query information related to its workforce. For example, querying an employee’s department, job title, and salary history becomes straightforward with properly structured tables.

Entity Relationship Diagram



Dataset:

```
  create database employers;
```

Creating Tables:

```
  CREATE TABLE Emp_details (
EmployeeID INT  PRIMARY KEY,
FirstName VARCHAR(50) ,
LastName VARCHAR(50) ,
DateOfBirth DATE,
Email VARCHAR(100) ,
PhoneNumber VARCHAR(15),
  DepartmentID INT,
JobTitleID INT,
Salary DECIMAL(10, 2));
```

```
    CREATE TABLE Departments (
    DepartmentID INT  PRIMARY KEY,
    DepartmentName VARCHAR(100) ,
    Location VARCHAR(100)
);

CREATE TABLE JobTitles (
    JobTitleID INT,
    JobTitleName VARCHAR(100) ,
    JobDescription TEXT
);

CREATE TABLE Salaries (
    SalaryID INT ,
    EmployeeID INT ,
    SalaryAmount DECIMAL(10, 2)
   );

    CREATE TABLE EmployeeAddresses (
    AddressID INT ,
    EmployeeID INT ,
    StreetAddress VARCHAR(255) ,
    City VARCHAR(100),
    State VARCHAR(100) ,
    ZipCode VARCHAR(10) ,
    Country VARCHAR(100)
);
```

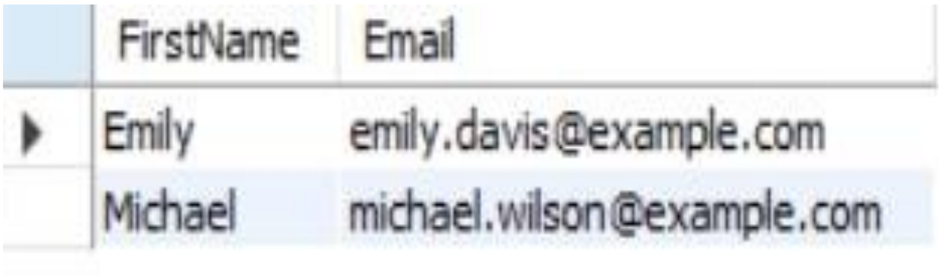
Inserting Values:

```
INSERT INTO emp_details (EmployeeID, FirstName, LastName, DateOfBirth, Email, contact, DepartmentID, JobTitleID, Salary)

VALUES

(1, 'John', 'Doe', '1985-07-25', 'john.doe@example.com', '555-1234', 1, 101, 60000.00),

(2, 'Jane', 'Smith', '1990-03-14', 'jane.smith@example.com', '555-5678', 2, 102, 75000.00);

(3, 'Robert', 'Brown', '1982-11-30', 'robert.brown@example.com', '555-8765', 3, 103, 65000.00),

(4, 'Emily', 'Davis', '1988-05-21', 'emily.davis@example.com', '555-4321', 4, 104, 70000.00),

(5, 'Michael', 'Wilson', '1992-09-10', 'michael.wilson@example.com', '555-6789', 5, 105, 72000.00)

(6, 'Alice', 'Johnson', '1982-12-11', 'alice.johnson@example.com', '555-8765', 1, 101, 70000.00),

 (9, 'Bob', 'Brown', '1978-06-30', 'bob.brown@example.com', '555-4321', 3, 104, 55000.00),

 (7, 'Jessica', 'Martinez', '1989-11-17', 'jessica.martinez@example.com', '555-3456', 1,105, 68000.00),

 (8, 'David', 'Anderson', '1983-05-25', 'david.anderson@example.com', '555-2345', 2, 101, 69000.00);

INSERT INTO Departments (DepartmentID, DepartmentName, Location)

VALUES

(1, 'Human Resources', 'New York'),

(2, 'Finance', 'Chicago'),

(3, 'IT', 'San Francisco'),

(4, 'Marketing', 'Los Angeles'),

(5, 'Sales', 'Seattle');
```

```sql
INSERT INTO JobTitles (JobTitleID, JobTitleName, JobDescription)
VALUES
    (101, 'Software Developer', 'Responsible for developing software applications and systems.'),
    (102, 'Project Manager', 'Oversees project development, manages team members, and ensures project completion.'),
    (103, 'Data Analyst', 'Analyzes data to provide insights and support decision-making processes.'),
    (104, 'HR Specialist', 'Manages hiring processes, employee relations, and other HR functions.'),
    (105, 'Marketing Coordinator', 'Develops and implements marketing strategies to promote company products and services.');
INSERT INTO Salaries (SalaryID, EmployeeID, SalaryAmount)
VALUES
    (1, 1, 60000.00),
    (2, 2, 75000.00),
    (3, 3, 65000.00),
    (4, 4, 70000.00),
    (5, 5, 72000.00);
INSERT INTO EmployeeAddresses (AddressID, EmployeeID, StreetAddress, City, State, ZipCode, Country)
VALUES
    (1, 1, '123 Elm Street', 'Springfield', 'Illinois', '62701', 'USA'),
    (2, 2, '456 Oak Avenue', 'Chicago', 'Illinois', '60614', 'USA'),
    (3, 3, '789 Pine Road', 'San Francisco', 'California', '94105', 'USA'),
    (4, 4, '101 Maple Lane', 'Los Angeles', 'California', '90001', 'USA'),
    (5, 5, '202 Birch Boulevard', 'Seattle', 'Washington', '98101', 'USA');
```

