

SQL FUNDAMENTALS

Exercise 1 – ANSWERS

Question 1 – SELECT Statement

SQL query to retrieve all columns on Snowflake from the employees table:

The screenshot displays the Snowflake web interface. At the top, there's a navigation bar with tabs for different queries, including '2025-03-25 8:25pm', 'Load sample data with SQ...', '2025-04-14 7:47pm', '2025-04-15 3:58pm', '2025-04-15 5:04pm', '2025-04-19 7:27pm', and '2025-04-19 7:33pm'. Below this, the 'Databases' tab is active, showing a search bar and a list of databases: BRIGHTLIGHT_DB, CUSTOMERS, CUSTOMERS_LARGE, EMPLOYEE_DB, ORDERS, PRODUCTS, SALES, SNOWFLAKE, SNOWFLAKE_SAMPLE_DATA, and SQL_FUNDAMENTALS. The 'EMPLOYEE_DB.PUBLIC' database is selected, and the 'Settings' dropdown is open. The SQL editor shows the following query:

```
1 SELECT
2 *
3 FROM
4 "EMPLOYEE_DB"."PUBLIC"."EMPLOYEES"
5 LIMIT
6 10;
```

Below the query editor, the 'Results' tab is active, displaying a table with 10 rows and 8 columns: # ID, FIRST_NAME, LAST_NAME, DEPARTMENT, SALARY, HIRE_DATE, and CITY. The data is as follows:

#	ID	FIRST_NAME	LAST_NAME	DEPARTMENT	SALARY	HIRE_DATE	CITY
1	1	John	Doe	IT	55 000	2018-06-15	New York
2	2	Jane	Smith	HR	48 000	2019-07-20	Chicago
3	3	Mike	Johnson	Finance	60 000	2017-09-30	Los Angeles
4	4	Sarah	Brown	IT	53 000	2021-03-25	New York
5	5	David	White	Marketing	52 000	2016-04-10	San Francisco
6	6	Emily	Davis	IT	62 000	2015-02-14	Chicago
7	7	Robert	Wilson	Finance	59 000	2019-10-01	Houston
8	8	Jessica	Moore	HR	51 000	2018-05-22	Los Angeles
9	9	Daniel	Clark	Marketing	53 000	2022-06-01	Chicago
10	10	Laura	Hall	IT	50 000	2020-08-10	San Francisco

On the right side, the 'Query Details' panel shows the query duration as 104ms, the number of rows as 10, and the query ID as 01bbcc3d-0000-f24e-0... The 'Show more' button is visible. Below the query details, there are two visualizations: a bar chart for 'ID' showing a 100% filled bar, and a bar chart for 'FIRST_NAME' showing a 100% filled bar. The 'LAST_NAME' visualization is partially visible at the bottom.

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Question 2 – SELECT DISTINCT Statement

SQL query to find all the unique departments in the employee table:

The screenshot shows the Snowflake SQL interface. The top bar displays several tabs for recent queries, including 'Load sample data with SQ...'. The left sidebar shows a tree view of databases and schemas, with 'EMPLOYEE_DB' selected. The main editor area contains the following SQL query:

```
1 SELECT distinct (department)
2
3 FROM
4     "EMPLOYEE_DB"."PUBLIC"."EMPLOYEES"
5
```

Below the query editor, the 'Results' tab is active, showing a table with the following data:

	DEPARTMENT
1	IT
2	HR
3	Finance
4	Marketing

On the right side, the 'Query Details' panel shows the following information:

- Query duration: 62ms
- Rows: 4
- Query ID: 01bbcc41-0000-f24e-0...

Below the query details, there is a 'Show more' button and a 'DEPARTMENT' section showing '100% filled'.

