TASK-1 : Basic Data Retrieval & Filtering - Complete Breakdown (OUTPUTS)

1. Column Selection :
   - Retrieve specific columns instead of entire tables (SELECT col1, col2 vs SELECT *)

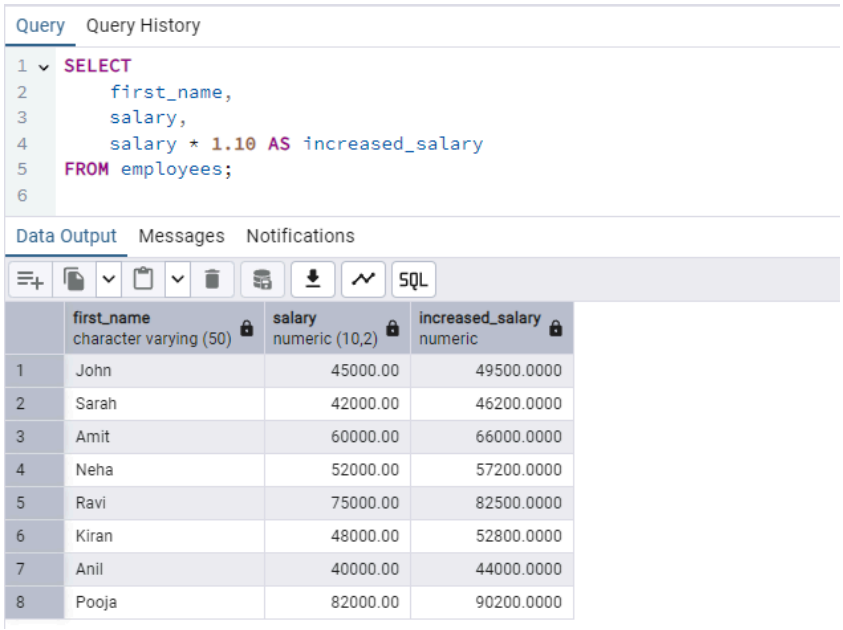
Query Query History

```
1 SELECT first_name, last_name, department
2 FROM employees;
3 -- avoiding SELECT *
4
```

Data Output Messages Notifications

	first_name character varying (50)	last_name character varying (50)	department character varying (50)
1	John	Smith	Sales
2	Sarah	Stone	Sales
3	Amit	Shah	Marketing
4	Neha	Singh	Marketing
5	Ravi	Patel	IT
6	Kiran	Saxena	Sales
7	Anil	Verma	HR
8	Pooja	Sharma	IT

- Handle calculated columns (e.g., SELECT salary * 1.1 AS new_salary)



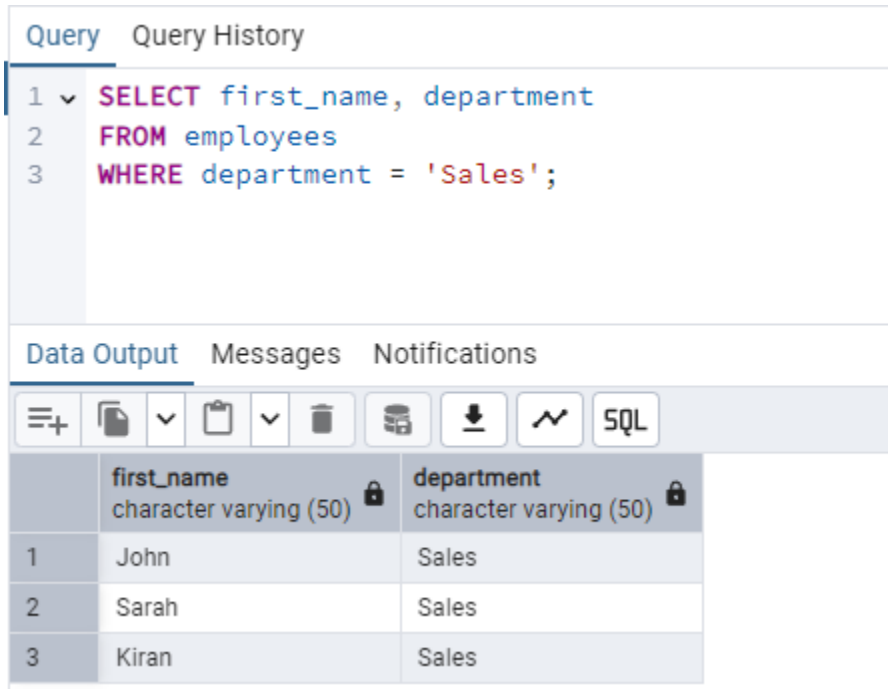
Query | Query History

```
SELECT
    first_name,
    salary,
    salary * 1.10 AS increased_salary
FROM employees;
```