1.How to retrieve the data from all fields in the table using where condition?

select FirstName, Email FROM employees where employeeid >3;



FirstName	Email
Emily	emily.davis@example.com
Michael	michael.wilson@example.com

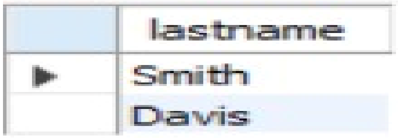
2.Write a query using not in operator?

select

lastname

from emp_details

where lastname not in ('DOE', 'WiLSON', 'BROWN');



lastname
Smith
Davis

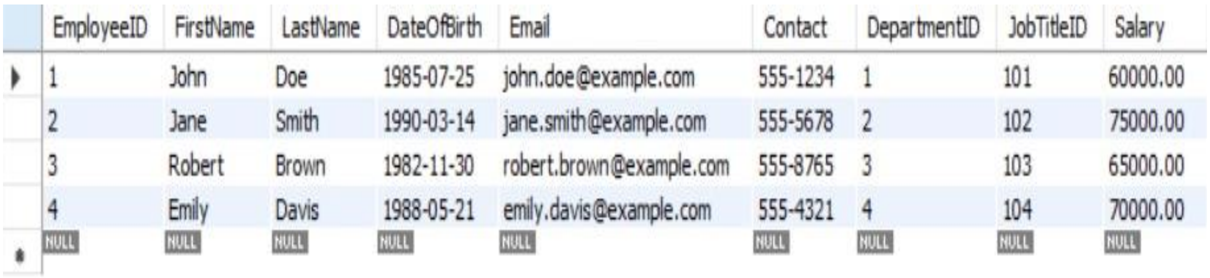
3.Retrieve the employee details where employeeid between 1 and 4?

select

*

from emp_details

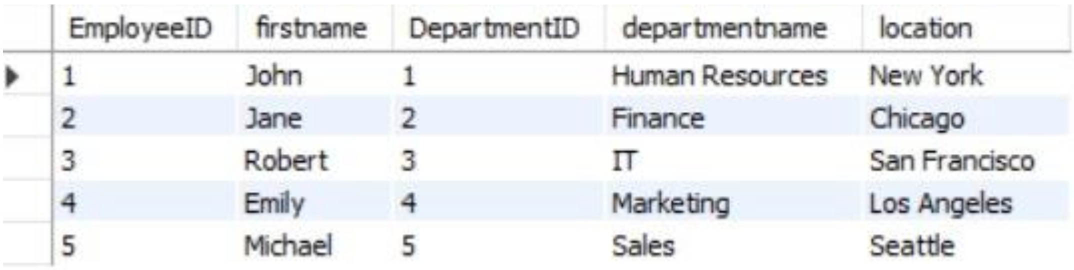
where EmployeeID between 1 and 4;



EmployeeID	FirstName	LastName	DateOfBirth	Email	Contact	DepartmentID	JobTitleID	Salary
1	John	Doe	1985-07-25	john.doe@example.com	555-1234	1	101	60000.00
2	Jane	Smith	1990-03-14	jane.smith@example.com	555-5678	2	102	75000.00
3	Robert	Brown	1982-11-30	robert.brown@example.com	555-8765	3	103	65000.00
4	Emily	Davis	1988-05-21	emily.davis@example.com	555-4321	4	104	70000.00
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

4.Retrieve EmployeeID , firstname , DepartmentID, departmentname and location EmployeeID between 1 and 5 or DepartmentID between 1 and 3 ?

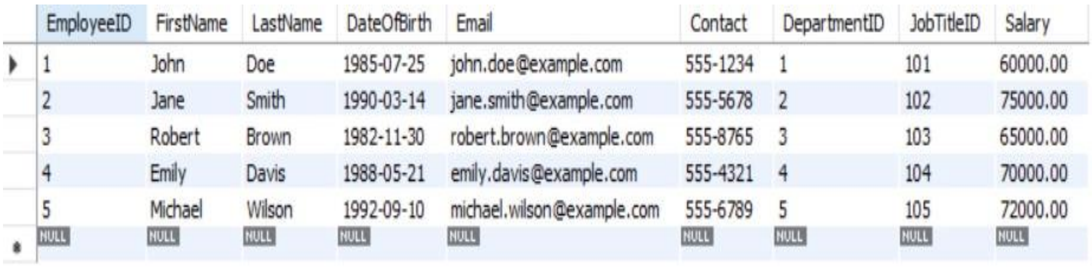
```
select
    e.EmployeeID,
    e.firstname,
    e.DepartmentID,
    d.departmentname,
    d.location
from emp_details e join departments d
on e.DepartmentID = d.DepartmentID
where (e.EmployeeID between 1 and 5) or (d.DepartmentID between 1 and 3);
```



