



University of  
Sheffield

**COM1001 SPRING SEMESTER**  
Professor Phil McMinn  
[p.mcminn@sheffield.ac.uk](mailto:p.mcminn@sheffield.ac.uk)

# Controllers

# Controllers

A Sinatra application can have several routes – as many as we want

A set of routes for an application are collectively referred to as a **Controller**.

**The job of a controller is to generate HTTP responses for incoming HTTP requests.**

**HTTP requests are matched to an appropriate route via the HTTP method and the resource identifier that it specifies.**



# Live Demonstration:

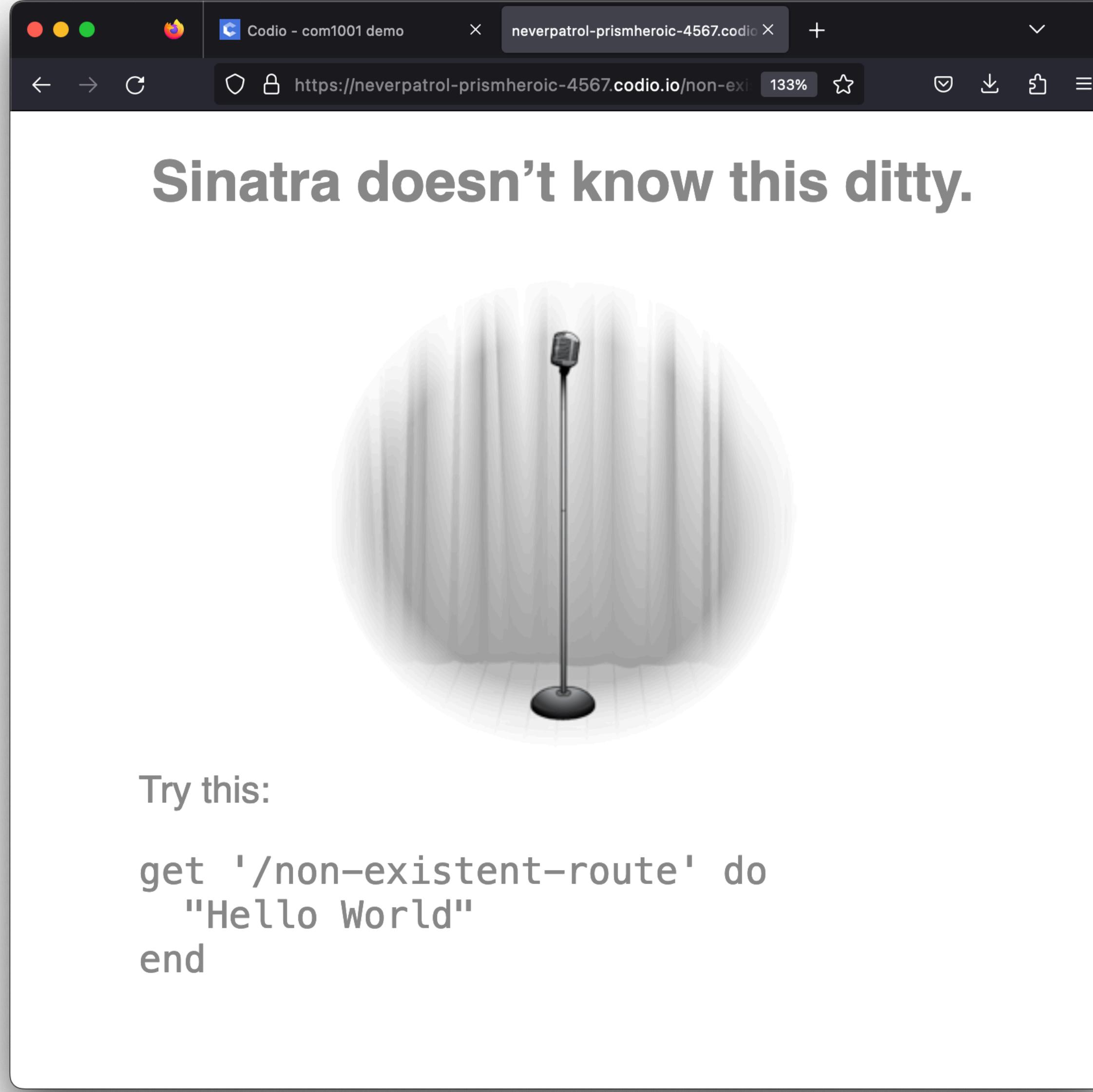
## the controllers\_example example

(from the com1001-examples GitHub repository)

