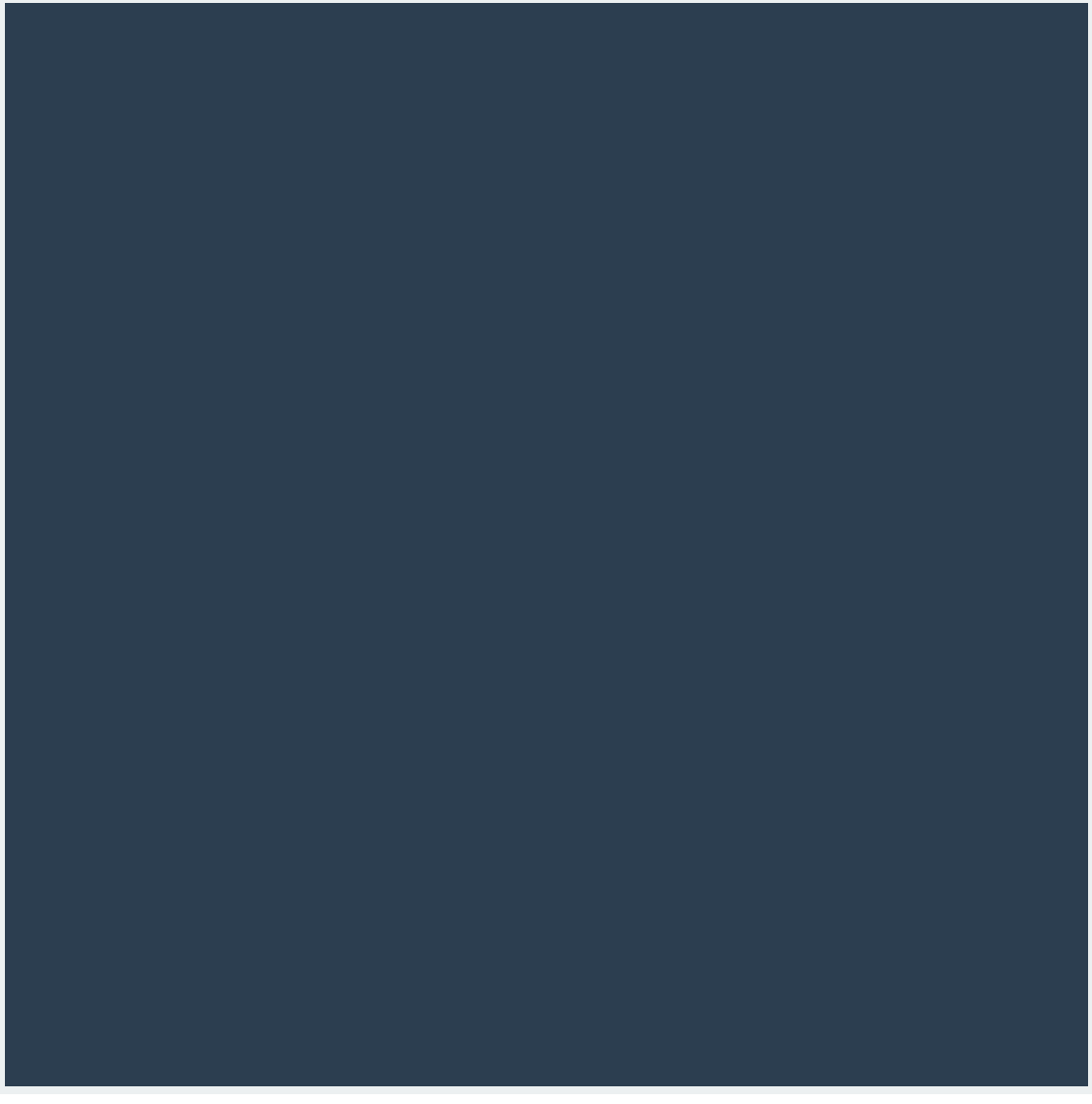
Creating Databases

Creating Databases

Finally!!!!

Database Server

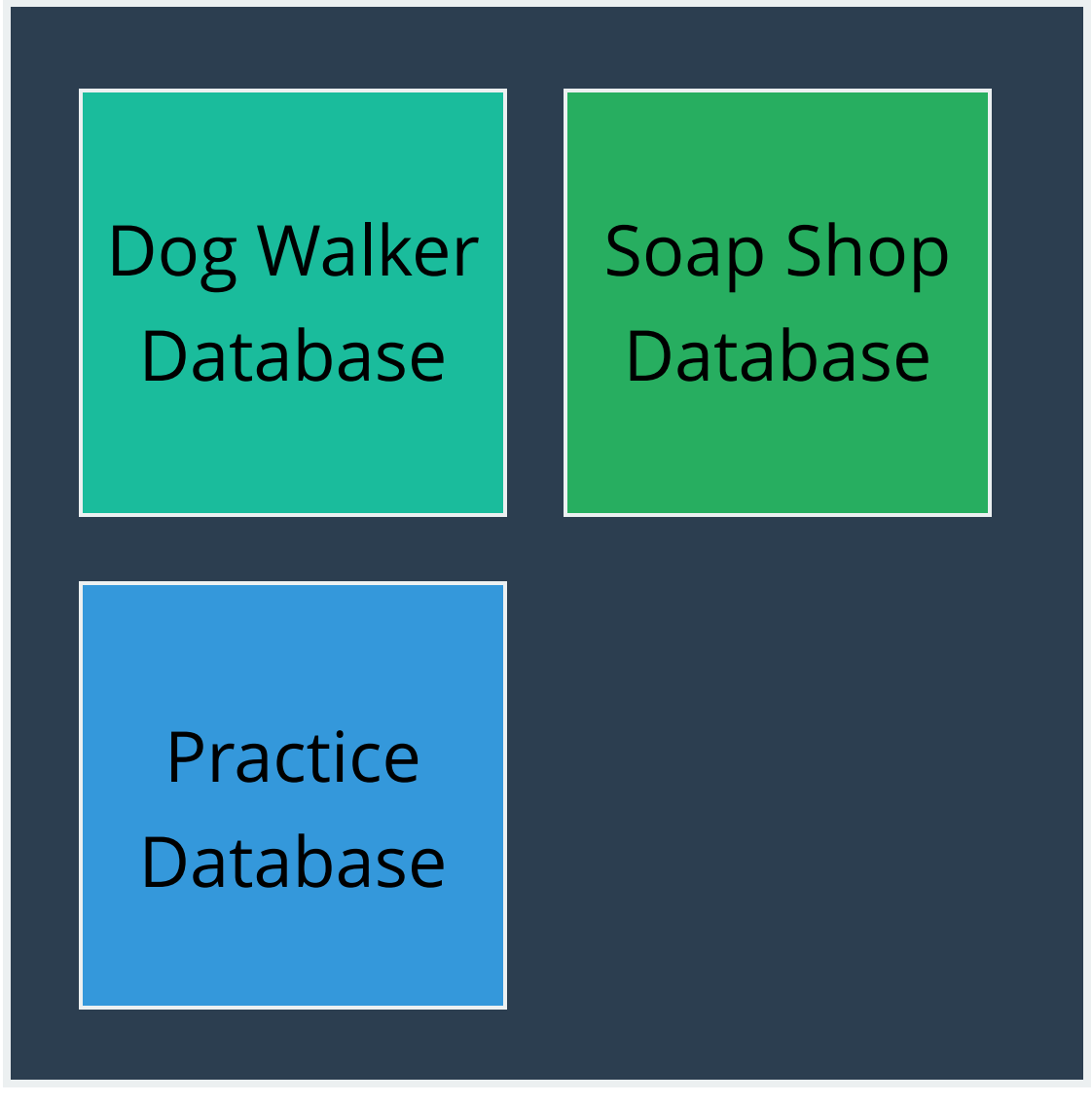
Database Server



Database Server

Database Server

Database Server




Database Server
Dog Walker Database
Soap Shop Database
Practice Database
News Site Database

