Setting up the Database

Let's start by setting up the SQL schema by creating a file in the main folder of the Server directory called schema.sql.
This will hold the shape and structure of the database. To actually setup the database you will of course have to enter these commands in the PSQL shell. **Simply having a SQL file here in our project does nothing**, it is simply a way for us to reference what our database structure looks like and allow other engineers to have access to our SQL commands if they want to use our code. **But to actually have a functioning database we will enter in these very same commands into the PSQL terminal.**

```
CREATE TABLE users (
  uid SERIAL PRIMARY KEY,
  username VARCHAR(255) UNIQUE,
  email VARCHAR(255),
  email_verified BOOLEAN,
  date_created DATE,
  last_login DATE
);

CREATE TABLE posts (
  pid SERIAL PRIMARY KEY,
  title VARCHAR(255),
  body VARCHAR,
  user_id INT REFERENCES users(uid),
  author VARCHAR REFERENCES users(username),
  date_created TIMESTAMP
  like_user_id INT[] DEFAULT ARRAY[]::INT[],
  likes INT DEFAULT 0
);

CREATE TABLE comments (
  cid SERIAL PRIMARY KEY,
  comment VARCHAR(255),
  author VARCHAR REFERENCES users(username),
  user_id INT REFERENCES users(uid),
  post_id INT REFERENCES posts(pid),
  date_created TIMESTAMP
);
```

So we have 3 tables here that will hold data for our users, posts and comments. In keeping with SQL convention all lowercase text is user defined column or table names, and all uppercase text is SQL commands.

PRIMARY KEY: Unique number generated by psql for a given column

VARCHAR(255): variable character, or text and numbers. 255 sets the length of the row.

BOOLEAN: True or false

REFERENCES: how to set the foreign key. The foreign key is a primary key in another table. I explain this more in detail below.

UNIQUE: Prevents duplicate entries in a column.

DEFAULT: set a default value

INT[] DEFAULT ARRAY[]::INT[]: this is fairly complex looking command but its fairly simple. We first have an array of integers, then we set that integer array to a default value of an empty array of type array of integers.

Users Table
We a have a very basic table for **users**, most of this data will be coming from auth0, which we will see more of in the **authcheck** section.

Posts Table
Next we have the posts table. We will get our title and body from React front-end and we also associate each post with

a user_id and and username. We associate each post with a user with SQL's foreign key.
We also have our array of like_user_id, this will contain all the user ids of people who have liked a post, preventing multiple likes from the same user.

Comments Table
Finally we have our comments table. We will get our comment from the react front-end and we will also associate each **user** with a **comment** so we use the user id and username field from our **users table**. And We also need the post id from our **post table** since a comment is made to a post, a comment does not exist in isolation. So each comment has to be associated with both a **user** and a **post**.