

“Cry ‘Havoc!’, and let slip the dogs of war”  
– Shakespeare on docker swarm deployment

## The Write-Up

The final project was the extension of our homework assignments, in which we've implemented additional things on top of the existing functionality.

Structurally, the application is the collection of microservices (on the back-end), each of which is responsible for either querying the external APIs, talking to the databases or simply being the letter ‘C’ as in *MVC*. For almost every microservice there was implemented a corresponding React component on the front-end. For the most part, these React components don't have their own state, and instead they use Redux to store and update the state.

### Technological stack:

#### Front-end:

- React
- Redux

#### Back-end:

- Express
- MongoDB (in some cases – with Mongoose models)
- Redis
- Websocket

A great deal of help was working together as a team: without our collaboration, we wouldn't be able to get that far and to achieve these results by working separately. If someone got stuck with something, we would try to help him out by troubleshooting the issue or suggesting a potential solution.

### Challenges encountered:

A part of the difficulty was “marrying” the front-end with the back-end: for example, after finishing implementing the *MongoDB* backend for the *lookupmusicband* microservice (with help of *Mongoose* models), we had to make sure that we interacted with that back-end only from the actions file on the front-end, and kept track of all the necessary data in *Redux* state. That is a quite comprehensive work, and after completing that once, we've realized that all these steps would

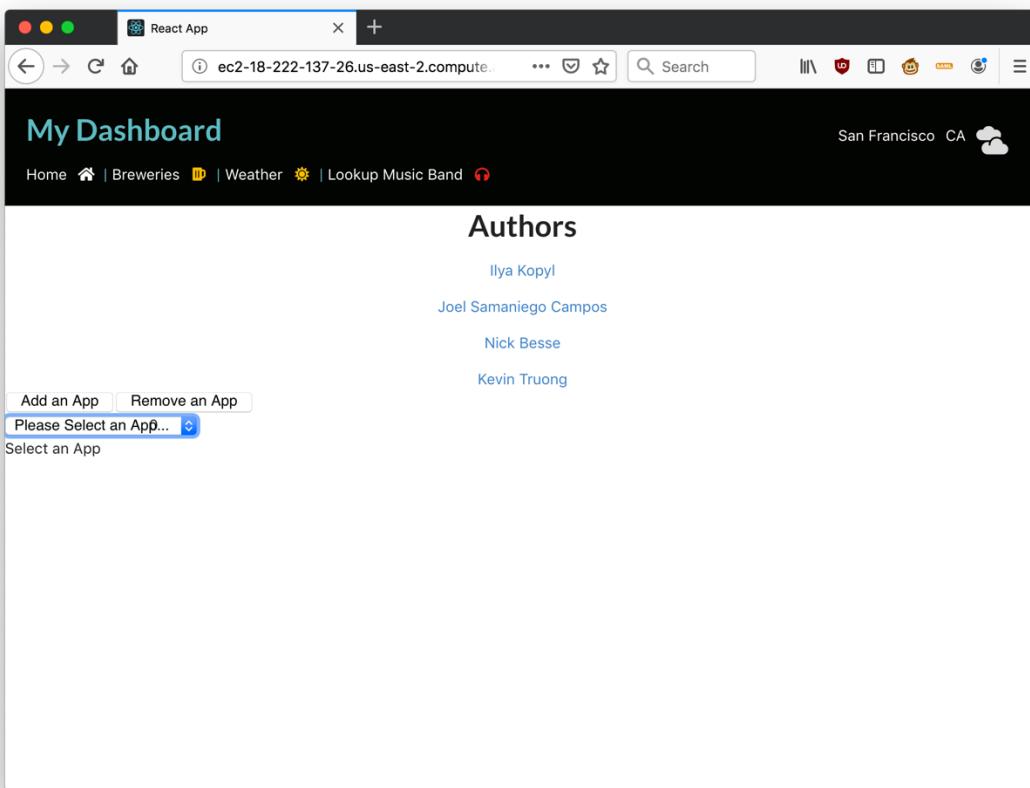
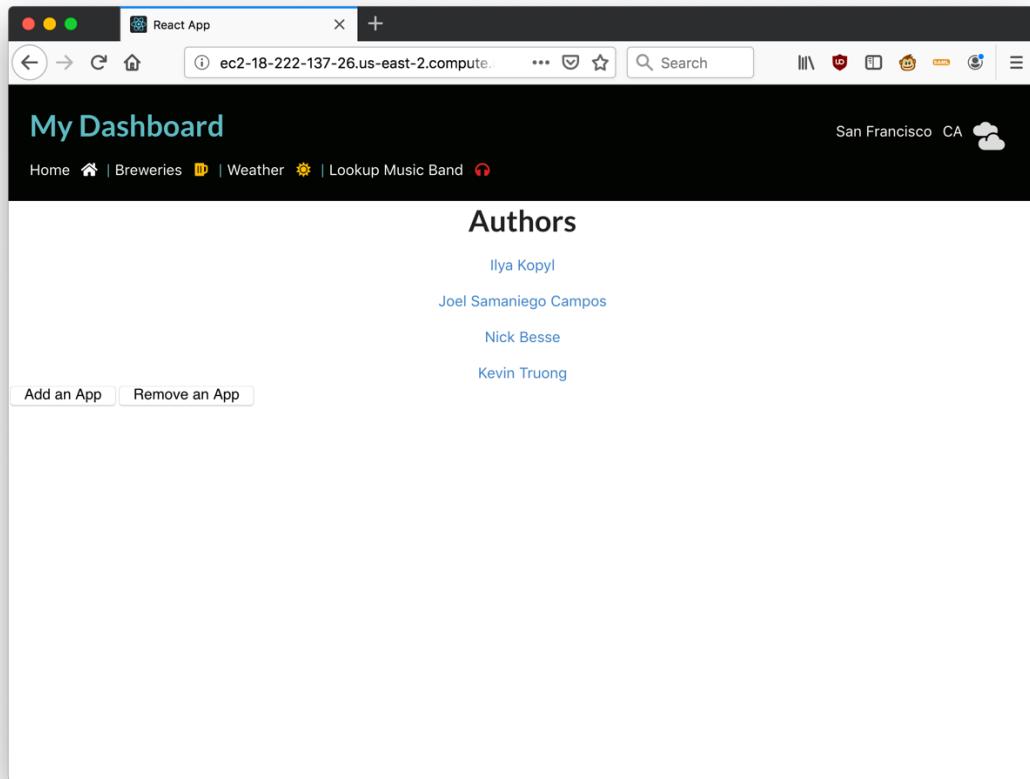
need to be repeated for the second microservice/feature, and so on, and seemed at times that with the chosen architecture we had a very verbose implementation, and with the little experience on design patterns that we had, it was hard to tell if something that we were doing was correct or if it was an anti-pattern.

