"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

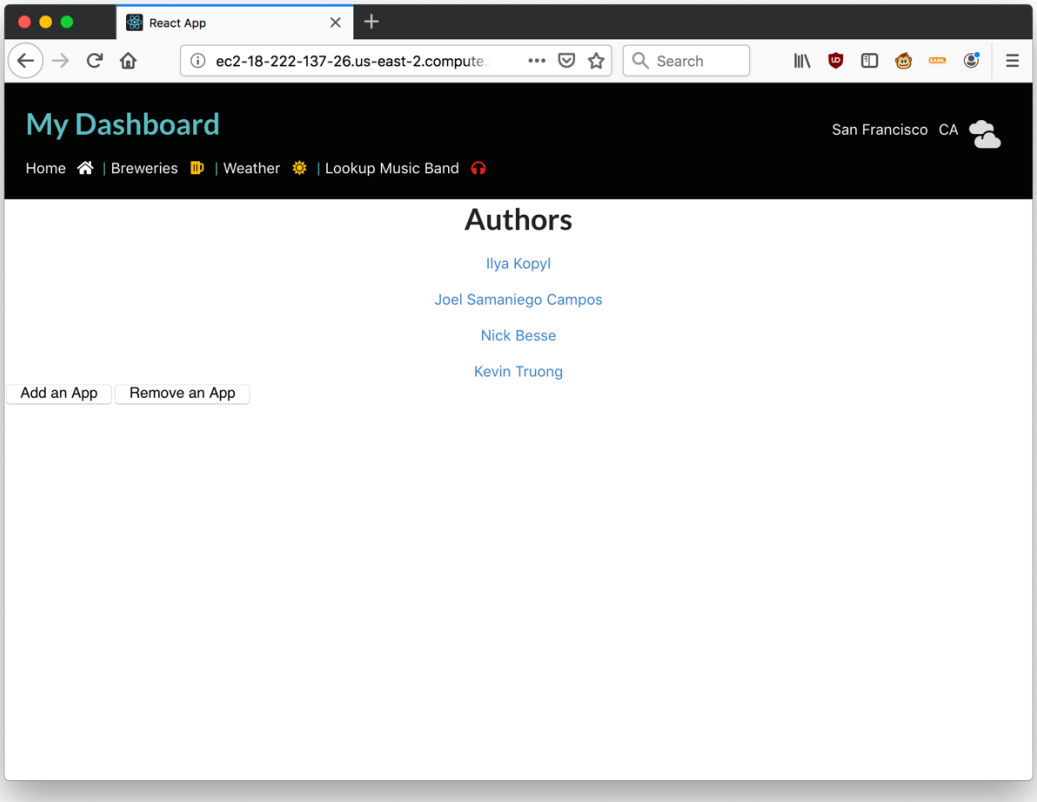
need to be repeated for the second microservice/feature, and so on, and seemed at times that with the chosen architecture we had a very verbose implementation, and with the little experience on design patterns that we had, it was hard to tell if something that we were doing was correct or if it was an 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
