Express & Sequelize

Rounding Out

What we will cover

- Express
  - Custom error handler (500)
  - Handling 404 Not Found
- Sequelize
  - Eager Loading (includes)
  - Class methods / instance methods
  - Associations (alias's)

Express: Custom Error Handler

Express: Custom Error Handler

- Express comes with a built-in error handler
  - This is what kicks in when you `next` an error
  - The errors here are usually 500 errors
    - 500: "Internal Server Error"
    - Something broke in your server-side code

```
router.get("/", async (req, res, next) => {
  try {
    const users = await User.findAll();
    res.send(userList(users));
  } catch (error) { next(error) }
});
```

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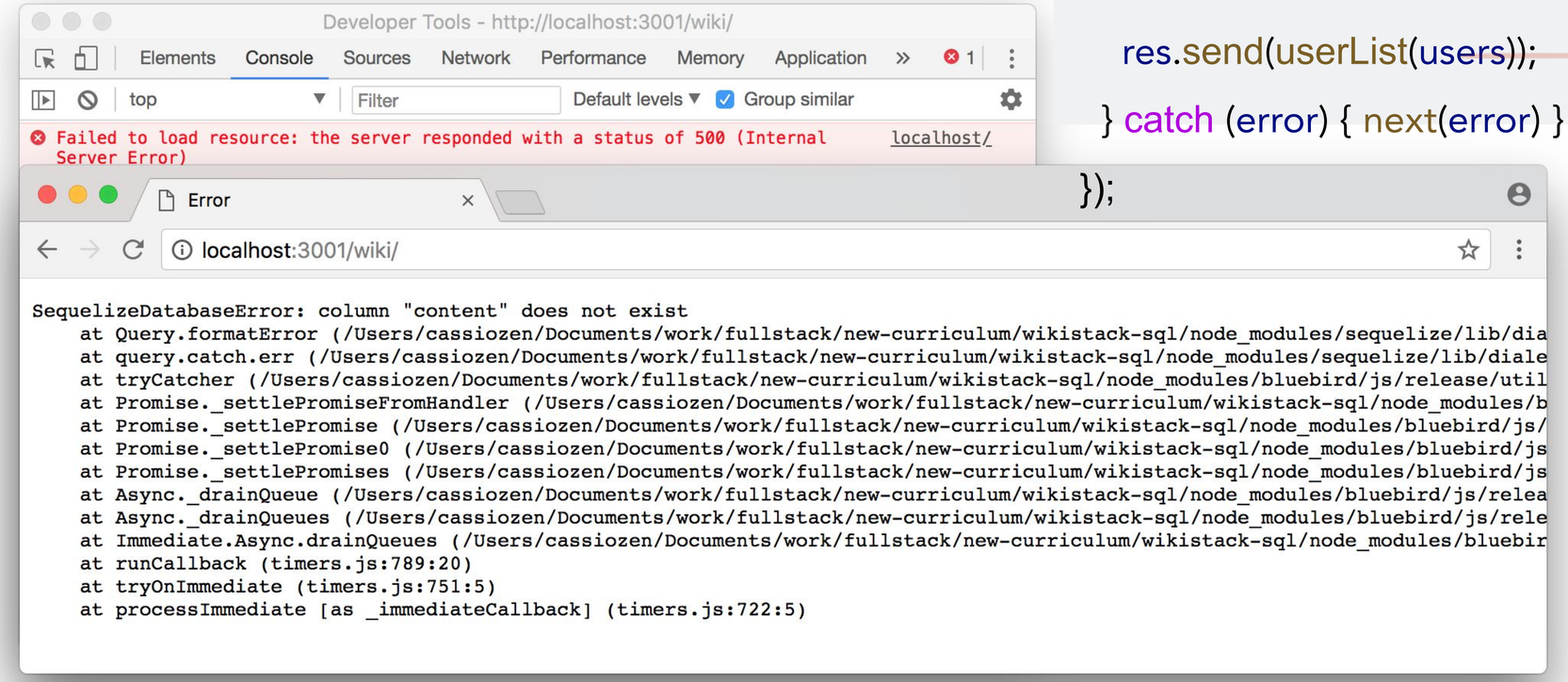
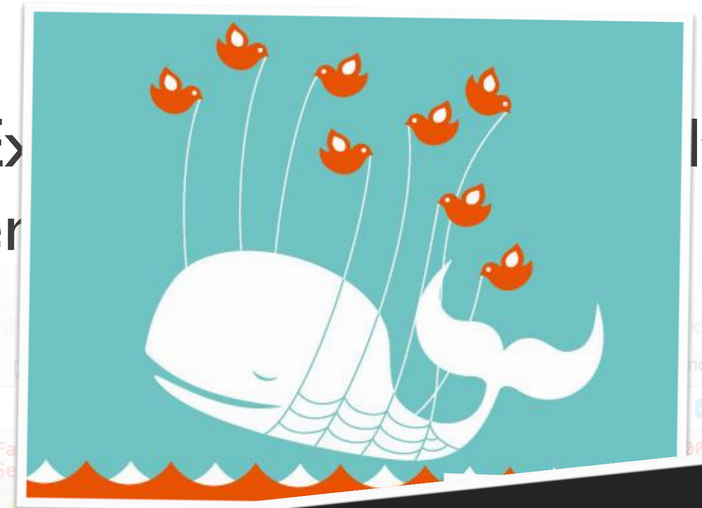
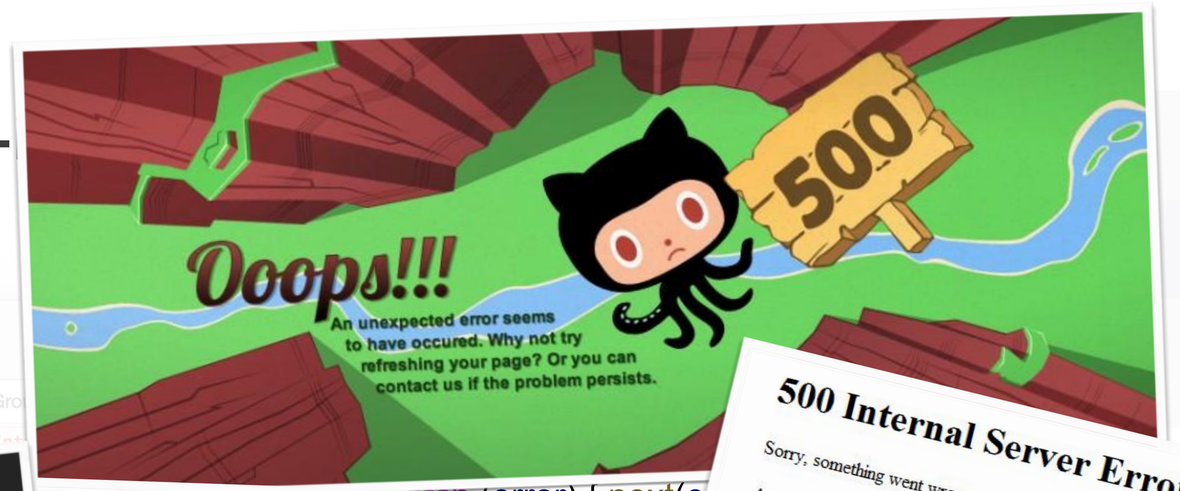
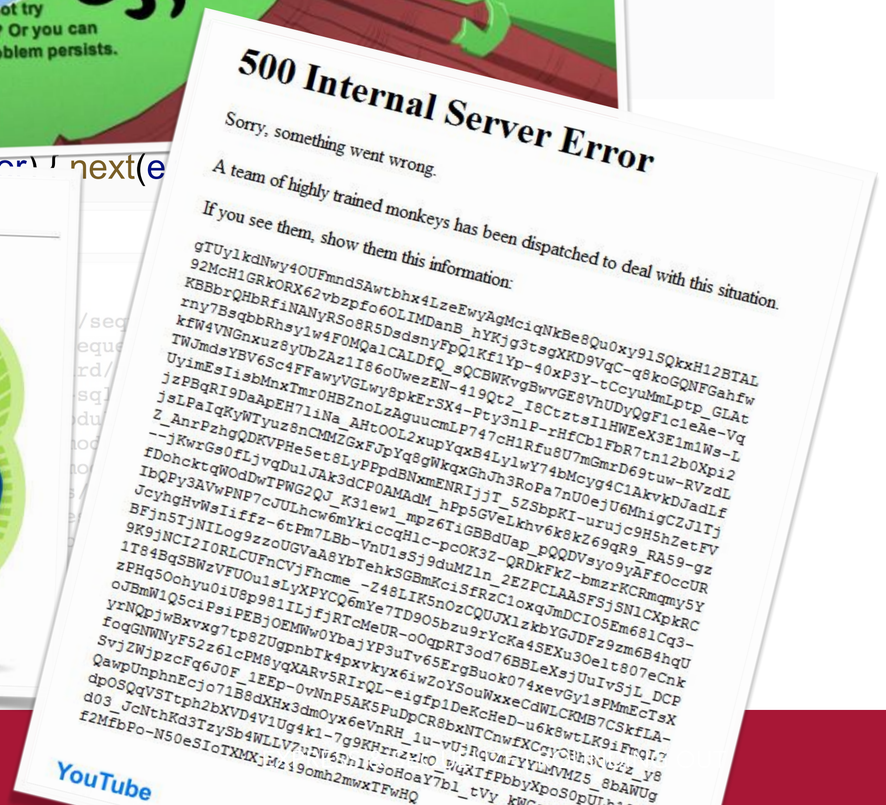


