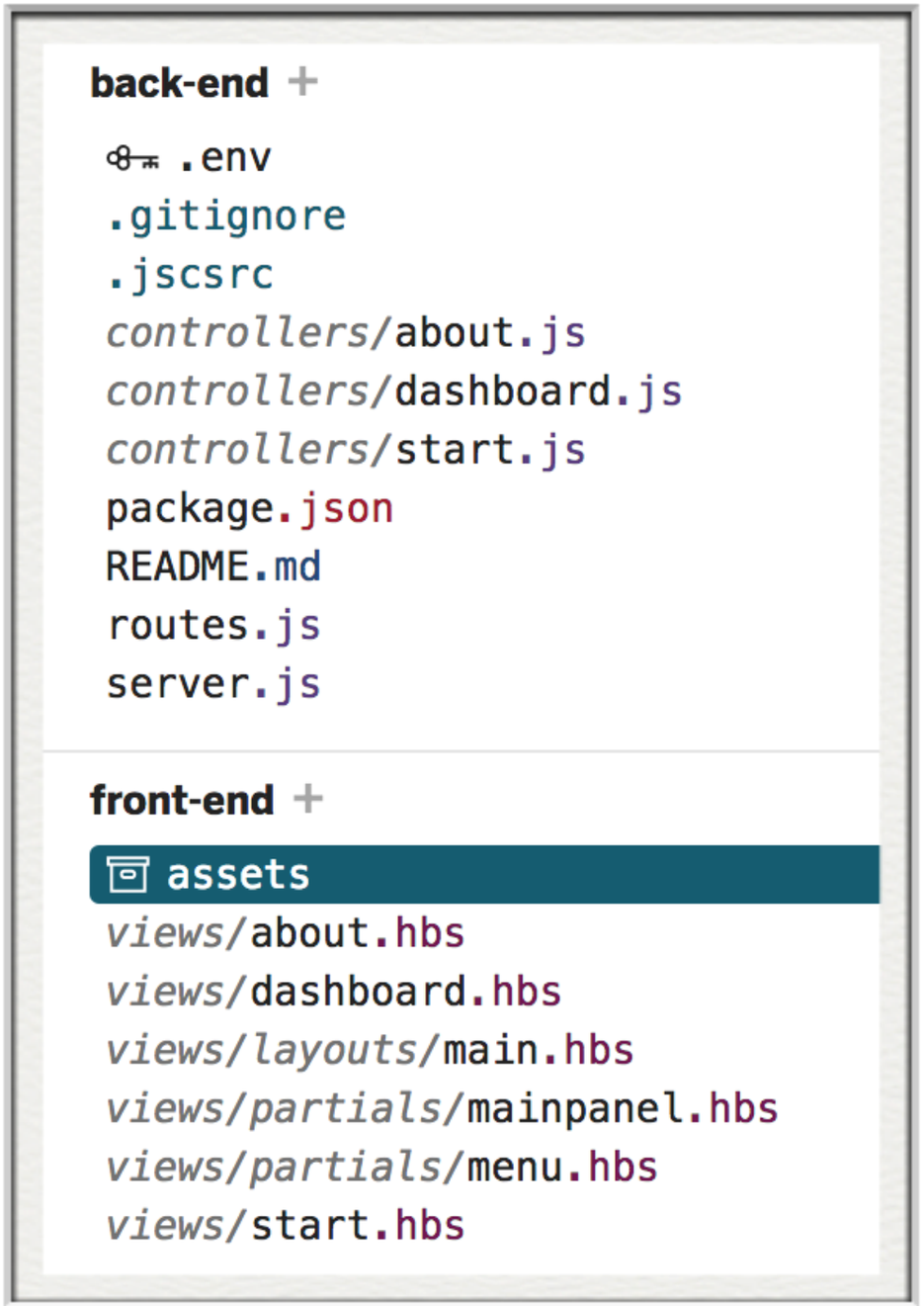
Back-end

Javascript Modules

- To structure an application coherently, the backend consists of separate Javascript files.
- Objects declared in these files must be
  - exported by one file
  - imported by another
- In order to keep each module focused on a specific responsibility

