SQL Server Cheat Sheet

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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

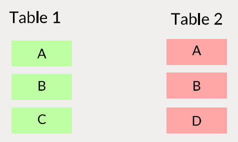
```
SELECT product_name
FROM product
WHERE category IN
('Electronics', 'Furniture');
```

LIKE: Performs wildcard matches using _ or %

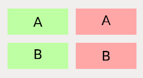
```
SELECT product_name
FROM product
WHERE product_name
LIKE '%Desk%';
```

Joins

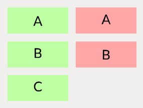
```
SELECT t1.*, t2.*
FROM t1
join_type t2 ON t1.col = t2.col;
```



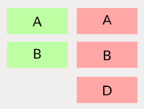
INNER JOIN: show all matching records in both tables.



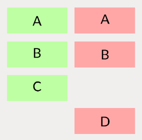
LEFT JOIN: show all records from left table, and any matching records from right table.



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



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



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 (col1, col2...) 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

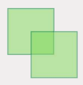
```
CREATE INDEX indexname
ON tablename (cols);
```

Drop Index

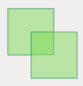
```
DROP INDEX indexname;
```

Set Operators

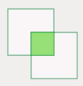
UNION: Shows unique rows from two result sets.



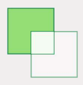
UNION ALL: Shows all rows from two result sets.



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

- LEN(string): Returns the length of the provided string
- CHARINDEX(expressionToFind, expressionToSearch, [start_position]): Returns the position of the substring within the specified string.
- CAST(expression AS type [(length)]): Converts an expression to another data type.
- GETDATE: Returns the current date, including time.
- CEILING(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, operation): Rounds a number to a specified number of decimal places.
- REPLACE(whole_string, string_to_replace, replacement_string): Replaces one string inside the whole string with another string.
- SUBSTRING(string, start_position, [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

```
SELECT cols
INTO #tablename
FROM table;
```

Drop Table

```
DROP TABLE tablename;
```

Alter Table

Add Column

```
ALTER TABLE tablename
ADD columnname datatype;
```

Drop Column

```
ALTER TABLE tablename
DROP COLUMN columnname;
```

Modify Column

```
ALTER TABLE tablename ALTER COLUMN
columnname newdatatype;
```

Rename Column

```
sp_rename
'table_name.old_column_name',
'new_column_name', 'COLUMN';
```

Add Constraint

```
ALTER TABLE tablename ADD
CONSTRAINT constraintname
constrainttype (columns);
```

Drop Constraint

```
ALTER TABLE tablename
DROP CONSTRAINT 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%'
);
```