

BEWD 13

SCHEMA DESIGN &
ASSOCIATIONS

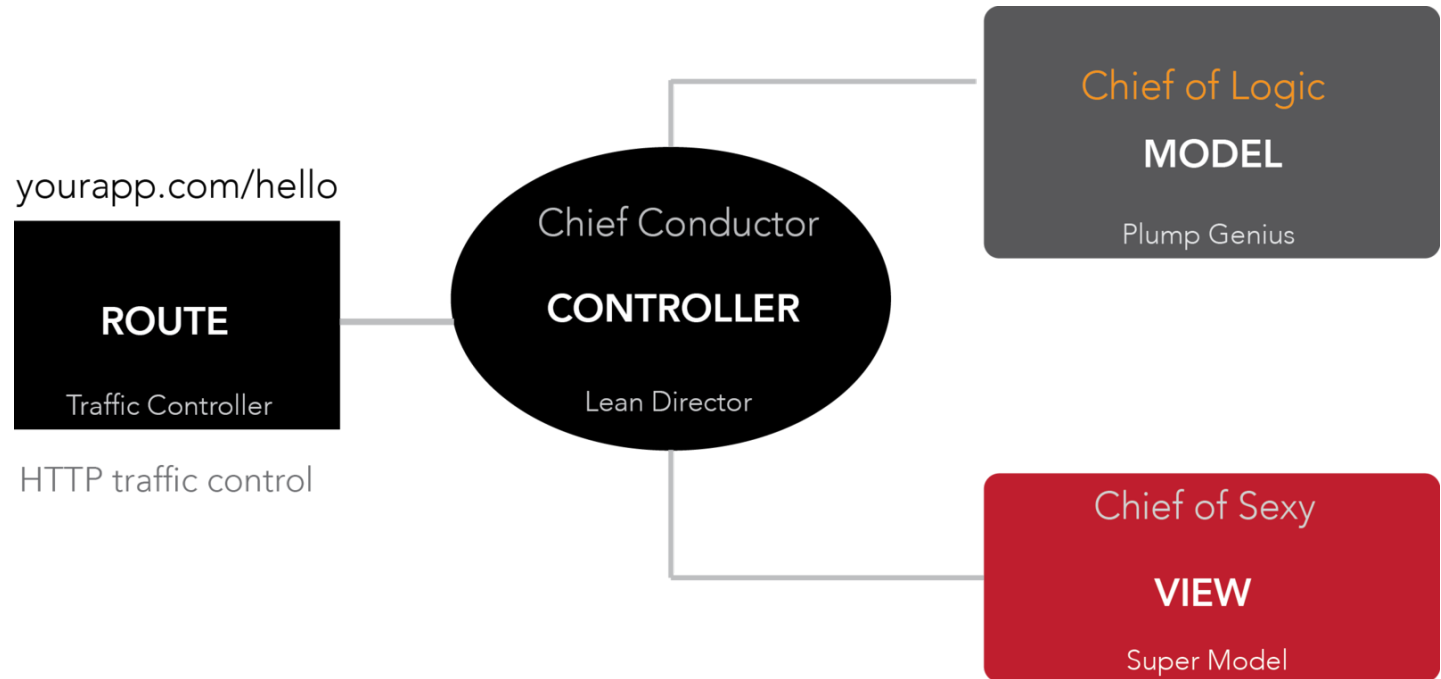
LEARNING GOALS

MVC - MODEL 101

- HOW SCHEMA DESIGN WORKS
- HOW TO CREATE ASSOCIATIONS

ASSOCIATIONS

ACTIVE RECORD: MODEL



ASSOCIATIONS

- WHEN WE MAKE RESOURCES, SOMETIMES THEY NEED TO INTERACT.
- FOR EXAMPLE, IF WE WANT TO STORE THE USER WHO WROTE A STORY, WE COULD START BY STORING THE USER_NAME AS AN ATTRIBUTE ON A STORY.
- THEN WE'D ADD USER_EMAIL, USER_NICKNAME, ETC... AND IT WOULD QUICKLY GET MESSY

```
create_table "urls", force: true do |t|  
  t.string :user_name  
  t.string :user_email  
  t.string :user_nickname  
  ...  
end
```

ASSOCIATIONS

```
create_table "urls", force: true do |t|  
  t.string :user_name  
  t.string :user_email  
  t.string :user_nickname  
  ...  
end
```



THIS DATA WOULD BE BETTER IN A USER
TABLE.