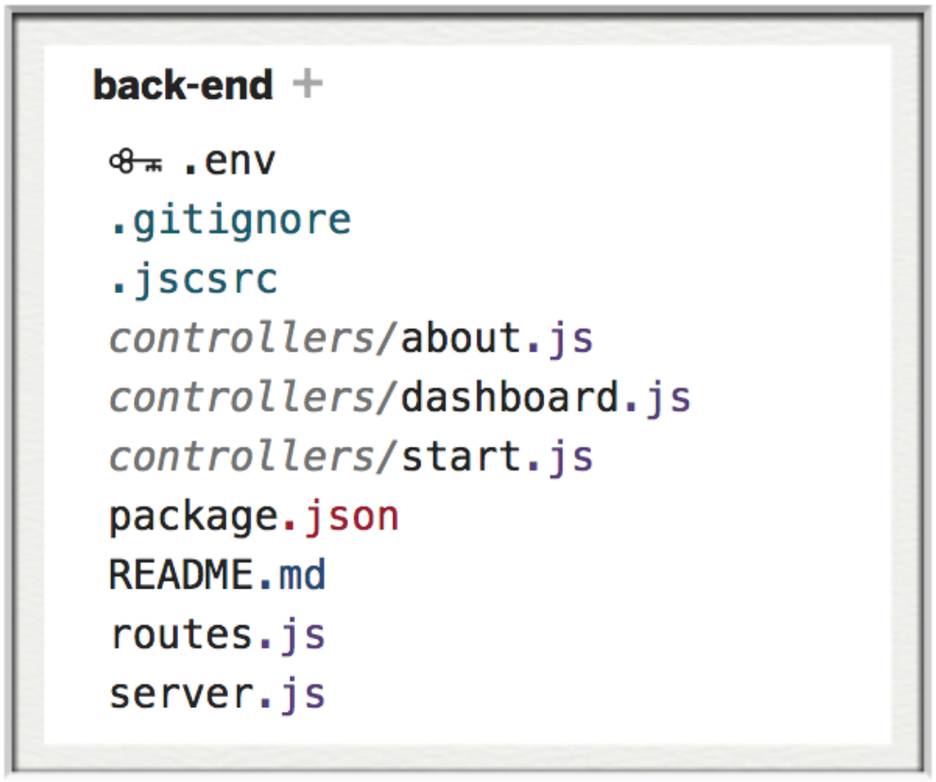
Application Structure



- App implements Routes + Model/View/Controller Architecture

- Back-end + Front-end collaborate to support structured, predictable application workflow

