Node.js Express

Team on a Cob
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What is Express.js?

- Express is framework middleware for node.js. It helps with building and designing web applications.
- This minimalist framework is used mostly for organizational purposes, a few examples being: routing, handling requests and templating.
- Competitors
  - Koa
  - Hapi
  - Restify

Alternative Framework: Ajax

Similarities: Both JavaScript

Differences:

- Ajax deals with client side technology / front end exclusively
    - Updating areas of a html file without requiring a refresh
        - Process: XML(front end event) sends a request to server, server then responds, response is read/executed through JavaScript
    - Requires JavaScript entirely (what happens if a user views page with this disabled?)
- Node js / Express deals with server-side technology
    - Through the use of routing, express allows for json data to be transferred on the page upon rendering
    - Very open to many formats: html, pug, etc.

Our Implementation of Express

We use the following major features from Express:

1) Rendering of pug files
   a) This allows for dynamic data to be displayed on web pages
      i) Myworkouts page
      ii) View athlete/team pages
2) Handles our routing/redirection needs
   a) Combined with passport, this offers limited access of pages
3) Downloading of clustered information stored on our database
   a) One simple line can execute a very sophisticated process
      i) Most of the excess code is assisting with error checking and CSV formatting

Routing Example

```javascript
// Submit a Bug
router.get('/buggy',
        function(req, res){
            if(req.isAuthenticated()){
                res.render('buggy.pug');
            } else {
                res.redirect('/');
            }
});

// Coach/Trainer Page
router.get('/coaches',
        function(req, res){
            if(req.isAuthenticated()){
                res.render('coaches.pug');
            } else {
                res.redirect('/');
            }
});
```

(Advanced) Using Express to Download Files:

```
1   function dump(team,objArray, res)
2   {
3           if(typeof objArray == 'object'){
4               var array = typeof objArray != 'object' ? JSON.parse(objArray) : objArray;
5               var str = '';
6               for (var i = 0; i < array.length; i++){
7                   if(i == 0){
8                       str += 'athlete,date,sleep,health_status,Illness,Injury,percent_health,cycle_start,RPE,time,distance,notes,workoutID\r\n';
9                   }
10                  var line = '';
11                  for (var index in array[i]) {
12                      if (line != '') line += ','
13
14                      line += array[i][index];
15                  }
16                  str += line + '\r\n';
17              }
18
19              console.log(str);
20              filesystem.writeFile('datadump.csv', str, function (err) {
21                if (err) throw err;
22                console.log('It\'s saved!');
23                res.download('datadump.csv', 'datadump.csv');
24              });
25          }
26
27          else{
28              if(team==true) res.render('admin_data_dump_b.pug');
29              else res.render('admin_data_dump_a.pug');
30          }
31  }
```