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Authors
Ilya Kopyl
Joel Samaniego Campos
Nick Besse
Kevin Truong
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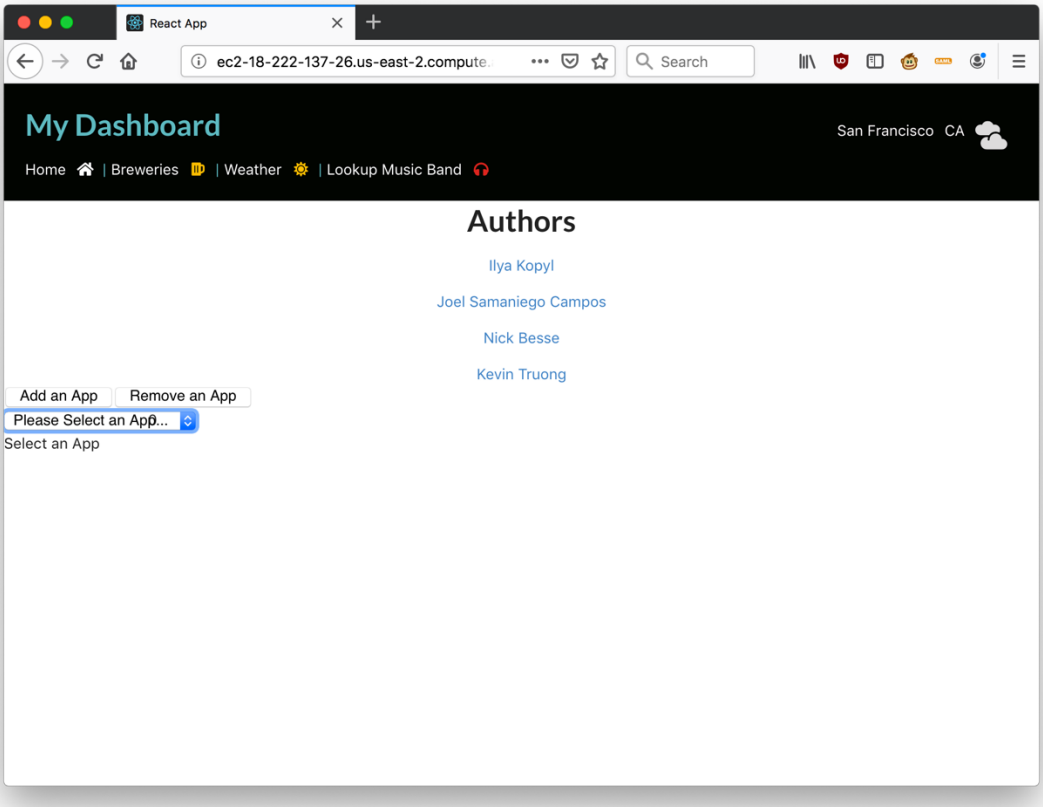
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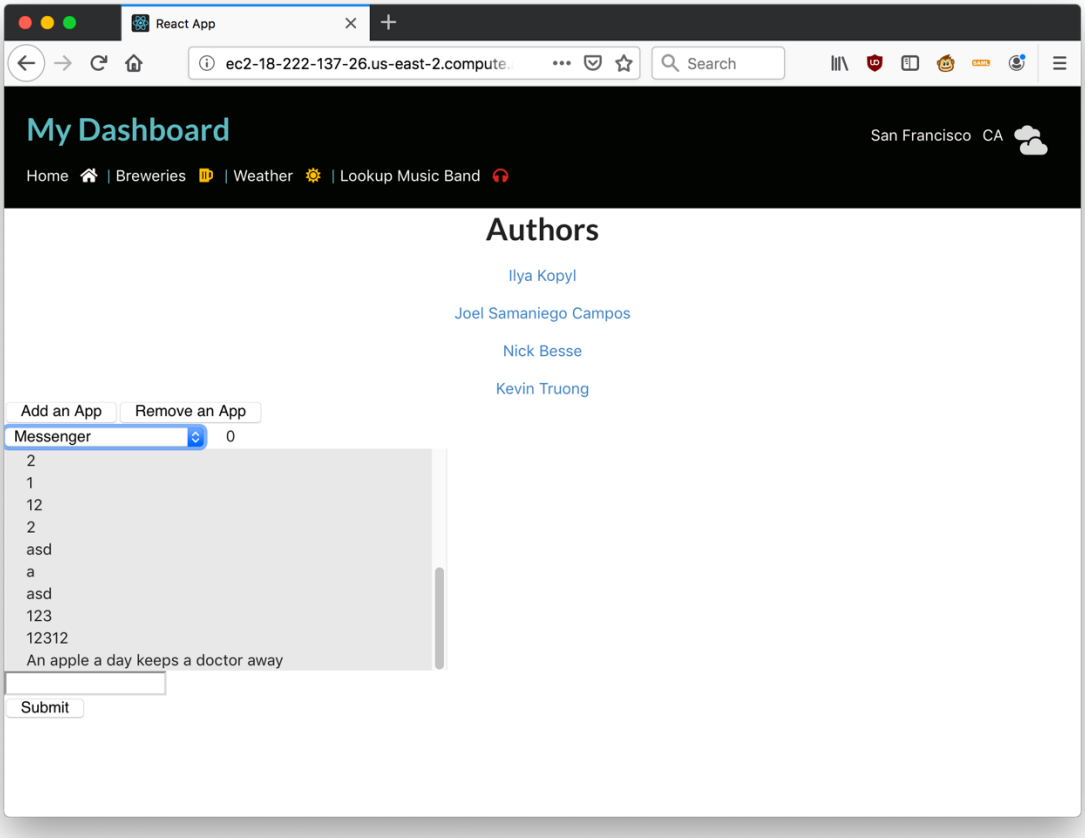
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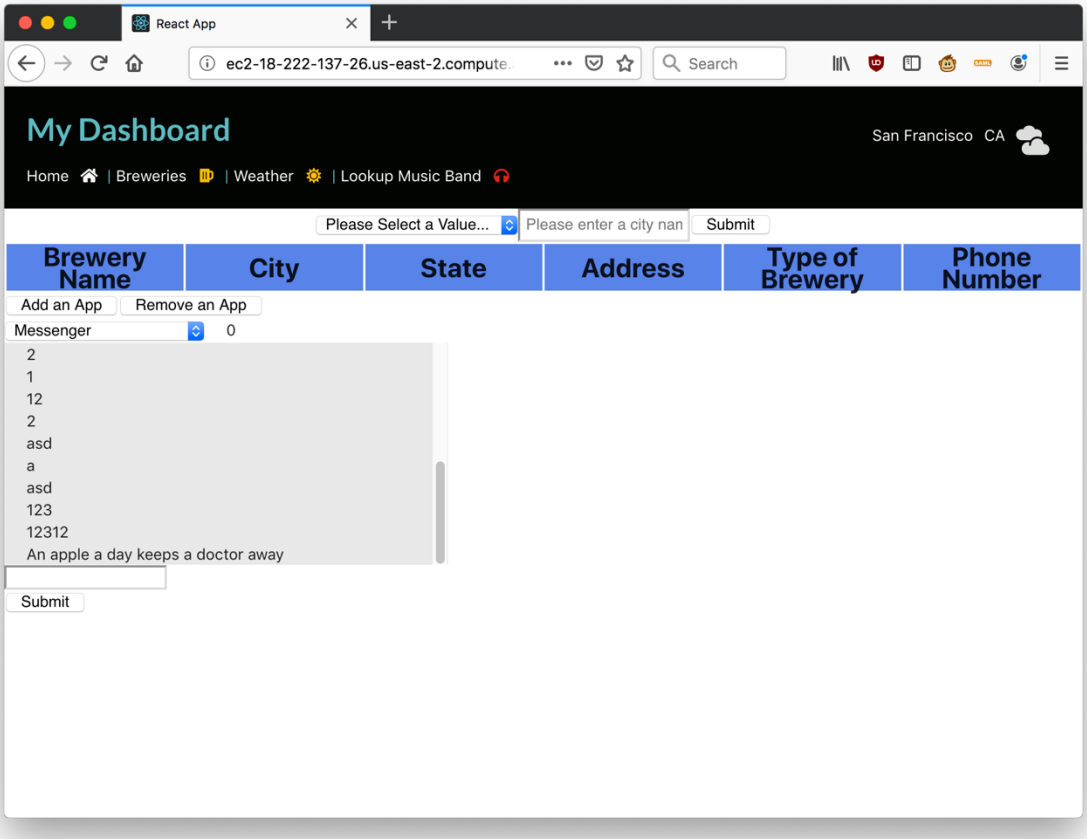