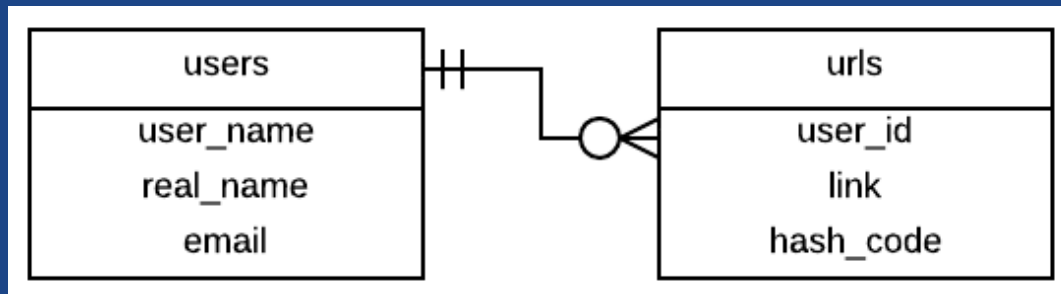


```
create_table "users", force: true do |t|  
  t.string :user_name  
  t.string :real_name  
  t.string :email  
  ...  
end
```

WE CONNECT URLS AND USERS USING AN ASSOCIATION

ASSOCIATIONS: CONCEPT & CODE

AN ASSOCIATION USING AN ENTITY-RELATIONSHIP DIAGRAM



```
create_table "urls", force: true do |t|
  t.text      "link"
  t.string    "hash_code"
  t.integer   "user_id"
end

class Url < ActiveRecord::Base
  belongs_to :user
end

class User < ActiveRecord::Base
  has_many :urls
end
```

ASSOCIATIONS: KEYS

- THE **PRIMARY KEY** IS THE FIELD THAT UNIQUELY IDENTIFIES EACH ROW OF A TABLE. IN RAILS, THIS IS ALWAYS THE `:id`
- THE **FOREIGN KEY** IDENTIFIES WHICH ROW OF ANOTHER TABLE IT IS ASSOCIATE WITH `:USER_ID`

```
class User < ActiveRecord::Base
  has_many :urls
end

class Url < ActiveRecord::Base
  belongs_to :user
end

user.id      # user primary key
url.id       # url primary key

url.user_id  # user foreign key
```


ASSOCIATIONS: SIX TYPES

- **belongs_to**
- **has_many**
- **has_one**
- **has_and_belongs_to_many**
- **has_many :through**
- **has_one :through**

WHY TIME?

EXAMPLE!

TWITTER: SCHEMA DESIGN

SCHEMA DESIGN: TWITTER

RESOURCES

- **User**
- **Tweet**
- **HashTags**

ASSOCIATIONS

- **User has many tweets**
- **Tweets have many hashtags**
- **HashTags have many tweets**

SCHEMA DESIGN

User

ID	Handle	Name	Email
1	@GA	General Assembly	ga@generalassemb.ly
2	@justinbieber	Justin Bieber	jb@thebiebs.com
3	@techCofounder	Some Guy	someguy@yahoo.com

■ Primary Key
■ Foreign Key

Tweet

ID	Content	user_id
1	Rails 4.0 is here: http://weblog.rubyonrails.org/2013/6/25/Rails-4-0-final/ ... #rubyonrails	1
2	"Success consists of going from failure to failure without loss of enthusiasm." - Winston Churchill	1
3	Great way to end it in Vegas. Denver your next. Just a quick 15 hour bus ride first. Damn! LoL . #tourlife #Believetour	2
4	Get off Twitter, get out in the world. Meet with three top VCs over coffee and get your mind buzzing: http://ga.co/gW	1
5	got sent this from last night. pretty incredible you guys printed out all those signs for that moment. Thank u. pic.twitter.com/XdLSdLfWTB	2
6	Looking for a passionate #rubyonrails developer wishing cofound a new project, related to @Sinouts Follow and message me! Please RT!	3

SCHEMA DESIGN

```
#Migration file
create_table "tweets", force: true do |t|
  t.text      "message"
  t.integer   "user_id"
end

#Model file(s)

class User < ActiveRecord::Base
  has_many :tweets
end

class Tweet < ActiveRecord::Base
  belongs_to :user
end

#Rails Console
user.tweets      # list all tweets associated with user
tweet.user_id    # user foreign key with tweet table connects user to tweet
```

JOIN TABLE

Join tables connect two other tables.
They usually only have two foreign keys.

- `has_and_belongs_to_many`
- `has_many :through`
- `has_one :through`

Tweets and Hashtags are both *has_and_belongs_to_many*.
Therefore, we need a join table called *hashtags_tweets* to connect them.

```
rails generate migration CreateHashtagTweetJoinTable hashtags tweets
```

JOIN TABLE :

tweets

id	content	user_id
1	Rails 4.0 is here: http://weblog.rubyonrails.org/2013/6/25/Rails-4-0-final/ ... #rubyonrails	1
2	"Success consists of going from failure to failure without loss of enthusiasm." - Winston Churchill	1
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■ Primary Key
■ Foreign Key

hashtags

id	hashtag
1	rubyonrails
2	tourlife
3	Believetour

hashtags_tweets

hashtag_id	tweet_id
1	1
2	3
3	3
1	6

PAIR UP!

ASSOCIATIONS & SCHEMA
DESIGN WITH **NETFLIX**

PAIR UP EXERCISE

List the database tables for Netflix!
starter_code/netflix_associations.md

1. Define your resources first
2. Draw connections between them.
3. Determine the type of association
 - has_one/belongs_to
 - has_many/belongs_to
 - has_and_belongs_to_many

RESOURCE:

http://guides.rubyonrails.org/association_basics.htm

MUSIC APP!

CODE ALONG & LAB TIME!