

SELECT Query

```
SELECT col1, col2
FROM table
JOIN table2 ON table1.col = table2.col
WHERE condition
GROUP BY column_name
HAVING condition
ORDER BY col1 ASC|DESC;
```

SELECT Keywords

DISTINCT: Removes duplicate results	SELECT DISTINCT product_name FROM product;
BETWEEN: Matches a value between two other values (inclusive)	SELECT product_name FROM product WHERE price BETWEEN 50 AND 100;
IN: Matches to any of the values in a list	SELECT product_name FROM product WHERE category IN ('Electronics', 'Furniture');
LIKE: Performs wildcard matches using _ or %	SELECT product_name FROM product WHERE product_name LIKE '%Desk%';

Joins

```
SELECT t1.*, t2.*
FROM t1
join_type t2 ON t1.col1 = t2.col1;
```

Table 1	Table 2
A	A
B	B
C	D

INNER JOIN: show all matching records in both tables.

A	A
B	B

LEFT JOIN: show all records from left table, and any matching records from right table.

A	A
B	B
C	

RIGHT JOIN: show all records from right table, and any matching records from left table.

A	A
B	B
	D

FULL JOIN: show all records from both tables, whether there is a match or not.

A	A
B	B
C	
	D

CASE Statement

Simple Case	CASE name WHEN 'John' THEN 'Name John' WHEN 'Steve' THEN 'Name Steve' ELSE 'Unknown' END
Searched Case	CASE WHEN name='John' THEN 'Name John' WHEN name='Steve' THEN 'Name Steve' ELSE 'Unknown' END

Common Table Expression

```
WITH queryname AS (
  SELECT col1, col2
  FROM firsttable)
SELECT col1, col2..
FROM queryname...;
```

Modifying Data

Insert	INSERT INTO tablename (col1, col2...) VALUES (val1, val2);
Insert from a Table	INSERT INTO tablename (col1, col2...) SELECT col1, col2...
Insert Multiple Rows	INSERT INTO tablename (col1, col2...) VALUES (valA1, valB1), (valA2, valB2), (valA3, valB3);
Update	UPDATE tablename SET col1 = val1 WHERE condition;
Update with a Join	UPDATE t SET col1 = val1 FROM tablename t INNER JOIN table x ON t.id = x.tid WHERE condition;
Delete	DELETE FROM tablename WHERE condition;

Indexes

Create Index	CREATE INDEX indexname ON tablename (cols);
Drop Index	DROP INDEX indexname;

Set Operators

UNION: Shows unique rows from two result sets.



UNION ALL: Shows all rows from two result sets.



INTERSECT: Shows rows that exist in both result sets.



EXCEPT: Shows rows that exist in the first result set but not the second.



Aggregate Functions

- SUM:** Finds a total of the numbers provided
- COUNT:** Finds the number of records
- AVG:** Finds the average of the numbers provided
- MIN:** Finds the lowest of the numbers provided
- MAX:** Finds the highest of the numbers provided

Common Functions

- LENGTH(string):** Returns the length of the provided string
- POSITION(string IN substring):** Returns the position of the substring within the specified string.
- CAST(expression AS datatype):** Converts an expression into the specified data type.
- NOW:** Returns the current date, including time.
- CEIL(input_val):** Returns the smallest integer greater than the provided number.
- FLOOR(input_val):** Returns the largest integer less than the provided number.
- ROUND(input_val, [round_to]):** Rounds a number to a specified number of decimal places.
- TRUNC(input_value, num_decimals):** Truncates a number to a number of decimals.
- REPLACE(whole_string, string_to_replace, replacement_string):** Replaces one string inside the whole string with another string.
- SUBSTRING(string, [start_pos], [length]):** Returns part of a value, based on a position and length.

Create Table

Create Table	CREATE TABLE tablename (column_name data_type);
Create Table with Constraints	CREATE TABLE tablename (column_name data_type NOT NULL, CONSTRAINT pkname PRIMARY KEY (col), CONSTRAINT fkname FOREIGN KEY (col) REFERENCES other_table(col_in_other_table), CONSTRAINT ucname UNIQUE (col), CONSTRAINT ckname CHECK (conditions));
Create Temporary Table	CREATE TEMP TABLE tablename (colname datatype);
Drop Table	DROP TABLE tablename;

Alter Table

Add Column	ALTER TABLE tablename ADD COLUMN columnname datatype;
Drop Column	ALTER TABLE tablename DROP COLUMN columnname;
Modify Column	ALTER TABLE tablename ALTER COLUMN columnname TYPE newdatatype;
Rename Column	ALTER TABLE tablename RENAME COLUMN currentname TO newname;
Add Constraint	ALTER TABLE tablename ADD CONSTRAINT constraintname constrainttype (columns);
Drop Constraint	ALTER TABLE tablename DROP constraint_type constraintname;
Rename Table	ALTER TABLE tablename RENAME TO newtablename;

Window/Analytic Functions

```
function_name ( arguments ) OVER (
  [query_partition_clause]
  [ORDER BY order_by_clause]
  [windowing_clause] )
```

Example using RANK, showing the student details and their rank according to the fees_paid, grouped by gender:

```
SELECT
  student_id, first_name, last_name, gender, fees_paid,
  RANK() OVER (
    PARTITION BY gender ORDER BY fees_paid
  ) AS rank_val
FROM student;
```

Subqueries

Single Row	SELECT id, last_name, salary FROM employee WHERE salary = (SELECT MAX(salary) FROM employee);
Multi Row	SELECT id, last_name, salary FROM employee WHERE salary IN (SELECT salary FROM employee WHERE last_name LIKE 'C%');