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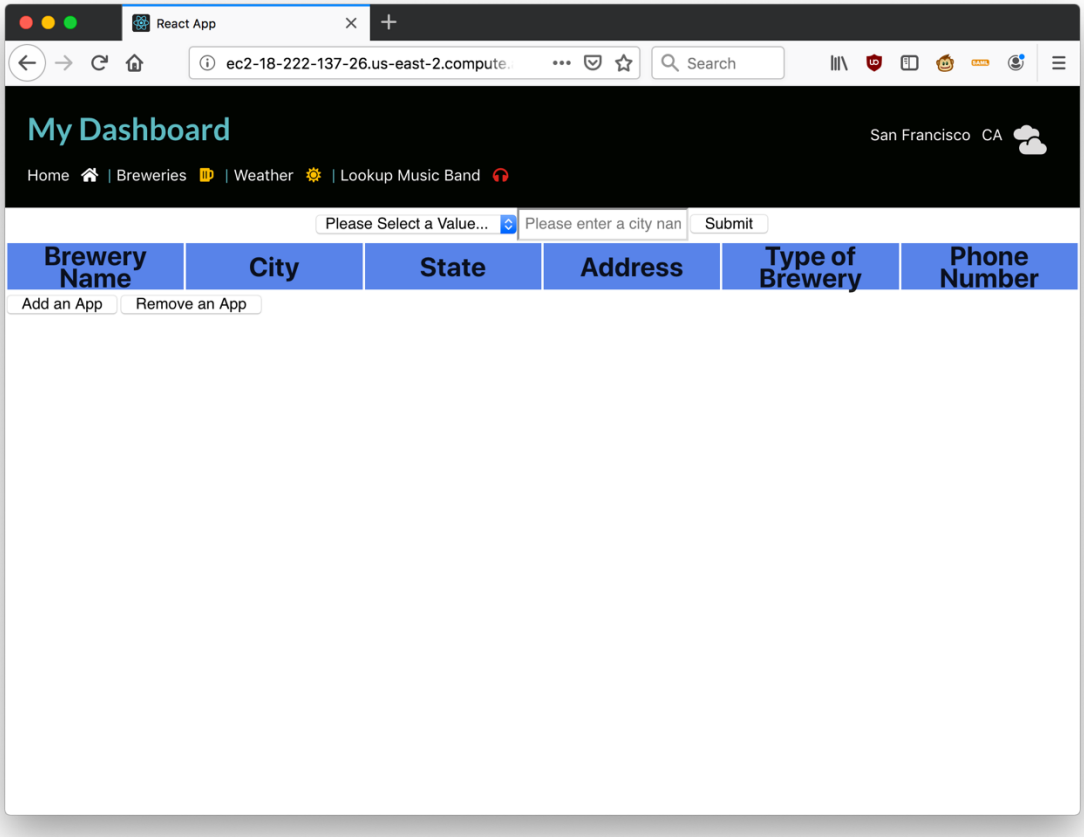
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Type of Brewery
Phone Number
Add an App
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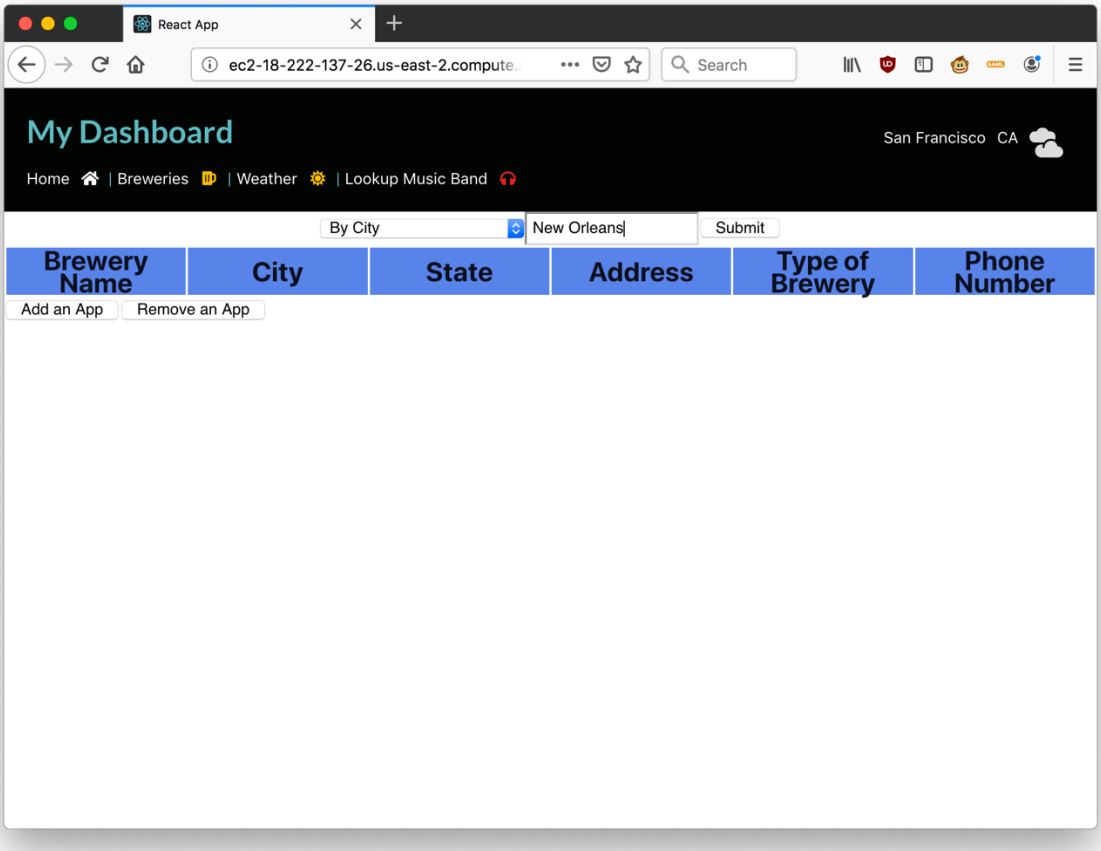
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By City
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Add an App