Back-end

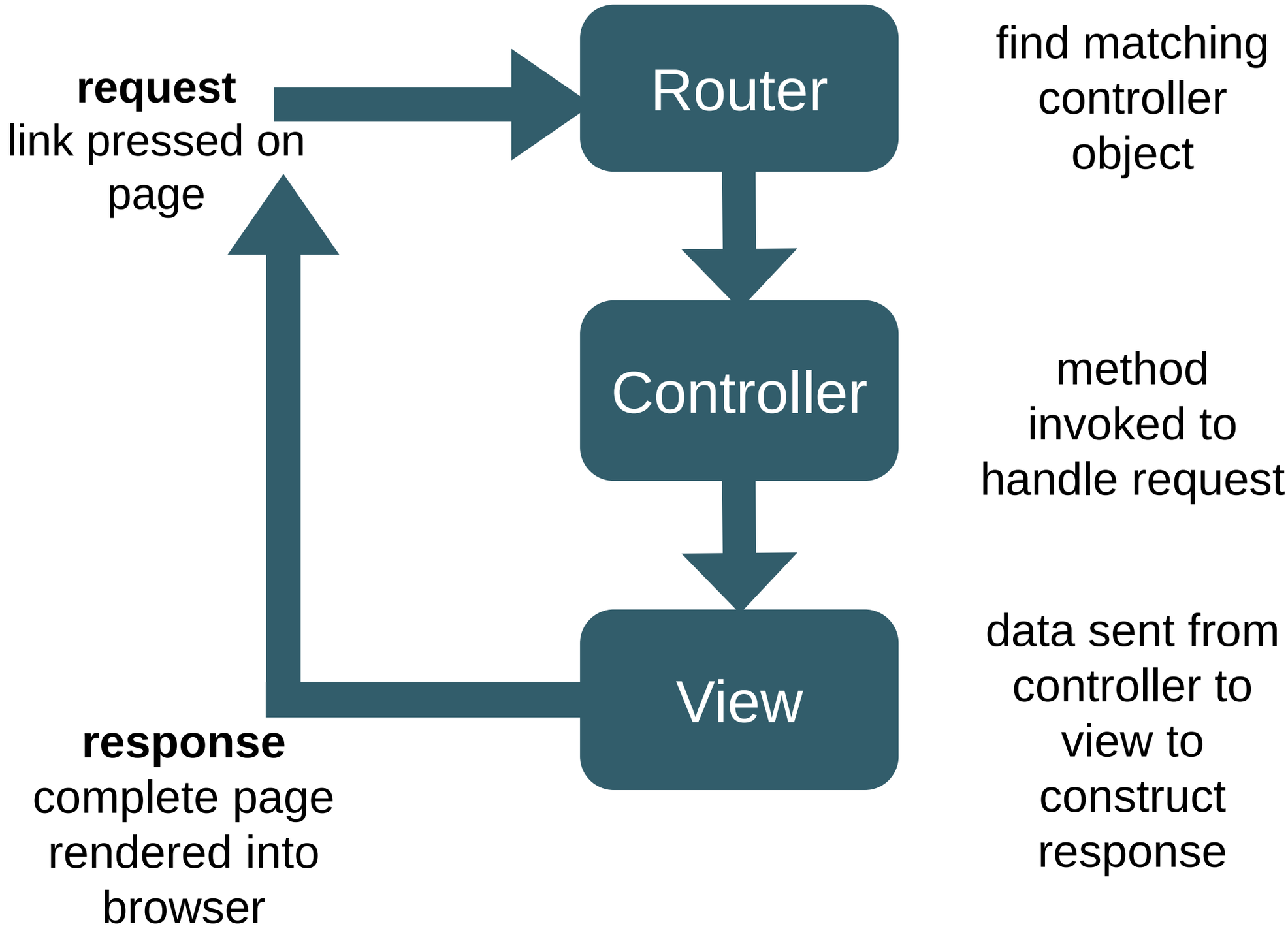


- All written in Javascript + JSON
- Consists of:
  - **Server** - main entry point
  - **Routes** - supported urls
  - **Controllers** - objects to handle the routes
  - **Config** - .gitignore, .jscsrc, env, package.json, readme.md
- Will include **Models** later…

