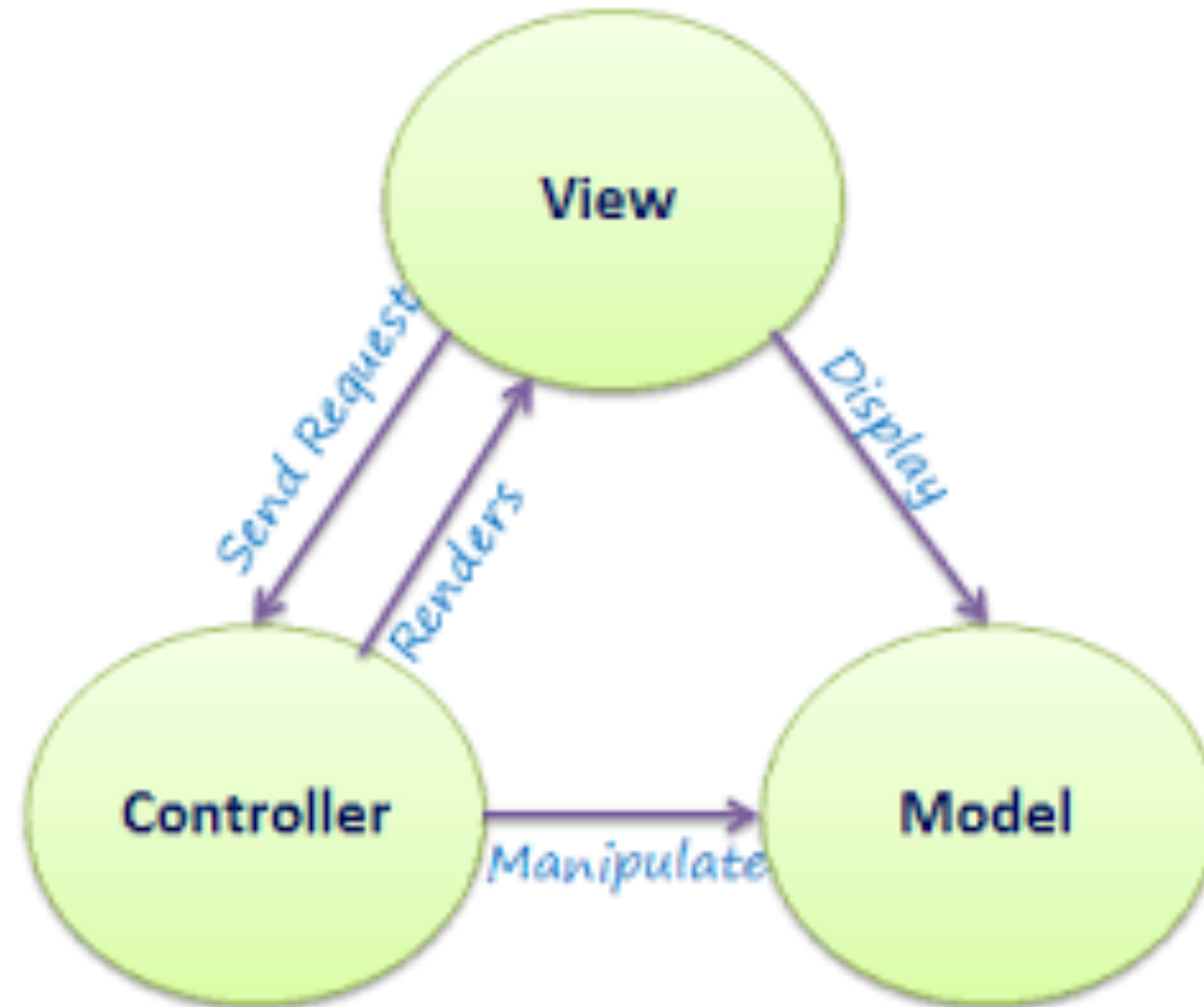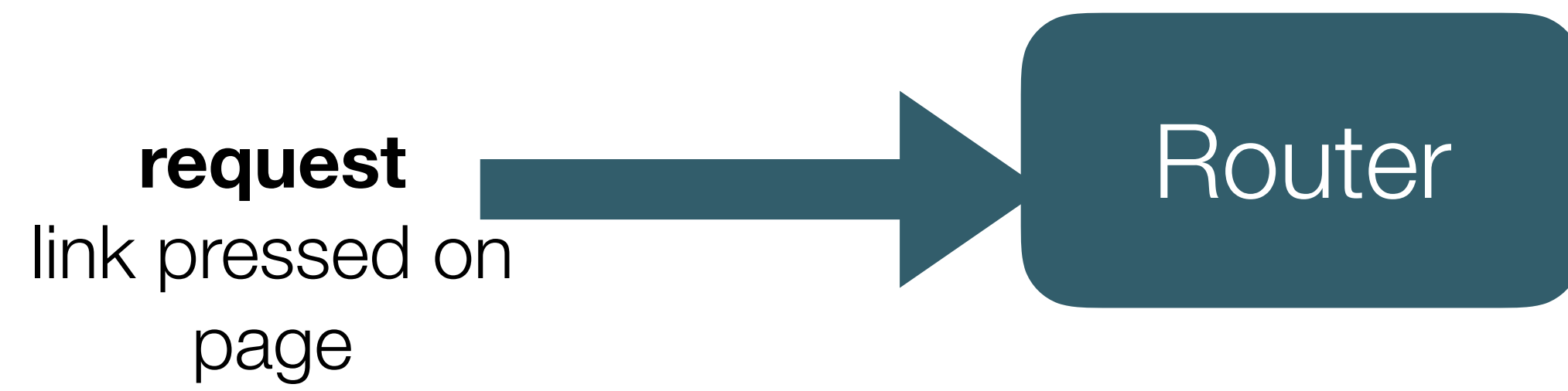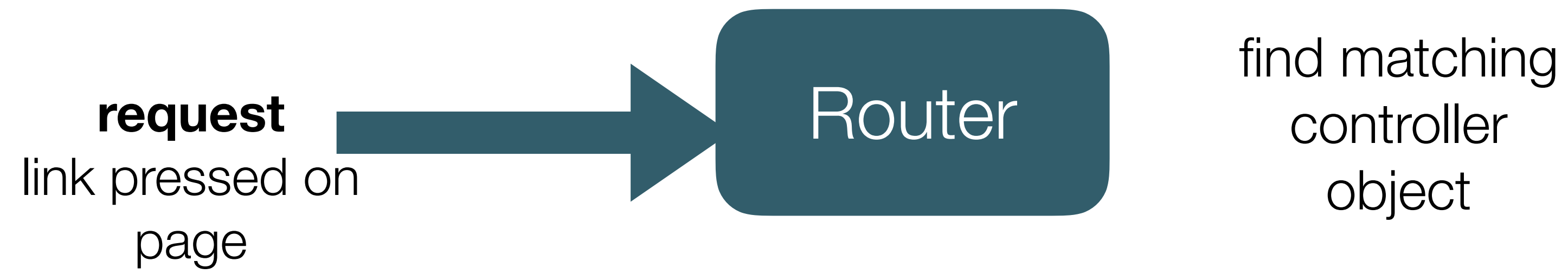# MVC