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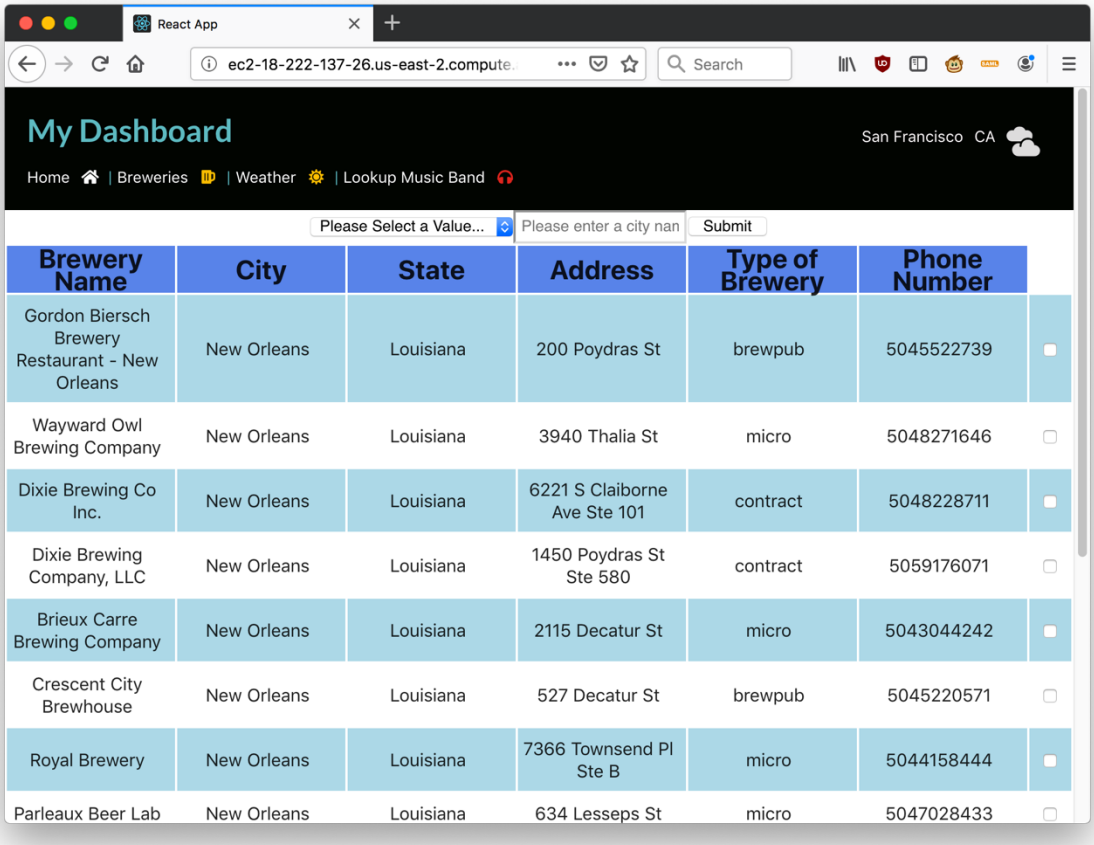
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Brewery Name
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Phone Number
Gordon Biersch Brewery Restaurant - New Orleans
New Orleans
Louisiana
200 Poydras St
brewpub
5045522739
Wayward Owl Brewing Company
New Orleans
Louisiana
3940 Thalia St
micro
5048271646
Dixie Brewing Co Inc.
