



Introduction to SQL **(Exercises)**

**Inserting, Updating and Deleting
Data - Swimming Pool Example**

Lesson Objectives

- Insert data with INSERT
- Modify data with UPDATE
- Delete data with DELETE
- Select and filter data with SELECT
- Aggregate data with COUNT, SUM, AVG, MIN, MAX
- Use GROUP BY and HAVING

INSERT INTO

Adding data to the table

Basic Syntax

```
INSERT INTO TableName (col1, col2, col3)  
VALUES (val1, val2, val3);
```

Exercise 1 - Insert Customers

Task

 Insert 3 customers with different subscription types

Solution

```
INSERT INTO Customers (name, email, registration_date, subscription_type) VALUES
  ('Sara Neri', 'sara.neri@email.com', '2025-03-01', 'monthly'),
  ('Luca Gialli', 'luca.gialli@email.com', '2025-02-20', 'quarterly'),
  ('Giulia Rosa', 'giulia.rosa@email.com', '2025-01-10', 'annual');
```

Exercise 2 - Insert Lanes

Task

- Insert 3 lanes with different characteristics

Solution

```
INSERT INTO Lanes (lane_number, depth, width) VALUES
  (1, 1.8, 2.5),
  (2, 2.0, 2.5),
  (3, 1.6, 2.0);
```

Exercise 3 - Insert Instructors

Task

- Insert 2 instructors with different specializations

Solution

```
INSERT INTO Instructors (name, specialization) VALUES
('Marco Blu', 'advanced swimming'),
('Elena Verde', 'water aerobics');
```

Exercise 4 - Insert Sessions

Task

- Insert 2 sessions, each managed by an instructor

Solution

```
INSERT INTO Sessions (time, level, max_participants, instructor_id) VALUES
  ('08:30', 'beginner', 5, 1),
  ('10:00', 'advanced', 4, 2);
```

Exercise 5 - Insert Bookings

Task

- Insert 2 bookings for different customers

Solution

```
INSERT INTO Bookings (customer_id, session_id, lane_id, booking_date) VALUES
  (1, 1, 1, '2025-03-31'),
  (2, 2, 2, '2025-03-31');
```

UPDATE - Modify Data

Task

- Increase the maximum number of participants for session 1

Solution

```
UPDATE Sessions  
SET max_participants = 6  
WHERE id = 1;
```

DELETE - Delete Data

Task

- Remove lane 3 from the system

Solution

```
DELETE FROM Lanes  
WHERE lane_number = 3;
```

SELECT - Extract Data

Task

- Show all bookings for the day 2025-03-31

Solution

```
SELECT *  
FROM Bookings  
WHERE booking_date = '2025-03-31';
```

Aggregate Functions

Task

- How many bookings have been made in total?

Solution

```
SELECT COUNT(*) AS total_bookings  
FROM Bookings;
```

GROUP BY & HAVING

Task

- Number of bookings per lane

Solution

```
SELECT lane_id, COUNT(*) AS bookings
FROM Bookings
GROUP BY lane_id;
```

Task

- Show only lanes with more than 1 booking

Solution

```
SELECT lane_id, COUNT(*) AS bookings
FROM Bookings
GROUP BY lane_id
HAVING COUNT(*) > 1;
```