Request/Response Lifecycle

1. **Request** - link pressed on page

2. **Router** - find matching controller object

3. **Controller** - method invoked to handle request

4. **View** - data sent from controller to view to construct response

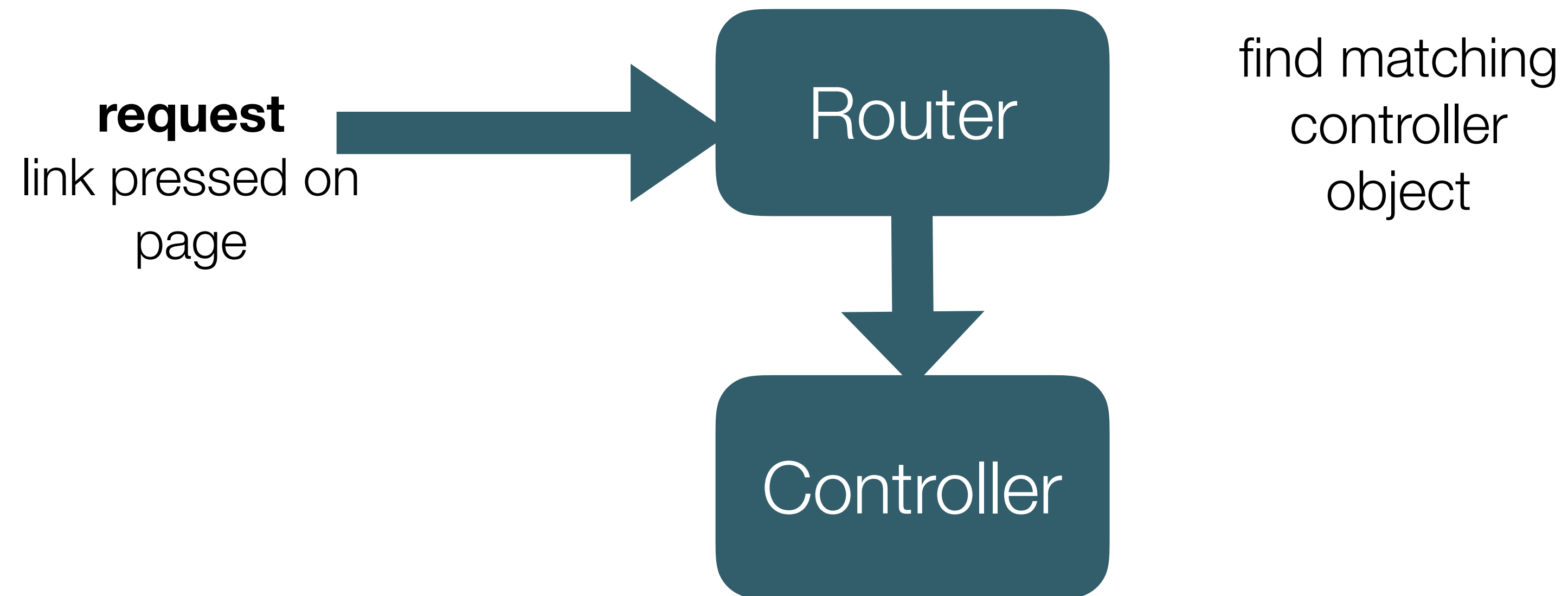5. **Response** - complete page rendered into browser