Express: Custom Error Handler







Express: Custom Error Handler

- Define error-handling middleware just like other middleware
- Except error-handling functions have four arguments instead of three: (err, req, res, next)
- Now when you `next` an error, it will go here
- Error-handling middleware goes at the end of your routes

```
app.use((err, req, res, next) => {
  console.error(err.stack)
  res.status(500)// or res.status(err.status || 500)
    .send(/* Some friendly content */)
})
```

Express: 404 Not Found

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You may see a 404 error if the client:

1. Requested a route that doesn't exist
    - GET /api/notreal/route => 404: this route isn't real
2. Requested a resource that doesn't exist (but did hit a valid route)
    - GET /api/puppies/10001 => 404,:this route is real… but we don't have a puppy with that id

Case 1: Requested a ROUTE that does not exist

```
...
// All routes and middlewares above

// Last, Handle 404:
app.use((req, res, next) => {
  res.status(404).send(/*Not found*/);// or const e = new Error();
e.status=404; next(e);
});
```

Case 2: Requested a RESOURCE that does not exist

```
// Get puppy by id route:

app.get('/puppies/:id', (req, res, next) => {

    const puppy = await Puppy.findByPk(req.params.id); // id: 10001

    if(!puppy) return res.sendStatus(404);

    res.send(puppy);

});
```

Sequelize: Eager Loading

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- In raw SQL queries, we have INNER JOIN
- In Sequelize - it just goes by the name of “eager loading”
- Don't get hung up on the terminology
  when you see “eager loading”, think “join two tables”.

Sequelize: Eager Loading and alias

```
const pages = await Page.findAll({
  include: [
    {model: User, as: 'author'}
  ]
});
```

Sequelize: Class & instance methods

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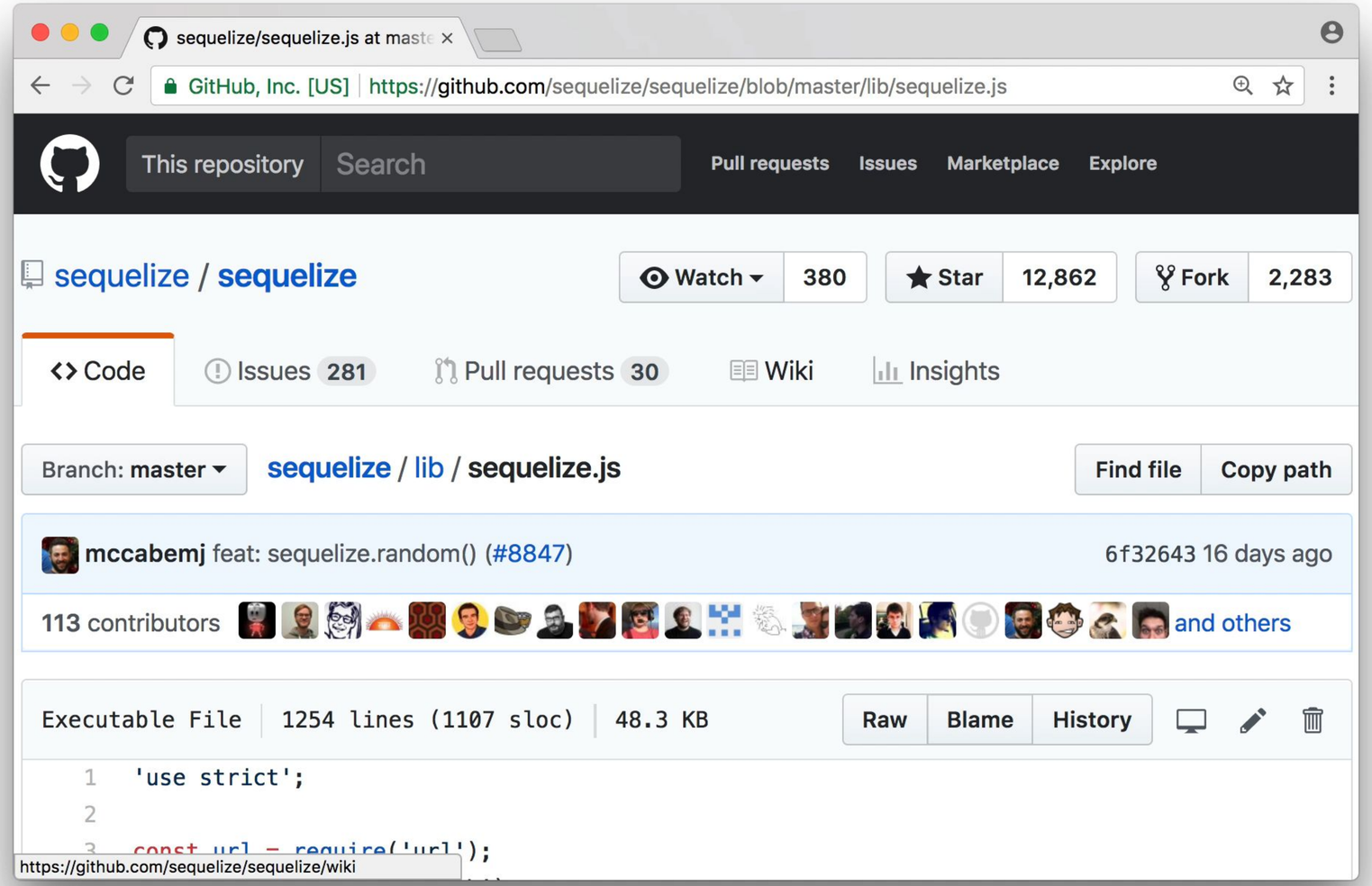
- Common/Convenient ways to add functionality to your Sequelize models
- It's just Javascript: We can add functions to the constructor function OR to its prototype.



