Assn 3 SQL:

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1) Create a database called employees and use the table structure above to create an employee table, and use INSERT statements to add data to your table

EmployeeID	FirstName	LastName	Position	Department	HireData	Salary
1001	John	Chan	Software Engineer	Engineering	2021-06-15	85000.00
1002	Jane	Smith	Project Manager	Project Management	2019-09-01	95000.00
1003	Micheal	Brown	UX Designer	Design	2020-03-12	75000.00
1004	Emily	Johnson	Quality Assurance Analyst	Quality Assurance	2022-01-10	70000.00
1005	David	Wilson	DevOps Engineer	IT Operations	2018-08-25	90000.00
NULL	NULL	NULL	NULL	NULL	NULL	NULL

```
1   CREATE database employees;
2   use employees;
3   SHOW databases;
4   create table employee (
5   EmployeeID INT primary KEY,
6   FirstName VARCHAR (25) ,
7   LastName VARCHAR (25) ,
8   Position VARCHAR (50) ,
9   Department VARCHAR(75) ,
10  HireDate DATE ,
11  Salary DECIMAL (10,2)
12  );
13
14  insert into employee(EmployeeID , FirstName, LastName, Position, Department, HireData, Salary)
15  values (1001, 'John', 'Chan', 'Software Engineer', 'Engineering', '2021-06-15', 85000);
16
17  insert into employee(EmployeeID , FirstName, LastName, Position, Department, HireData, Salary)
18  values (1002, 'Jane', 'Smith', 'Project Manager', 'Project Management', '2019-09-01', 95000),
19  (1003, 'Micheal', 'Brown', 'UX Designer', 'Design', '2020-03-12', 7500),
20  (1004, 'Emily', 'Johnson', 'Quality Assurance Analyst', 'Quality Assurance', '2022-01-10', 70000),
21  (1005, 'David', 'Wilson', 'DevOps Engineer', 'IT Operations', '2018-08-25', 90000);
22
23  update employee
24  set Salary = '75000'
25  where EmployeeID= 1003;
26
27  update employee
28  set HireData = '2021-06-15'
29  where EmployeeID= 1001;
```

2) Emily got married and changed her last name to Smith. Write SQL statements to update Emily's record.

EmployeeID	FirstName	LastName	Position	Department	HireData	Salary
1001	John	Chan	Software Engineer	Engineering	2021-06-05	85000.00
1002	Jane	Smith	Project Manager	Project Management	2019-09-01	95000.00
1003	Micheal	Brown	UX Designer	Design	2020-03-12	7500.00
1004	Emily	Smith	Quality Assurance Analyst	Quality Assurance	2022-01-10	70000.00
1005	David	Wilson	DevOps Engineer	IT Operations	2018-08-25	90000.00
NULL	NULL	NULL	NULL	NULL	NULL	NULL

```
32
33 •  update employee
34    set LastName = 'Smith'
35    where EmployeeID= 1004;
```

3) David Wilson plans to retire in June 2023. Write SQL statements to ADD a separate date column to update Dave's record.

EmployeeID	FirstName	LastName	Position	Department	HireData	Salary	RetirementDate
1001	John	Chan	Software Engineer	Engineering	2021-06-15	85000.00	NULL
1002	Jane	Smith	Project Manager	Project Management	2019-09-01	95000.00	NULL
1003	Micheal	Brown	UX Designer	Design	2020-03-12	75000.00	NULL
1004	Emily	Smith	Quality Assurance Analyst	Quality Assurance	2022-01-10	70000.00	NULL
1005	David	Wilson	DevOps Engineer	IT Operations	2018-08-25	90000.00	2023-06-01
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

```
37 •  alter table employee
38    add column RetirementDate Date;
39
40 •  update employee
41    set RetirementDate = '2023-06-01'
42    where EmployeeID= '1005'
```

4) Add the below records to your employee table and count people by department, order by count from highest to lowest.