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

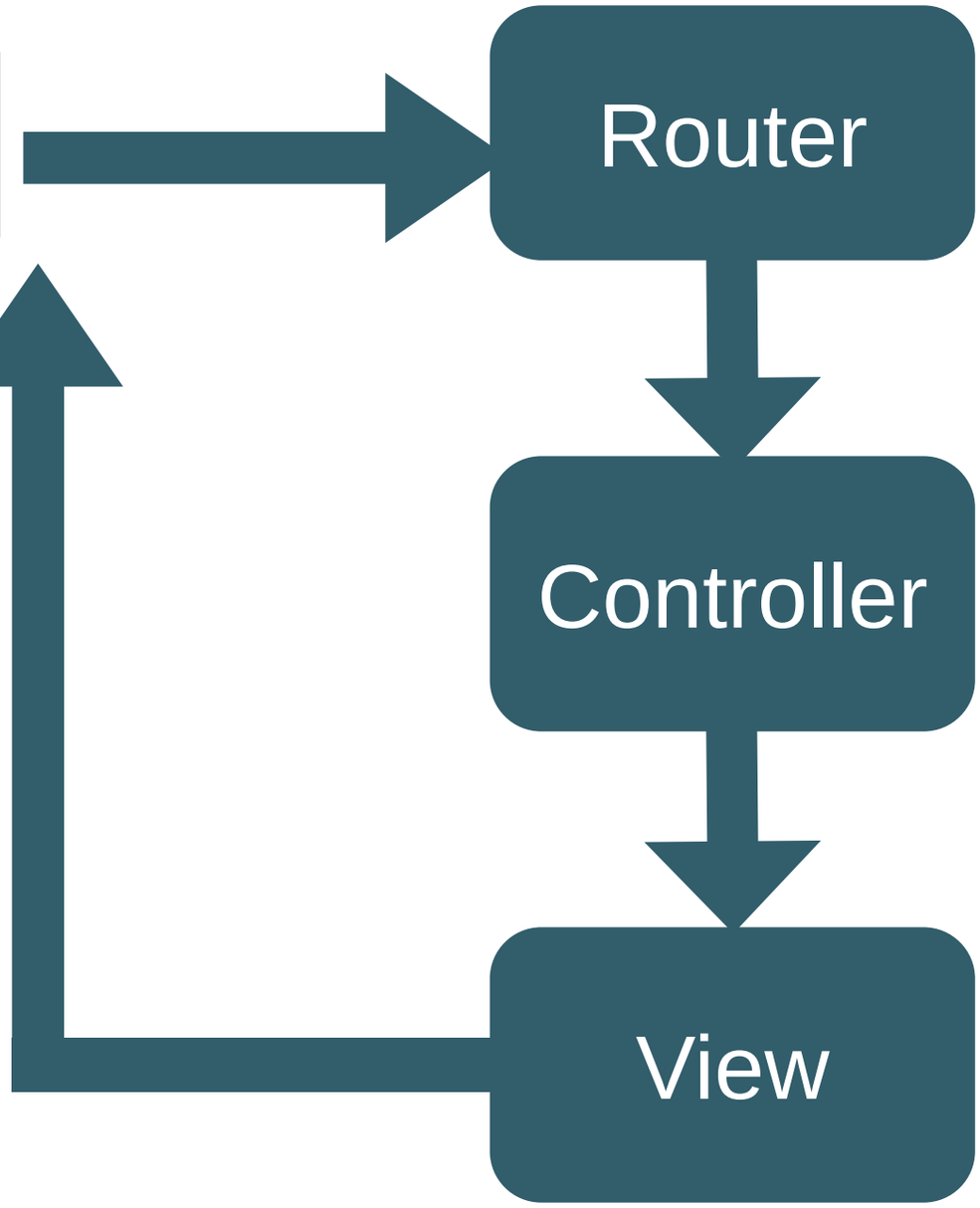
Router/Controller/View



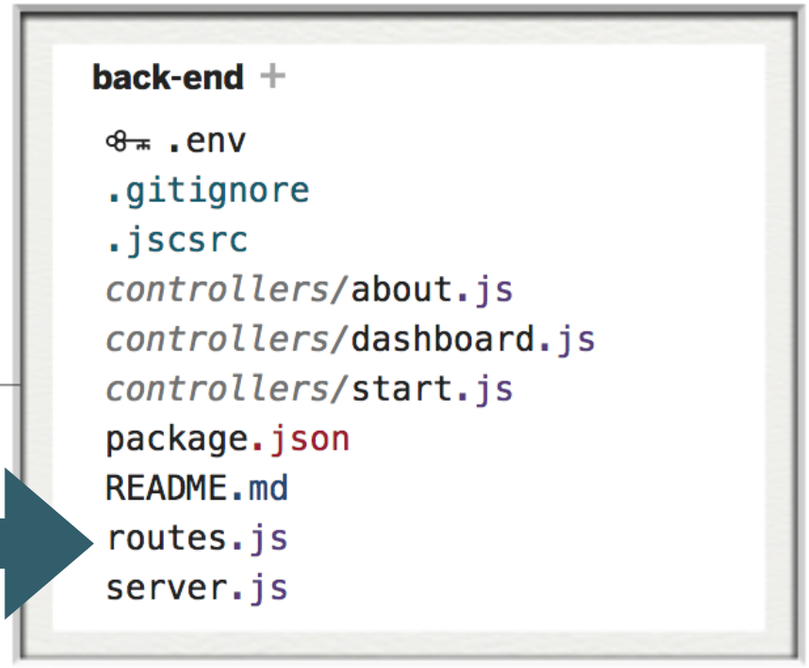
Request - link pressed on page

```
...
   <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 - find matching controller object



routes.js

Import 3 objects:

Match these three objects with each of these ‘links’

```
...
const start     = require('./controllers/start.js');
const dashboard = require('./controllers/dashboard.js');
const about     = require('./controllers/about.js');