Question 3 – ORDER BY Statement

SQL query to retrieve all employees' first and last names , ordered by salary in descending order:

The screenshot shows a SQL IDE interface. The top bar displays several tabs with timestamps, including '2025-03-25 8:25pm', 'Load sample data with SQ...', '2025-04-14 7:47pm', '2025-04-15 3:58pm', '2025-04-15 5:04pm', '2025-04-19 7:27pm', and '2025-04-19 7:33pm'. The left sidebar shows a 'Databases' tab with a search bar and a list of databases: BRIGHTLIGHT_DB, CUSTOMERS, CUSTOMERS_LARGE, EMPLOYEE_DB, ORDERS, PRODUCTS, SALES, SNOWFLAKE, SNOWFLAKE_SAMPLE_DATA, and SQL_FUNDAMENTALS. The main editor area shows a SQL query in the 'EMPLOYEE_DB.PUBLIC' schema:

```
1 SELECT
2     first_name,
3     last_name,
4     salary
5
6 FROM
7     "EMPLOYEE_DB"."PUBLIC"."EMPLOYEES"
8 ORDER BY salary DESC;
9
```

Below the query editor, the 'Results' tab is active, displaying a table with 10 rows of employee data, ordered by salary in descending order:

	FIRST_NAME	LAST_NAME	SALARY
1	Emily	Davis	62 000
2	Mike	Johnson	60 000
3	Robert	Wilson	59 000
4	John	Doe	55 000
5	Sarah	Brown	53 000
6	Daniel	Clark	53 000
7	David	White	52 000
8	Jessica	Moore	51 000
9	Laura	Hall	50 000
10	Jane	Smith	48 000

On the right side, the 'Query Details' panel shows the query duration as 119ms, 10 rows returned, and the query ID as 01bbcc45-0000-f445-0... Below this, three visualizations for the columns FIRST_NAME, LAST_NAME, and SALARY are shown, each indicating '100% filled'.

Question 4 – LIMIT Statement

SQL query to retrieve the top 5 highest-paid employees:

The screenshot shows a SQL IDE interface with a query editor and a results table. The query is as follows:

```
1 SELECT
2   first_name,
3   last_name,
4   salary
5
6 FROM
7   "EMPLOYEE_DB"."PUBLIC"."EMPLOYEES"
8 ORDER BY salary DESC
9 LIMIT 5;
```

The results table displays the top 5 highest-paid employees:

	FIRST_NAME	LAST_NAME	SALARY
1	Emily	Davis	62 000
2	Mike	Johnson	60 000
3	Robert	Wilson	59 000
4	John	Doe	55 000
5	Sarah	Brown	53 000

Query Details:

- Query duration: 248ms
- Rows: 5
- Query ID: 01bbcc4a-0000-f446-0...

Column details for the results table:

- FIRST_NAME: 100% filled
- LAST_NAME: 100% filled
- SALARY: 100% filled

Question 5 – WHERE Statement

SQL query to find employees who work in the IT department:

The screenshot shows a SQL IDE interface with a query editor, a results table, and a query details panel.

Query Editor:

```
1 SELECT
2     first_name,
3     last_name,
4     department
5
6 FROM
7     "EMPLOYEE_DB"."PUBLIC"."EMPLOYEES"
8 WHERE department = 'IT';
9
```

Results Table:

	FIRST_NAME	LAST_NAME	DEPARTMENT
1	John	Doe	IT
2	Sarah	Brown	IT
3	Emily	Davis	IT
4	Laura	Hall	IT

Query Details:

