

# CS4220 Node.js & Angular.js

**Introduction of Node.js - Week 4**

# What is Node.js?

Node.js is a platform. The creators of Node.js took JavaScript and allowed it to run on your machine. It's built on Chrome's V8 JavaScript runtime.

The main idea is that Node.js uses an event-driven, non-blocking I/O model to remain lightweight and efficient

# What Node Achieves

One of the more difficult problems in writing systems that communicate over a network is managing input and output — that is, the reading and writing of data to and from the network, the hard drive, DBs and other such devices.

Node was initially conceived for the purpose of making ***asynchronous*** I/O easy and convenient.

# Where Node.js Excels

Any place where we can perform asynchronous I/O - reading and writing to network connections, reading/writing to the filesystem, and reading/writing to the database.

All of these are common tasks in web apps and execute very fast in Node.

- JSON APIs
- Web Apps
- Command Line Utilities/Apps
- Chat Apps

# Modules

Node.js puts little functionality in the global scope.

If you want to access other built-in functionality, you have to ask the module system for it.

# require

Node.js follows the CommonJS module system, and the built in `require` function is the easiest way to include modules that exist in separate files.

The basic functionality of `require` is that it reads a javascript file, executes the file, and then proceeds to return the exports object.

# Node Core Modules

## File System

- Handles File I/O

```
const fs = require('fs')
```

## HTTP/HTTPS

- Interfaces designed to support features of the http or https protocol.

```
const http = require('http')
```

```
const https = require('https')
```

# module.exports

The basic functionality of `module.exports` is that it allows a variable, object, function, etc to be exported and used in another file.

```
module.exports.year = 2015
```

```
module.exports.addTwo = (n) => {  
  return n + 2;  
}
```



# NPM

npm (Node Package Manager) is the default package manager for Node.js.

npm is bundled and installed automatically with the node. npm manages dependencies for an application.

<https://www.npmjs.org/>

# NPM Basics

```
npm init
```

// assist in creating the package.json.

```
npm install
```

// installs all modules in the package.json - installed in the node\_modules directory.

```
npm install --save <module-name>
```

// installs the module by name and auto-magically adds it to package.json.

```
npm uninstall --save <module-name>
```

// removes the module by name and auto-magically removes it to package.json.

# Reading & References

## Chapter 20 Eloquent JavaScript

[http://eloquentjavascript.net/20\\_node.html](http://eloquentjavascript.net/20_node.html)