router.get('/',          start.index);
router.get('/dashboard', dashboard.index);
router.get('/about',     about.index);
...
```

Router Behaviour

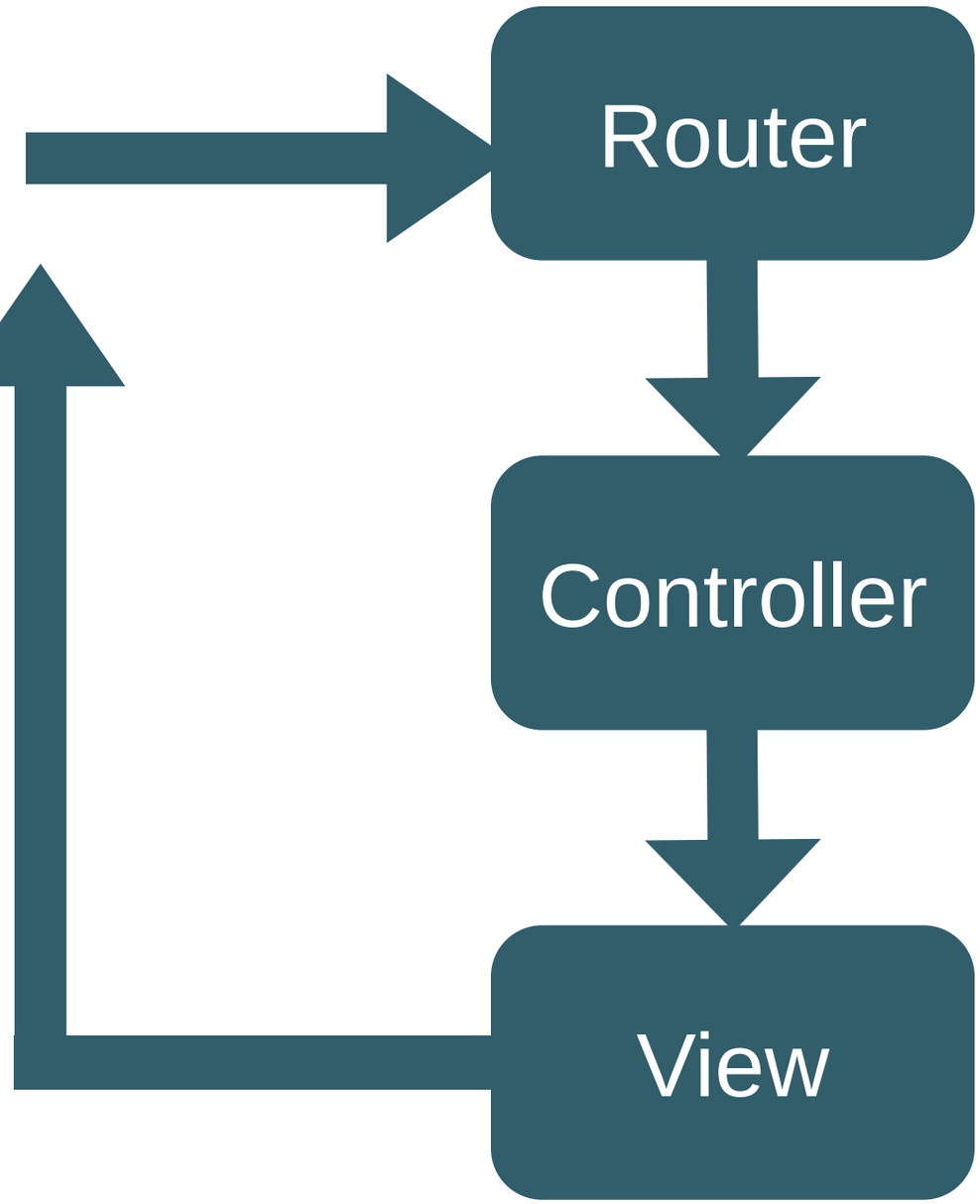
If user selects these links…

…then call the corresponding controller methods

'/' → start.index

/dashboard' → dashboard.index

/about' → about.index

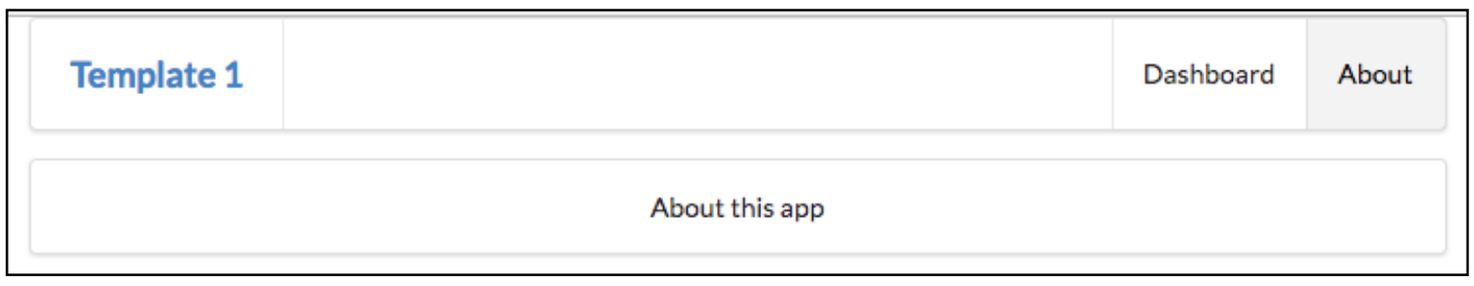


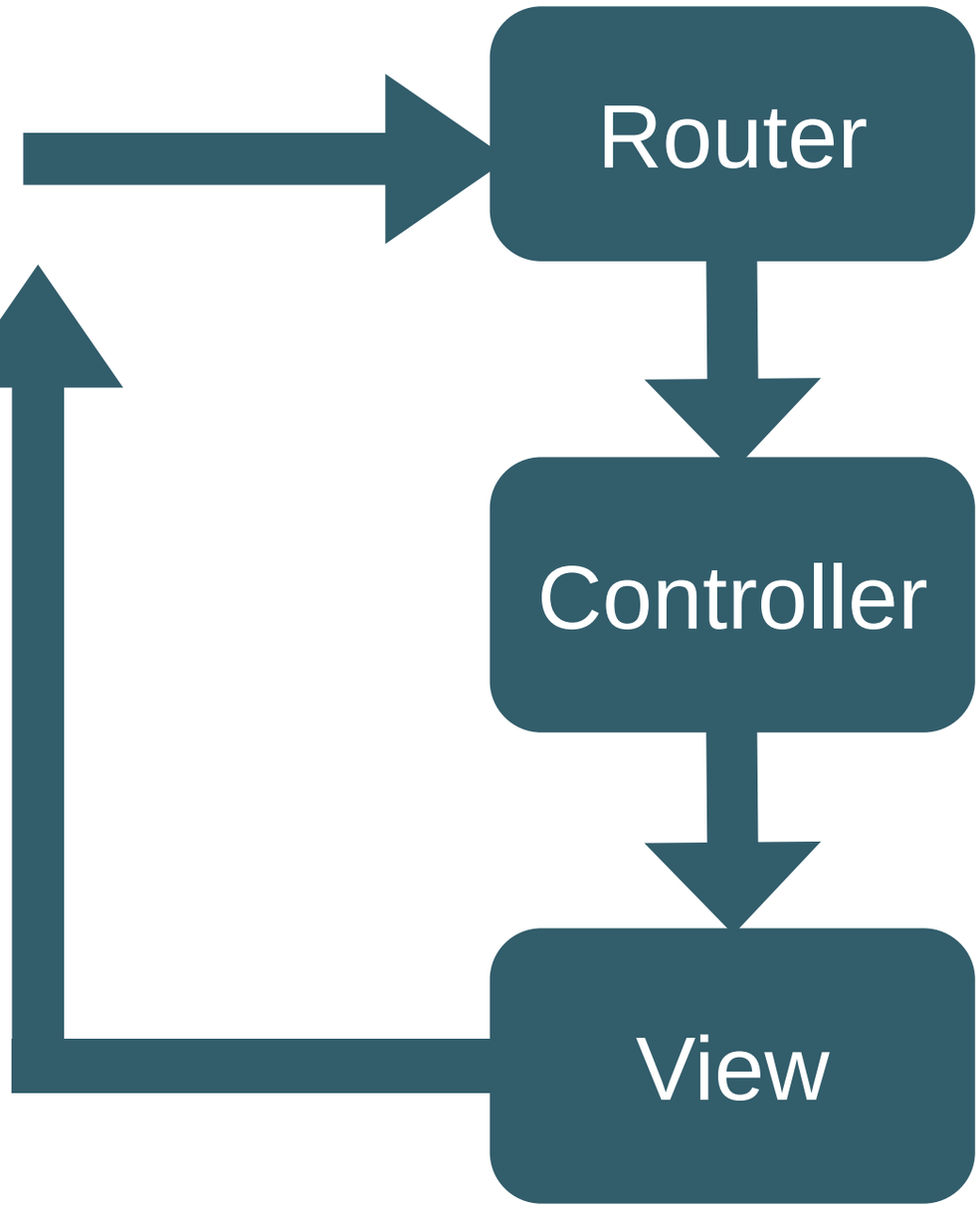
Controller method invoked to handle request

about.js