New Orleans
Louisiana
6221 S Claiborne Ave Ste 101
contract
5048228711
Dixie Brewing Company, LLC
New Orleans
Louisiana
1450 Poydras St Ste 580
contract
5059176071
Brieux Carre Brewing Company
New Orleans
Louisiana
2115 Decatur St
micro
5043044242
Crescent City Brewhouse
New Orleans
Louisiana
527 Decatur St
brewpub
5045220571
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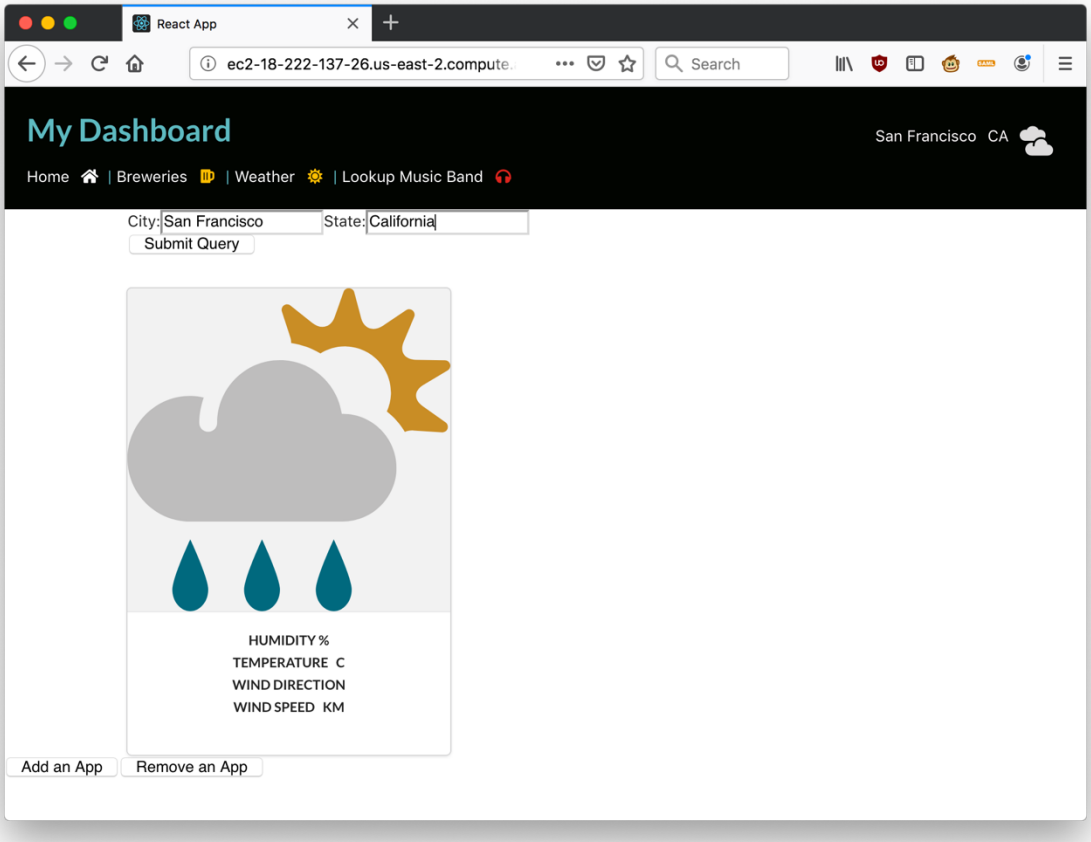
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TEMPERATURE C
WIND DIRECTION
WIND SPEED KM
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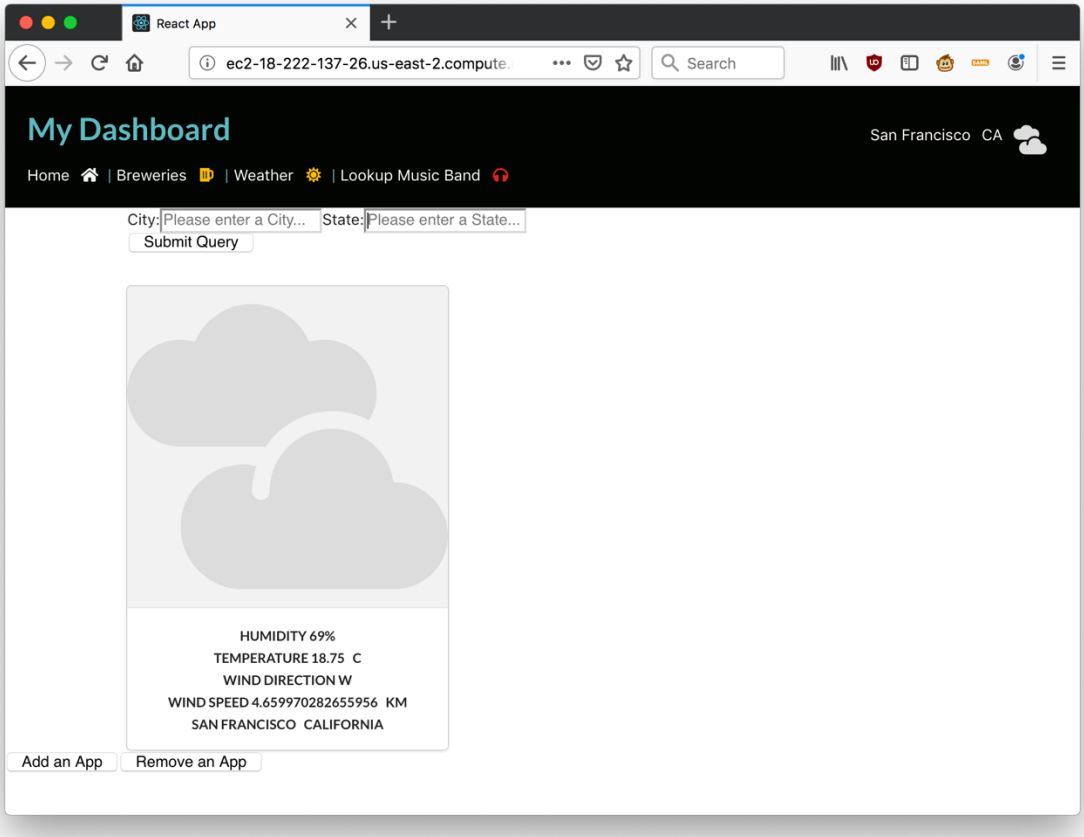
