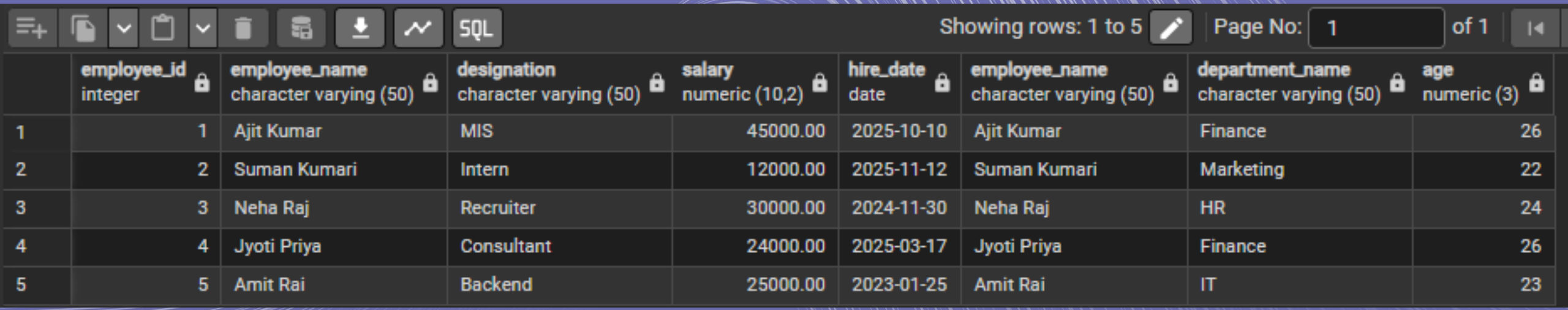
BUILDING A SMALL PAYROLL AUDIT SYSTEM FROM SCRATCH IN POSTGRESQL



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	employee_id integer	employee_name character varying (50)	designation character varying (50)	salary numeric (10,2)	hire_date date	employee_name character varying (50)	department_name character varying (50)	age numeric (3)
1	1	Ajit Kumar	MIS	45000.00	2025-10-10	Ajit Kumar	Finance	26
2	2	Suman Kumari	Intern	12000.00	2025-11-12	Suman Kumari	Marketing	22
3	3	Neha Raj	Recruiter	30000.00	2024-11-30	Neha Raj	HR	24
4	4	Jyoti Priya	Consultant	24000.00	2025-03-17	Jyoti Priya	Finance	26
5	5	Amit Rai	Backend	25000.00	2023-01-25	Amit Rai	IT	23

DESIGNING THE DATABASE SCHEMA

	employee_name character varying (50)	department_name character varying (50)	age numeric (3)
1	Ajit Kumar	Finance	26
2	Suman Kumari	Marketing	22
3	Neha Raj	HR	24
4	Jyoti Priya	Finance	26
5	Amit Rai	IT	23

	employee_id integer	employee_name character varying (50)	designation character varying (50)	salary numeric (10,2)	hire_date date
1	1	Ajit Kumar	MIS	45000.00	2025-10-10
2	2	Suman Kumari	Intern	12000.00	2025-11-12
3	3	Neha Raj	Recruiter	30000.00	2024-11-30
4	4	Jyoti Priya	Consultant	24000.00	2025-03-17
5	5	Amit Rai	Backend	25000.00	2023-01-25

Query | Query History

```sql
create table employee(
    employee_id serial not null,
    employee_name varchar(50) not null,
    designation varchar(50) not null,
    salary numeric(10,2) not null,
    hire_date date not null
);

insert into employee( employee_name, designation, salary, hire_date)
    values
        ('Ajit Kumar', 'MIS', 45000.00, '2025-10-10'),
        ('Suman Kumari','Intern', 12000.00, '2025-11-12'),
        ('Neha Raj', 'Recruiter', 30000.00, '2024-11-30'),
        ('Jyoti Priya','Consultant', 24000.00, '2025-03-17'),
        ('Amit Rai', 'Backend', 25000.00, '2023-01-25');

create table department(
    employee_name varchar(50) not null,
    department_name varchar(50) not null,
    age numeric(3) not null
);

insert into department(employee_name, department_name, age)
    values
        ('Ajit Kumar', 'Finance', 26),
        ('Suman Kumari', 'Marketing', 22),
        ('Neha Raj', 'HR', 24),
        ('Jyoti Priya', 'Finance', 26),
        ('Amit Rai', 'IT', 23);
```

🔗 MASTERING RELATIONAL JOINS

```
40  select * from employee as e
41  inner join department as d
42  on e.employee_name = d.employee_name;
```

Data Output | Messages | Notifications

Showing rows: 1 to 5 | Page No: 1 of 1

	employee_id integer	employee_name character varying (50)	designation character varying (50)	salary numeric (10,2)	hire_date date	employee_name character varying (50)	department_name character varying (50)	age numeric (3)
1	1	Ajit Kumar	MIS	45000.00	2025-10-10	Ajit Kumar	Finance	26
2	2	Suman Kumari	Intern	12000.00	2025-11-12	Suman Kumari	Marketing	22
3	3	Neha Raj	Recruiter	30000.00	2024-11-30	Neha Raj	HR	24
4	4	Jyoti Priya	Consultant	24000.00	2025-03-17	Jyoti Priya	Finance	26
5	5	Amit Rai	Backend	25000.00	2023-01-25	Amit Rai	IT	23

🔍 DYNAMIC FILTERING WITH SUBQUERIES

Problems:

1. Check which employees belong to which department along with their salary.
2. Employees who are in the Finance department and see their total cost to the company.
3. Let's see the name, department, and how many days they have been with the company since their hire_date.
4. Calculate the Total Salary Outflow (Total Cost) and the Average Age for each department.
5. Min and Max Salary Earner

	employee_id integer	employee_name character varying (50)	designation character varying (50)	salary numeric (10,2)	hire_date date	employee_name character varying (50)	department_name character varying (50)	age numeric (3)
1	1	Ajit Kumar	MIS	45000.00	2025-10-10	Ajit Kumar	Finance	26
2	4	Jyoti Priya	Consultant	24000.00	2025-03-17	Jyoti Priya	Finance	26

	employee_name character varying (50)	department_name character varying (50)	days_employed integer
1	Amit Rai	IT	1076
2	Neha Raj	HR	401
3	Jyoti Priya	Finance	294
4	Ajit Kumar	Finance	87
5	Suman Kumari	Marketing	54

	department_name character varying (50)	total_cost numeric	average_age numeric
1	Marketing	12000.00	22.0000000000000000
2	Finance	69000.00	26.0000000000000000
3	IT	25000.00	23.0000000000000000
4	HR	30000.00	24.0000000000000000

	employee_id integer	employee_name character varying (50)	designation character varying (50)	salary numeric (10,2)	hire_date date	employee_name character varying (50)	department_name character varying (50)	age numeric (3)
1	1	Ajit Kumar	MIS	45000.00	2025-10-10	Ajit Kumar	Finance	26

	employee_id integer	employee_name character varying (50)	designation character varying (50)	salary numeric (10,2)	hire_date date	employee_name character varying (50)	department_name character varying (50)	age numeric (3)
1	2	Suman Kumari	Intern	12000.00	2025-11-12	Suman Kumari	Marketing	22