Another difficulty was taking some time to wrap our heads around the proper way of containerizing our entire application and creating separate Docker images for front-end, gateway, and each microservice, as well as *Redis* and *MongoDB*. After spending a couple of days to replace any hard-coded values to environment variables, we were able to see the first results, but still needed to do some troubleshooting to double check that all the ports and environment variables in all the files were specified correctly. Once we were able to successfully run a docker swarm on my local machine, we didn't have any difficulty of deploying it to *AWS*: we just copied over the *docker-compose.yml* file via *scp*, and ran *docker-compose pull*.

The application is currently running live on EC2 instance on AWS, and can be accessed on the following link:

<http://ec2-18-222-137-26.us-east-2.compute.amazonaws.com/>

## Screenshots:



React App | ec2-18-222-137-26.us-east-2.compute...

## My Dashboard

San Francisco CA

Home | Breweries | Weather | Lookup Music Band

### Authors

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Add an App  Remove an App

Messenger  0

2  
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12  
2  
asd  
a  
asd  
123  
12312  
An apple a day keeps a doctor away

Submit

React App | ec2-18-222-137-26.us-east-2.compute...

## My Dashboard

San Francisco CA

Home | Breweries | Weather | Lookup Music Band

Please Select a Value...  Please enter a city name  Submit

Brewery Name	City	State	Address	Type of Brewery	Phone Number
Add an App <input type="button"/> Remove an App <input type="button"/>	Messenger <input type="button"/> 0				
2 1 12 2 asd a asd 123 12312 An apple a day keeps a doctor away					

Submit

React App

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## My Dashboard

San Francisco CA 

Home  | Breweries  | Weather  | Lookup Music Band 

Please Select a Value...  Please enter a city name  Submit

Brewery Name	City	State	Address	Type of Brewery	Phone Number
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Add an App  Remove an App

React App

ec2-18-222-137-26.us-east-2.compute...