```
const about = {
  index(request, response) {
    logger.info('about rendering');
    const viewData = {
      title: 'About Template 1',
    };
    response.render('about', viewData);
  },
};
```

The About controller





The ‘About’ controller object - **index method parameters**

- Has a single method - index, which has 2 parameters:
  - **request** : object containing details of the user request
  - **response**: object to be used to send response back to browser

```
const about = {

  index(request, response) {

    logger.info('about rendering’);

    const viewData = {
      title: 'About Template 1',
    };

    response.render('about', viewData);

  },

};
```

The ‘About’ controller **index function body**

logs a message to the console (gomix console, not chrome console)

Create an object called **viewData**, containing a single property: **title**

```
const about = {

  index(request, response) {

    logger.info('about rendering’);

    const viewData = {
      title: 'About Template 1',
    };

    response.render('about', viewData);

  },

};
```

Data sent from controller to view to construct response

Calls **render** method on **response** with 2 parameters:

name of view to render **(about)**

object to inject into the view prior to rendering it (**viewData**)

```
const about = {

  index(request, response) {

    logger.info('about rendering');

    const viewData = {
      title: 'About Template 1',
    };

    response.render('about', viewData);

  },

};
```

The About Controller - Complete

strict mode javascript for safety

import the **logger** so we can use it

Export the **about** object to it can be used by the router

```
'use strict';

const logger = require('../utils/logger');

const about = {
  index(request, response) {
    logger.info('about rendering');
    const viewData = {
      title: 'About Template 1',
    };
    response.render('about', viewData);
  },
};

module.exports = about;
```

Back-end + Front-End

about.js

```
'use strict';

const logger = require('../utils/logger');

const about = {
  index(request, response) {
    logger.info('about rendering');
    const viewData = {
      title: 'About Template 1',
    };
    response.render('about', viewData);
  },
};