Router/Controller/View

request
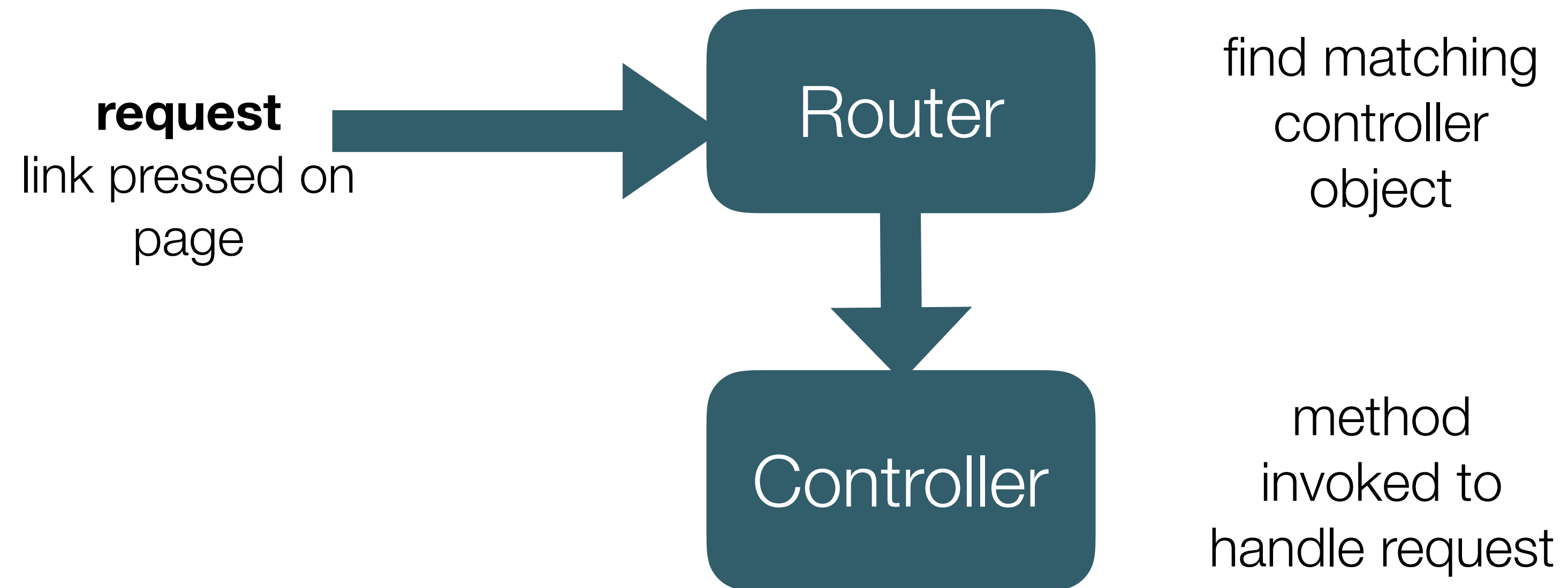link pressed on
page

→

Router

Router/Controller/View

request
link pressed on
page

→

Router

find matching
controller
object

Router/Controller/View

request
link pressed on
page

Router

find matching
controller
object

Controller

Router/Controller/View

request
link pressed on
page

Router

find matching
controller
object

Controller

method
invoked to
handle request

Router/Controller/View

request
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Router/Controller/View

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data sent from controller to view to construct response

Router/Controller/View

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data sent from
controller to view
to construct
response

response
complete page
rendered into
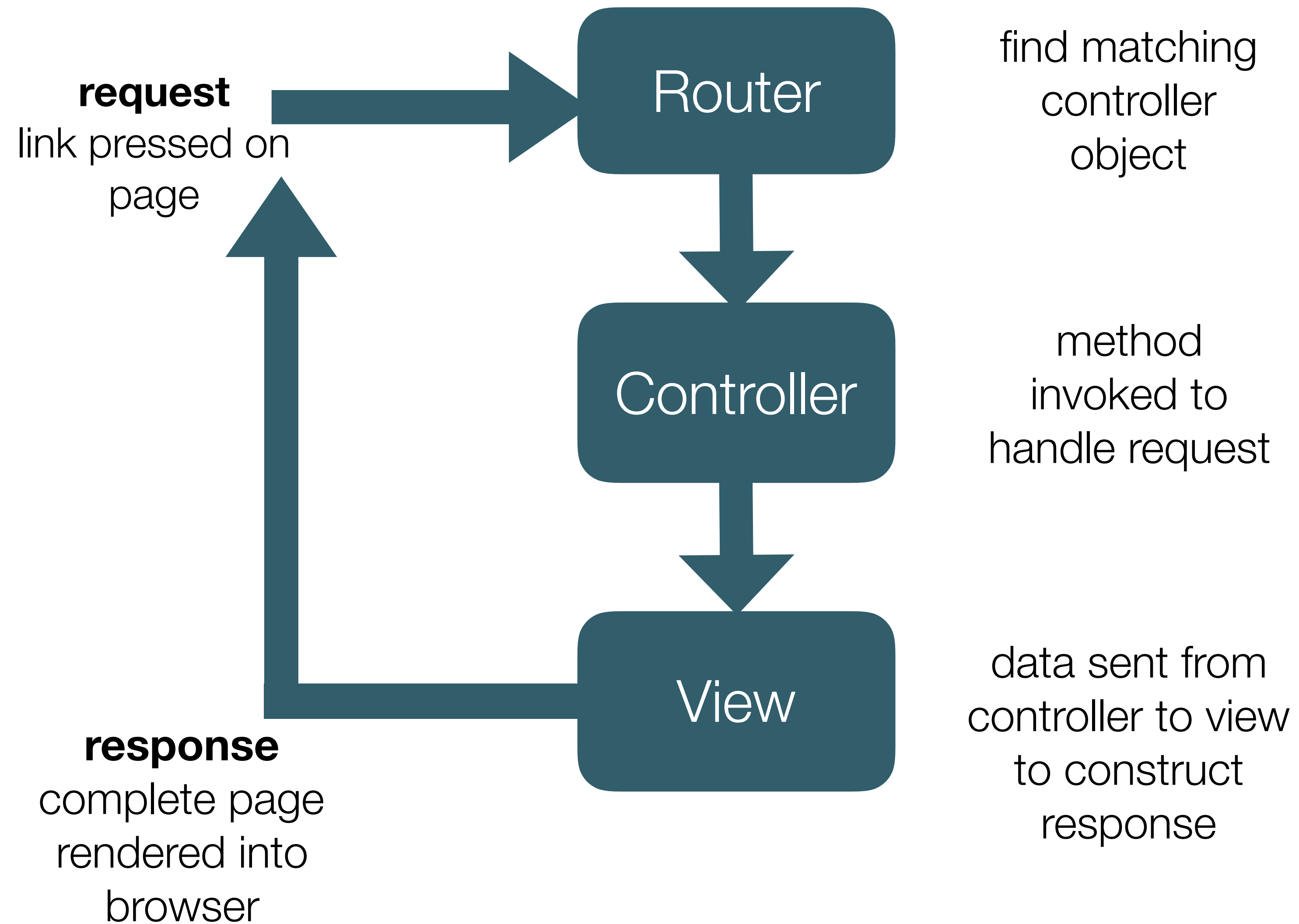browser