Dog Walker Database

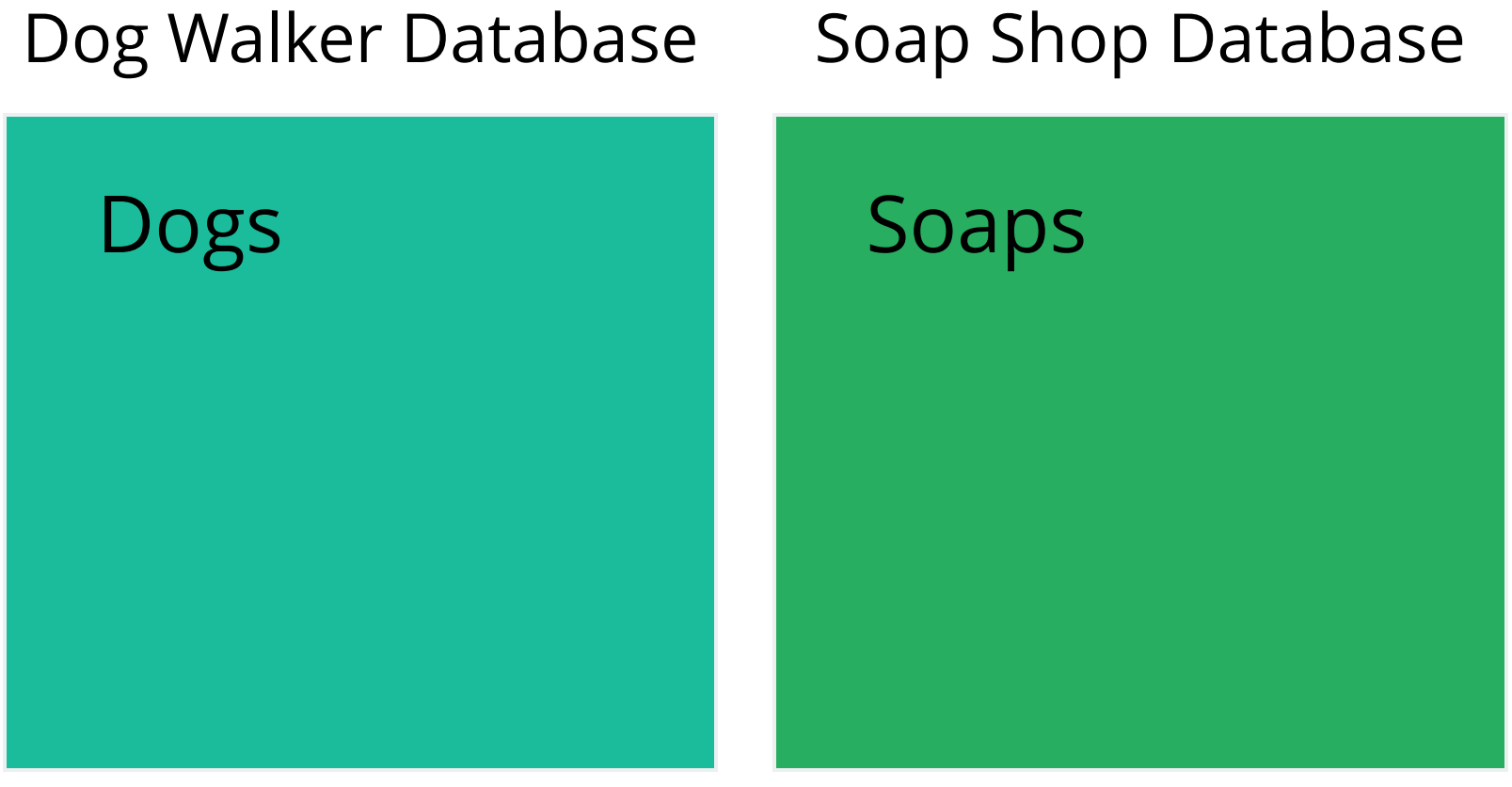
Dog Walker Database

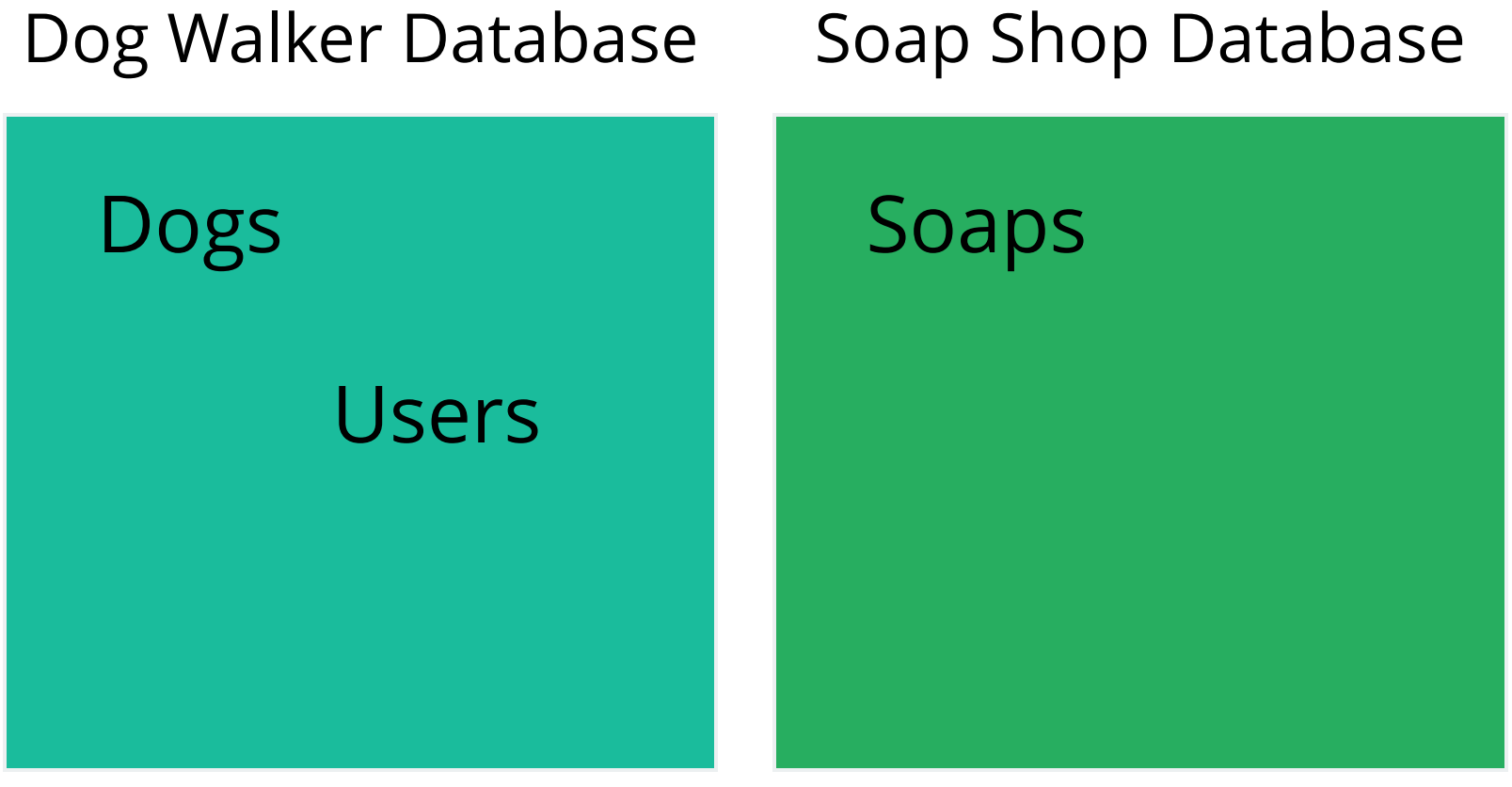
Soap Shop Database

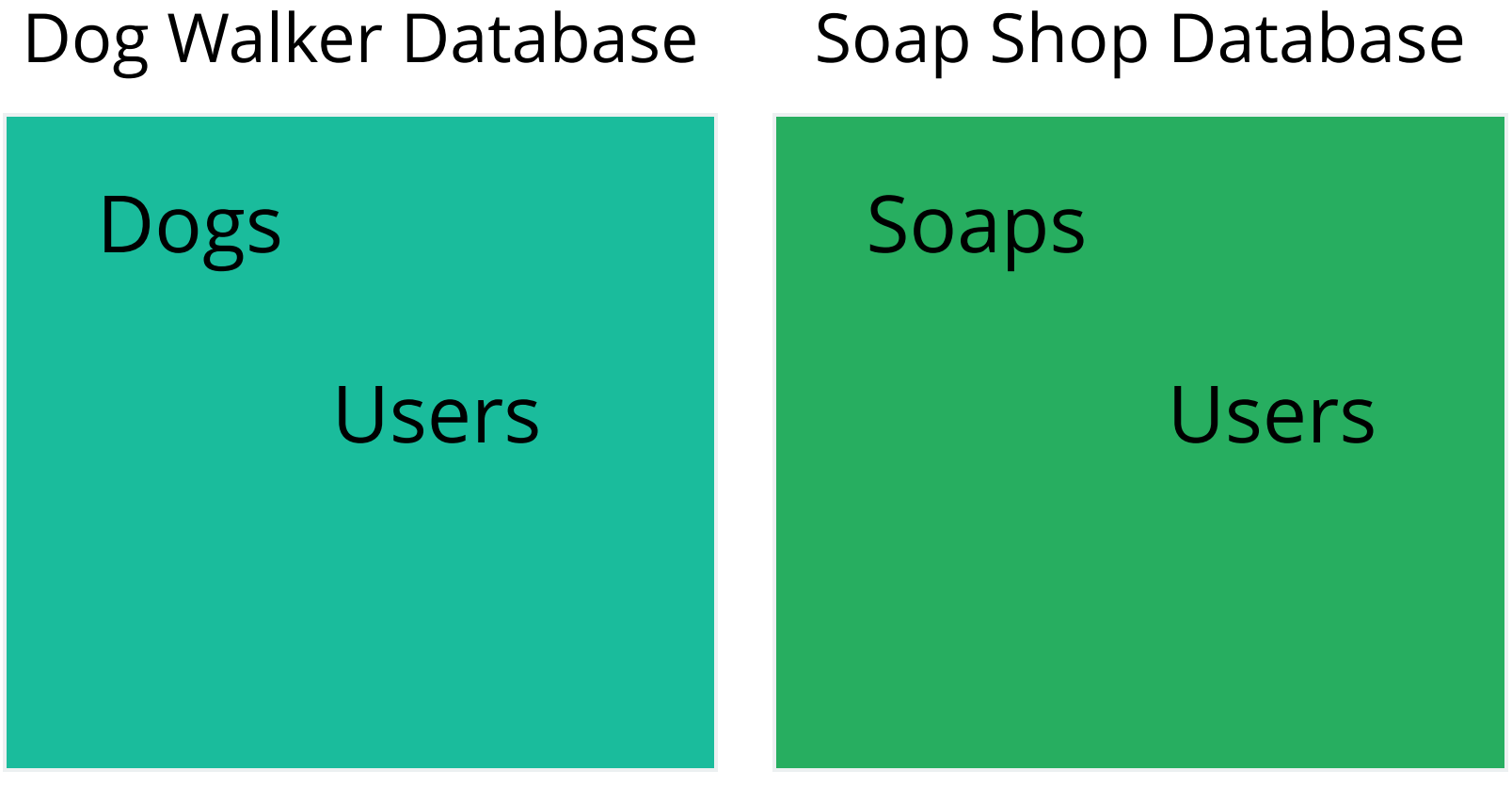
Dog Walker Database

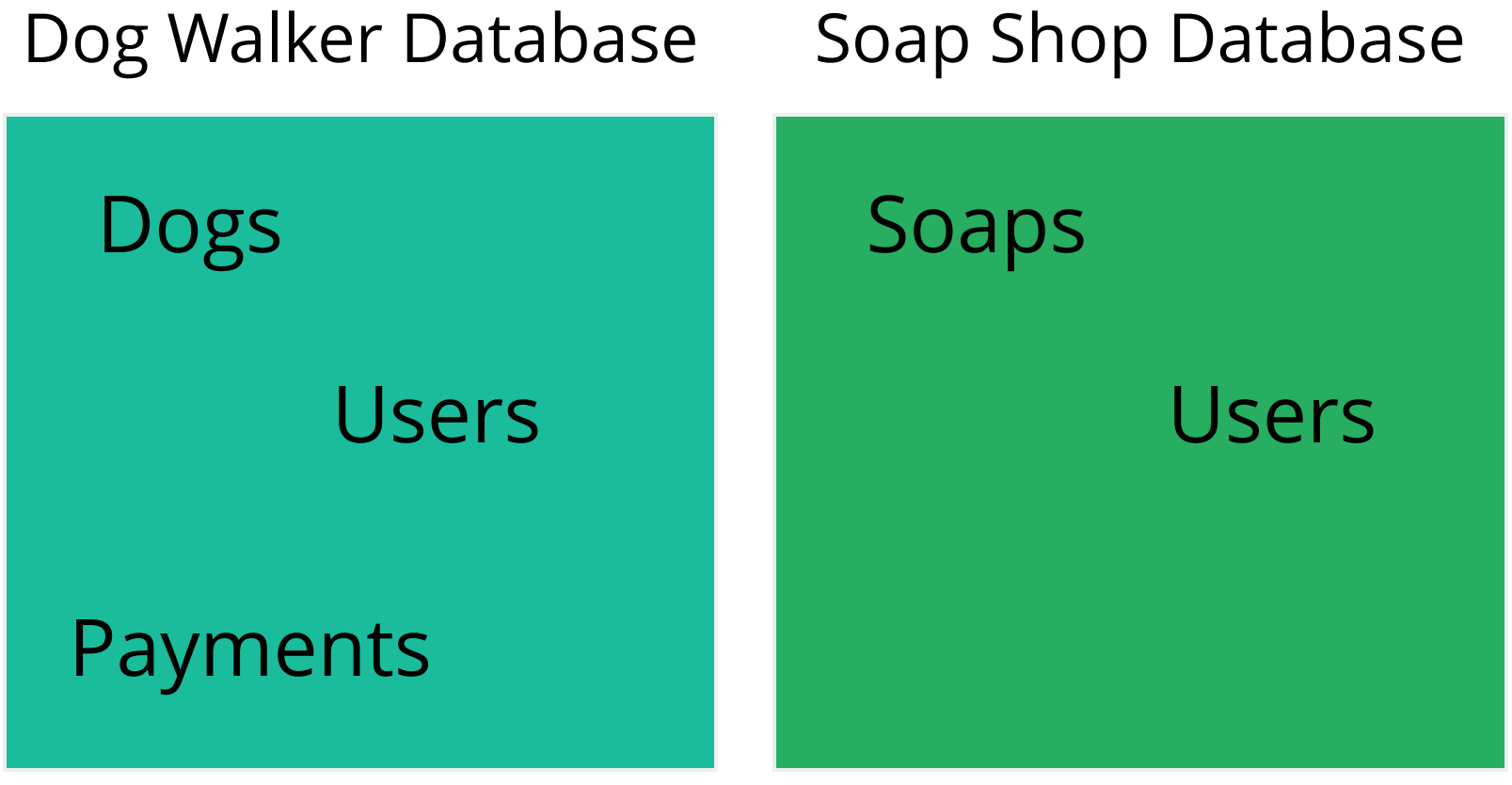
Dogs

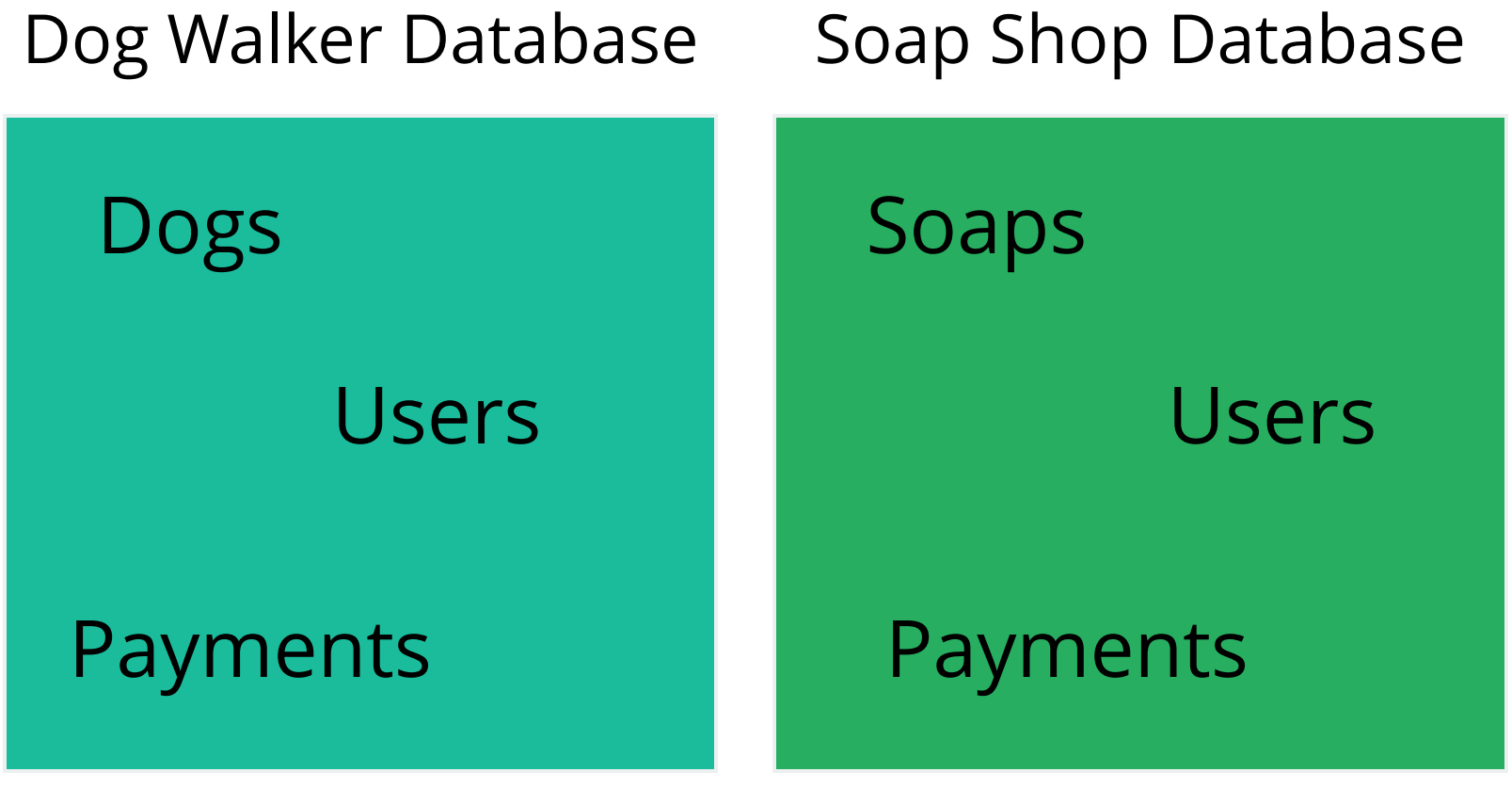
Soap Shop Database


Dog Walker Database
Dogs
Soap Shop Database
Soaps


Dog Walker Database
Dogs
Users
Soap Shop Database
Soaps


Dog Walker Database
Dogs
Users
Soap Shop Database
Soaps
Users


Dog Walker Database
Dogs
Users
Payments
Soap Shop Database
Soaps
Users


Dog Walker Database
Dogs
Users
Payments
Soap Shop Database
Soaps