## My Dashboard

San Francisco CA 

Home  | Breweries  | Weather  | Lookup Music Band 

By City  New Orleans  Submit

Brewery Name	City	State	Address	Type of Brewery	Phone Number
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Add an App  Remove an App

React App

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My Dashboard

San Francisco CA 

Home  | Breweries  | Weather  | Lookup Music Band 

Brewery Name	City	State	Address	Type of Brewery	Phone Number	
Gordon Biersch Brewery Restaurant - New Orleans	New Orleans	Louisiana	200 Poydras St	brewpub	5045522739	<input type="checkbox"/>
Wayward Owl Brewing Company	New Orleans	Louisiana	3940 Thalia St	micro	5048271646	<input type="checkbox"/>
Dixie Brewing Co Inc.	New Orleans	Louisiana	6221 S Claiborne Ave Ste 101	contract	5048228711	<input type="checkbox"/>
Dixie Brewing Company, LLC	New Orleans	Louisiana	1450 Poydras St Ste 580	contract	5059176071	<input type="checkbox"/>
Brieux Carre Brewing Company	New Orleans	Louisiana	2115 Decatur St	micro	5043044242	<input type="checkbox"/>
Crescent City Brewhouse	New Orleans	Louisiana	527 Decatur St	brewpub	5045220571	<input type="checkbox"/>
Royal Brewery	New Orleans	Louisiana	7366 Townsend Pl Ste B	micro	5044158444	<input type="checkbox"/>
Parleaux Beer Lab	New Orleans	Louisiana	634 Lesseps St	micro	5047028433	<input type="checkbox"/>

React App

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My Dashboard

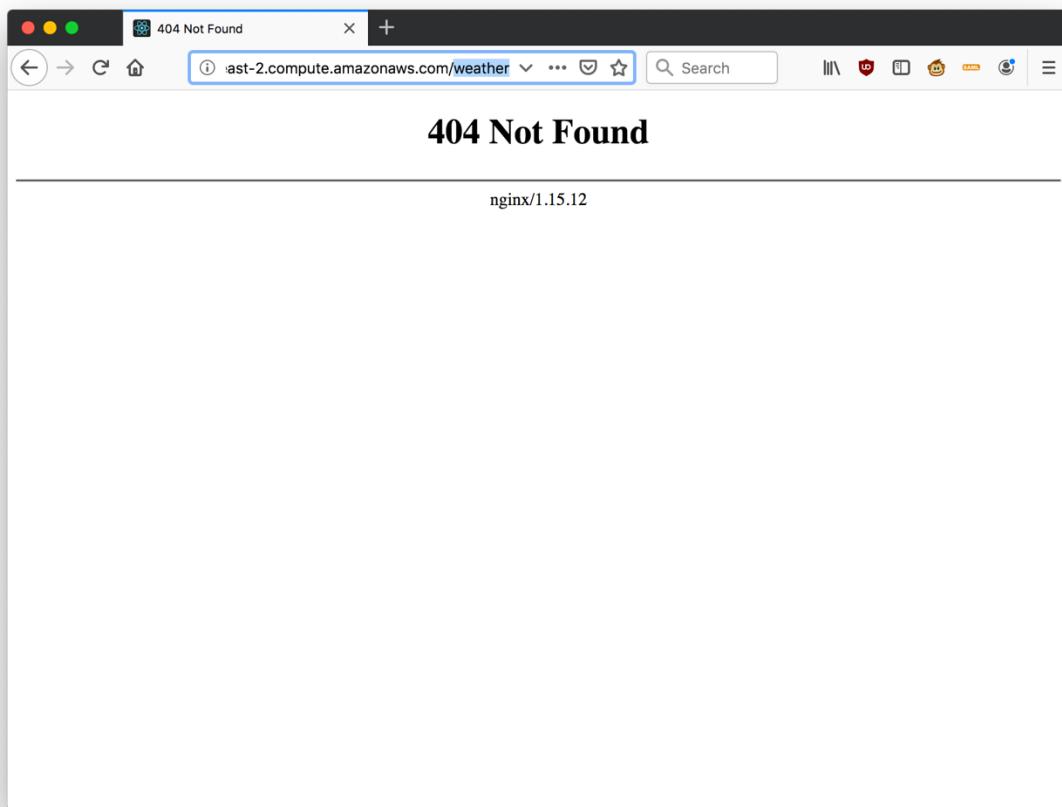
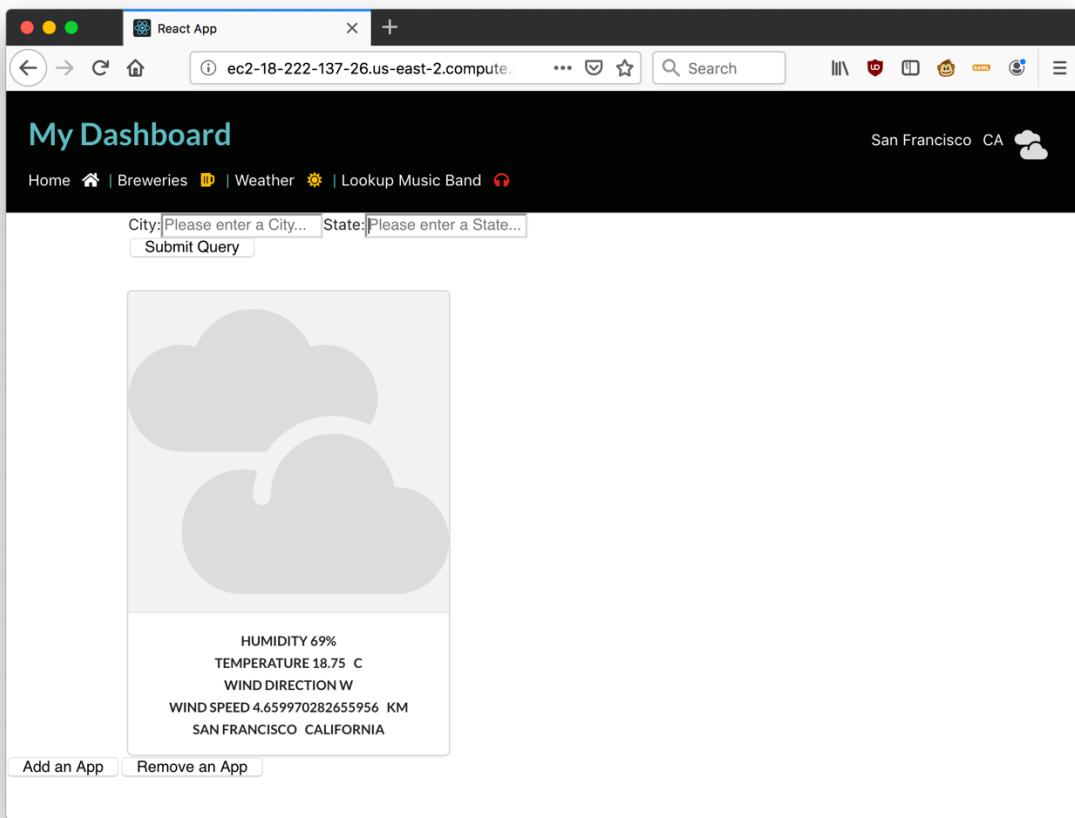
San Francisco CA 