module.exports = about;
```

about.hbs

```
{{> menu id="about"}}

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

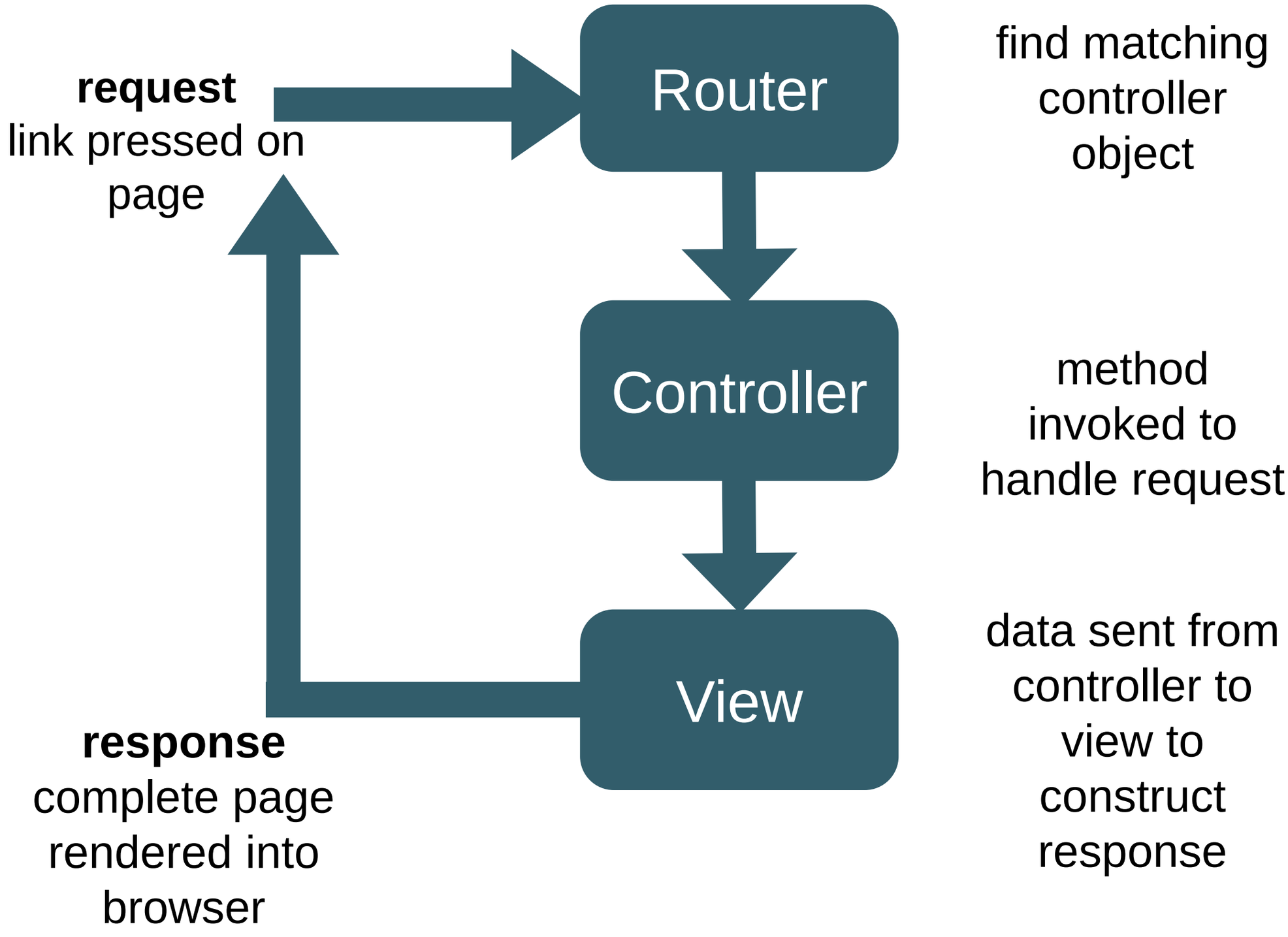
menu.hbs

```
<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.hbs

```
<!DOCTYPE html>
<html>
  <head>
    <meta charset="utf-8">
    <title> {{title}} </title>
    <meta charset="UTF-8">
    <script type="text/javascript" src="https://cdn
    <link rel="stylesheet" href="https://cdnjs.clou
    <script type="text/javascript" src="https://cdn
    <link rel="stylesheet" type="text/css" href="/s
  </head>
  <body>
    <section class="ui container">
      {{{body}}}
```

Router/Controller/View



Dashboard Controller

```
'use strict';

const logger = require('../utils/logger');

const dashboard = {

  index(request, response) {

    logger.info('dashboard rendering');
    const viewData = {
      title: 'Template 1 Dashboard',
    };
    response.render('dashboard', viewData);

  },

};