### Featuring:

- Multiple routes (for multiple resource IDs)
- Multiple controller files and their inclusion by `app.rb`
- Using the `rerun` command to avoid re-starting the web server every time a change is made
- What happens when there is no route matching the HTTP request – the HTTP 404 error page
- What happens when the code fails with an error – the HTTP 500 error page

# When a HTTP Request Doesn't Map to a Route



If Sinatra cannot map the HTTP request to a block with a matching route, it triggers a **HTTP 404 Not Found** status and returns this page.

This might be due to a problem with our Ruby code, or it could be that a user mistyped the URL into their browser.

# When the Application Contains a Fatal Bug

```
get "/buggy-route" do
  numerator = 5
  denominator = 0
  numerator / denominator
end
```

Sinatra encounters an error and so triggers a **HTTP 500 Internal Server Error** status message. In this instance, Sinatra usefully presents us with diagnostic information that may help with debugging.

The screenshot shows a web browser window with the following details:

- Title Bar:** Codio - com1001 demo | ZeroDivisionError at /buggy-route
- URL:** https://neverpatrol-prismheroic-4567.codio.io/buggy-route
- Content Area:**
  - Image:** A black and white illustration of three icebergs floating in water.
  - Error Message:** **ZeroDivisionError at /buggy-route**  
divided by 0  
file: error.rb location: / line: 6
  - Backtrace:** (expand)  
/home/codio/workspace/com1001-2024-dev/materials/week1/params-example/error.rb in /  
6. | numerator / denominator  
/home/codio/workspace/com1001-2024-dev/materials/week1/params-example/error.rb in **block in <top (required)>**  
6. | numerator / denominator
  - GET:** No GET data.
  - POST:** No POST data.
  - COOKIES:**

Variable	Value
dynamic_preview_session	"314b8f37-2632-4caa-a47e-8ff9f3175933"
AWSALB	"eFeJQVoixCpnQNiAKMpPjhEkFCL/Ae6xktnegKUBTAF2/4X80gCWw0eo34645Q2bvURwYXQ3cgLVVRYPrQce606vWodXe0Rlh1w/e1aXA3Gtoi346gyclV2fzyVE"
AWSALBCORS	"eFeJQVoixCpnQNiAKMpPjhEkFCL/Ae6xktnegKUBTAF2/4X80gCWw0eo34645Q2bvURwYXQ3cgLVVRYPrQce606vWodXe0Rlh1w/e1aXA3Gtoi346gyclV2fzyVE"
  - Rack ENV:**

Variable	Value
GATEWAY_INTERFACE	CGI/1.2
HTTP_ACCEPT	text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,*/*;q=0.8
HTTP_ACCEPT_ENCODING	gzip, deflate, br
HTTP_ACCEPT_LANGUAGE	en-GB,en;q=0.5
HTTP_CONNECTION	upgrade
HTTP_COOKIE	dynamic_preview_session=314b8f37-2632-4caa-a47e-8ff9f3175933; AWSALB=eFeJQVoixCpnQNiAKMpPjhEkFCL/Ae6xktnegKUBTAF2/4X80gCWw0eo34645Q2bvURwYXQ3cgLVVRYPrQce606vWodXe0Rlh1w/e1aXA3Gtoi346gyclV2fzyVE; AWSALBCORS=eFeJQVoixCpnQNiAKMpPjhEkFCL/Ae6xktnegKUBTAF2/4X80gCWw0eo34645Q2bvURwYXQ3cgLVVRYPrQce606vWodXe0Rlh1w/e1aXA3Gtoi346gyclV2fzyVE;

# Controllers – Summary

- Sinatra applications consist of a series of **routes**.
- A set of routes is called a **controller**.
- **Sinatra works by matching incoming HTTP requests to a route.** The matched route generates the body of the HTTP response.
- If Sinatra cannot match a route, it generates a 404 HTTP error.