EmployeeID	firstname	DepartmentID	departmentname	location
1	John	1	Human Resources	New York
2	Jane	2	Finance	Chicago
3	Robert	3	IT	San Francisco
4	Emily	4	Marketing	Los Angeles
5	Michael	5	Sales	Seattle

5.Retrieve not null values in email and contact ?

```
SELECT *
FROM emp_details
WHERE email IS NOT NULL
  AND contact IS NOT NULL;
```



EmployeeID	FirstName	LastName	DateOfBirth	Email	Contact	DepartmentID	JobTitleID	Salary
1	John	Doe	1985-07-25	john.doe@example.com	555-1234	1	101	60000.00
2	Jane	Smith	1990-03-14	jane.smith@example.com	555-5678	2	102	75000.00
3	Robert	Brown	1982-11-30	robert.brown@example.com	555-8765	3	103	65000.00
4	Emily	Davis	1988-05-21	emily.davis@example.com	555-4321	4	104	70000.00
5	Michael	Wilson	1992-09-10	michael.wilson@example.com	555-6789	5	105	72000.00
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

6.Retrieve all the columns from departments and emp_details using union ?

select * from emp_details e

left join departments d

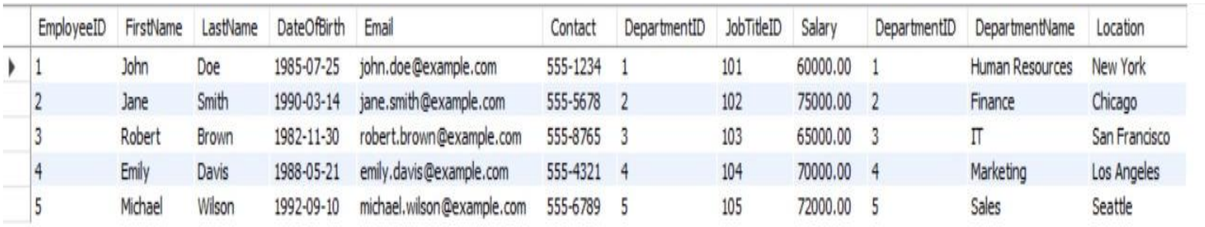
on e.DepartmentID = d.DepartmentID

union

select * from emp_details e

right join departments d

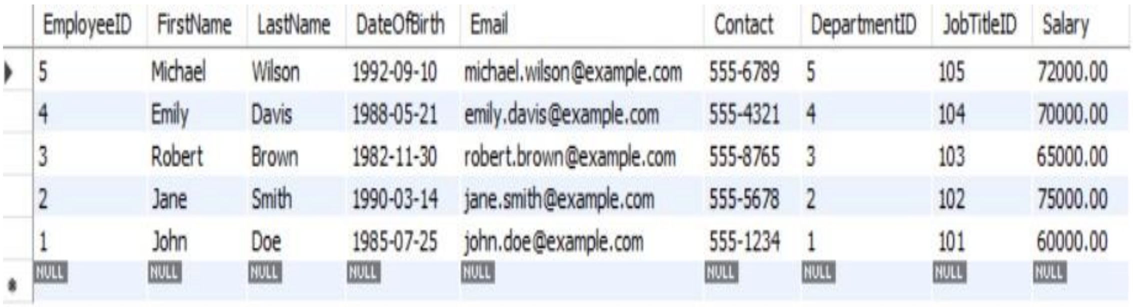
on e.DepartmentID = d.DepartmentID;



	EmployeeID	FirstName	LastName	DateOfBirth	Email	Contact	DepartmentID	JobTitleID	Salary	DepartmentID	DepartmentName	Location
▶	1	John	Doe	1985-07-25	john.doe@example.com	555-1234	1	101	60000.00	1	Human Resources	New York
	2	Jane	Smith	1990-03-14	jane.smith@example.com	555-5678	2	102	75000.00	2	Finance	Chicago
	3	Robert	Brown	1982-11-30	robert.brown@example.com	555-8765	3	103	65000.00	3	IT	San Francisco
	4	Emily	Davis	1988-05-21	emily.davis@example.com	555-4321	4	104	70000.00	4	Marketing	Los Angeles
	5	Michael	Wilson	1992-09-10	michael.wilson@example.com	555-6789	5	105	72000.00	5	Sales	Seattle

7.Retrieve all the values where employeeid in descending

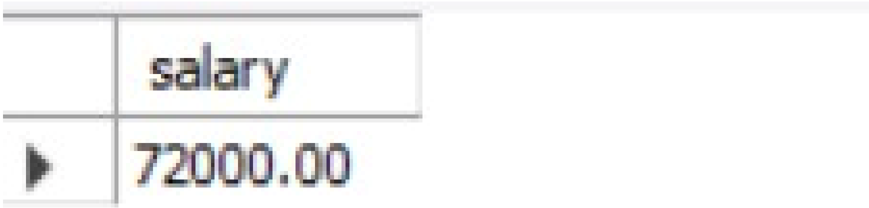
select * from emp_details order by EmployeeID desc;