Request - link pressed on page
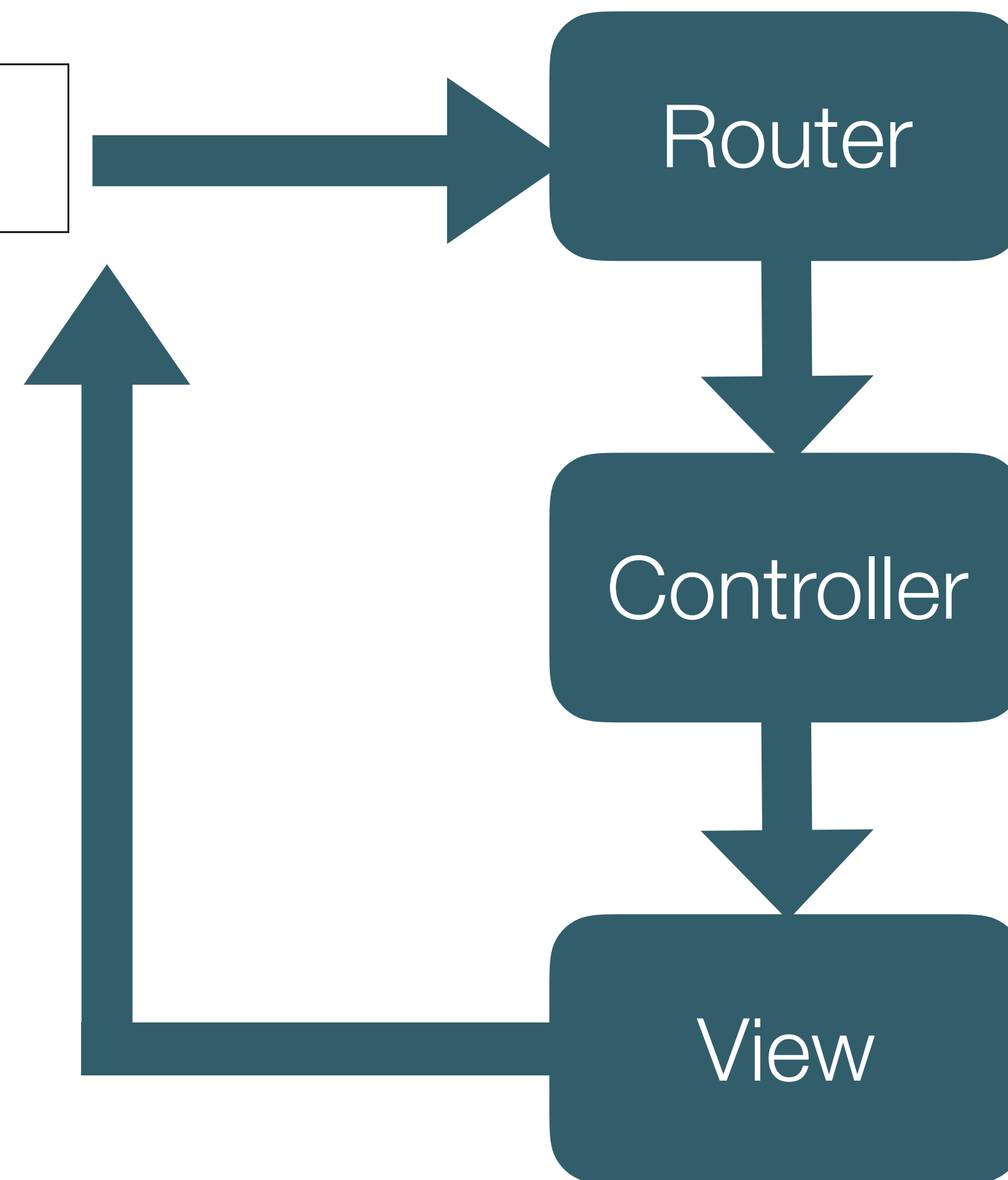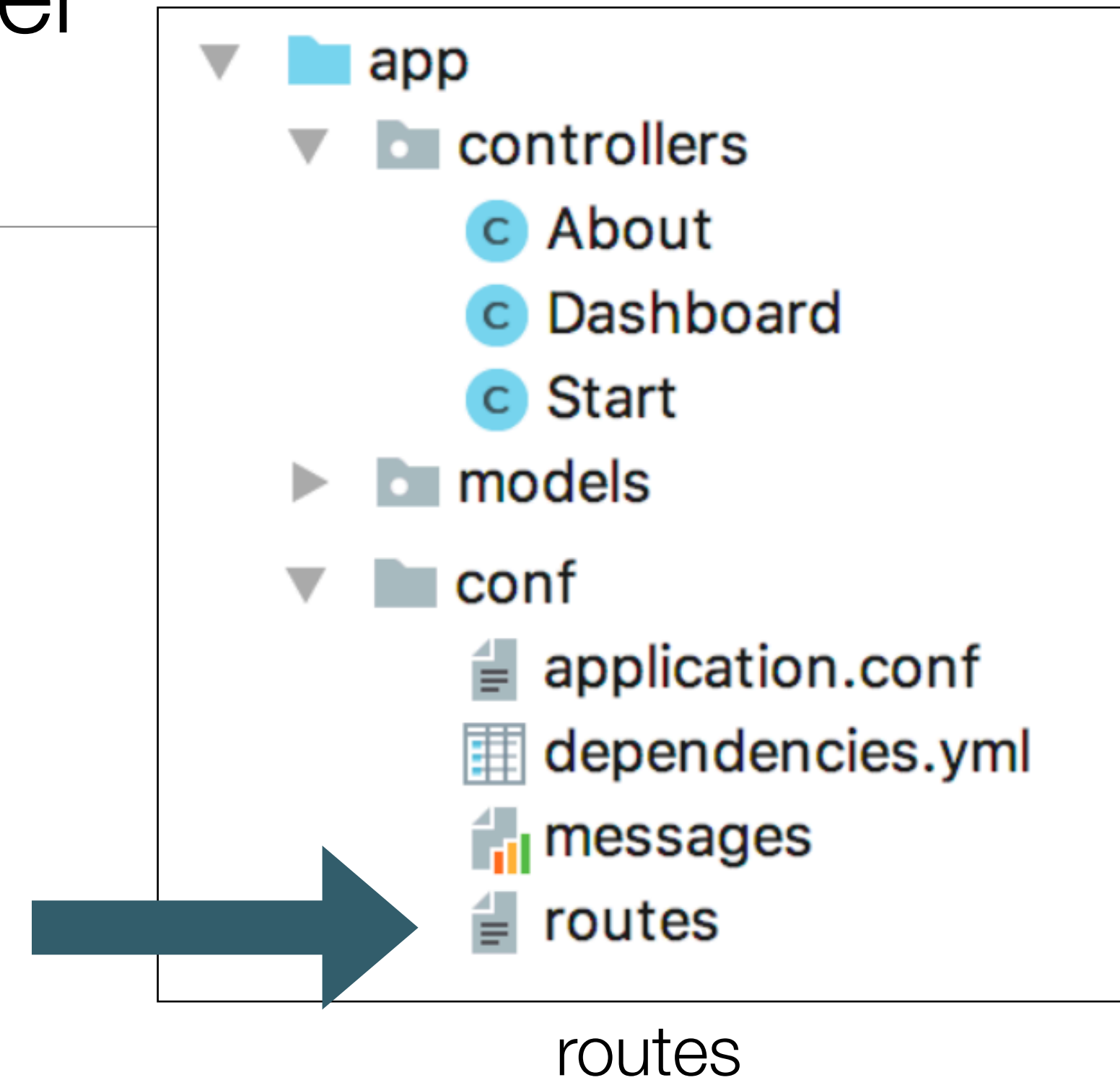
```
...
    <a id="dashboard" class="item" href="/dashboard"> Dashboard  </a>
    <a id="about" class="item" href="/about"> About </a>
...
```

