1.3 Exercise Walkthrough: Use NodeJS to Find the Largest Salary

Now that we have seen how to access data using URLs and looked at a dataset to see how we can understand what a dataset looks like, let's add some programming to that data for our own data analysis.

Step 1: Open your browser and click on the following link.
https://pollysnips.s3.amazonaws.com/bostonEmployeeSalaries.json

Step 2: Install NPM and Node.js on your computer
For this exercise we will need to use the NodeJS program. This allows us to run JavaScript code outside of the web browser and will allow us to use our computer to launch a web server to interact with. If you have not yet installed NodeJS, follow the links below to install them on your machine:

MacOS:
https://www.youtube.com/watch?v=LsJCpUKAGec

Windows:
https://www.youtube.com/watch?v=NkItYI7AwA4

We also recommend installing the VSCode editor to view the code in a simple-to-read format. If you are familiar with other code/text editors, you may use these but we do not recommend using a Word Processing program.

MacOS:
https://www.youtube.com/watch?v=-5XHAWfNPy8

Windows:
https://www.youtube.com/watch?v=bunXy8xX0Mg

Step 3: Install the NodeJS packages needed to run the program
Using either the NodeJS command prompt or the terminal in MacOS/Linux, navigate to the directory where you will create the JavaScript file for this exercise.

Install the required package from npm by entering in the command prompt:

npm install node-fetch –save

Node fetch is a npm library that helps fetch data from the URL. You can learn more about the library here - https://www.npmjs.com/package/node-fetch

Now we will add the following code to a new file that we will call “index.js”, create this file in VS Code:

```
var fetch = require('node-fetch');
// async function
async function fetchAsync () {
// await response of fetch call
let response = await fetch('https://pollysnips.s3.amazonaws.com/bostonEmployeeSalaries.json ');
// only proceed once promise is resolved
let data = await response.json();
// only proceed once second promise is resolved
return data;
}
// trigger async function
// log response or catch error of fetch promise

function findMaxSalary(data){
  // data.data[0] is the entry for the first person in the database. If we look at this array from the data, we see entry 18 (starting from 0) is the salary
  let maxSalary = 0;
  let indexOfMax = 0;
  for(var i=0; i<data.data.length; i++){
    if(Number(data.data[i][11])>maxSalary){
      maxSalary=Number(data.data[i][11]);
      indexOfMax=i;
    }
  }
  console.log('Maximum Salary Found:',maxSalary, indexOfMax);
}

fetchAsync()
 .then(data => findMaxSalary(data))
 .catch(reason => console.log(reason.message));
```

Save this file and open a command prompt in the folder where this file is saved to run this file:

node index.js

This will take a moment to complete and you will see the maximum salary found and the index of that employee. Have a look to see who that is!