Data Output | Messages | Notifications

	first_name character varying (50)	salary numeric (10,2)	increased_salary numeric
1	John	45000.00	49500.0000
2	Sarah	42000.00	46200.0000
3	Amit	60000.00	66000.0000
4	Neha	52000.00	57200.0000
5	Ravi	75000.00	82500.0000
6	Kiran	48000.00	52800.0000
7	Anil	40000.00	44000.0000
8	Pooja	82000.00	90200.0000

2. Precision Filtering
   - Apply WHERE clauses with:
     - Equality operators (=, !=)



Query | Query History

```
SELECT first_name, department
FROM employees
WHERE department = 'Sales';
```

Data Output | Messages | Notifications

	first_name character varying (50)	department character varying (50)
1	John	Sales
2	Sarah	Sales
3	Kiran	Sales

Query Query History

```sql
SELECT first_name, gender
FROM employees
WHERE gender != 'M';
```

Data Output Messages Notifications

	first_name character varying (50)	gender character (1)
1	Sarah	F
2	Neha	F
3	Kiran	F
4	Pooja	F

- Numerical comparisons (>, <, >=, <=)

Query Query History

```sql
SELECT first_name, salary
FROM employees
WHERE salary > 50000;
```

Data Output Messages Notifications

	first_name character varying (50)	salary numeric (10,2)
1	Amit	60000.00
2	Neha	52000.00
3	Ravi	75000.00
4	Pooja	82000.00

Query Query History

```
1 SELECT first_name, hire_date
2 FROM employees
3 WHERE hire_date >= '2023-01-01';
4
```

Data Output Messages Notifications

SQL

	first_name character varying (50)	hire_date date
1	Amit	2023-01-10
2	Neha	2023-06-05

- Range operators (BETWEEN for numbers/dates)

Query Query History

```
1 SELECT first_name, hire_date
2 FROM employees
3 WHERE hire_date BETWEEN '1995-01-01' AND '1999-12-31';
4
```

Data Output Messages Notifications

SQL

	first_name character varying (50)	hire_date date
1	John	1995-03-15
2	Sarah	1998-07-20
3	Kiran	1999-12-24

- Text pattern matching (LIKE, NOT LIKE with % and _ wildcards)

Query | Query History

```sql
SELECT first_name, last_name
FROM employees
WHERE last_name LIKE 'S%';
```

Data Output | Messages | Notifications

SQL

	first_name character varying (50)	last_name character varying (50)
1	John	Smith
2	Sarah	Stone
3	Amit	Shah
4	Neha	Singh
5	Kiran	Saxena
6	Pooja	Sharma

Query | Query History

```sql
SELECT first_name, email
FROM employees
WHERE email NOT LIKE '%gmail%';
```

Data Output | Messages | Notifications

	first_name character varying (50)	email character varying (100)
1	John	john.smith@company.com
2	Sarah	sarah.stone@company.com
3	Amit	amit.shah@company.com
4	Neha	neha.singh@company.com
5	Ravi	ravi.patel@company.com
6	Kiran	kiran.saxena@company.com
7	Anil	anil.verma@company.com
8	Pooja	pooja.sharma@company.com

- Combine conditions with AND/OR

Query | Query History

```sql
SELECT first_name, department, salary
FROM employees
WHERE department = 'Sales'
AND (salary > 45000 OR commission IS NOT NULL);
```