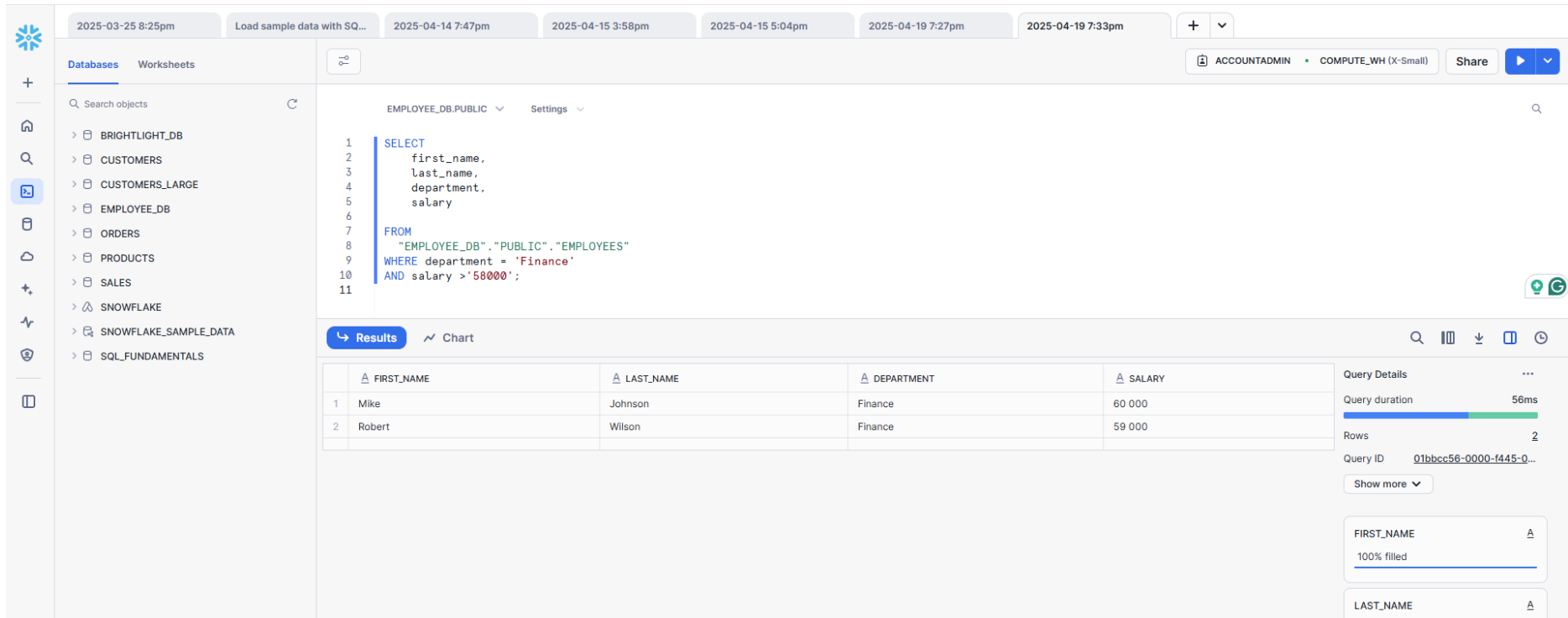
- Query duration: 148ms
- Rows: 4
- Query ID: 01bbcc52-0000-efae-0...

Column Details:

- FIRST_NAME: 100% filled
- LAST_NAME: 100% filled
- DEPARTMENT: 100% filled

Question 6 – AND Statement

SQL query to find employees who work in the Finance department AND have a salary greater than 58,000.



The screenshot shows a SQL query editor interface. The query is as follows:

```
1 SELECT
2   first_name,
3   last_name,
4   department,
5   salary
6
7 FROM
8   "EMPLOYEE_DB"."PUBLIC"."EMPLOYEES"
9 WHERE department = 'Finance'
10 AND salary > '58000';
11
```

The results are displayed in a table with the following columns: FIRST_NAME, LAST_NAME, DEPARTMENT, and SALARY. The results show two rows:

	FIRST_NAME	LAST_NAME	DEPARTMENT	SALARY
1	Mike	Johnson	Finance	60 000
2	Robert	Wilson	Finance	59 000

Query Details:

- Query duration: 56ms
- Rows: 2
- Query ID: 01bbcc56-0000-f445-0...

Query execution progress: 100% filled.

Question 7 – OR Statement

Query to find employees who work in the HR department OR the Marketing department:

The screenshot shows a database query interface. The top bar displays several tabs with timestamps: 2025-03-25 8:25pm, Load sample data with SQ..., 2025-04-14 7:47pm, 2025-04-15 3:58pm, 2025-04-15 5:04pm, 2025-04-19 7:27pm, and 2025-04-19 7:33pm. The left sidebar contains a search bar and a list of databases: BRIGHTLIGHT_DB, CUSTOMERS, CUSTOMERS_LARGE, EMPLOYEE_DB, ORDERS, PRODUCTS, SALES, SNOWFLAKE, SNOWFLAKE_SAMPLE_DATA, and SQL_FUNDAMENTALS. The main area shows the query editor with the following SQL code:

```
1 SELECT
2   first_name,
3   last_name,
4   department,
5
6 FROM
7   "EMPLOYEE_DB"."PUBLIC"."EMPLOYEES"
8 WHERE department = 'HR' OR department = 'Marketing';
9
10
```

Below the query editor, the 'Results' tab is active, displaying a table with 4 rows and 3 columns: FIRST_NAME, LAST_NAME, and DEPARTMENT.