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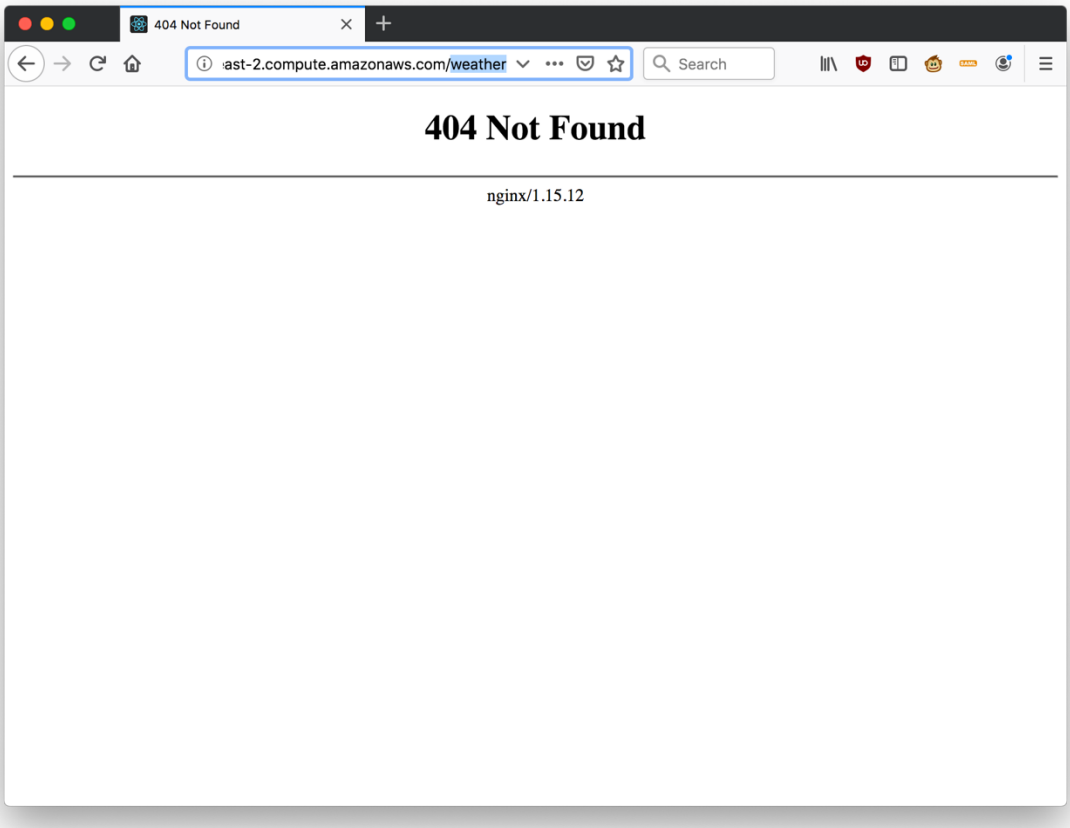
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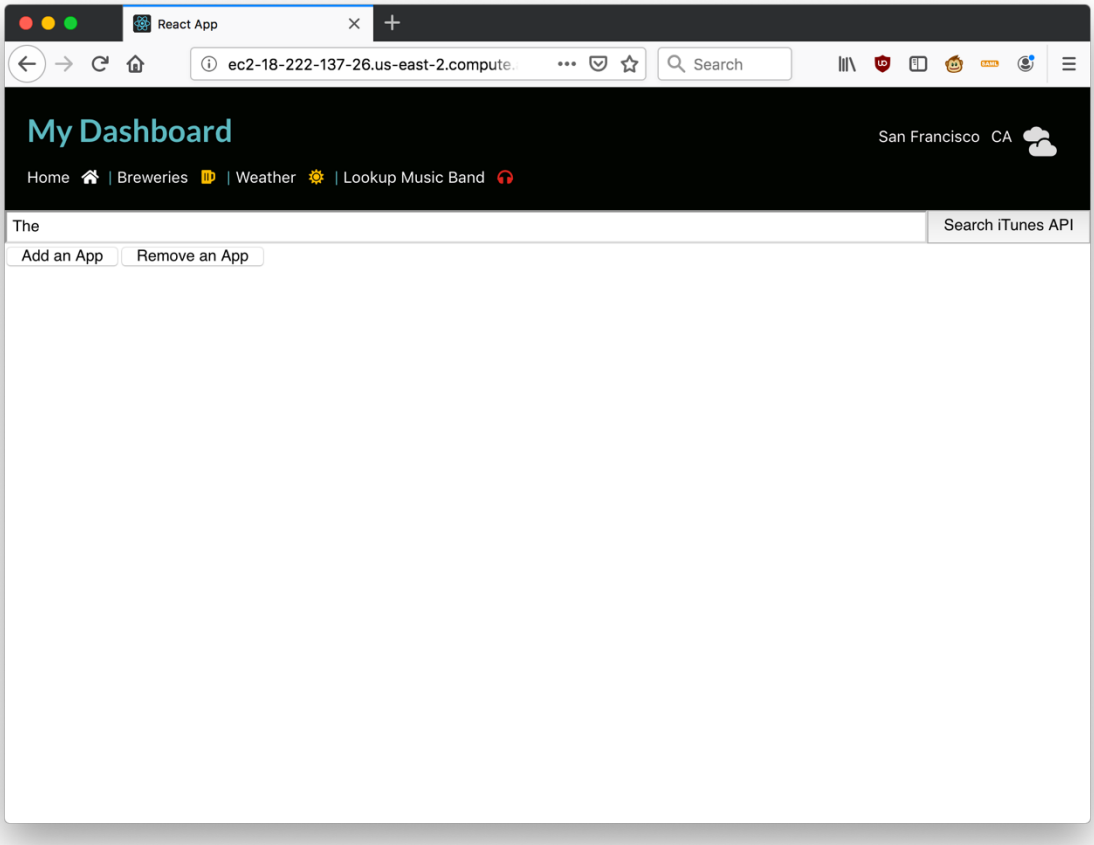
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Search
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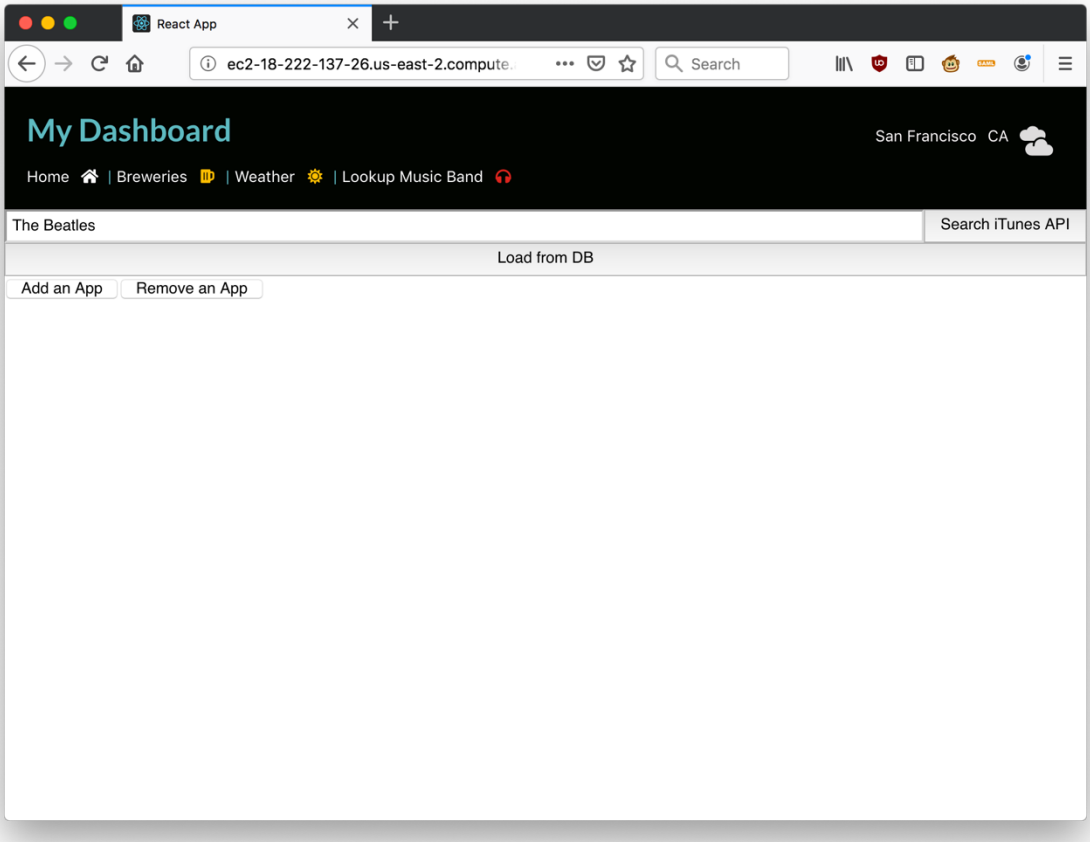