Data Output | Messages | Notifications

	first_name character varying (50)	department character varying (50)	salary numeric (10,2)
1	Sarah	Sales	42000.00
2	Kiran	Sales	48000.00

- Handle NULL values (IS NULL/IS NOT NULL)

Query | Query History

```
1  SELECT first_name
2  FROM employees
3  WHERE manager_id IS NULL;
4
```

Data Output | Messages | Notifications

	first_name character varying (50)
1	John
2	Amit
3	Ravi
4	Anil

3. Data Organization:

- Sort results using ORDER BY (single/multiple columns)

Query | Query History

```
1  SELECT first_name, last_name, department
2  FROM employees;
3  -- avoiding SELECT *
4
```

Data Output | Messages | Notifications

	first_name character varying (50)	last_name character varying (50)	department character varying (50)
1	John	Smith	Sales
2	Sarah	Stone	Sales
3	Amit	Shah	Marketing
4	Neha	Singh	Marketing
5	Ravi	Patel	IT
6	Kiran	Saxena	Sales
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8	Pooja	Sharma	IT

- Control sort direction (ASC for ascending, DESC for descending)

Query | Query History

```
1  SELECT first_name, last_name, department
2  FROM employees;
3  -- avoiding SELECT *
4
```

Data Output | Messages | Notifications

	first_name character varying (50)	last_name character varying (50)	department character varying (50)
1	John	Smith	Sales
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3	Amit	Shah	Marketing
4	Neha	Singh	Marketing
5	Ravi	Patel	IT
6	Kiran	Saxena	Sales
7	Anil	Verma	HR
8	Pooja	Sharma	IT

- Implement combined sorts (e.g., ORDER BY department ASC, salary DESC)

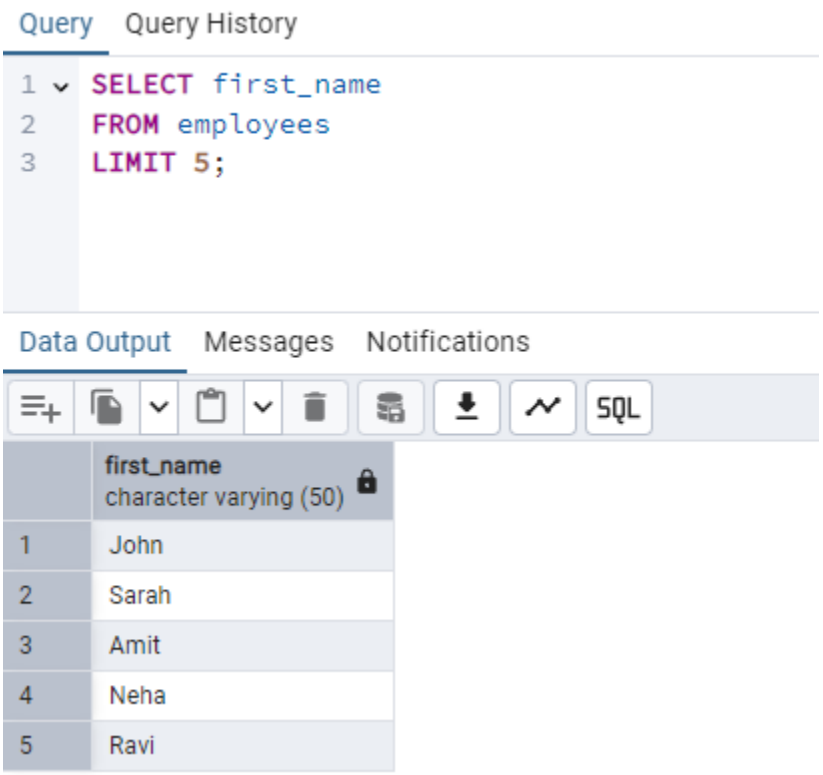
Query | Query History

```
1  SELECT first_name, department, salary
2  FROM employees
3  ORDER BY department ASC, salary DESC;
4
```