Users
Payments

```
show databases;
```

```
CREATE DATABASE <name>;
```

```
CREATE DATABASE <name>;
```

```
CREATE DATABASE soap_store;
```

```
CREATE DATABASE <name>;
```

```
CREATE DATABASE soap_store;
```

```
CREATE DATABASE DogApp;
```

```
CREATE DATABASE <name>;
```

```
CREATE DATABASE soap_store;
```

```
CREATE DATABASE DogApp;
```

```
CREATE DATABASE My App;
```

```
CREATE DATABASE <name>;
```

```
CREATE DATABASE soap_store;
```

```
CREATE DATABASE DogApp;
```

```
CREATE DATABASE My App;
```

```
DROP DATABASE <name>;
```

```
DROP DATABASE <name>;
```

```
DROP DATABASE soap_store;
```

I Can Create Databases...

Now What?

Time To Use Them!

```
USE <database name>;
```

```
SELECT database();
```

Tables!

The True Heart of SQL

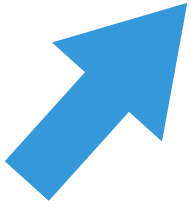
A database is just a bunch of tables

A database is just a bunch of tables

In a relational database, at least

Tables Hold The Data!

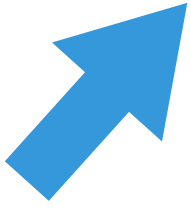
Tables Hold The Data!



Boring Wikipedia Definition

Tables Hold The Data!

"a collection of related data
held in a structured format
within a database"

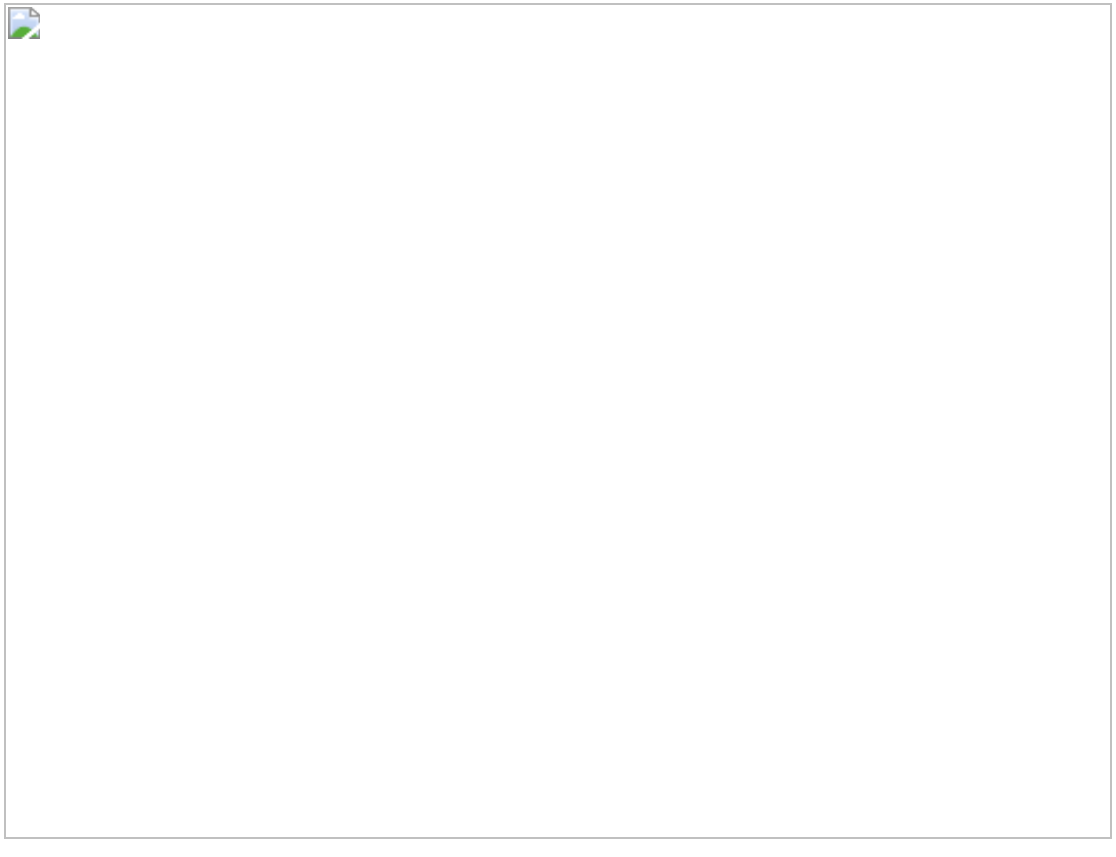


Boring Wikipedia Definition

Quick Example Using Cats

The Cat's Table!