Sequelize: Class & instance methods

```
const Dog = db.define('dog', {/* etc*/})

Dog.findPuppies = function () {
  // 'this' refers directly back to the model
  return this.findAll({ // Dog.findAll
    where: {
      age: {
        [Op.lte]: 1// Op.lte is a symbol, which is like a string
      }
    }
  }
```

Sequelize: Class & instance methods

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  return this.findAll({
    where: {
      age: {
        [Op.lte]: 1
      }
    }
}
```

In your routes, for example…

```
const foundPuppies = await Dog.findPuppies()
```

Sequelize: Class & instance methods

Note we could also use a virtual property

```
const Dog = db.define('dog', {/* etc*/})

Dog.prototype.isBirthday = function () {
  const today = new Date()
  // 'this' refers to the instance itself
  if (this.birthDay === today.getDate()) {
    return true;
  } else {
    return false;
  }
```

Sequelize: Class & instance methods

```
const Dog = db.define('dog', {/* etc*/})

Dog.prototype.isBirthday = function () {

  const today = new Date()

  // 'this' refers to the

  if (this.birthDay ===

    return true;

  } else {

    return false;

  }
```

In your routes for example…

```
const createdDog = new Dog({name: 'Pork Chop'})

// the instance method is invoked *on the instance*
if (createdDog.isBirthday()) console.log('Happy Birthday!')
```

Sequelize: Class & instance methods

Sequelize: Many-Many Relationships

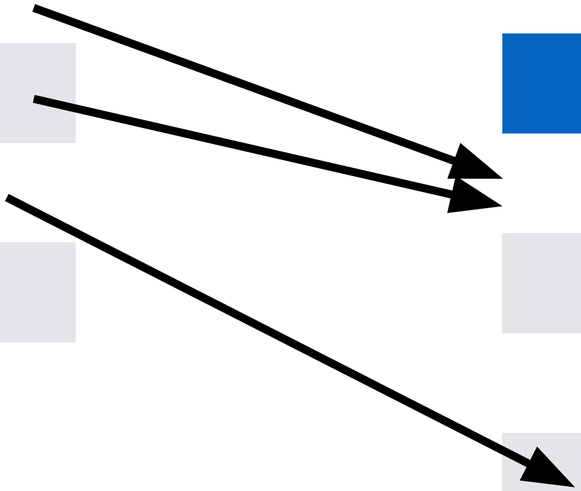
ONE-MANY

Pug.belongsTo(Owner)

Owner.hasMany(Pug)

PUGS

id	name	ownerId
1	Cody	1
2	Doug	1
3	Milo	2
4	Frank	NULL



OWNERS

id	name
1	Tom
2	Kate
3	Cassio
4	Karen

MANY-MANY

```
Ownership.belongsTo(Pug);

Ownership.belongsTo(User);
```