	EmployeeID	FirstName	LastName	DateOfBirth	Email	Contact	DepartmentID	JobTitleID	Salary
▶	5	Michael	Wilson	1992-09-10	michael.wilson@example.com	555-6789	5	105	72000.00
	4	Emily	Davis	1988-05-21	emily.davis@example.com	555-4321	4	104	70000.00
	3	Robert	Brown	1982-11-30	robert.brown@example.com	555-8765	3	103	65000.00
	2	Jane	Smith	1990-03-14	jane.smith@example.com	555-5678	2	102	75000.00
	1	John	Doe	1985-07-25	john.doe@example.com	555-1234	1	101	60000.00
*	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

8.What is the 4th highest salary ?

select salary from emp_details order by Salary limit 1 offset 3;



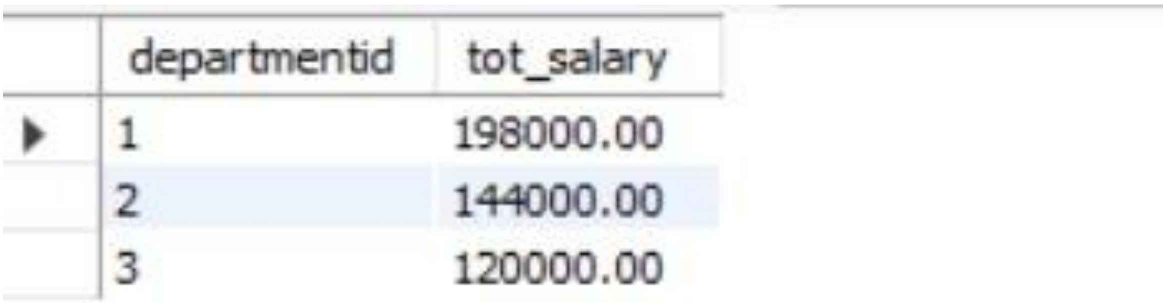
	salary
▶	72000.00

9.Retrieve salaries based on department more than 1 lakh?

select departmentid , sum(salary) as tot_salary from emp_details

group by DepartmentID

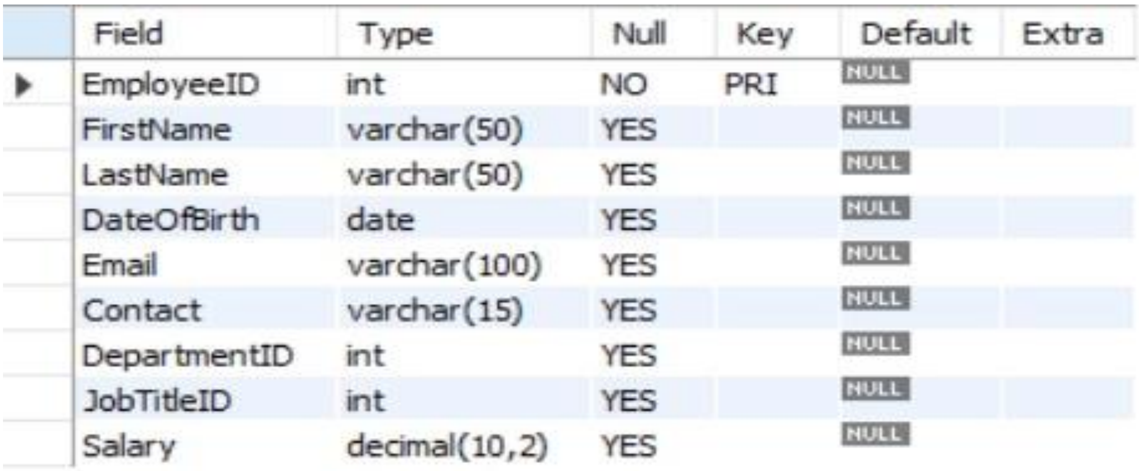
having tot_Salary > 100000;



departmentid	tot_salary
1	198000.00
2	144000.00
3	120000.00

10.Describe structure of a table ?