	FIRST_NAME	LAST_NAME	DEPARTMENT
1	Jane	Smith	HR
2	David	White	Marketing
3	Jessica	Moore	HR
4	Daniel	Clark	Marketing

On the right side, the 'Query Details' panel shows the following information:

- Query duration: 56ms
- Rows: 4
- Query ID: 01bbcc5c-0000-f445-0...
- Show more

Below the query details, there are three sections showing the distribution of data for each column:

- FIRST_NAME**: 100% filled
- LAST_NAME**: 100% filled
- DEPARTMENT**: HR (2), Marketing (2)

Question 8 – NOT Statement

Query to find employees who do not work in the IT department:

The screenshot shows a SQL query editor interface. The top bar displays several tabs with timestamps, including '2025-03-25 8:25pm', 'Load sample data with SQ...', '2025-04-14 7:47pm', '2025-04-15 3:58pm', '2025-04-15 5:04pm', '2025-04-19 7:27pm', and '2025-04-19 7:33pm'. The left sidebar shows a tree view of databases and tables, with 'EMPLOYEE_DB' selected. The main editor area shows the following SQL query:

```
1 SELECT
2   first_name,
3   last_name,
4   department,
5
6 FROM
7   "EMPLOYEE_DB"."PUBLIC"."EMPLOYEES"
8 WHERE NOT department = 'IT';
9
```

Below the query editor, the 'Results' tab is active, displaying a table with 6 rows and 3 columns: FIRST_NAME, LAST_NAME, and DEPARTMENT. The data is as follows:

	FIRST_NAME	LAST_NAME	DEPARTMENT
1	Jane	Smith	HR
2	Mike	Johnson	Finance
3	David	White	Marketing
4	Robert	Wilson	Finance
5	Jessica	Moore	HR
6	Daniel	Clark	Marketing

On the right side, the 'Query Details' panel shows the following information:

- Query duration: 84ms
- Rows: 6
- Query ID: 01bbcc5f-0000-f446-0...
- Show more

Below the query details, there are three sections showing the distribution of data for each column:

- FIRST_NAME**: 100% filled
- LAST_NAME**: 100% filled
- DEPARTMENT**: HR (2), Finance (2), Marketing (2)

Question 9 - IN Statement

SQL query to find employees who are in HR, IT or Finance departments:

The screenshot displays a SQL query editor interface. The query is as follows:

```
1 SELECT
2   first_name,
3   last_name,
4   department,
5
6 FROM
7   "EMPLOYEE_DB"."PUBLIC"."EMPLOYEES"
8 WHERE department IN ('IT', 'HR', 'Finance');
9
```

The results of the query are shown in a table with 8 rows and 3 columns: FIRST_NAME, LAST_NAME, and DEPARTMENT.

	FIRST_NAME	LAST_NAME	DEPARTMENT
1	John	Doe	IT
2	Jane	Smith	HR
3	Mike	Johnson	Finance
4	Sarah	Brown	IT
5	Emily	Davis	IT
6	Robert	Wilson	Finance
7	Jessica	Moore	HR
8	Laura	Hall	IT

Query Details:

- Query duration: 70ms
- Rows: 8
- Query ID: 01bbcc63-0000-efae-0...

Column details:

- FIRST_NAME: 100% filled
- LAST_NAME: 100% filled
- DEPARTMENT: IT (4), HR (2), Finance (2)

Question 10 – Combining Conditions

SQL query where employees who are in IT department, have a salary greater than 50,000 and are located in New York:

The screenshot displays a SQL query editor interface. The query is as follows:

```
1 SELECT
2     first_name,
3     last_name,
4     department,
5     salary,
6     city
7
8 FROM
9     "EMPLOYEE_DB"."PUBLIC"."EMPLOYEES"
10 WHERE department = 'IT'
11 AND salary > '50 000'
12 AND city = 'New York'
```

The results are shown in a table with the following data:

	FIRST_NAME	LAST_NAME	DEPARTMENT	SALARY	CITY
1	John	Doe	IT	55 000	New York
2	Sarah	Brown	IT	53 000	New York

On the right side, the 'Query Details' panel shows the following information:

- Query duration: 51ms
- Rows: 2
- Query ID: 01bbcc67-0000-f445-0...
- Fields: FIRST_NAME, LAST_NAME, DEPARTMENT, SALARY, CITY (all 100% filled)

Question 11 – Combining WHERE, AND and ORDER BY

SQL query to retrieve the first and last names of employees who work in the Finance or Marketing department, earn more than 52,000 and order the results by salary in descending order

