
LESSON 4: NODE, OAUTH, FACEBOOK API

NODE

- ▶ Node takes the JS engine (V8) that is in Chrome, and ports it to run directly on Windows or Mac.
- ▶ This means you can run JavaScript directly on your computer, outside of a browser.
- ▶ This also means you can use JS to do things you can't do with a browser, like read/write files, or start an HTTP server.
- ▶ Node is best installed with a program called NVM. This keeps you from needing admin access.

YARN (OR NPM)

- ▶ Yarn/NPM are what we call package managers. They allow us to quickly and easily download external libraries for use in our Node projects.
- ▶ This prevents us from needing to use `<script>` tags, or HTML pages at all.
- ▶ It is very powerful, but you can also run into problems with dependencies (Package A you download uses Package B, and package B has recently been updated).

INSTALLING NODE WITH NVM

- ▶ NPM comes with Node, and yarn can be installed with NPM. The first step is getting NVM downloaded, which you can do here:
 - ▶ <https://github.com/creationix/nvm>

USING NODE + YARN

- ▶ To run a node script, in the terminal type `node <scriptname>` i.e. `node myproject.js`
- ▶ To download and install Yarn globally (you don't want to download it for every project), type `npm install yarn -g`
- ▶ After this, to start a new node project in a folder, `cd` to that folder in terminal and type `yarn init`
- ▶ To add packages to the project, type `yarn add <package name>`

WHY BOTHER?

- ▶ Can let us run servers using JS, so we can write all our code in one language.
- ▶ Some APIs and SDKs require that they be served from a domain, and you can't just open an HTML file to use them. Facebook is one such SDK :).
- ▶ It makes pulling in libraries and using them very simple, which allows us to focus on writing our app rather than helper functions.
- ▶ There is a number of ways we can then bundle up all the code and actually use it in the browser, so it makes writing client-side apps easier!

OAUTH

- ▶ OAuth is a specification describing a method for third-party applications to have access to a user's data on another service.
- ▶ Key example is Facebook...you can authorize another application to access YOUR Facebook data on your behalf.
- ▶ Strictly speaking, OAuth is only used for authorization, not authentication, but many providers like Facebook/Google provide both.

AUTHENTICATION VS AUTHORIZATION

- ▶ Authentication - Are you who you say you are?
 - ▶ Checks if the user is "authentic".
- ▶ Authorization - Are you allowed to do what you are trying to do?
 - ▶ Authentication usually happens first

EXAMPLES OF WHAT HAPPENS

- ▶ No authentication, no authorization - Identify yourself/
Access denied
- ▶ No Authentication, authorized - public resource, anyone
can do anything
- ▶ Authenticated, not authorized - Access denied
- ▶ Authenticated, Authorized - Request successful

OAUTH FLOWS

- ▶ OAuth describes 4 types of roles:
 - ▶ Third party app, or "Client". This is our web app.
 - ▶ Resource Server, the server that has the data
 - ▶ Authorization Server, the server which will authorize access to the data. Can be the same as the resource server.
 - ▶ Resource owner, or user. The actual person the data belongs to

END RESULT

- ▶ For the purposes of this class, we only really care about one OAuth flow, even though there are many grant types.
- ▶ At the end of the day, what happens is our app redirects a user to Facebook, they login, and our application gets back an access token. Our app can then use this access token to access that user's Facebook data until the token expires.
- ▶ The user has complete control of what data they allow our app to access
- ▶ The FB SDK handles most of this.

FACEBOOK SDK

- ▶ Unlike Google maps, you can't just get an API key. You must register each and every app that wants to use the Facebook SDK with Facebook.
- ▶ For this lesson, we can all use the App ID I have created. Normally, it would not be advised to share around your App ID.
- ▶ We also need to run the examples from a node server because the Facebook SDK requires requests to come from an approved domain. You cannot just open an HTML file.

SIMPLE, BUT HARD TO DO RIGHT

- ▶ OAuth appears to be straightforward, but can be really difficult to implement properly.
- ▶ I would recommend not trying to implement your own OAuth server, or using the Facebook flow from scratch. Use the provided SDK.
- ▶ You can also use Facebook Login to secure data on your own server for an app, but that is a different topic.
- ▶ For this class we will simply be using the Facebook SDK to login and read/write user data from our application.

GRAPH API

- ▶ Once we login, we want data. This is where Facebook's Graph API comes in.
- ▶ The Graph API is how we access posts, friends, images etc.
- ▶ Again, we can do this all with the SDK which manages the access token for us.