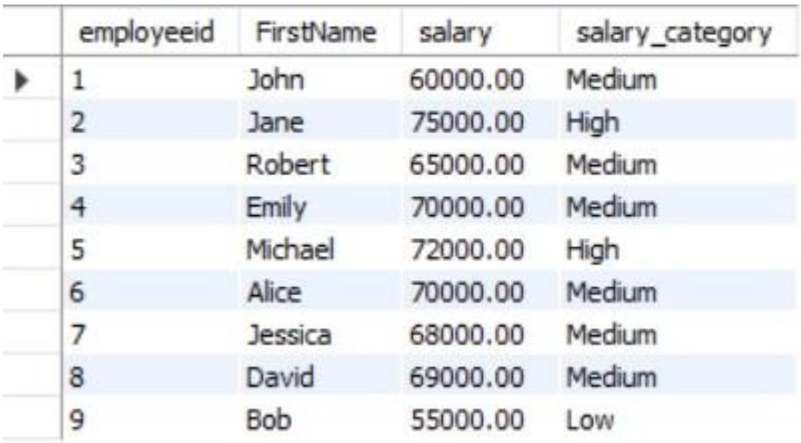
desc emp_details;



Field	Type	Null	Key	Default	Extra
EmployeeID	int	NO	PRI	NULL	
FirstName	varchar(50)	YES		NULL	
LastName	varchar(50)	YES		NULL	
DateOfBirth	date	YES		NULL	
Email	varchar(100)	YES		NULL	
Contact	varchar(15)	YES		NULL	
DepartmentID	int	YES		NULL	
JobTitleID	int	YES		NULL	
Salary	decimal(10,2)	YES		NULL	

11.How to seperate salary as low, medium and high ?

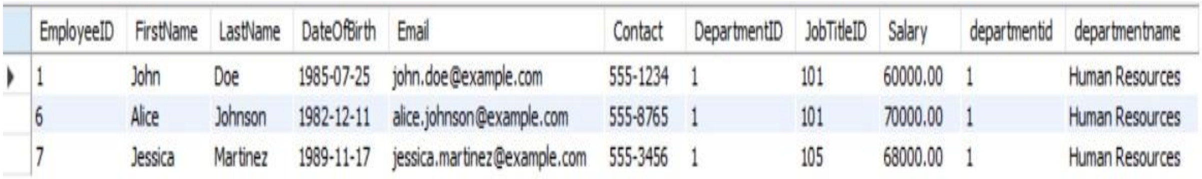
```
SELECT employeeid, FirstName, salary,
    CASE
      WHEN salary < 60000 THEN 'Low'
      WHEN salary BETWEEN 60000 AND 70000 THEN 'Medium'
      ELSE 'High'
    END AS salary_category
FROM emp_details;
```



employeeid	FirstName	salary	salary_category
1	John	60000.00	Medium
2	Jane	75000.00	High
3	Robert	65000.00	Medium
4	Emily	70000.00	Medium
5	Michael	72000.00	High
6	Alice	70000.00	Medium
7	Jessica	68000.00	Medium
8	David	69000.00	Medium
9	Bob	55000.00	Low

12.Retrieve all the employee details where departmentid =1 ?

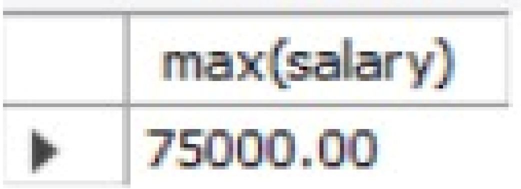
```
select
   e.*,
   d.departmentid,
   d.departmentname
from emp_details e
left join departments d
on e.DepartmentID = d.DepartmentID
where d.DepartmentID = 1;
```



EmployeeID	FirstName	LastName	DateOfBirth	Email	Contact	DepartmentID	JobTitleID	Salary	departmentid	departmentname
1	John	Doe	1985-07-25	john.doe@example.com	555-1234	1	101	60000.00	1	Human Resources
6	Alice	Johnson	1982-12-11	alice.johnson@example.com	555-8765	1	101	70000.00	1	Human Resources
7	Jessica	Martinez	1989-11-17	jessica.martinez@example.com	555-3456	1	105	68000.00	1	Human Resources

13.What is the highest salary ?

select max(salary) from emp_details;



	max(salary)
▶	75000.00

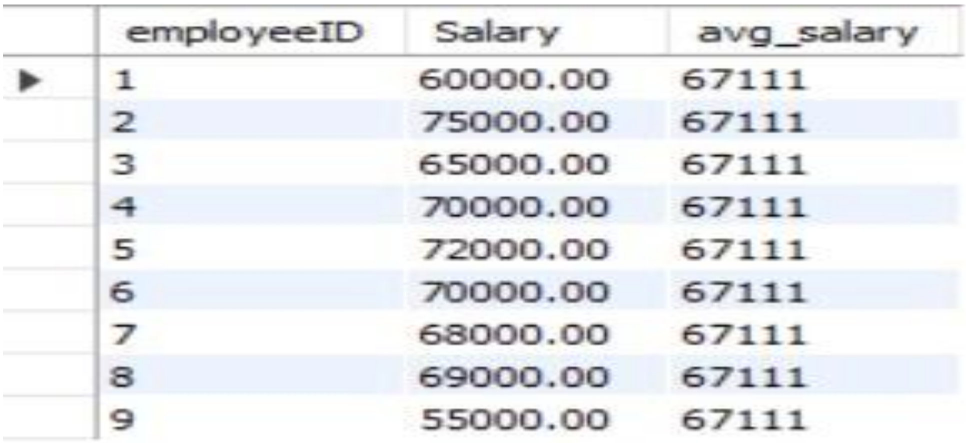
14.Find the round value of average salary across all employees and display it alongside each employee's salary ?

