

## SQL CRUD

### CREATE data

```
-- Columns get explicitly listed, then contents
INSERT INTO users (username, first_name, age)
VALUES ('janeqhacker', 'Jane', 37);
```

### READ data

```
-- Get all rows from the "users" table
SELECT * FROM users;

-- Get rows with username janeqhacker
SELECT * FROM users
WHERE username = 'janeqhacker';

-- Get all rows, but only 2 certain columns
SELECT first_name, last_name FROM users;

-- Sort the result set in descending order
SELECT * FROM users
ORDER BY username DESC;

-- Skip 40 rows and return the next 10 rows
SELECT * FROM users
ORDER BY username
LIMIT 10 OFFSET 40;
```

### UPDATE data

```
UPDATE users SET last_name = 'Quacker'
WHERE username = 'janeqhacker';
```

### DELETE data

```
DELETE FROM users
WHERE username = 'janeqhacker';
```

## SQL TABLE MANAGEMENT

```
-- INT for integers, BOOLEAN for true/false
-- NOT NULL is for mandatory fields
-- TIMESTAMP is for a date/time field
-- VARCHAR is for most text fields
-- TEXT or BLOB is for arbitrarily long data
CREATE TABLE users (
  id INT NOT NULL,
  username VARCHAR(63) NOT NULL,
  first_name VARCHAR(127),
  last_name VARCHAR(127),
  subscribed BOOLEAN DEFAULT True,
  bio TEXT,
  created_on TIMESTAMP,
  age INT,
  PRIMARY KEY (id)
);

DROP TABLE users; -- Delete a table

-- Adding or deleting columns
ALTER TABLE users ADD COLUMN
  like_count INT;
ALTER TABLE users DROP COLUMN like_count;
```

## POSTGRES COMMANDS

```
\d -- List tables
\d users -- Describe table "users"
\q -- Quit
```

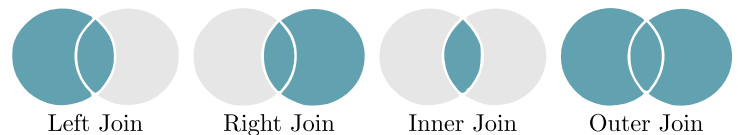
## ADVANCED

```
-- Index -- permits fast lookup (binary search)
-- when column is in WHERE clause (or ORDER BY)
CREATE INDEX email_index
ON users (email);

-- Joins -- getting data from multiple tables
SELECT username, tweet
FROM users, tweets
WHERE username='janeqhacker'
AND users.id=tweets.user_id;

-- Show execution plan for query (good for checking
-- if indices are working as intended)
EXPLAIN
SELECT * FROM users
WHERE username = 'janeqhacker';
```

## JOINS



## HEROKU POSTGRES

```
heroku addons:create heroku-postgresql:hobby-dev
heroku pg:psql # Connect to Postgres prompt
```

## TERMINOLOGY

**SQL** The programming language used for creating and accessing data in a database

**table** One grouping of data, consists of columns (the types) and rows (the data itself)

**column** Column of data, consists of a name and a type

**row** The actual data in the database is in *rows*

**schema** Refers to the shape of your data – that is to say, everything but the rows

**index** A feature that can basically be “turned on or off” on a per-column basis, makes look-ups which filter by that column faster (but writing to the table a little slower)

**database** A collection of tables

**schema (Postgres)** For Postgres in particular, *schema* is also used to mean a grouping of tables, e.g. one database can have multiple schemas at once