The screenshot shows a SQL IDE interface with a query editor and a results pane. The query editor displays the following SQL query:

```
1 SELECT
2     first_name,
3     last_name,
4     department,
5     salary,
6
7 FROM
8     "EMPLOYEE_DB"."PUBLIC"."EMPLOYEES"
9 WHERE (DEPARTMENT='Finance' OR department ='Marketing')
10 AND salary > '52000'
11 ORDER BY salary DESC;
```

The results pane shows the following table:

	FIRST_NAME	LAST_NAME	DEPARTMENT	SALARY
1	Mike	Johnson	Finance	60 000
2	Robert	Wilson	Finance	59 000
3	Daniel	Clark	Marketing	53 000

Query Details:

- Query duration: 64ms
- Rows: 3
- Query ID: 01bbcc76-0000-f446-0...
- Show more

Column details:

- FIRST_NAME: 100% filled
- LAST_NAME: 100% filled
- DEPARTMENT: 100% filled
- SALARY: 100% filled

Question 12 – Combining SELECT DISTINCT, WHERE and IN

SQL query to find all the unique cities where employees work, excluding those in IT and HR departments

The screenshot shows a SQL query editor interface. The query is as follows:

```
1 SELECT DISTINCT (CITY)
2     first_name,
3     last_name,
4     department
5
6 FROM
7     "EMPLOYEE_DB"."PUBLIC"."EMPLOYEES"
8 WHERE NOT (DEPARTMENT='IT' OR department = 'HR');
```

The results are displayed in a table with the following data:

	FIRST_NAME	LAST_NAME	DEPARTMENT
1	Los Angeles	Johnson	Finance
2	San Francisco	White	Marketing
3	Houston	Wilson	Finance
4	Chicago	Clark	Marketing

Query Details:

- Query duration: 492ms
- Rows: 4
- Query ID: 01bbcc81-0000-efae-0...

Column details:

- FIRST_NAME: 100% filled
- LAST_NAME: 100% filled
- DEPARTMENT: Finance (2), Marketing (2)

Question 13 – Combining WHERE, NOT, AND, and ORDER BY

SQL query to retrieve employees who are NOT in the Finance department, have a salary greater than 50,000 and order the results by hire date in ascending order:

The screenshot shows a SQL IDE interface with a query editor and a results pane. The query is as follows:

```
1 SELECT
2   first_name,
3   last_name,
4   department,
5   salary,
6   hire_date
7 FROM
8   "EMPLOYEE_DB"."PUBLIC"."EMPLOYEES"
9 WHERE NOT department='Finance'
10 AND salary > '50000'
11 ORDER BY hire_date ASC;
```

