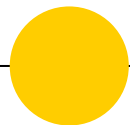# CS4220 Node.js & Vue.js

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Node.js CLIs & APIs

Command Line Interfaces (CLI)

Command-line Interfaces or Command-line Applications, are programs designed to be used from the terminal/command-prompt. Command-line applications usually accept inputs as arguments. Additionally, they can accept options, often referred to as flags.

Examples:

- npm
- git

What is NPM?

NPM is the world's largest software registry. Open source developers use npm to share packages. And many organizations use npm to manage private development as well.

In short - NPM is a package manager for Node.js.

The goal is for automated dependency and package management. This means that you can specify all of your project's dependencies inside a `package.json` file.

With package management - any time you or someone else needs to run or work on the project - all they need to do is run `npm install.` Then they will have all of the dependencies installed automatically..

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.

Node Command Line Args

`process.argv`

Returns an array containing the command line arguments passed when the Node.js process is run.

- The first element will be the Node.js executable path.
- The second element will be the path to the .js file being executed.
- The remaining elements will be any additional command line arguments.

```
const args = process.argv
console.log(args)
```

APIs

APIs (application programming interfaces) are a big part of web apps.

The four methods most commonly seen in APIs are:

GET - Asks the server to retrieve a resource

POST - Asks the server to create a new resource

PUT - Asks the server to edit/update an existing resource
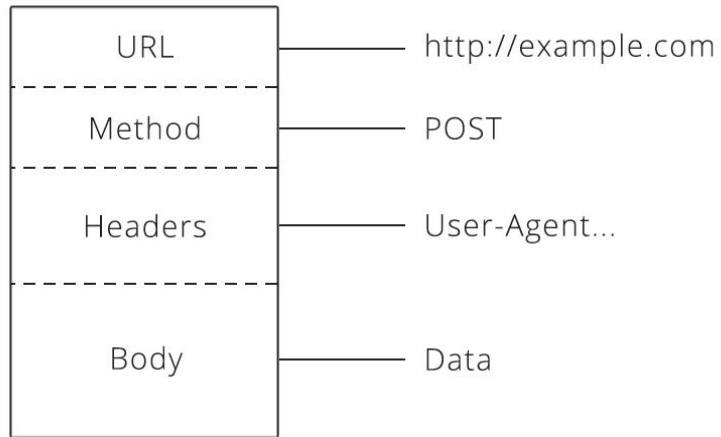
DELETE - Asks the server to delete a resource

APIs - Req/Res

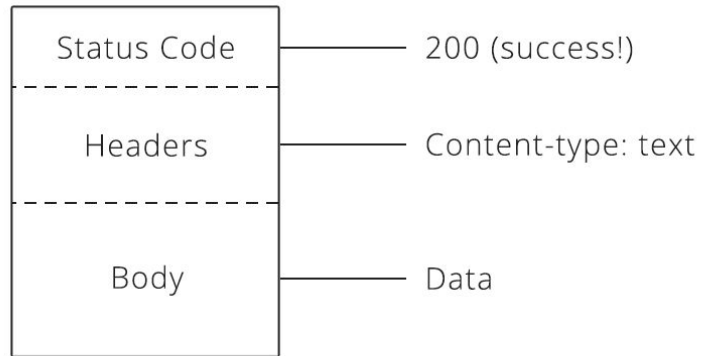Communication in HTTP centers around a concept called the Request-Response Cycle.

The client sends the server a request to do something. The server, in turn, sends the client a response saying whether or not the server could do what the client asked.

APIs - Req/Res

URL	http://example.com
Method	POST
Headers	User-Agent...
Body	Data

Request

Status Code	200 (success!)
Headers	Content-type: text
Body	Data

Response

JSON

APIs have adopted JSON as a format because it's built on the JavaScript, which is found everywhere on the web and usable on both the client side and server side of web apps.

JSON is a very simple format that has two pieces: keys and values. Keys represent an attribute about the object being described.

Reading & References

Chapter 18 Eloquent JavaScript

http://eloquentjavascript.net/18_http.html

Intro to NPM Packages

https://docs.npmjs.com/files/package.json#dependencies

Intro to APIs

https://zapier.com/learn/apis/chapter-1-introduction-to-apis/