Select employeeID,

Salary,

Round(avg(salary)over()) as avg_salary

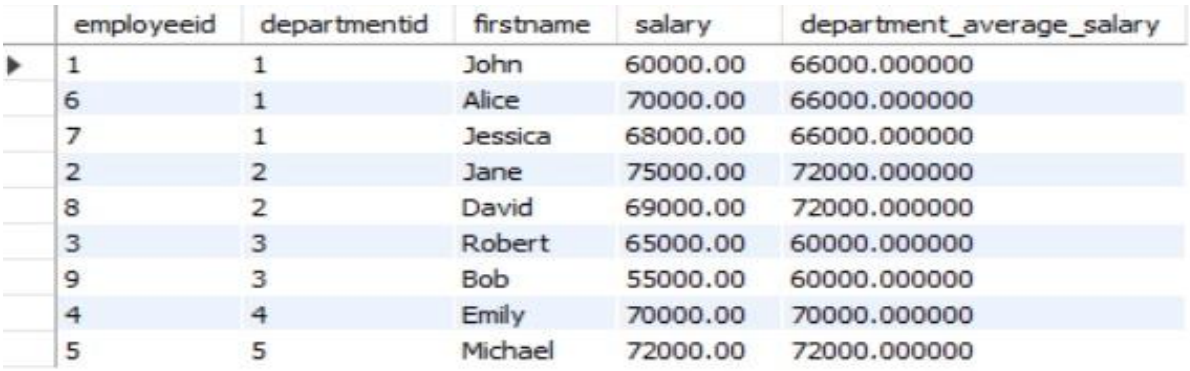
from emp_details;



	employeeID	Salary	avg_salary
▶	1	60000.00	67111
	2	75000.00	67111
	3	65000.00	67111
	4	70000.00	67111
	5	72000.00	67111
	6	70000.00	67111
	7	68000.00	67111
	8	69000.00	67111
	9	55000.00	67111

15.How each employee’s salary compares to the average salary of their department ?

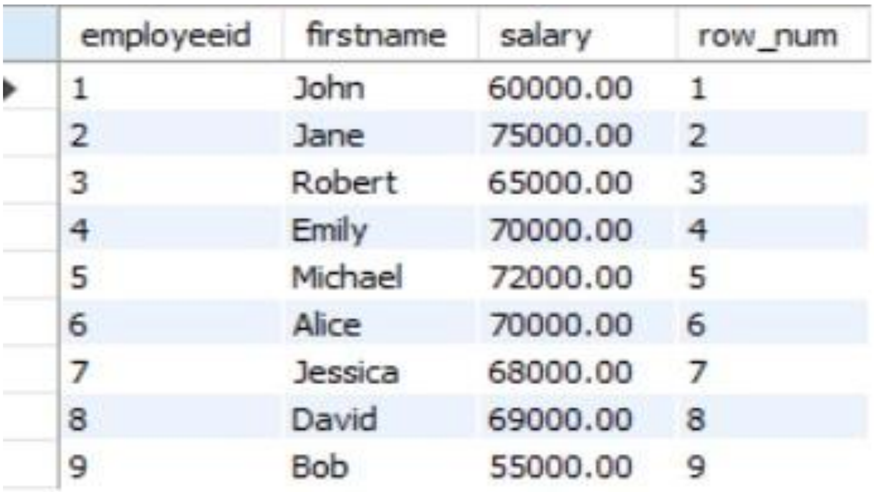
```
SELECT employeeid, departmentid, firstname, salary,
       AVG(salary) OVER (PARTITION BY departmentid) AS department_average_salary
FROM emp_details;
```



employeeid	departmentid	firstname	salary	department_average_salary
1	1	John	60000.00	66000.000000
6	1	Alice	70000.00	66000.000000
7	1	Jessica	68000.00	66000.000000
2	2	Jane	75000.00	72000.000000
8	2	David	69000.00	72000.000000
3	3	Robert	65000.00	60000.000000
9	3	Bob	55000.00	60000.000000
4	4	Emily	70000.00	70000.000000
5	5	Michael	72000.00	72000.000000

16.Assign a unique sequential number to each employee in the table?