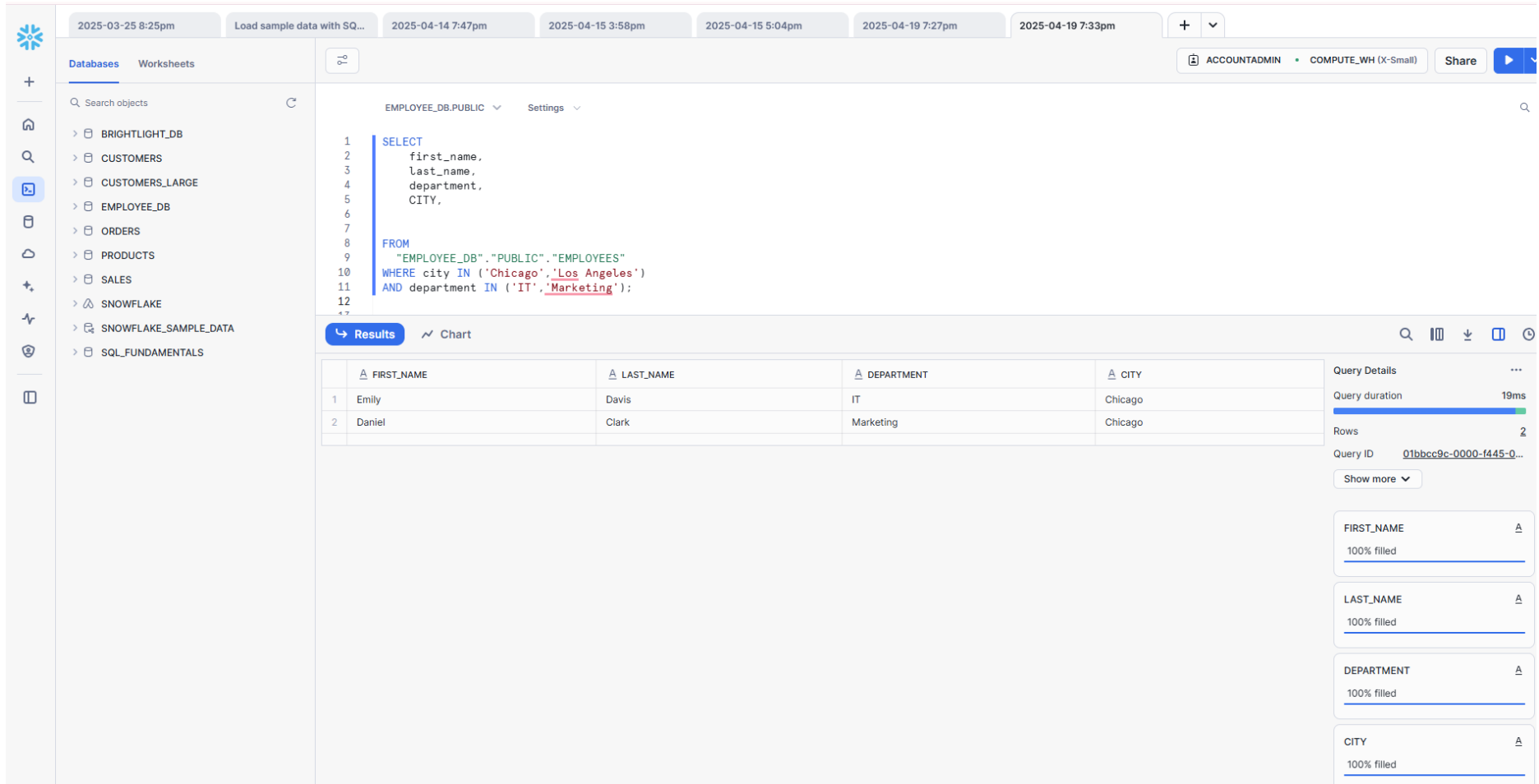
The results pane displays a table with 6 rows and 6 columns: FIRST_NAME, LAST_NAME, DEPARTMENT, SALARY, and HIRE_DATE. The data is as follows:

	FIRST_NAME	LAST_NAME	DEPARTMENT	SALARY	HIRE_DATE
1	Emily	Davis	IT	62 000	2015-02-14
2	David	White	Marketing	52 000	2016-04-10
3	Jessica	Moore	HR	51 000	2018-05-22
4	John	Doe	IT	55 000	2018-06-15
5	Sarah	Brown	IT	53 000	2021-03-25
6	Daniel	Clark	Marketing	53 000	2022-06-01

On the right side of the results pane, there is a 'Query Details' section showing the query duration as 59ms and the number of rows as 6. Below this, there are three summary cards for the columns: FIRST_NAME (100% filled), LAST_NAME (100% filled), and DEPARTMENT (3 rows for IT, 2 rows for Marketing, 1 row for HR). The SALARY card is partially visible at the bottom.

Question 14 – Combining WHERE, OR, IN AND LIMIT

SQL query to find first 3 employees who work in either Chicago or Los Angeles and belonging to the IT or Marketing department:



The screenshot shows a SQL query editor interface. The query is as follows:

```
1 SELECT
2   first_name,
3   last_name,
4   department,
5   CITY,
6
7
8 FROM
9   "EMPLOYEE_DB"."PUBLIC"."EMPLOYEES"
10 WHERE city IN ('Chicago', 'Los Angeles')
11 AND department IN ('IT', 'Marketing');
12
```

The results are displayed in a table with 2 rows:

	FIRST_NAME	LAST_NAME	DEPARTMENT	CITY
1	Emily	Davis	IT	Chicago
2	Daniel	Clark	Marketing	Chicago

The right sidebar shows query details:

- Query duration: 19ms
- Rows: 2
- Query ID: 01bbcc9c-0000-1445-0...
- Show more
- Column information: FIRST_NAME (100% filled), LAST_NAME (100% filled), DEPARTMENT (100% filled), CITY (100% filled)