The Cat's Table!



The Cats Table!

Name	Breed	Age
Blue	Scottish Fold	1
Rocket	Persian	3
Monty	Tabby	10
Sam	Munchkin	5

Columns (headers)

Name	Breed	Age

Rows (the actual data)

Name	Breed	Age
Blue	Scottish Fold	1
Rocket	Persian	3
Monty	Tabby	10
Sam	Munchkin	5

Rows (the actual data)

Name	Breed	Age
Blue	Scottish Fold	1
Rocket	Persian	3
Monty	Tabby	10
Sam	Munchkin	5

Rows (the actual data)

Name	Breed	Age
Blue	Scottish Fold	1
Rocket	Persian	3
Monty	Tabby	10
Sam	Munchkin	5

Rows (the actual data)

Name	Breed	Age
Blue	Scottish Fold	1
Rocket	Persian	3
Monty	Tabby	10
Sam	Munchkin	5

Rows (the actual data)

Name	Breed	Age
Blue	Scottish Fold	1
Rocket	Persian	3
Monty	Tabby	10
Sam	Munchkin	5

Databases are made up of lots of tables.

Databases are made up of lots of tables.

Sometimes it gets crazy.

Databases are made up of lots of tables.

Sometimes it gets crazy.

CLICK THIS LINK FOR PROOF!

Tables Pt. 2

Data Types

The Importance of Data Types

Name	Breed	Age
Blue	Scottish Fold	1
Rocket	Persian	3
Monty	Tabby	ten
Sam	Munchkin	I am yung cat

Calculate "cat age"

Age * 7

Name	Breed	Age
Blue	Scottish Fold	1
Rocket	Persian	3
Monty	Tabby	ten
Sam	Munchkin	I am yung cat

Calculate "cat age"

Age * 7

Name	Breed	Age
Blue	Scottish Fold	1
Rocket	Persian	3
Monty	Tabby	ten
Sam	Munchkin	I am yung cat

1 * 7 = 7

Calculate "cat age"

Age * 7

Name	Breed	Age
Blue	Scottish Fold	1
Rocket	Persian	3
Monty	Tabby	ten
Sam	Munchkin	I am yung cat

1 * 7 = 7

3 * 7 = 21

Calculate "cat age"

Age * 7

Name	Breed	Age
Blue	Scottish Fold	1
Rocket	Persian	3
Monty	Tabby	ten
Sam	Munchkin	I am yung cat

1 * 7 = 7

3 * 7 = 21

'ten' * 7 = ???

Calculate "cat age"

Age * 7

Name	Breed	Age
Blue	Scottish Fold	1
Rocket	Persian	3
Monty	Tabby	ten
Sam	Munchkin	I am yung cat

1 * 7 = 7

3 * 7 = 21

'ten' * 7 = ???

'I am yung cat' * 7 =

Calculate "cat age"

Age * 7

Name	Breed	Age
Blue	Scottish Fold	1
Rocket	Persian	3
Monty	Tabby	ten
Sam	Munchkin	I am yung cat

1 * 7 = 7

3 * 7 = 21

'ten' * 7 = ???

'I am yung cat' * 7 = 😡

Really
Not
Good

Really Not Good

(AKA Bad)

Name	Breed	Age
Blue	Scottish Fold	1
Rocket	Persian	3
Monty	Tabby	ten
Sam	Munchkin	I am yung cat

Must Be

Text

Name	Breed	Age
Blue	Scottish Fold	1
Rocket	Persian	3
Monty	Tabby	ten
Sam	Munchkin	I am yung cat

Must Be Text

Must Be Text

Name	Breed	Age
Blue	Scottish Fold	1
Rocket	Persian	3
Monty	Tabby	ten
Sam	Munchkin	I am yung cat

Must Be Text

Must Be Text

Must Be Number

Name	Breed	Age
Blue	Scottish Fold	1
Rocket	Persian	3
Monty	Tabby	ten
Sam	Munchkin	I am yung cat

