

Postgresql Cheat Sheet

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1 Start postgresql server

Postgres users roles which handle authentication and authorization.
There is a server/client relationship model.

Choosing the database name and port to host the a new database. Begin a service to run a database via brew.

- slash l list databases
- slash d list tables in database
- psql -p [port] -U [user] : this connects to a db
- i run sql code
- copy to create CSV file

2 Create tables

Listing 1: Create table

```
1 CREATE TABLE table_name (  
2     column_name1 col_type (field_length) column_constraints ,  
3     column_name2 col_type (field_length),  
4     column_name3 col_type (field_length)  
5 );  
6  
7  
8 CREATE TABLE playground ( #Table name playground  
9     equip_id serial PRIMARY KEY,  
10     #columnName colType, Primary Key shows this value must be unique  
11     and not null  
12  
13     type varchar (50) NOT NULL,  
14     #Name type (field length) constraints: not NULL  
15  
16     color varchar (25) NOT NULL,  
17  
18     location varchar(25) check (location in ('north', 'south',
```

```

19         'west', 'east', 'northeast', 'southeast',
20         'southwest', 'northwest'))),
21         #checks value is one of 8 values
22
23         install_date date
24     );
25
26         #The length can be implied by the data type

```

Listing 2: add elements to table

```

1
2     INSERT INTO [db_name] (columns) VALUES (values per col);
3
4     SELECT * FROM table; Show all values

```

Listing 3: table commands

```

1
2     DROP [database name] # Delete db
3
4     SELECT * FROM [] WHERE [] LIKE "" # Return entries like ""
5
6     GROUP BY #Group by column value
7     ORDER BY #Order return by chosen expression
8     HAVING COUNT #Return with count of chosen expression
9
10    NOT NULL #Ensure the entry is not empty

```

Can also use other math aggregate functions.

3 Relational Database

Tables can be linked to each other via reference ids.

- Primary Key : Distinct id value for every entry
- UNIQUE : Ensures inputs between entries are unique
- DISTINCT : Query to get distinct entries

Listing 4: reference tables

```

1
2     FOREIGN KEY(fk_columns)
3     REFERENCES parent_table(parent_key_columns)
4     #Use the referenced table id to link to the
5     Primary key of parent table

```

- If a entry is referenced in another table it cannot be deleted
- Cannot add an entry in parent table if referenced table does not exist

Listing 5: Join tables

```
1 JOIN [table] ON table.col = col
2 #Show referenced entries on two tables
3
4 LEFT JOIN #Show full parent table and referenced entries
5
```

4 Data Types

- bigserial: Autoincrementing eight byte integer
- inet: host address
- box: rectangular box on a plane
- money: currency amount
- json
- time: with and without time zone
- timestamp

5 Access via program

Libpq is the C software used to access postgres via a program.

6 Partitioning

Logically separate one large table into smaller physical ones, the main benefit is to increase query speed if one part of the table is heavily accessed.

This done by doing a sequential scan of the relevant partition, instead of a random search through the whole table.

The partitioned table itself is a “virtual” table having no storage of its own. Instead, the storage belongs to partitions, which are otherwise-ordinary tables associated with the partitioned table.

Not the same as archiving data.

6.1 Types

- Range: Separated into a given range of a column or set of cols.
- List: Key values that should appear in each partition
- Hash: A modulus, with the remainder of the modulus with the partition key giving the partitions.

6.2 Altering

It is not possible to turn a regular table to partitioned or vice versa. However, you can add an existing regular table as a partition or remove a partition turning it into a regular table.