EmployeeID	FirstName	LastName	Position	Department	HireData	Salary	RetirementDate
1001	John	Chan	Software Engineer	Engineering	2021-06-15	85000.00	NULL
1002	Jane	Smith	Project Manager	Project Management	2019-09-01	95000.00	NULL
1003	Micheal	Brown	UX Designer	Design	2020-03-12	75000.00	NULL
1004	Emily	Smith	Quality Assurance Analyst	Quality Assurance	2022-01-10	70000.00	NULL
1005	David	Wilson	DevOps Engineer	IT Operations	2018-08-25	90000.00	2023-06-01
1006	Alice	Hughes	Software Engineer	Engineering	2022-02-15	80000.00	NULL
1007	Robert	Fox	Project Manager	Project Management	2020-05-22	85000.00	NULL
1008	Maria	Kelley	UX Designer	Design	2021-07-19	100000.00	NULL
1009	James	Pena	Quality Assurance Analyst	Quality Assurance	2023-01-10	82000.00	NULL
1010	Linda	Gordon	DevOps Engineer	Engineering	2019-11-08	70000.00	NULL
1011	Brian	Hughes	Software Engineer	Project Management	2022-03-30	76000.00	NULL
1012	Nancy	Jordan	Project Manager	Design	2020-09-15	68000.00	NULL
1013	Kevin	Bishop	Graphic Designer	Engineering	2021-04-20	73000.00	NULL
1014	Carol	Hughes	Software Engineer	Engineering	2018-12-01	110000.00	NULL
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

```
insert into employee(EmployeeID , FirstName, LastName, Position, Department, HireData, Salary)
values
(1006, 'Alice', 'Hughes', 'Software Engineer', 'Engineering', '2022-02-15', 80000),
(1007, 'Robert', 'Fox', 'Project Manager', 'Project Management', '2020-05-22', 85000),
(1008, 'Maria', 'Kelley', 'UX Designer', 'Design', '2021-07-19', 100000),
(1009, 'James', 'Pena', 'Quality Assurance Analyst', 'Quality Assurance', '2023-01-10', 82000),
(1010, 'Linda', 'Gordon', 'DevOps Engineer', 'Engineering', '2019-11-08', 70000),
(1011, 'Brian', 'Hughes', 'Software Engineer', 'Project Management', '2022-03-30', 76000),
(1012, 'Nancy', 'Jordan', 'Project Manager', 'Design', '2020-09-15', 68000),
(1013, 'Kevin', 'Bishop', 'Graphic Designer', 'Engineering', '2021-04-20', 73000),
(1014, 'Carol', 'Hughes', 'Software Engineer', 'Engineering', '2018-12-01', 110000);
```

Count

Result Grid | Filter Rows:

Department	countemployee
Engineering	5
Project Management	3
Design	3
Quality Assurance	2
IT Operations	1

```
58 •    select Department, count(*) as countemployee
59      from employee
60      group by Department
61      Order by countemployee DESC;
--
```

5) How many people's last name ends with n?

lastnamen
5

```sql
select count(*) as lastnamen
from employee
where LastName like '%n';
```

6) How many people were hired between 2019 and 2021?

	hiredbetween2019and2021
▶	8

```sql
select count(*) as hiredbetween2019and2021
from employee
where HireData between '2019-01-01' and '2021-12-31'
```

7) List employee id, and the difference in salary between individual employees and the average salary

	averagesalary
▶	82785.714286

	EmployeeID	differenceinsalary
▶	1001	2214.285714
	1002	12214.285714
	1003	-7785.714286
	1004	-12785.714286
	1005	7214.285714
	1006	-2785.714286
	1007	2214.285714
	1008	17214.285714
	1009	-785.714286
	1010	-12785.714286
	1011	-6785.714286
	1012	-14785.714286
	1013	-9785.714286
	1014	27214.285714

```sql
select avg(Salary) as averagesalary
from employee;

select EmployeeID, (Salary - (select avg(Salary) from employee)) as differenceinsalary
from employee
```

8) Which department has the highest average salary?

Result Grid | Filter Rows:

Department	averagesalary
IT Operations	90000.000000
Project Management	85333.333333
Engineering	83600.000000
Design	81000.000000
Quality Assurance	76000.000000

```
77  select Department, avg(salary) as averagesalary
78  from employee
79  group by Department
80  Order by averagesalary DESC;
```

From this, we can see the department IT Operations has the highest salary at $90,000

9) Develop a question that requires the use of IN and write SQL statements to produce the result.

For my example, my question is "What employees are making higher than average salaries?

EmployeeID	FirstName	LastName	Salary
1001	John	Chan	85000.00
1002	Jane	Smith	95000.00
1005	David	Wilson	90000.00
1007	Robert	Fox	85000.00
1008	Maria	Kelley	100000.00
1014	Carol	Hughes	110000.00

```
82  SELECT EmployeeID, FirstName, LastName, Salary
83  FROM employee
84  WHERE Salary IN (
85      SELECT Salary
86      FROM employee
87      WHERE Salary > (SELECT AVG(Salary) FROM employee)
88      );
```