- Requests defined in links in views:

  - href in <a> tags

  - href in Menus

  - href in Buttons

  - action links in forms

Router

Controller

View

Router - find matching controller object

routes
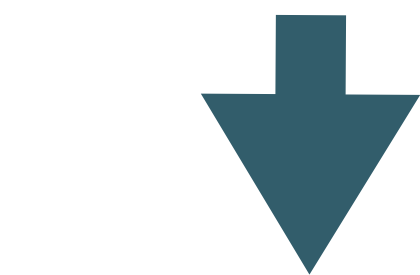
Mach the link patterns with the controler.method

```
...
GET     /                                    Start.index
GET     /dashboard                           Dashboard.index
GET     /about                               About.index
...
```
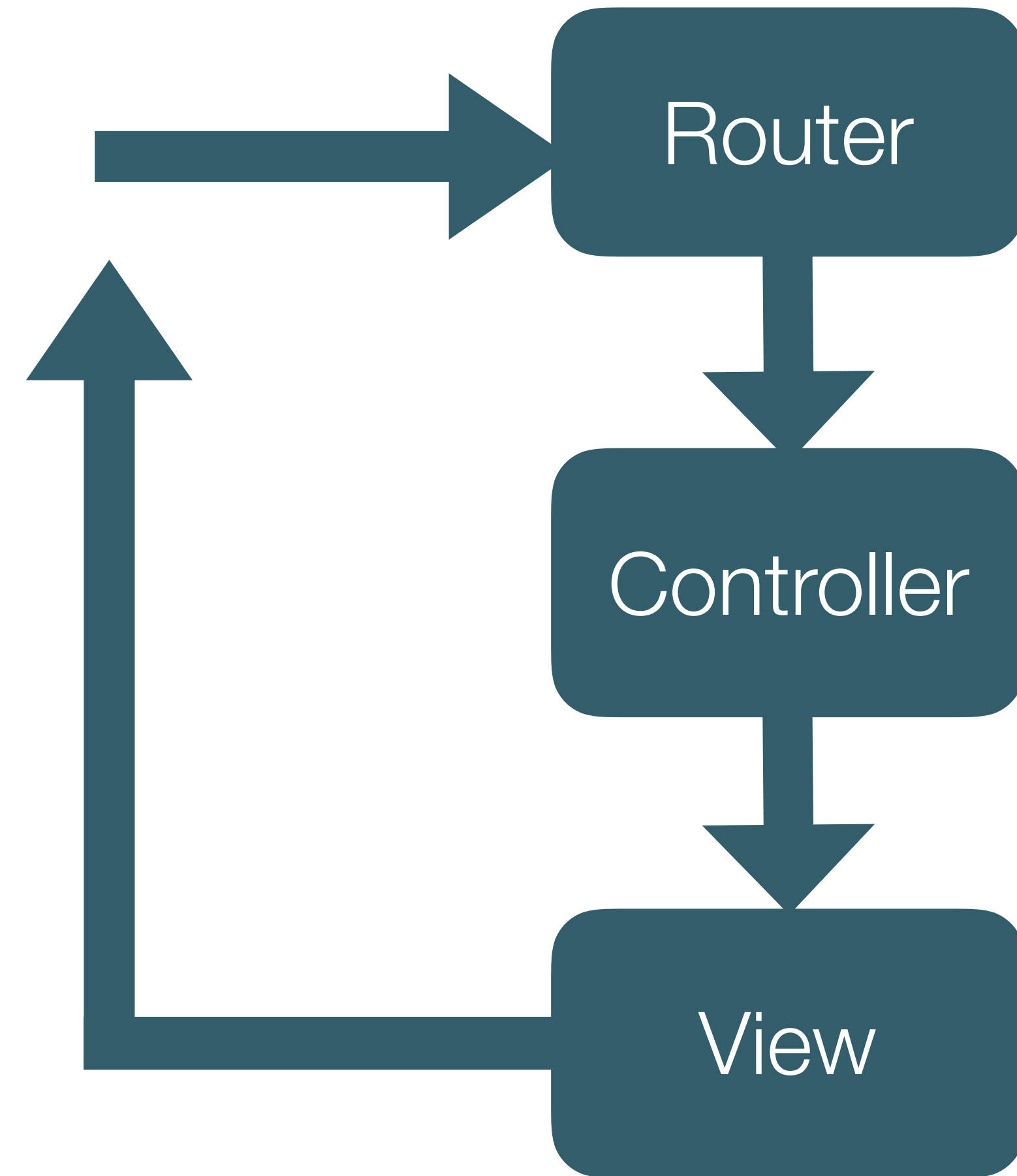
Router Behaviour

