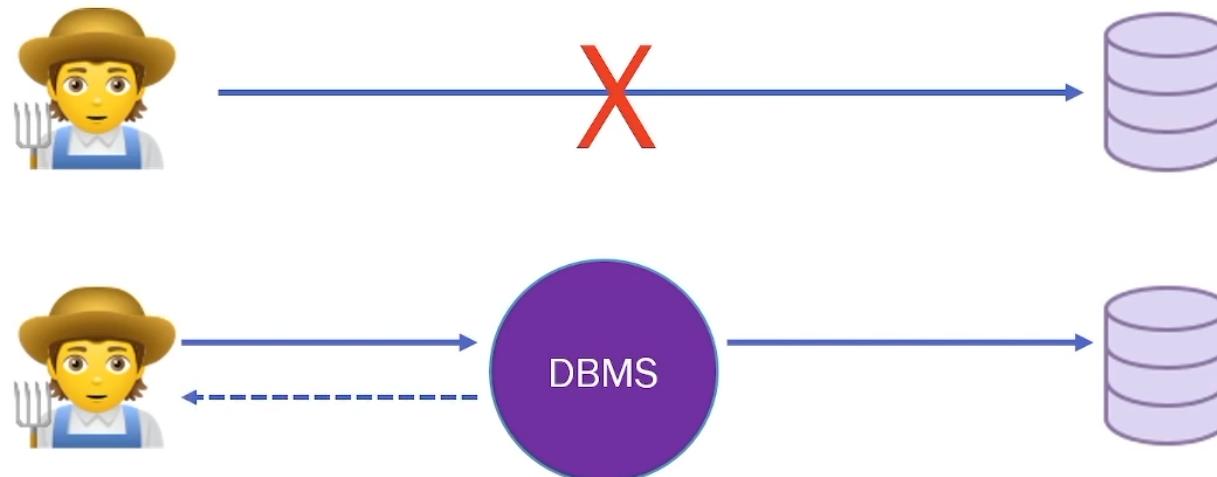


- We don't work or interact with databases directly.
- Instead we make use of a software referred to as a Database Management System(DBMS)





Relational

- MYSQL
- POSTGRESQL
- ORACLE
- SQL SERVER

NoSQL

- MongoDB
- DynamoDB
- ORACLE
- SQL SERVER



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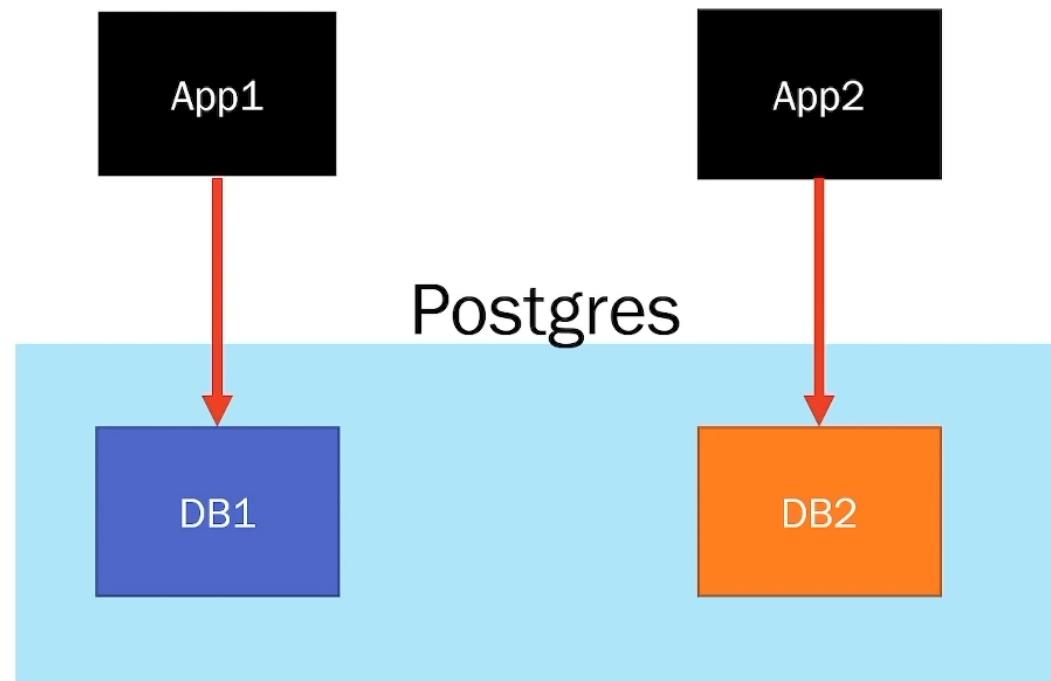
Relational Database & SQL



- Structured Query Language(SQL) – Language used to communicate with DBMS



- Each instance of postgres can be carved into multiple separate databases





- By default every Postgres installation comes with one database already created called “postgres”
- This is important because Postgres requires you to specify the name of a database to make a connection. So there needs to always be one database



Tables



- A table represents a subject or event in an application

Users

Products

Purchases



Columns Vs Rows



- A table is made up of columns and rows
- Each Column represents a different attribute
- Each row represents a different entry in the table

Columns

ID	name	Age	Sex
14642	Vanessa	40	F
73934	Carl	23	M
99384	George	19	M

Rows



Postgres DataTypes



- Databases have datatypes just like any programming language

Data Type	Postgres	Python
Numeric	Int, decimal, precision	Int, float
Text	Varchar, text	string
bool	boolean	boolean
sequence	array	list



Primary Key



- Is a column or group of columns that uniquely identifies each row in a table
- Table can have one and only one primary key

Primary Key

Each Entry must be unique, no DUPLICATES!!!!

id	name	email	password	Phone Number
77498	John	John@gmail.com	Password123	9195789993
14982	Kyel	kyle@yahoo.com	1234	6198723343
34098	Alex	alex@aol.com	Alex123	4467489983
05562	Linda	linda@gmail.com	puppy765	2024857721





Primary Key

- The Primary Key does not have to be the ID column always. It's up to you to decide which column uniquely defines each record
- In this example, since an email can only be registered once, the email column can also be used as the primary key

Primary Key

id	name	email	password	Phone Number
77498	John	John@gmail.com	Password123	9195789993
14982	Kyel	kyle@yahoo.com	1234	6198723343
34098	Alex	alex@aol.com	Alex123	4467489983
05562	Linda	linda@gmail.com	puppy765	2024857721



Unique Constraints



- A UNIQUE constraint can be applied to any column to make sure every record has a unique value for that column

UNIQUE

ID	name	Age	Sex
14642	Vanessa	40	F
73934	Carl	23	M
99384	Vanessa	19	M

Duplicates are
not allowed



Null Constraints



- By default, when adding a new entry to a database, any column can be left blank. When a column is left blank, it has a null value
- If you need column to be properly filled in to create a new record, a NOT NULL constraint can be added to the column to ensure that the column is never left blank

ID	name	Age	Sex
14642	Vanessa	40	F
73934	Carl	NULL	Cannot Be Null
99384	Vanessa	19	