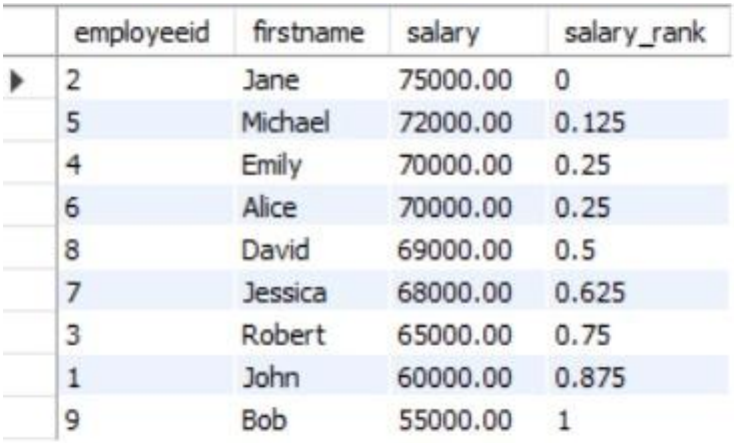
```
SELECT employeeid, firstname, salary,
       ROW_NUMBER() OVER (ORDER BY employeeid) AS row_num
FROM emp_details;
```



employeeid	firstname	salary	row_num
1	John	60000.00	1
2	Jane	75000.00	2
3	Robert	65000.00	3
4	Emily	70000.00	4
5	Michael	72000.00	5
6	Alice	70000.00	6
7	Jessica	68000.00	7
8	David	69000.00	8
9	Bob	55000.00	9

17.How to percent_rank employees based on their salary?

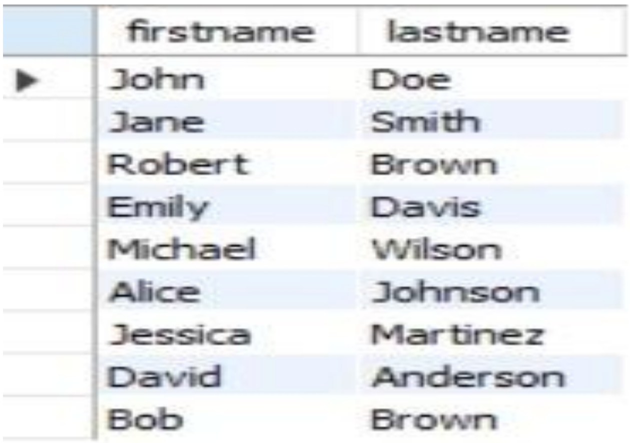
```
SELECT employeeid, firstname, salary,
    percent_rank() OVER (ORDER BY salary DESC) AS salary_rank
FROM emp_details;
```



employeeid	firstname	salary	salary_rank
2	Jane	75000.00	0
5	Michael	72000.00	0.125
4	Emily	70000.00	0.25
6	Alice	70000.00	0.25
8	David	69000.00	0.5
7	Jessica	68000.00	0.625
3	Robert	65000.00	0.75
1	John	60000.00	0.875
9	Bob	55000.00	1

15.Create a view as contact_details containing firstname and lastname?

```
create view contact_details as
select
firstname,
lastname
from emp_details;
```



firstname	lastname
John	Doe
Jane	Smith
Robert	Brown
Emily	Davis
Michael	Wilson
Alice	Johnson
Jessica	Martinez
David	Anderson
Bob	Brown

16.Create a procedure employees containing details of emp_details?

Delimiter //

Create procedure employee()

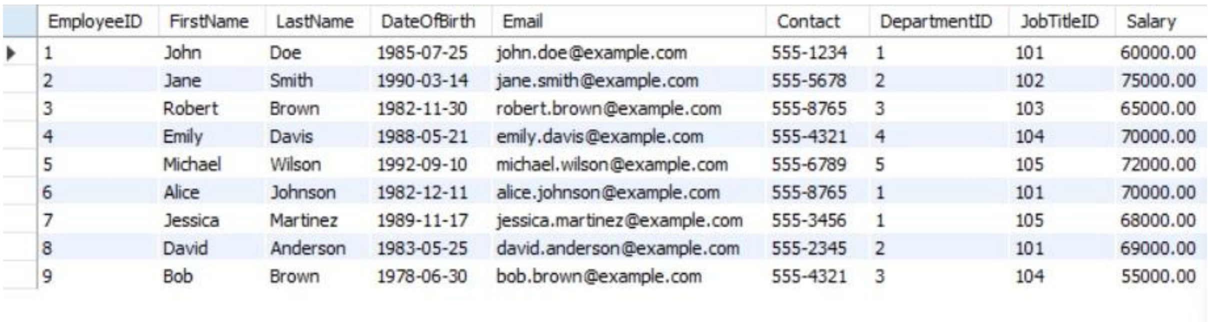
Begin

Select * from emp_details;

End //

Delimiter ;