If user selects these links…

…then call the corresponding controller methods

`'/'` ⟶ `Start.index`

`/dashboard'` ⟶ `Dashboard.index`

`/about'` ⟶ `About.index`

Router

Controller

View

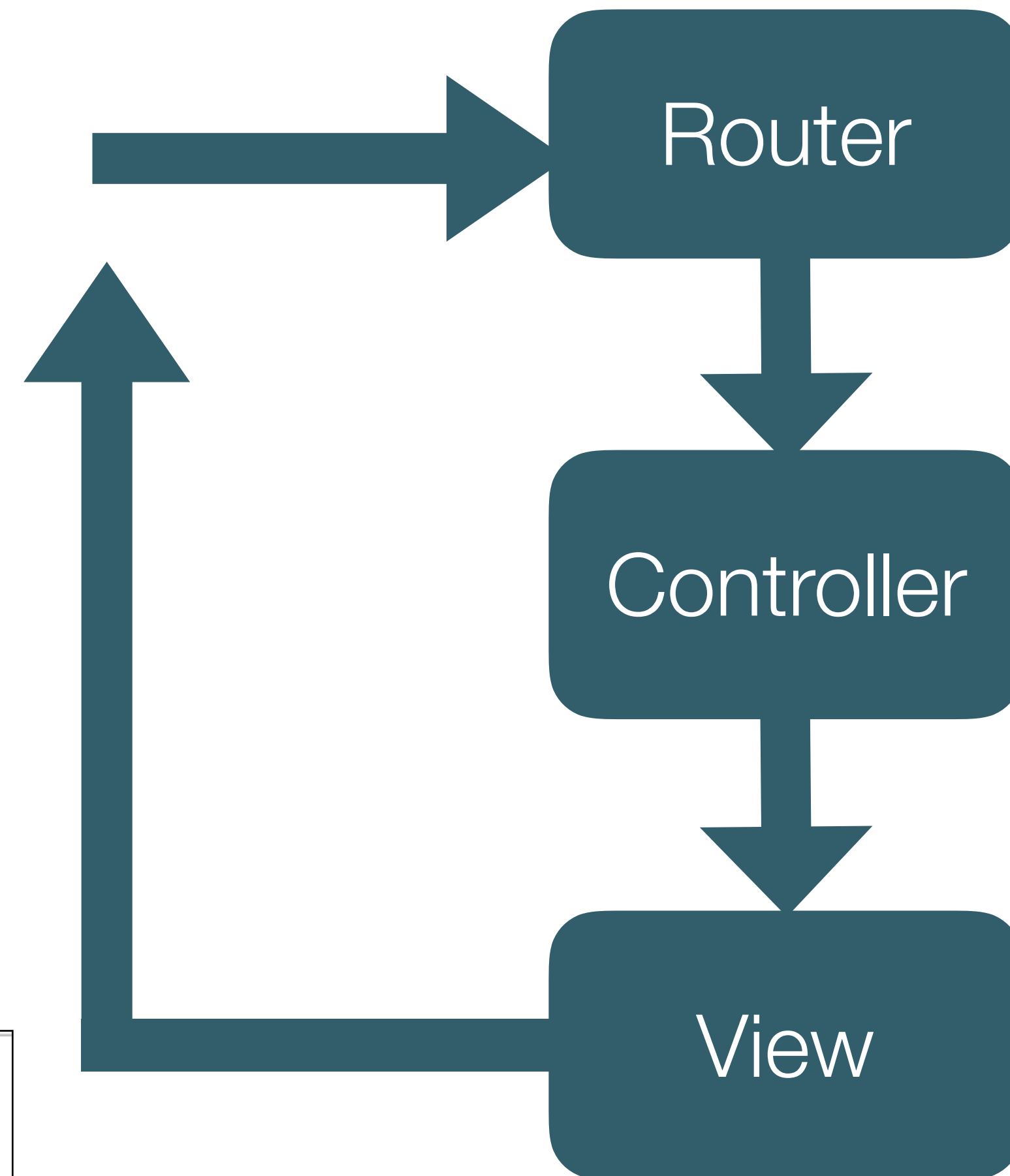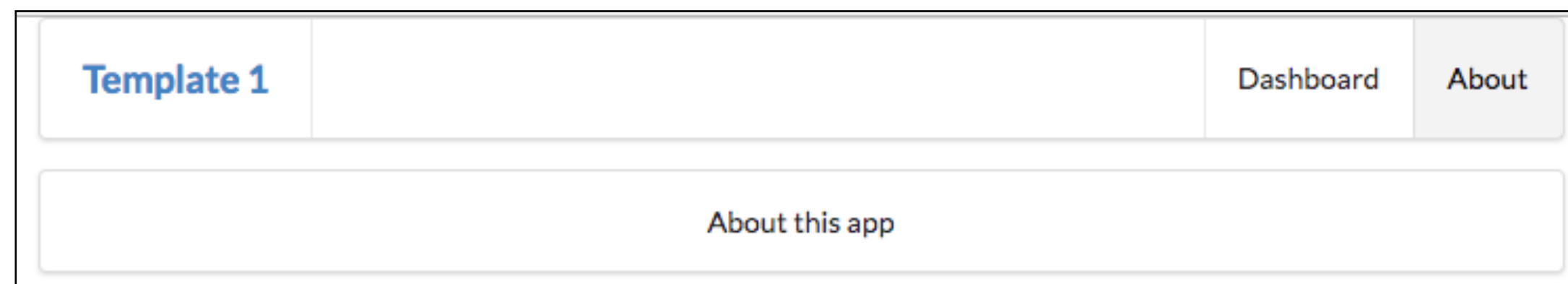# **Controller** method invoked to handle request

About.java

```java
package controllers;

import play.*;
import play.mvc.*;
import java.util.*;
import models.*;

public class About extends Controller
{
  public static void index() {
    Logger.info("Rendering about");
    render ("about.html");
  }
}
```
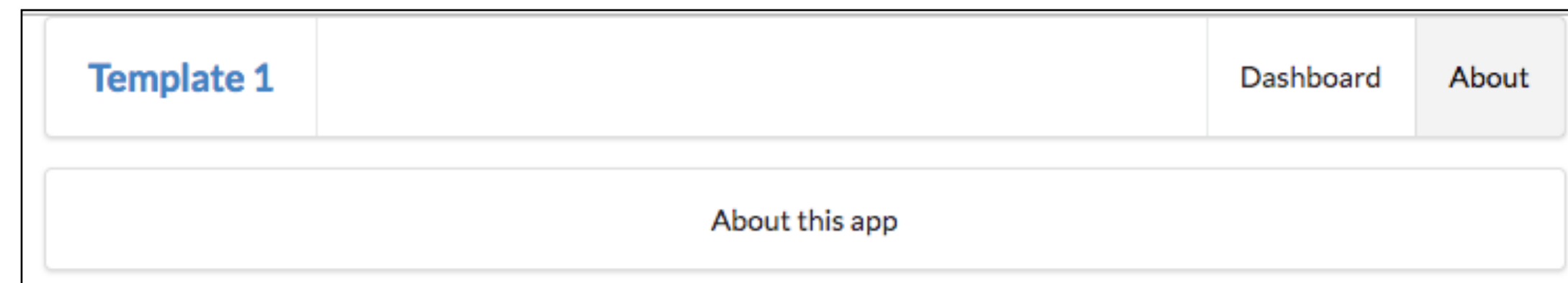
The About controller

Template 1		Dashboard	About
	About this app		

Router

Controller

View

The 'About' controller index *action*

```java
public static void index() {
    Logger.info("Rendering about");
    render ("about.html");
}
```

```
12:28:42,041 INFO  ~ Application "playlist" is ...
12:28:42,127 INFO  ~ Rendering Dashboard
12:28:44,618 INFO  ~ Rendering about
12:28:45,193 INFO  ~ Rendering Dashboard
12:28:46,233 INFO  ~ Rendering Start
12:28:47,233 INFO  ~ Rendering Dashboard
12:29:18,611 INFO  ~ Rendering Dashboard
12:29:46,311 INFO  ~ Rendering about
12:29:47,111 INFO  ~ Rendering Dashboard
12:29:48,199 INFO  ~ Rendering Start
```
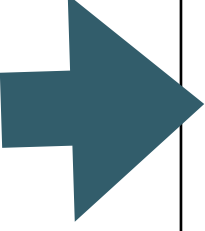
Template 1		Dashboard	About
	About this app		