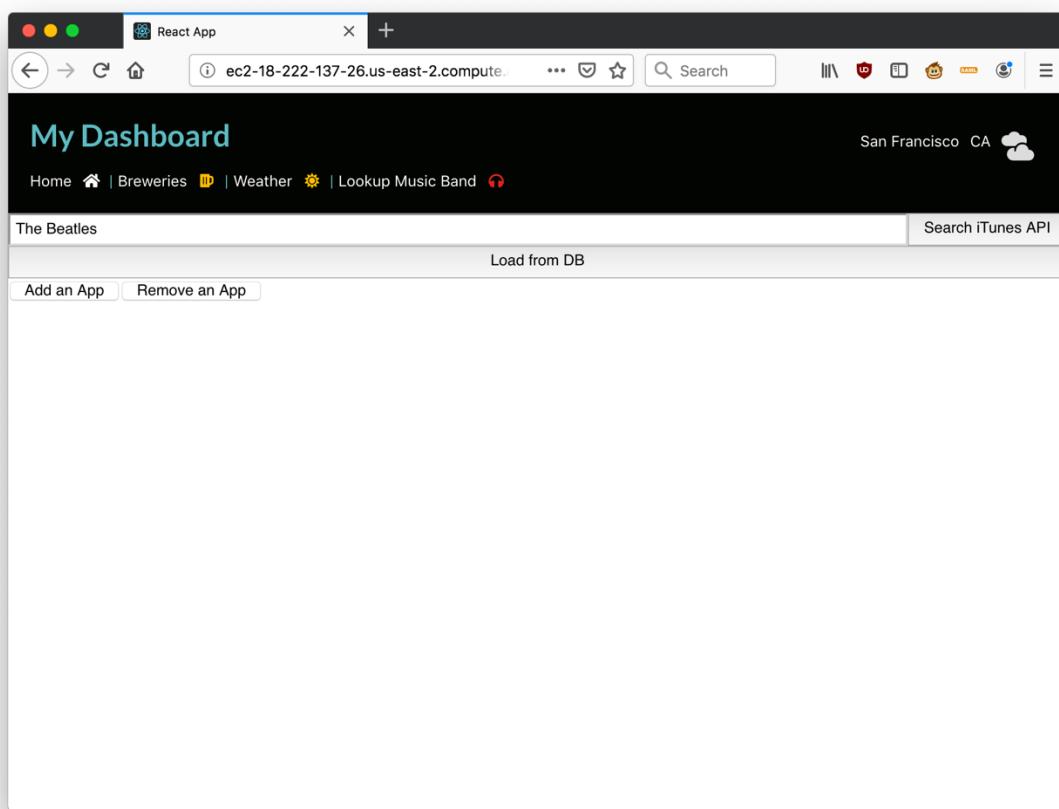
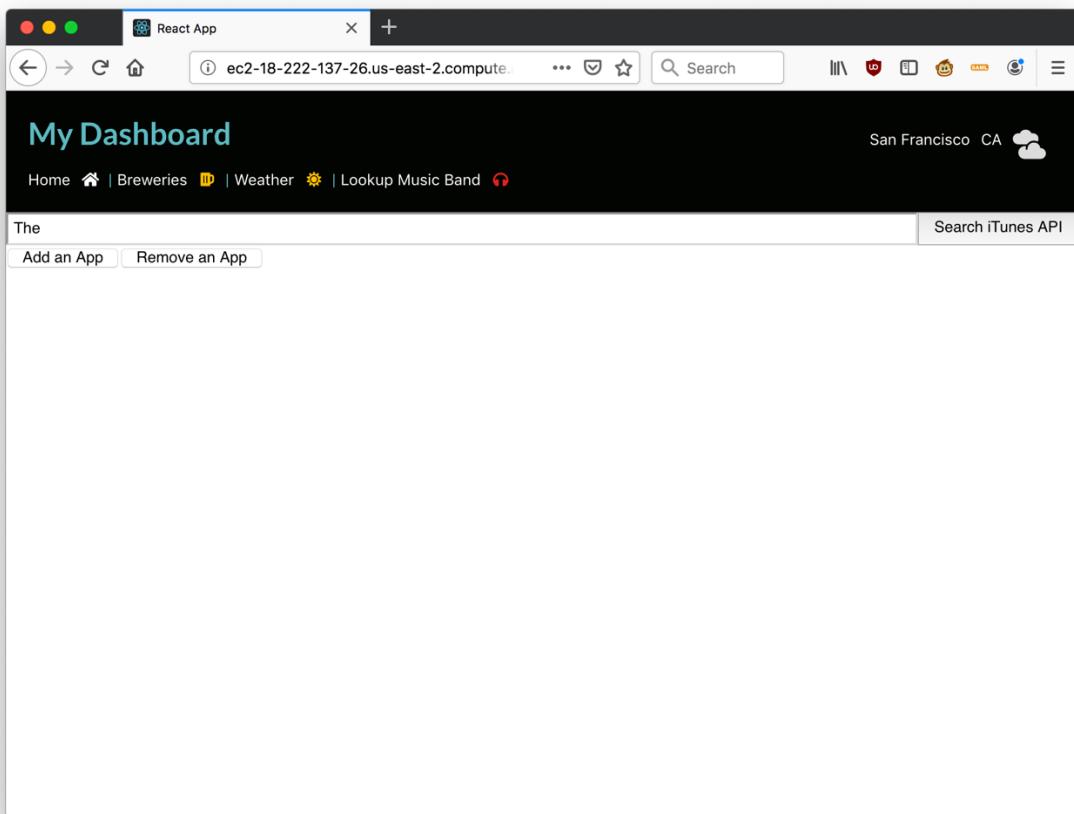
Home  | Breweries  | Weather  | Lookup Music Band 

City:  State:



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WIND SPEED KM





React App

ec2-18-222-137-26.us-east-2.compute...

San Francisco CA

My Dashboard

Home | Breweries | Weather | Lookup Music Band

Frank Zappa| Search iTunes API

The dashboard shows a search result for "Frank Zappa" with a placeholder image. A button "Search iTunes API" is visible.

React App

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San Francisco CA

My Dashboard

Home | Breweries | Weather | Lookup Music Band

Please enter a band name...| Save to DB| Search iTunes API

The dashboard shows a search result for "Please enter a band name..." with a placeholder image. A button "Save to DB" is visible.