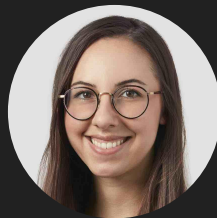# Rapid Prototyping

with Node.js and Express

Hello!

I'm Kelsey, a Software Engineer at Squarespace, where I develop business products that empower small businesses.

Why Rapid Prototyping?

What we'll build today

Restaurant Roulette: Looking for coffee, dinner, or something in between? Let our app make the decision for you - we'll select a single destination based on your search query.

What we'll cover

0.5.   Environment Setup

1.   Hello World Node server

2.   API integration with Foursquare's API

3.   Project structure - move away from a single-file project

4. Building a Front End with a Templating Engine

5. Free exploration - build more on your own

6. More resources for expanding your project

Environment Setup

www.github.com/kelseyfrose/wsc-workshop

What's Node.js?

Node is a way to run server-side Javascript

"Javascript everywhere" philosophy

- Write an entire web app in one language, server and client-side

What's npm?

npm is a package manager for Javascript. It allows you to easily install Javascript packages into your project as dependencies.

When you install a new Javascript package using npm, it downloads the package into a folder called `node_modules`

It uses a file called `package.json` to keep track of your dependencies and other details about your project.

Hello World!

npm install

From inside your project directory, run

```
$ npm install
```

This will install all of the dependencies inside package.json

Next, try installing a new dependency:

```
$ npm install lodash --save
```

Lodash is a popular Javascript utility package. Now see package.json, which has lodash under dependencies

DEMO

Automatic server restarts

Optional but recommended

```
$ npm install -g nodemon

$ nodemon index.js
```

API Integration

Playing with third party data

Integrating with a Third Party API

- We'll use Foursquare's sandbox API to get venue data in the area

- You will need developer credentials- a *client id* and a *secret*

- To get credentials, you can create a free account or sign into an existing Foursquare account

    - https://developer.foursquare.com/

You DON'T have to enter your credit card info to use a sandbox account - dismiss if it comes up

Axios for HTTP requests

Axios is a HTTP client for Node.js and the browser

We'll use it to make API requests - GET/POST/PUT/DELETE

async/await

- A way to handle asynchronous requests in Javascript

- HTTP requests are asynchronous - we have to wait for the server to respond

- `async` placed before a function definition indicates that the function is asynchronous

- `async` functions must be called with `await` preceding the function call

DEMO

Adding Project Structure

Expanding from index.js

Adding a Router

- One file that handles and routes HTTP requests
- Takes in the path and a handler that is called when that path is requested

```
router.get('/', (request, response) => {

    response.send('Hello World');

});
```

Router- using path params

```
 7  router.get('/:query', ████████ (req, res) => {
 8      const query = req.params.query;
 9
10      do_thing_with_query(query);
11  });
```

Query Params vs Path Params

PATH PARAM

localhost:8000/matcha

QUERY PARAM

localhost:8000?query=matcha

Adding an API file

- Separate out the API logic (calling Foursquare)

Adding a Venue file

- Separate out the venue data manipulation

DEMO

Adding a Front End

Templating Engines

Using Pug

- There are a few different templating engines you can use with Express - we'll use Pug today
- Templating engines allow you to pass data to a View and render it

DEMO

Free Exploration

Expand on your app

Options

- Explore Foursquare's API and develop a new feature with it

- Expand on our venue randomizer - add photo, styling, etc.

- Whatever you want!

Resources for Expanding your Project

Expose your local server to the public internet

- Setting up hosting is time consuming, but sometimes you need your server to be visible to the outside world temporarily

- Ngrok or localtunnel solve this problem and are lightweight to set up

- I prefer localtunnel because it's free to choose a subdomain

Rapid Prototyping with Databases

- If you want to test out an idea quickly, adding a database to your app can add a lot of overhead
- Using a "lightweight" database can help with prototyping an idea
  - NeDB - lightweight MongoDB
  - Sqlite - lightweight SQL
- These use your filesystem to save data instead of using a full-fledged database

Thank you!

p.s. we are hiring. come talk to me!
careers.squarespace.com