In reality, there are A LOT of different MySQL data types

Numeric Types

Numeric Types

- INT

Numeric Types

- INT
- SMALLINT

Numeric Types

- INT
- SMALLINT
- TINYINT

Numeric Types

- INT
- SMALLINT
- TINYINT
- MEDIUMINT

Numeric Types

- INT
- SMALLINT
- TINYINT
- MEDIUMINT
- BIGINT

Numeric Types

- INT
- SMALLINT
- TINYINT
- MEDIUMINT
- BIGINT
- DECIMAL

Numeric Types

- INT
- SMALLINT
- TINYINT
- MEDIUMINT
- BIGINT
- DECIMAL
- NUMERIC

Numeric Types

- INT
- SMALLINT
- TINYINT
- MEDIUMINT
- BIGINT
- DECIMAL
- NUMERIC
- FLOAT

Numeric Types

- INT
- SMALLINT
- TINYINT
- MEDIUMINT
- BIGINT
- DECIMAL
- NUMERIC
- FLOAT
- DOUBLE

Numeric Types

- INT
- SMALLINT
- TINYINT
- MEDIUMINT
- BIGINT
- DECIMAL
- NUMERIC
- FLOAT
- DOUBLE
- BIT

Numeric Types

- INT
- SMALLINT
- TINYINT
- MEDIUMINT
- BIGINT
- DECIMAL
- NUMERIC
- FLOAT
- DOUBLE
- BIT

String Types

Numeric Types

- INT
- SMALLINT
- TINYINT
- MEDIUMINT
- BIGINT
- DECIMAL
- NUMERIC
- FLOAT
- DOUBLE
- BIT

String Types

- CHAR

Numeric Types

- INT
- SMALLINT
- TINYINT
- MEDIUMINT
- BIGINT
- DECIMAL
- NUMERIC
- FLOAT
- DOUBLE
- BIT

String Types

- CHAR
- VARCHAR

Numeric Types

- INT
- SMALLINT
- TINYINT
- MEDIUMINT
- BIGINT
- DECIMAL
- NUMERIC
- FLOAT
- DOUBLE
- BIT

String Types

- CHAR
- VARCHAR
- BINARY

Numeric Types

- INT
- SMALLINT
- TINYINT
- MEDIUMINT
- BIGINT
- DECIMAL
- NUMERIC
- FLOAT
- DOUBLE
- BIT

String Types

- CHAR
- VARCHAR
- BINARY
- VARBINARY

Numeric Types

- INT
- SMALLINT
- TINYINT
- MEDIUMINT
- BIGINT
- DECIMAL
- NUMERIC
- FLOAT
- DOUBLE
- BIT

String Types

- CHAR
- VARCHAR
- BINARY
- VARBINARY
- BLOB

Numeric Types

- INT
- SMALLINT
- TINYINT
- MEDIUMINT
- BIGINT
- DECIMAL
- NUMERIC
- FLOAT
- DOUBLE
- BIT

String Types

- CHAR
- VARCHAR
- BINARY
- VARBINARY
- BLOB
- TINYBLOB

Numeric Types

- INT
- SMALLINT
- TINYINT
- MEDIUMINT
- BIGINT
- DECIMAL
- NUMERIC
- FLOAT
- DOUBLE
- BIT

String Types

- CHAR
- VARCHAR
- BINARY
- VARBINARY
- BLOB
- TINYBLOB
- MEDIUMBLOB

Numeric Types

- INT
- SMALLINT
- TINYINT
- MEDIUMINT
- BIGINT
- DECIMAL
- NUMERIC
- FLOAT
- DOUBLE
- BIT

String Types

- CHAR
- VARCHAR
- BINARY
- VARBINARY
- BLOB
- TINYBLOB
- MEDIUMBLOB
- LONGBLOB

Numeric Types

- INT
- SMALLINT
- TINYINT
- MEDIUMINT
- BIGINT
- DECIMAL
- NUMERIC
- FLOAT
- DOUBLE
- BIT

String Types

- CHAR
- VARCHAR
- BINARY
- VARBINARY
- BLOB
- TINYBLOB
- MEDIUMBLOB
- LONGBLOB
- TEXT

Numeric Types

- INT
- SMALLINT
- TINYINT
- MEDIUMINT
- BIGINT
- DECIMAL
- NUMERIC
- FLOAT
- DOUBLE
- BIT

String Types

- CHAR
- VARCHAR
- BINARY
- VARBINARY
- BLOB
- TINYBLOB
- MEDIUMBLOB
- LONGBLOB
- TEXT
- TINYTEXT

Numeric Types

- INT
- SMALLINT
- TINYINT
- MEDIUMINT
- BIGINT
- DECIMAL
- NUMERIC
- FLOAT
- DOUBLE
- BIT

String Types

- CHAR
- VARCHAR
- BINARY
- VARBINARY
- BLOB
- TINYBLOB
- MEDIUMBLOB
- LONGBLOB
- TEXT
- TINYTEXT
- MEDIUMTEXT

Numeric Types

- INT
- SMALLINT
- TINYINT
- MEDIUMINT
- BIGINT
- DECIMAL
- NUMERIC
- FLOAT
- DOUBLE
- BIT

String Types

- CHAR
- VARCHAR
- BINARY
- VARBINARY
- BLOB
- TINYBLOB
- MEDIUMBLOB
- LONGBLOB
- TEXT
- TINYTEXT
- MEDIUMTEXT
- LONGTEXT

Numeric Types

- INT
- SMALLINT
- TINYINT
- MEDIUMINT
- BIGINT
- DECIMAL
- NUMERIC
- FLOAT
- DOUBLE
- BIT

String Types

- CHAR
- VARCHAR
- BINARY
- VARBINARY
- BLOB
- TINYBLOB
- MEDIUMBLOB
- LONGBLOB
- TEXT
- TINYTEXT
- MEDIUMTEXT
- LONGTEXT
- ENUM

Numeric Types

- INT
- SMALLINT
- TINYINT
- MEDIUMINT
- BIGINT
- DECIMAL
- NUMERIC
- FLOAT
- DOUBLE
- BIT

String Types

- CHAR
- VARCHAR
- BINARY
- VARBINARY
- BLOB
- TINYBLOB
- MEDIUMBLOB
- LONGBLOB
- TEXT
- TINYTEXT
- MEDIUMTEXT
- LONGTEXT
- ENUM

Date Types

Numeric Types

- INT
- SMALLINT
- TINYINT
- MEDIUMINT
- BIGINT
- DECIMAL
- NUMERIC
- FLOAT
- DOUBLE
- BIT

String Types

- CHAR
- VARCHAR
- BINARY
- VARBINARY
- BLOB
- TINYBLOB
- MEDIUMBLOB
- LONGBLOB
- TEXT
- TINYTEXT
- MEDIUMTEXT
- LONGTEXT
- ENUM

Date Types

- DATE

Numeric Types

- INT
- SMALLINT
- TINYINT
- MEDIUMINT
- BIGINT
- DECIMAL
- NUMERIC
- FLOAT
- DOUBLE
- BIT

String Types

- CHAR
- VARCHAR
- BINARY
- VARBINARY
- BLOB
- TINYBLOB
- MEDIUMBLOB
- LONGBLOB
- TEXT
- TINYTEXT
- MEDIUMTEXT
- LONGTEXT
- ENUM

Date Types

- DATE
- DATETIME

Numeric Types

- INT
- SMALLINT
- TINYINT
- MEDIUMINT
- BIGINT
- DECIMAL
- NUMERIC
- FLOAT
- DOUBLE
- BIT

String Types

- CHAR
- VARCHAR
- BINARY
- VARBINARY
- BLOB
- TINYBLOB
- MEDIUMBLOB
- LONGBLOB
- TEXT
- TINYTEXT
- MEDIUMTEXT
- LONGTEXT
- ENUM

Date Types

- DATE
- DATETIME
- TIMESTAMP

Numeric Types

- INT
- SMALLINT
- TINYINT
- MEDIUMINT
- BIGINT
- DECIMAL
- NUMERIC
- FLOAT
- DOUBLE
- BIT

String Types

- CHAR
- VARCHAR
- BINARY
- VARBINARY
- BLOB
- TINYBLOB
- MEDIUMBLOB
- LONGBLOB
- TEXT
- TINYTEXT
- MEDIUMTEXT
- LONGTEXT
- ENUM

Date Types

- DATE
- DATETIME
- TIMESTAMP
- TIME

Numeric Types

- INT
- SMALLINT
- TINYINT
- MEDIUMINT
- BIGINT
- DECIMAL
- NUMERIC
- FLOAT
- DOUBLE
- BIT

String Types

- CHAR
- VARCHAR
- BINARY
- VARBINARY
- BLOB
- TINYBLOB
- MEDIUMBLOB
- LONGBLOB
- TEXT
- TINYTEXT
- MEDIUMTEXT
- LONGTEXT
- ENUM

Date Types

- DATE
- DATETIME
- TIMESTAMP
- TIME
- YEAR

It's Crazy.

Numeric Types

- INT
- SMALLINT
- TINYINT
- MEDIUMINT
- BIGINT
- DECIMAL
- NUMERIC
- FLOAT
- DOUBLE
- BIT

String Types

- CHAR
- VARCHAR
- BINARY
- VARBINARY
- BLOB
- TINYBLOB
- MEDIUMBLOB
- LONGBLOB
- TEXT
- TINYTEXT
- MEDIUMTEXT
- LONGTEXT
- ENUM

Numeric Types

- INT
- SMALLINT
- TINYINT
- MEDIUMINT
- BIGINT
- DECIMAL
- NUMERIC
- FLOAT
- DOUBLE
- BIT

String Types

- CHAR
- VARCHAR
- BINARY
- VARBINARY
- BLOB
- TINYBLOB
- MEDIUMBLOB
- LONGBLOB
- TEXT
- TINYTEXT
- MEDIUMTEXT
- LONGTEXT
- ENUM

Numeric Types

- INT
- SMALLINT
- TINYINT
- MEDIUMINT
- BIGINT
- DECIMAL
- NUMERIC
- FLOAT
- DOUBLE
- BIT

String Types

- CHAR
- VARCHAR
- BINARY
- VARBINARY
- BLOB
- TINYBLOB
- MEDIUMBLOB
- LONGBLOB
- TEXT
- TINYTEXT
- MEDIUMTEXT
- LONGTEXT
- ENUM

INT

A Whole Number

INT

A Whole Number

with a max value of 4294967295

INT

A Whole Number

with a max value of 4294967295

12

INT

A Whole Number

with a max value of 4294967295

12

-9999

INT

A Whole Number

with a max value of 4294967295

12

-9999

0

INT

A Whole Number

with a max value of 4294967295

12

-9999

0

3145677

INT

A Whole Number

with a max value of 4294967295

12

-9999

0

3145677

42

varchar

A Variable-Length String

varchar

A Variable-Length String

Between 1 and 255 characters

varchar

A Variable-Length String

Between 1 and 255 characters

'coffee!!'

varchar

A Variable-Length String

Between 1 and 255 characters

'coffee!!'

'-9999'

varchar

A Variable-Length String

Between 1 and 255 characters

'coffee!!'