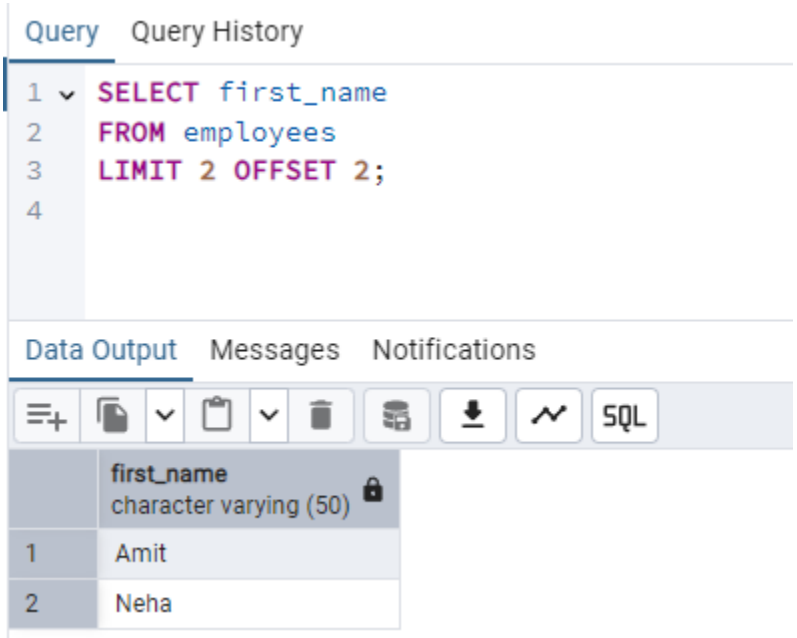
Data Output | Messages | Notifications

	first_name character varying (50)	department character varying (50)	salary numeric (10,2)
1	Anil	HR	40000.00
2	Pooja	IT	82000.00
3	Ravi	IT	75000.00
4	Amit	Marketing	60000.00
5	Neha	Marketing	52000.00
6	Kiran	Sales	48000.00
7	John	Sales	45000.00
8	Sarah	Sales	42000.00

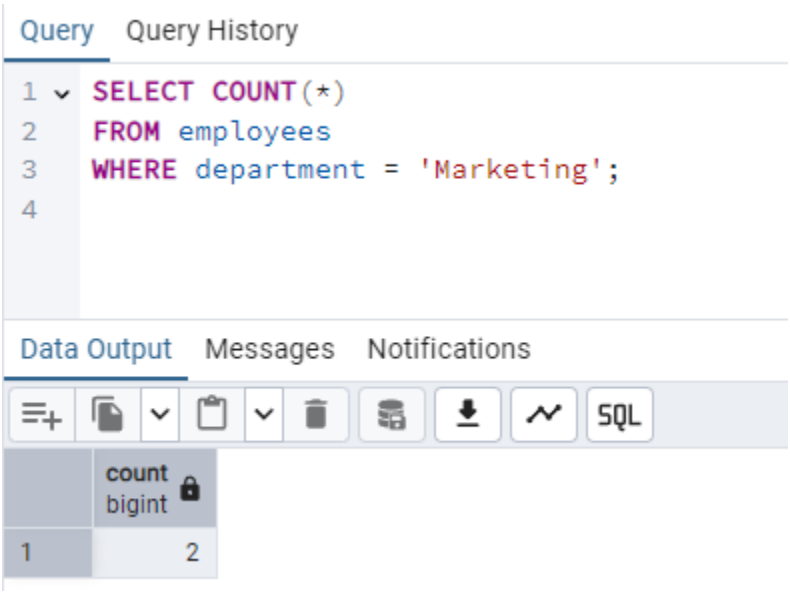
4. Output Control:
   - Limit results with LIMIT (MySQL/PostgreSQL) or TOP (SQL Server)



   - Paginate results using OFFSET



5. Data Validation:
   - Verify query accuracy through record counts and sample checks



   - Compare output against source data integrity