Lab 6
Node.js and Express

CSCI2720 Building Web Applications

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Agenda

- Getting started with Node.js
  - CSCI2720 VM
- Hello World from Express
- Parsing URL parameters
- Obtaining POST parameters

Using Node.js

- You are not able to use Node.js on the lab computers
  - For a web server to be able to serve contents, it has to *listen* on a TCP port, e.g. port 8000
  - You won't be able to access that without administrative rights
- We will use the CSCI2720 VM maintained by CSE Dept techteam
  - Useful for your assignment
  - Also useful for your course project
- You could install Node on your own device too, but please still get the VM environment ready!

CSCI2720 VM

- A special URL for every user…
  - *http://csci2720-g?*
    .cse.cuhk.edu.hk
  - *?* is from 0 (not 00) to 130, different for every user
  - *Note: This is only accessible via CUHK network (e.g. CUHK VPN)*

- Please check your @link email for the account details
  - Username: **s1155xxxxxx**
  - Password: **shown in email**
  - *Check spam/junk box if it's not there!*

SSH to the server

- You have to access the server via SSH with the assigned account (*s1155xxxxxx*)

- On campus/ CUHK VPN
  - Directly SSH to
    `csci2720.cse.cuhk.edu.hk`

Syntax here is: username@server

```
[chuckjee@pc89230 ~ % ssh chuckjee@csci2720.cse.cuhk.edu.hk
[chuckjee@csci2720.cse.cuhk.edu.hk's password:
Welcome to Ubuntu 18.04.5 LTS (GNU/Linux 4.15.0-136-generic x86_64)
```

The VM

- You are given a separate account in this VM
  - Type the command `passwd` to use a memorable password
- Type the command `id` to see your UID, which is the port you will use for Node

Port number assigned = 2000

  - Assigned URL: csci2720-g**?**.cse.cuhk.edu.hk where **?** = *port number – 2000*
    - *e.g.* If your port is 20**29**, your URL is `http://csci2720-g29.cse.cuhk.edu.hk`
    - This is done automatically, so just set the Node port accordingly and visit your assigned URL

Setting up the first JS web app

1. Create a new directory

   `mkdir lab6`

2. Navigate to this directory,

   `cd lab6`

3. Type this command

   `npm init`

   - Accept default answers for all questions with Enter

4. Install Express

   `npm install express`

Hello World from Express

- Set up a new file in this new directory, e.g. `server.js` with the following contents

```
const express = require('express');
const app = express();

// handle ALL requests
app.all('/*', function (req, res) {
  // send this to client
  res.send("Hello World!");
});

// listen to port x
const server = app.listen(        );
```

Your Assigned Port

- Start the server in the directory

  `node server.js`

- Check this out in browser (any one is fine): *http://csci2720-g?.cse.cuhk.edu.hk*

Important!

Make sure you can do this step properly, since you'll also work on the course project in CSCI2720 VM

Parsing URL parameters

- You can read parameters from URL segments using the `:` operator

- You can try to parse the URL like this by adding it before `app.all()`

```
app.get('/event/:eventId/loc/:locId',
   function (req, res) {
      res.send(req.params);
});
```

Default output

← → C ⌂   ⚠ Not Secure | csci2720-g0.cse.c   k.edu.hk/event/123/loc/SHB924

```
{"eventId":"123","locId":"SHB924"}
```

- Can you adjust the `res.send()` contents into this format?

> Event ID: 123
> Loc ID: SHB924

  - You may need a combination of `req.params['eventId']`, text strings, `<br>`, and so on

Obtaining POST parameters

- GET is usually used for the server to deliver contents
- POST is usually for putting up contents to the server
  - Advantage: contents are put inside the request body
- Using the same URL before with **eventId** and **locId**, set up a **POST** rule to accept **loginId** from user

Obtaining POST parameters

- You need to set up an extra *local HTML file* to make this POST request
  - You can open this HTML file directly from your local computer (not the Node system)
  - Inside it there should be a web form
    - Input box (name= `loginId`)
    - Submit button
  - The form `action` should point to the URL on your server
    - *http://csci2720.../event/.../loc/...*
- This should be shown as the response

  Event ID: 123
  Loc ID: SHB924
  Login ID: someone

- *Refer to lecture slides on using POST parameters and getting Node module* **body-parser** *ready*

Quick Summary

- Try your work using the CSCI2720 VM environment
  - You could try on your own device later
  - You may also try *runkit.com*

- A number of techniques are involved in this lab:
  - Node.js + Express
  - HTML form, HTTP GET/POST

- It is very easy to get lost

- It is likely you get confused by syntax in server JS of Node.js

- ***Thank you for your patience!***

Submission

- No submission is needed for labs

- What you have done could be useful for your further exploration or the upcoming assignment

- **Please keep your own code safely**