

Lab 8
CSC 2053 - Platform Based Computing
Grading: 30 points
Due Date: Nov 10th, 2017

Description:

In this lab we will install the Node and Express server on your Raspberry pi. It will be configured to serve up dynamic webpages using routing and views in Jade. We will import the bootstrap framework to enable quick and elegant web development.

Part 1 - Connect to your Raspberry Pi using SSH. You can use the command,

```
ssh -l pi youripaddress
```

to open up a remote shell on your pi. Use the Ubuntu package manager to install the required nodejs and npm libraries. First update the package manager using sudo (admin)

```
sudo apt-get update
```

Next install the required packages for nodejs and npm.

```
sudo apt-get install nodejs npm vim
```

You can verify they are installed using the following commands.

```
node -v  
npm -v
```

Create a new directory where you are going to host your website. Change directories to that folder. For example,

```
mkdir test  
cd test
```

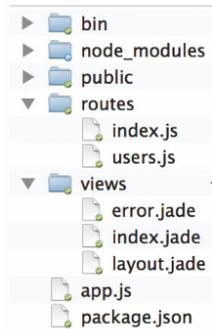
Now install the express generator that creates an express framework from scratch.

```
sudo npm install -g express-generator
```

Now you can run the express command to create a default express template in the current directory.

```
express
```

Here is what it created.



The “bin” directory stores the executable script that runs when the server starts. The node_modules stores the dependencies of the project (the packages installed by npm install). The “public” folder stores the static routed webpages. The “routes” stores the modules that app.use will reference for different paths. The “views” stores the jade files that are called by the res.render method. “app.js” is the configuration file for express and “package.json” lists the dependencies. Grab the dependencies using the command,

```
npm install
```

Now you can start the webserver using the following command,

```
npm start
```

You can check and see if it is working by navigating on your laptop browser to the web address

```
http://youripaddress:3000
```

You should be able to see your express website. At any point if you want to stop your express webserver, go to your pi terminal and type Ctrl-C.

Part 2 - Make your website a Bootstrap website.

For this part, we are going to import the necessary CSS and JS files to turn your website into a Bootstrap enabled website. Ctrl-C to stop your website and navigate to the views/ directory. Open up the layout.jade using your favorite text editor (vim, nano, emacs). Add a new link under the existing stylesheet in jade,

```
link(href="https://maxcdn.bootstrapcdn.com/bootstrap/4.0.0-beta.2/css/bootstrap.min.css",
      rel="stylesheet",
      integrity="sha384-PsH8R72JQ3S0dhVi3uxftmaW6Vc51MKb0q5P2rRUpPvrszue4W1povHYgTpBfshb",
      crossorigin="anonymous")
```

Then add the scripts below the body tag in the layout.

```
script(src="https://code.jquery.com/jquery-3.2.1.slim.min.js",
        integrity="sha384-KJ3o2DKtIkvYIK3UENzmM7KChRr/rE9/Qpg6aAZGJwFDMVNA/GpGFF93hXpG5KkN",
        crossorigin="anonymous")
script(src="https://cdnjs.cloudflare.com/ajax/libs/popper.js/1.12.3/umd/popper.min.js",
        integrity="sha384-vfJXusSjphR0IrBnz7yo7oB41mKfc8JzQZiCq4NCceLEa04IHwicKwpJf9c9IpFgh",
        crossorigin="anonymous")
script(src="https://maxcdn.bootstrapcdn.com/bootstrap/4.0.0-beta.2/js/bootstrap.min.js",
        integrity="sha384-alpBpkh1PF0epccYVYDB4do5UnbKysX5WZXM3XxPqe5iKTfUKjNkCk9SaVuEZflJ",
        crossorigin="anonymous")
```

Here is an image of the final layout.jade. Note the spacing (this is important).

```
doctype html
html
  head
    title= title
    link(rel="stylesheet", href="/stylesheets/style.css")
    link(href="https://maxcdn.bootstrapcdn.com/bootstrap/4.0.0-beta.2/css/bootstrap.min.css", rel="stylesheet", integrity="sha384-Psh8R72Q350dhi3uxftmaW6v51Mk0q5P2rRlUpVrszue4W1povlYgT8Fshb", crossorigin="anonymous")
  body
    block content
      script(src="https://code.jquery.com/jquery-3.2.1.slim.min.js", integrity="sha384-K3o2DK1l1vYIK3UENzm77CkR/rE9/qP66AZG1fMNA/GpF93h1pG5KkN", crossorigin="anonymous")
      script(src="https://cdnjs.cloudflare.com/ajax/libs/popper.js/1.12.3/umd/popper.min.js", integrity="sha384-vfJXu5JpR01rBnz7yo7o841mkf8JqZ1Cq4NCelEa041HwicKwPj9c9Ipfgh", crossorigin="anonymous")
      script(src="https://maxcdn.bootstrapcdn.com/bootstrap/4.0.0-beta.2/js/bootstrap.min.js", integrity="sha384-a1p8k1PF0ecccYV084do5UhbKysX5N2Xm3XxPqe5iK7FLKJNkCk95aVuEZfL3", crossorigin="anonymous")
```

Finally, open up the index.jade and add a bootstrap element to ensure that it is working. A simple element is an alert.

```
div.alert.alert-primary(role="alert") This is an alert!
```

this can be put anywhere in the block content. Use npm start to view that the website is running as expected.

Deliverables: Demonstrate a working Node installation to me or Darryl.