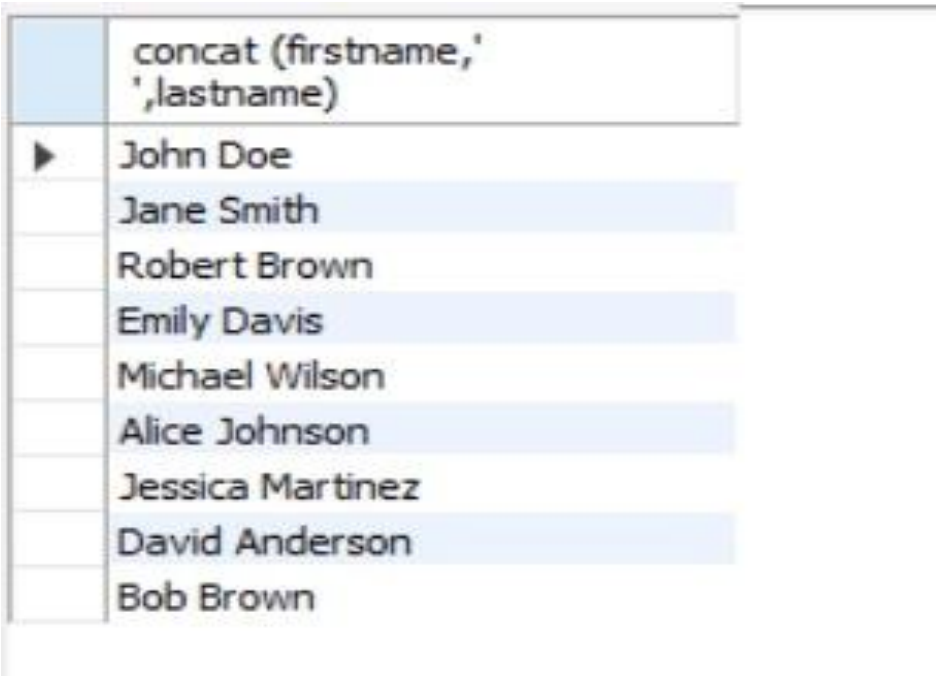
call employee;



EmployeeID	FirstName	LastName	DateOfBirth	Email	Contact	DepartmentID	JobTitleID	Salary
1	John	Doe	1985-07-25	john.doe@example.com	555-1234	1	101	60000.00
2	Jane	Smith	1990-03-14	jane.smith@example.com	555-5678	2	102	75000.00
3	Robert	Brown	1982-11-30	robert.brown@example.com	555-8765	3	103	65000.00
4	Emily	Davis	1988-05-21	emily.davis@example.com	555-4321	4	104	70000.00
5	Michael	Wilson	1992-09-10	michael.wilson@example.com	555-6789	5	105	72000.00
6	Alice	Johnson	1982-12-11	alice.johnson@example.com	555-8765	1	101	70000.00
7	Jessica	Martinez	1989-11-17	jessica.martinez@example.com	555-3456	1	105	68000.00
8	David	Anderson	1983-05-25	david.anderson@example.com	555-2345	2	101	69000.00
9	Bob	Brown	1978-06-30	bob.brown@example.com	555-4321	3	104	55000.00

17.Combine firstname and lastname in a single column?

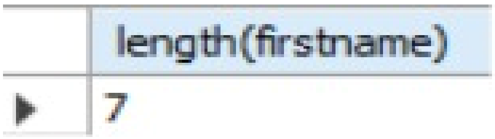
select concat (firstname,' ',lastname) from emp_details;



concat (firstname,' ',lastname)
John Doe
Jane Smith
Robert Brown
Emily Davis
Michael Wilson
Alice Johnson
Jessica Martinez
David Anderson
Bob Brown

18.Retrieve a length of 5th employee firstname ?

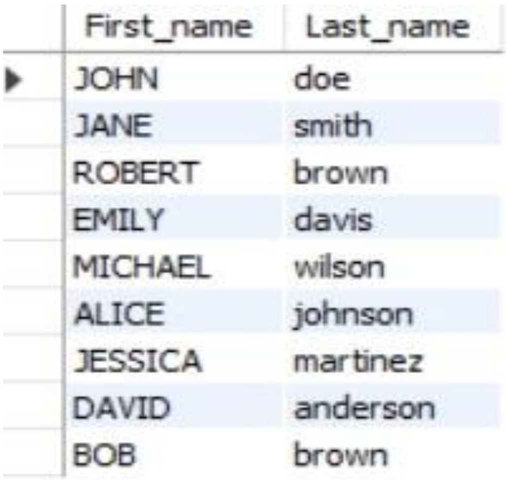
select length(firstname) from emp_details limit 1 offset 4 ;



length(firstname)
7

19.Retrieve firstname are in uppercase and lastname are in lowercase ?

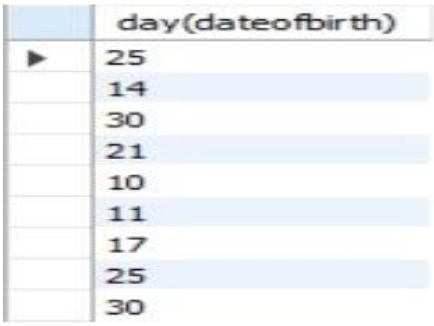
```
SELECT
UPPER(firstname) as First_name,
LOWER(lastname) as Last_name
FROM
emp_details;
```



First_name	Last_name
JOHN	doe
JANE	smith
ROBERT	brown
EMILY	davis
MICHAEL	wilson
ALICE	johnson
JESSICA	martinez
DAVID	anderson
BOB	brown

20.Retrieve day alone from dateofbirth ?

SELECT day(dateofbirth) FROM emp_details;



day(dateofbirth)
25
14
30
21
10
11
17
25
30