



# SQL Practice Exercises 1 - ANSWERS

January 26, 2025

## Questions

Use the fldb database to answer the following questions.

1. Write a SQL query to retrieve the names of all airlines along with their IATA codes from the airline table.

```
SELECT name, ista FROM airline;
```

2. Create a query that returns the total capacity of airplanes for each airline. Include the airline name and the sum of capacities.

```
SELECT a.name, SUM(at.capacity) AS total_capacity  
FROM airline a  
JOIN airplane ap ON a.airline_id = ap.airline_id  
JOIN airplane_type at ON ap.type_id = at.type_id  
GROUP BY a.name;
```

3. Create a query to list all flights departing from the airport with ICAO code 'KAVL' including the flight number, departure time, and destination airport name.

```
SELECT f.flightno, f.departure, a2.name AS destination  
FROM flight f  
JOIN airport a1 ON f.from = a1.airport_id  
JOIN airport a2 ON f.to = a2.airport_id  
WHERE a1.ista = 'KAVL';
```

4. Write a query to find the average salary for employees in each department. Include the department name and the average salary.

```
SELECT department, AVG(salary) AS average_salary
FROM employee
GROUP BY department;
```

5. Create a SQL query to retrieve the passport numbers and full names (concatenation of first and last names) of all passengers.

```
SELECT passportno, CONCAT(firstname, ' ', lastname) AS full_name
FROM passageer;
```

6. Write a query to find the airplane types (identifier from `airplane_type` table) that have not been assigned to any airplanes in the `airplane` table.

```
SELECT at.identifier
FROM airplane_type at
LEFT JOIN airplane ap ON at.type_id = ap.type_id
WHERE ap.airplane_id IS NULL;
```

7. Create a query to show the flight details (flight number, departure, and arrival times) for flights that depart from 'CHIPPEWA VALLEY REGL' and arrive at 'IRAN SHAHR'.

```
SELECT f.flightno, f.departure, f.arrival
FROM flight f
JOIN airport a1 ON f.from = a1.airport_id
JOIN airport a2 ON f.to = a2.airport_id
WHERE a1.name = 'CHIPPEWA VALLEY REGL' AND a2.name = 'IRAN SHAHR';
```

8. Write a SQL query to get the number of bookings made by each passenger. Include the passenger's passport number and the count of bookings.

```
SELECT p.passportno, COUNT(b.booking_id) AS booking_count
FROM passageer p
LEFT JOIN booking b ON p.passenger_id = b.passenger_id
GROUP BY p.passportno;
```

9. Create a query to find the average temperature and humidity for each day from the `weatherdata` table.

```
SELECT log_date, AVG(temp) AS avg_temp, AVG(humidity) AS avg_humidity
FROM weatherdata
GROUP BY log_date;
```

10. Write a SQL query to rank airlines based on the number of flights they operate. Display the airline name, the number of flights they operate, and their rank, with the highest number of flights ranked first.

```

SELECT a.name, COUNT(f.flight_id) AS flight_count,
       RANK() OVER (ORDER BY COUNT(f.flight_id) DESC) AS rank
FROM airline a
LEFT JOIN flight f ON a.airline_id = f.airline_id
GROUP BY a.name;

```

11. Retrieve all passengers and their booking details using an **INNER JOIN**.

```

SELECT p.*, b.*
FROM passenger p
INNER JOIN booking b ON p.passenger_id = b.passenger_id;

```

12. List all flights and their corresponding airplane details using a **LEFT JOIN**.

```

SELECT f.*, ap.*
FROM flight f
LEFT JOIN airplane ap ON f.airplane_id = ap.airplane_id;

```

13. Show airports that are reachable along with the number of hops using a **RIGHT JOIN**.

```

SELECT a.*, ar.hops
FROM airport a
RIGHT JOIN airport_reachable ar ON a.airport_id = ar.airport_id;

```

14. Find all airlines along with the airplanes they operate using a **FULL OUTER JOIN**.

```

SELECT a.*, ap.*
FROM airline a
FULL OUTER JOIN airplane ap ON a.airline_id = ap.airline_id;

```

15. List all airports and weather data for their respective locations using a **CROSS JOIN**.

```

SELECT a.*, w.*
FROM airport a
CROSS JOIN weatherdata w;

```

16. Retrieve flight schedules and the respective departure and arrival airports using a **SELF JOIN**.

```

SELECT fs1.flightno, fs1.departure, fs1.arrival, a1.name AS departure_airport, a2.name AS arrival_airport
FROM flightschedule fs1
JOIN airport a1 ON fs1.from = a1.airport_id
JOIN airport a2 ON fs1.to = a2.airport_id;

```

17. Find passengers without any bookings using a **LEFT JOIN** with NULL filtering.

```

SELECT p.*
FROM passageer p
LEFT JOIN booking b ON p.passenger_id = b.passenger_id
WHERE b.booking_id IS NULL;

```

18. List employees and their department along with any flights they logged using an **INNER JOIN**.

```

SELECT e.*, f.*
FROM employee e
INNER JOIN flight_log f ON e.employee_id = f.user;

```

19. Show airlines with airplanes and airplane types using **multi-table JOINS**.

```

SELECT a.name, ap.airplane_id, at.identifier
FROM airline a
JOIN airplane ap ON a.airline_id = ap.airline_id
JOIN airplane_type at ON ap.type_id = at.type_id;

```

20. Retrieve flights that connect two airports directly using a **JOIN with conditions**.

```

SELECT f.*
FROM flight f
JOIN airport a1 ON f.from = a1.airport_id
JOIN airport a2 ON f.to = a2.airport_id
WHERE a1.ista = 'KAVL' AND a2.ista = 'KJFK';

```