'-9999'

'aAbbb akljsd'

varchar

A Variable-Length String

Between 1 and 255 characters

'coffee!!'

'-9999'

'aAbbb akljsd'

'L'

varchar

A Variable-Length String

Between 1 and 255 characters

'coffee!!'

'-9999'

'aAbbb akljsd'

'L'

'The quick brown fox jumps over the lazy brown dog'

Name	Breed	Age
Blue	Scottish Fold	1
Rocket	Persian	3
Monty	Tabby	ten
Sam	Munchkin	I am yung cat

Must Be

Text

Name	Breed	Age
Blue	Scottish Fold	1
Rocket	Persian	3
Monty	Tabby	ten
Sam	Munchkin	I am yung cat

Must Be

Text

varchar(100)

Name	Breed	Age
Blue	Scottish Fold	1
Rocket	Persian	3
Monty	Tabby	ten
Sam	Munchkin	I am yung cat

Must Be Text

varchar(100)

Must Be Text

Name	Breed	Age
Blue	Scottish Fold	1
Rocket	Persian	3
Monty	Tabby	ten
Sam	Munchkin	I am yung cat

Must Be Text

varchar(100)

Must Be Text

varchar(100)

Name	Breed	Age
Blue	Scottish Fold	1
Rocket	Persian	3
Monty	Tabby	ten
Sam	Munchkin	I am yung cat

Must Be Text

varchar(100)

Must Be Text

varchar(100)

Must Be Number

Name	Breed	Age
Blue	Scottish Fold	1
Rocket	Persian	3
Monty	Tabby	ten
Sam	Munchkin	I am yung cat

Must Be Text

varchar(100)

Must Be Text

varchar(100)

Must Be Number

int

Name	**Breed**	**Age**
Blue	Scottish Fold	1
Rocket	Persian	3
Monty	Tabby	ten
Sam	Munchkin	I am yung cat

Super Short Activity

Draw a Tweets Table

At a minimum the columns must include:

- A username (max 15 chars)
- The tweet content (max 140 chars)
- Number of favorites

Make sure to specify correct MySQL datatypes!

Username (max 15 chars)

Username (max 15 chars)

varchar(15)

Username (max 15 chars)

varchar(15)

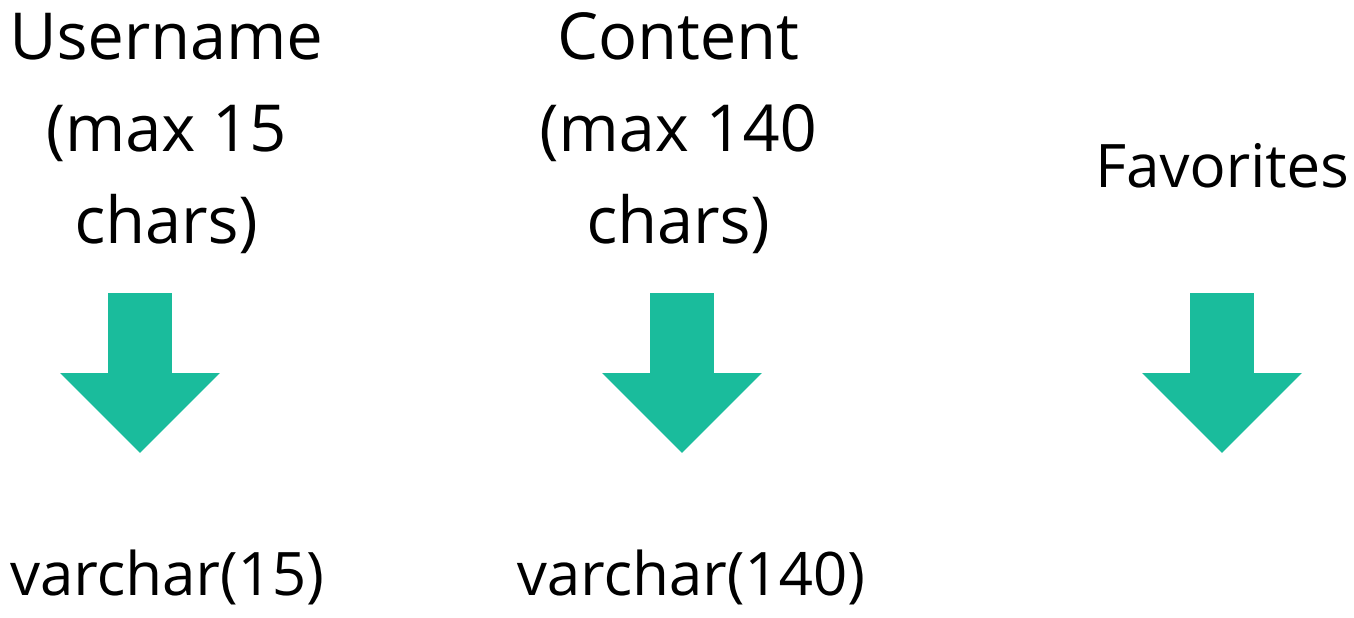
Content (max 140 chars)

Username (max 15 chars)

varchar(15)

Content (max 140 chars)

varchar(140)


Username (max 15 chars)
Content (max 140 chars)
Favorites
varchar(15)
varchar(140)

Username (max 15 chars)

varchar(15)

Content (max 140 chars)

varchar(140)

Favorites

int

Username (max 15 chars)

varchar(15)

Content (max 140 chars)

varchar(140)

Favorites

int

username	**content**	**favorites**
'coolguy'	'my first tweet!'	1
guitar_queen	'I love music :) '	10
'lonely_heart'	'still looking 4 love'	0

Creating Tables

Finally!

```
CREATE TABLE tablename
  (
     column_name data_type,
     column_name data_type
  );
```

```
CREATE TABLE cats
  (
     name VARCHAR(100),
     age  INT
  );
```

How Do You Know It Worked?

```
SHOW TABLES;
```

```
SHOW COLUMNS FROM <tablename>;
```

```
SHOW COLUMNS FROM <tablename>;
```

Or…

```
SHOW COLUMNS FROM <tablename>;
```

Or…

```
DESC <tablename>;
```

Deleting Tables

Deleting Tables

```
DROP TABLE <tablename>;
```

Time For Another Activity!

Creating Your Own Table!

Create a *pastries* table

Create a *pastries* table

- It should include 2 columns: name and quantity. Name is 50 characters max.

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Create a *pastries* table

- It should include 2 columns: name and quantity. Name is 50 characters max.
- Inspect your table/columns in the CLI
- Delete your table!

INSERT

Adding Data to Your Tables

INSERT

```
INSERT INTO cats(name, age)
VALUES ('Jetson', 7);
```

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VALUES ("Jetson", 7);
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VALUES ("Jetson", 7);
```

```
INSERT INTO cats(name, age) VALUES ("Jetson", 7);
```

```
INSERT INTO cats
            (NAME,
             age)
VALUES      ("jetson",
             7);
```

THE ORDER MATTERS

```
INSERT INTO cats(age, name)
VALUES (12, 'Victoria');
```

Let's Try It In Cloud9

So… How Do We Know It Worked?

I come from the future, with a new SQL command you won't learn until the next section.

I come from the future, with a new SQL command you won't learn until the next section.

```
SELECT * FROM cats;
```

MULTIPLE INSERT

```
INSERT INTO cats(name, age)
VALUES ('Charlie', 10)
      ,('Sadie', 3)
      ,('Lazy Bear', 1);
```

Time For You To Try!

Create a *people* table

- first_name - 20 char limit
- last_name - 20 char limit
- age

Insert Your 1st Person!

first_name	last_name	age
'Tina'	'Belcher'	13

Insert Your 2nd Person!

first_name	last_name	age
'Bob'	'Belcher'	42

Multiple Insert Time!

first_name	last_name	age
'Linda'	'Belcher'	45
'Phillip'	'Frond'	38
'Calvin'	'Fischoeder'	70

A Note On Warnings

Try This

```
INSERT INTO cats(name, age)
VALUES ('This cat is named
        Charlie which is also a
        human name.  In fact I know
        a couple of Charlies.  Fun Fact',
        10)
```

1 Warning??! 

