SQL (Structured Query Language)

Create Table, Alter Table, Drop Table

```
CREATE TABLE customer (
    customer_id INT PRIMARY KEY,
    first_name VARCHAR(50),
    last_name VARCHAR(50),
    email VARCHAR(100),
    phone_number VARCHAR(20),
    address VARCHAR(255),
    city VARCHAR(100),
    state VARCHAR(50),
    postal_code VARCHAR(20),
    country VARCHAR (100));

ALTER TABLE customer
ADD birthdate DATE;


DROP TABLE customer;
```

INSERT, UPDATE, DELETE

```
INSERT INTO customer (customer_id, first_name, last_name, email,
phone_number, address, city, state, postal_code, country)
VALUES (5, 'Emily', 'Davis', 'emily@example.com', '+188877766655', '210
Maple St', 'Villageton', 'OH', '54321', 'United States');

UPDATE customer
SET last_name = 'Johnson'
WHERE customer_id = 2;

DELETE FROM customer
WHERE customer_id = 3;
```

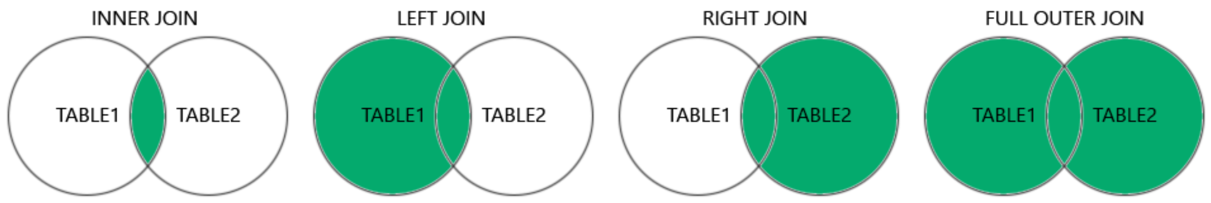
Select

```
SELECT * FROM Customers;

SELECT DISTINCT Country FROM Customers;

SELECT COUNT(DISTINCT Country) FROM Customers; --gibt Anzahl der
eindeutigen Länder zurück

SELECT * FROM Customers
WHERE Country='Mexico';

--Between, Like, In
SELECT * FROM customers
WHERE age BETWEEN 20 AND 30;

SELECT * FROM customers
WHERE last_name LIKE 'Smith%';

SELECT * FROM customers
WHERE city IN ('New York', 'Los Angeles', 'Chicago');

SELECT * FROM Products
ORDER BY Price;
SELECT MIN(Price)
FROM Products;
```

```
SELECT MAX(Price)
FROM Products;

SELECT COUNT(ProductID)
FROM Products
WHERE Price > 20;

SELECT SUM(Quantity)
FROM OrderDetails;

SELECT AVG(Price)
FROM Products;
```

Join

```
SELECT Orders.OrderID, Customers.CustomerName, Orders.OrderDate
FROM Orders
INNER JOIN Customers
ON Orders.CustomerID=Customers.CustomerID;
```



```
SQL Self Join


SELECT e.employee_name AS employee_name,
       m.employee_name AS manager_name
FROM Employees e
JOIN Employees m
ON e.manager_id = m.employee_id;
```

Dadurch erhalten wir die Namen der Mitarbeiter und ihrer jeweiligen Manager in der Ausgabe.

Union

```
SELECT City FROM Customers
UNION
SELECT City FROM Suppliers
ORDER BY City;
```

Gibt die Städte (nur unterschiedliche Werte) sowohl aus der Tabelle „Kunden“ als auch aus der Tabelle „Lieferanten“ zurück.

```
SELECT City FROM Customers
UNION ALL
SELECT City FROM Suppliers
ORDER BY City;
```

Gibt die Städte (auch doppelte Werte) aus der Tabelle „Kunden“ und „Lieferanten“ zurück.

Group By

```
SELECT column_name(s)
FROM table_name
WHERE condition
```

```
GROUP BY column_name(s)
ORDER BY column_name(s);

SELECT COUNT(CustomerID), Country
FROM Customers
GROUP BY Country
ORDER BY COUNT(CustomerID) DESC;
```

Having

```
SELECT column_name(s)
FROM table_name
WHERE condition
GROUP BY column_name(s)
HAVING condition
ORDER BY column_name(s);
```

Die HAVING-Klausel wurde zu SQL hinzugefügt, da das Schlüsselwort WHERE nicht mit Aggregatfunktionen verwendet werden kann.

```
SELECT COUNT(CustomerID), Country
FROM Customers
GROUP BY Country
HAVING COUNT(CustomerID) > 5
ORDER BY COUNT(CustomerID) DESC;
```

Any, All

SQL ANY und ALL sind Vergleichsoperatoren, die häufig in Verbindung mit Unterabfragen verwendet werden, um Bedingungen zu überprüfen.

```
SELECT ProductID, Price
FROM Products
WHERE Price > ALL (SELECT AVG(Price) FROM Products);

SELECT ProductID, Price
FROM Products
WHERE Price >= ANY (SELECT Price FROM Products WHERE ProductID <>
outer.Products.ProductID);
```

CASE

```
SELECT OrderID, Quantity,
CASE
    WHEN Quantity > 30 THEN 'The quantity is greater than 30'
    WHEN Quantity = 30 THEN 'The quantity is 30'
    ELSE 'The quantity is under 30'
END AS QuantityText
FROM OrderDetails;
```

With

In SQL wird die WITH-Klausel verwendet, um sogenannte "Common Table Expressions" (CTEs) zu erstellen. CTEs ermöglichen es, temporäre Resultsets zu definieren, die innerhalb einer einzelnen Abfrage verwendet werden können.

```
WITH EmployeeDepartments AS (
    SELECT
        e.FirstName || ' ' || e.LastName AS EmployeeName,
        d.DepartmentName,
        COUNT(*) AS EmployeeCount
    FROM
        Employees e
    INNER JOIN
        Departments d ON e.DepartmentID = d.DepartmentID
    GROUP BY
        e.FirstName, e.LastName, d.DepartmentName
)
SELECT
    ed.EmployeeName,
    ed.DepartmentName,
    ed.EmployeeCount
FROM
    EmployeeDepartments ed;
```

PL SQL

```
DECLARE
   <declarations section>
BEGIN
   <executable command(s)>
EXCEPTION
   <exception handling>
END;


set serveroutput on
DECLARE
   message  varchar2(20):= 'Hello, World!';
BEGIN
   dbms_output.put_line(message);
END;


DECLARE
   a integer := 10;
   b integer := 20;
   c integer;
   f real;
BEGIN
   c := a + b;
   dbms_output.put_line('Value of c: ' || c);
   f := 70.0/3.0;
   dbms_output.put_line('Value of f: ' || f);
END;
```

https://www.tutorialspoint.com/plsql/plsql_variable_types.htm