Render the 'about' view

Log a message
to the console

Back-end + Front-End

about.js

```java
public static void index() {
    Logger.info("Rendering about");
    render ("about.html");
}
```

about.html

```html
#{extends 'main.html' /}
#{set title:'About' /}

#{menu id:"about"/}

<section class="ui center aligned middle aligned segment">
    <p>
        About this app
    </p>
</section>
```

menu.html

```html
<nav class="ui menu">
  <header class="ui header item"> <a href="/"> Template 1 </a></header>
  <div class="right menu">
    <a id="dashboard" class="item" href="/dashboard"> Dashboard  </a>
    <a id="about" class="item" href="/about"> About </a>
  </div>
</nav>

<script>
  $("#${_id}").addClass("active item");
</script>
```
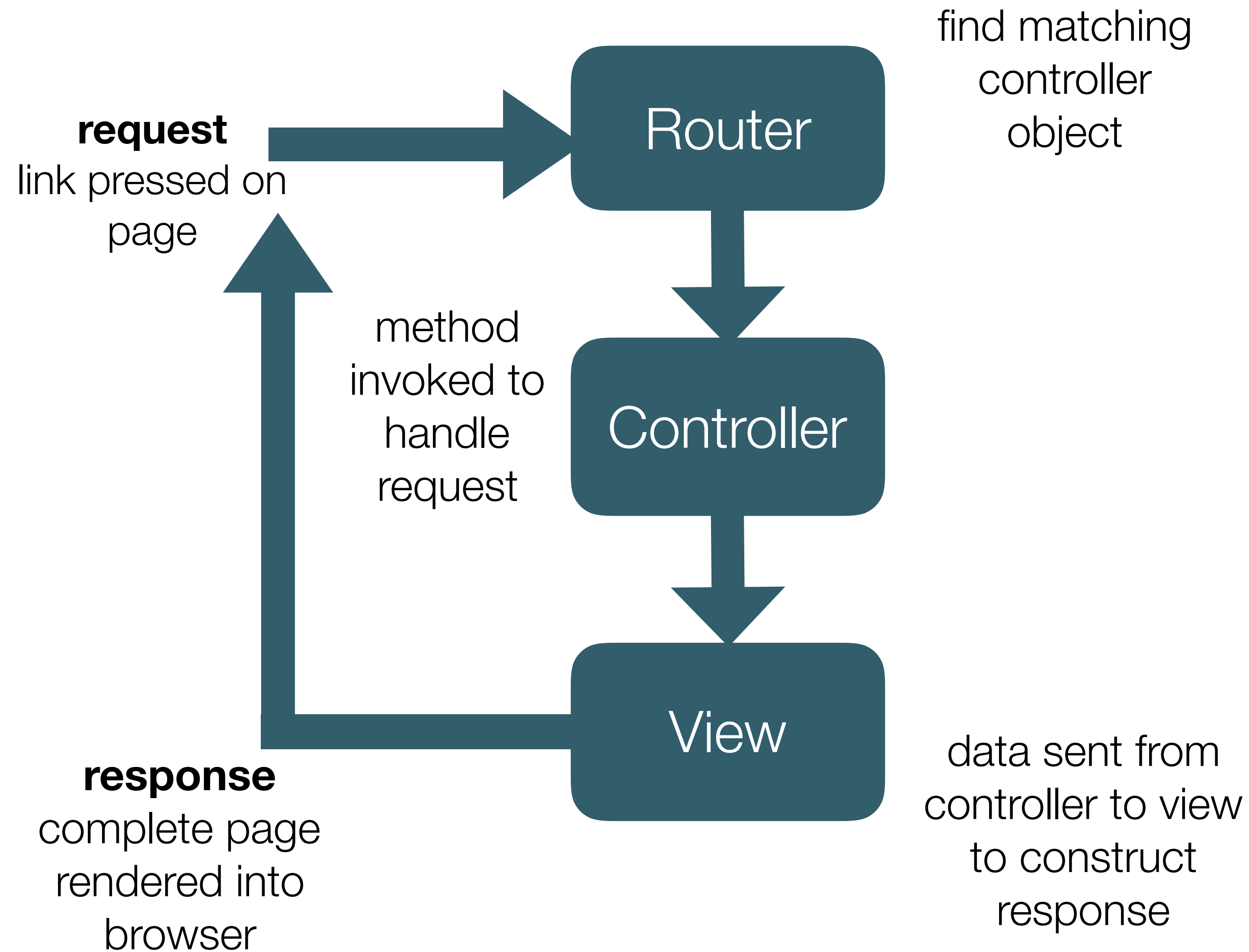
main.html

```html
<!DOCTYPE html>
<html>
  <head>
    <title>#{get 'title' /}</title>
    <script type="text/javascript" src="https://cdnjs.cloudfl
    <script type="text/javascript" src="https://cdnjs.cloudfl
    <link type="text/css"  href="https://cdnjs.cloudflare.com
  </head>
  <body>
    <section class="ui container">
      #{doLayout /}
    </section>
  </body>
```

Router/Controller/View

Router/Controller/Model/View