```
Query OK, 1 row affected, 1 warning (0.01 sec)
```

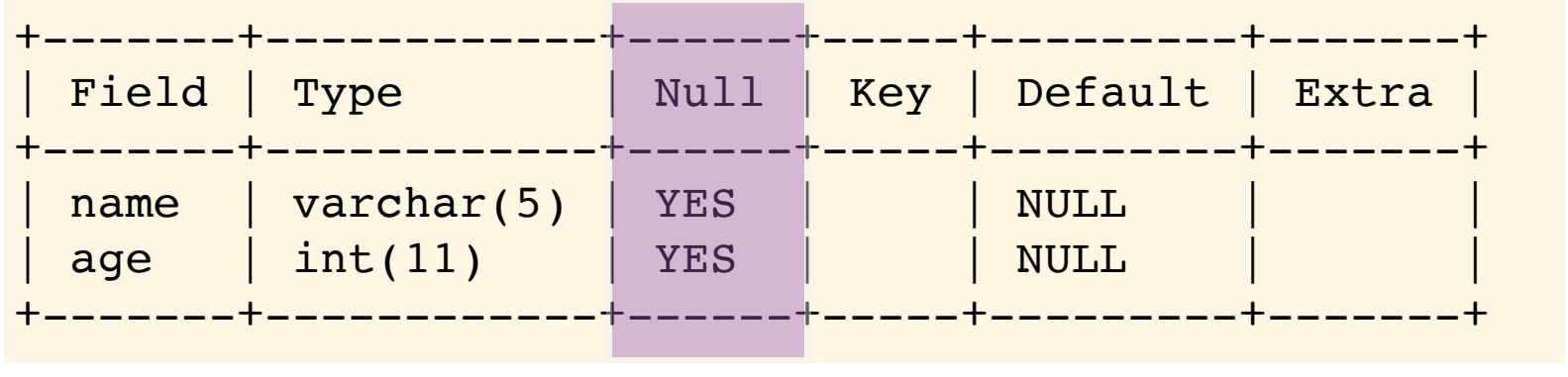
Let's Take A Look

```
SHOW WARNINGS;
```

What's Up With This?

```
+-------+------------+------+-----+---------+-------+
| Field | Type       | Null | Key | Default | Extra |
+-------+------------+------+-----+---------+-------+
| name  | varchar(5) | YES  |     | NULL    |       |
| age   | int(11)    | YES  |     | NULL    |       |
+-------+------------+------+-----+---------+-------+
```

What's Up With This?



```
+-------+------------+------+-----+---------+-------+
| Field | Type       | Null | Key | Default | Extra |
+-------+------------+------+-----+---------+-------+
| name  | varchar(5) | YES  |     | NULL    |       |
| age   | int(11)    | YES  |     | NULL    |       |
+-------+------------+------+-----+---------+-------+
```

"The Value Is Not Known"

Null Does Not Mean Zero!

Right now, we could do this...

```
INSERT INTO cats(name)
VALUES ('Alabama');
```

Right now, we could do this...

```
INSERT INTO cats(name)
VALUES ('Alabama');
```

Who names their cat 'Alabama'?

Or This! *gasp*

```
INSERT INTO cats()
VALUES ();
```

The Solution?

The Solution?

NOT NULL

```
CREATE TABLE cats2
  (
     name VARCHAR(100) NOT NULL,
     age  INT NOT NULL
  );
```

Notice The Difference!

```
+-------+--------------+------+-----+---------+-------+
| Field | Type         | Null | Key | Default | Extra |
+-------+--------------+------+-----+---------+-------+
| name  | varchar(100) | NO   |     | NULL    |       |
| age   | int(11)      | NO   |     | NULL    |       |
+-------+--------------+------+-----+---------+-------+
```

Notice The Difference!

```
+-------+--------------+------+-----+---------+-------+
| Field | Type         | Null | Key | Default | Extra |
+-------+--------------+------+-----+---------+-------+
| name  | varchar(100) | NO   |     | NULL    |       |
| age   | int(11)      | NO   |     | NULL    |       |
+-------+--------------+------+-----+---------+-------+
```

What's Up With This?

```
+-------+------------+------+-----+---------+-------+
| Field | Type       | Null | Key | Default | Extra |
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+-------+------------+------+-----+---------+-------+
```

What's Up With This?

```
+-------+------------+------+-----+---------+-------+
| Field | Type       | Null | Key | Default | Extra |
+-------+------------+------+-----+---------+-------+
| name  | varchar(5) | YES  |     | NULL    |       |
| age   | int(11)    | YES  |     | NULL    |       |
+-------+------------+------+-----+---------+-------+
```

To Set Default Values

```
CREATE TABLE cats3
  (
     name VARCHAR(100) DEFAULT 'unnamed',
     age  INT DEFAULT 99
  );
```

Isn't This Redundant?

```
CREATE TABLE cats4
  (
     name VARCHAR(100) NOT NULL DEFAULT 'unnamed',
     age  INT NOT NULL DEFAULT 99
  );
```

No!

We can still manually set things to NULL if we don't specify NOT NULL

```
INSERT INTO cats3(name, age)
VALUES(NULL, 3);
```

One More Thing

What's Up With This?

```
+-------+------------+------+-----+---------+-------+
| Field | Type       | Null | Key | Default | Extra |
+-------+------------+------+-----+---------+-------+
| name  | varchar(5) | YES  |     | NULL    |       |
| age   | int(11)    | YES  |     | NULL    |       |
+-------+------------+------+-----+---------+-------+
```

What's Up With This?

```
+-------+------------+------+-----+---------+-------+
| Field | Type       | Null | Key | Default | Extra |
+-------+------------+------+-----+---------+-------+
| name  | varchar(5) | YES  |     | NULL    |       |
| age   | int(11)    | YES  |     | NULL    |       |
+-------+------------+------+-----+---------+-------+
```

Right now, this could happen!

Name	Breed	Age
Monty	Tabby	10
Monty	Tabby	10
Monty	Tabby	10
Monty	Tabby	10

How Do We Make Each Unique?

How Do We Make Each Unique?

Name	Breed	Age	CatID
Monty	Tabby	10	1
Monty	Tabby	10	2
Monty	Tabby	10	3
Monty	Tabby	10	4

Primary Key

A Unique Identifier

```
CREATE TABLE unique_cats (cat_id INT NOT NULL
                         ,name VARCHAR(100)
                         ,age INT
                         ,PRIMARY KEY (cat_id));
```

```
CREATE TABLE unique_cats2 (cat_id INT NOT NULL AUTO_INCREMENT
                          ,name VARCHAR(100)
                          ,age INT
                          ,PRIMARY KEY (cat_id));
```

YOUR TURN

Define an Employees table, with the following fields:

- id - number(automatically increments), mandatory, primary key
- last_name - text, mandatory
- first_name - text, mandatory
- middle_name - text, not mandatory
- age - number mandatory
- current_status - text, mandatory, defaults to 'employed'

THE SOLUTION

```
CREATE TABLE employees (
    id INT NOT NULL AUTO_INCREMENT,
    last_name VARCHAR(255) NOT NULL,
    first_name VARCHAR(255) NOT NULL,
    middle_name VARCHAR(255),
    age INTEGER NOT NULL,
    current_status VARCHAR(100) NOT NULL DEFAULT 'employed',
    PRIMARY KEY (id)
);
```

THE SOLUTION

(with a slight difference)

```
CREATE TABLE employees (
    id INT NOT NULL AUTO_INCREMENT PRIMARY KEY,
    last_name VARCHAR(255) NOT NULL,
    first_name VARCHAR(255) NOT NULL,
    middle_name VARCHAR(255),
    age INTEGER NOT NULL,
    current_status VARCHAR(100) NOT NULL DEFAULT 'employed'
);
```