module.exports = dashboard;
```

Start Controller

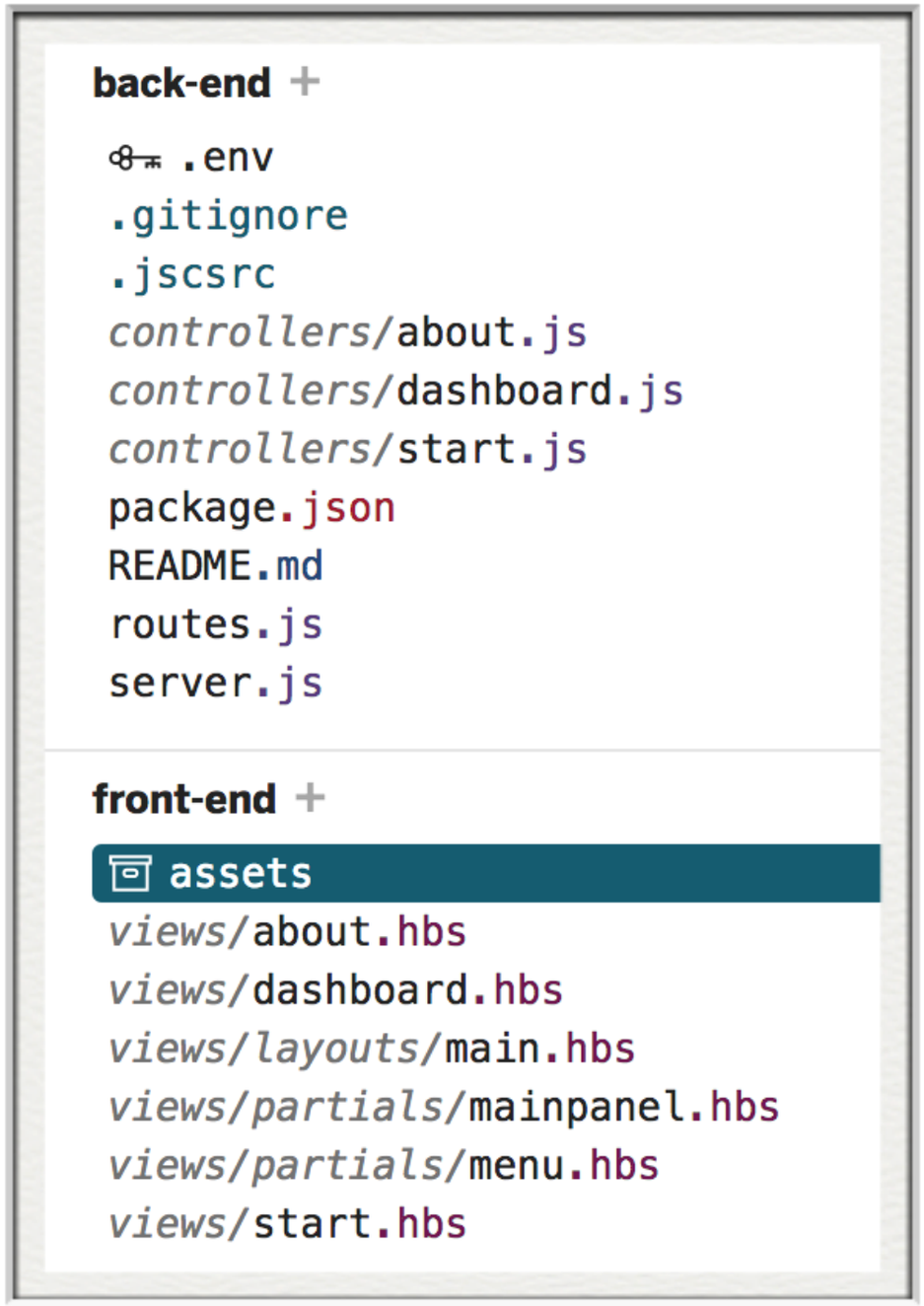
```
'use strict';

const logger = require('../utils/logger');

const start = {

  index(request, response) {

    logger.info('start rendering');
    const viewData = {
      title: 'Welcome to Template 1',
    };
    response.render('start', viewData);
  },


};

module.exports = start;
```

Application Structure

3 Controllers

which will render

3 matching views



routes/controllers

start.js

```
'use strict';

const logger = require('../utils/logger');

const start = {
 index(request, response) {
    logger.info('start rendering');
    const viewData = {
      title: 'Welcome to Template 1',
    };
    response.render('start', viewData);
  },
};

module.exports =
```

dashboard.js

```
'use strict';

const logger = require('../utils/logger');

const dashboard = {
  index(request, response) {
    logger.info('dashboard rendering');
    const viewData = {
      title: 'Template 1 Dashboard',
    };
    response.render('dashboard', viewData);
  },
};
```

routes.js

```
...
router.get('/',          start.index);
router.get('/dashboard', dashboard.index);
router.get('/about',     about.index);
...
```

```
'use strict';

const logger = require('../utils/logger');

const about = {
  index(request, response) {
    logger.info('about rendering');
    const viewData = {
      title: 'About Template 1',
    };
    response.render('about', viewData);
  },
};

module.exports = about;
```

about.js

controllers/views

start.js

```
'use strict';

const logger = require('../utils/logger');

const start = {
 index(request, response) {
    logger.info('start rendering');
    const viewData = {
      title: 'Welcome to Template 1',
    };
    response.render('start', viewData);
  },
};

m
```

dashboard.js

```
'use strict';

const logger = require('../utils/logger');

const dashboard = {
  index(request, response) {
    logger.info('dashboard rendering');
    const viewData = {
      title: 'Template 1 Dashboard',
    };
    response.render('dashboard', viewData);
  },
};

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```

about.js

```
'use strict';

const logger = require('../utils/logger');

const about = {
  index(request, response) {
    logger.info('about rendering');
    const viewData = {
      title: 'About Template 1',

esponse.render('about', viewData);
  },
```

start.hbs

```
{{> menu}}

<section class="ui center aligned middle aligned segment">
  <h1 class="ui header">
    Welcome to Template 1
  </h1>
  <p>
    To be replaced with content...
  </p>
</section>
```

dashboard.hbs

```
{{> menu id="dashboard"}}

<section class="ui segment">
  {{> mainpanel}}
</section>
```

about.hbs

```
{{> menu id="about"}}

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