The
Search iTunes API
Add an App
Remove an App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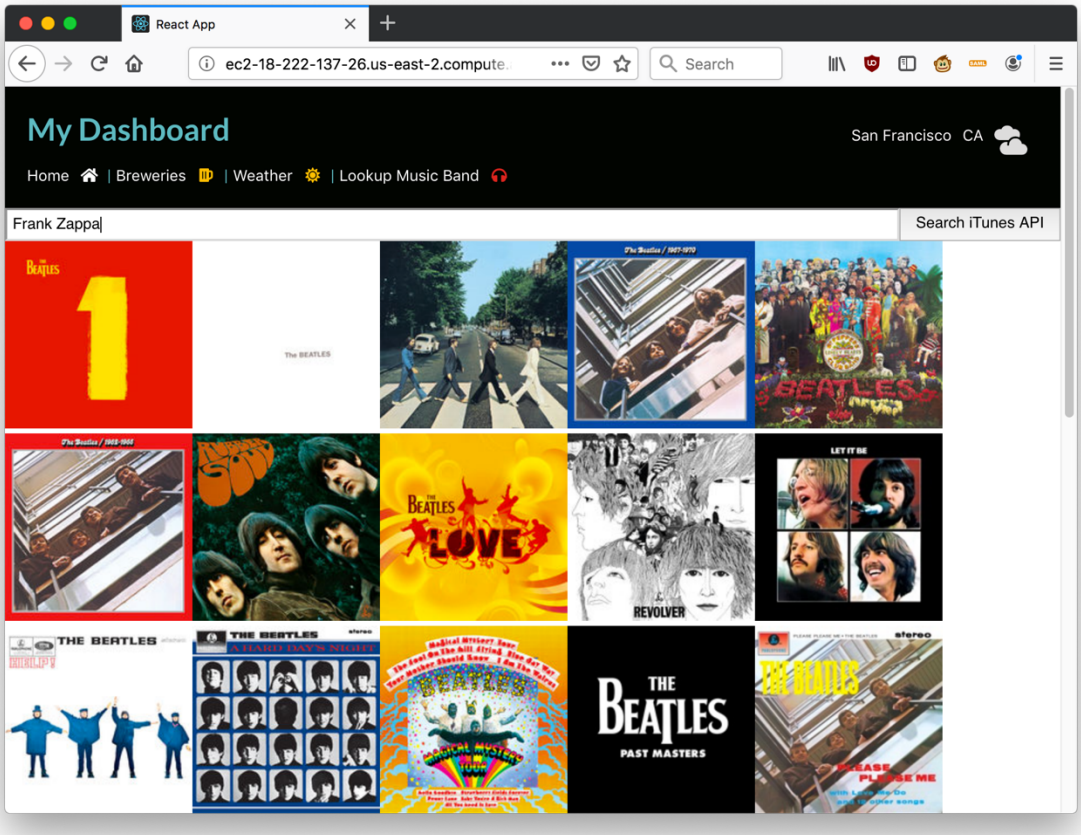
The Beatles
Search iTunes API
Load from DB
Add an App
Remove an App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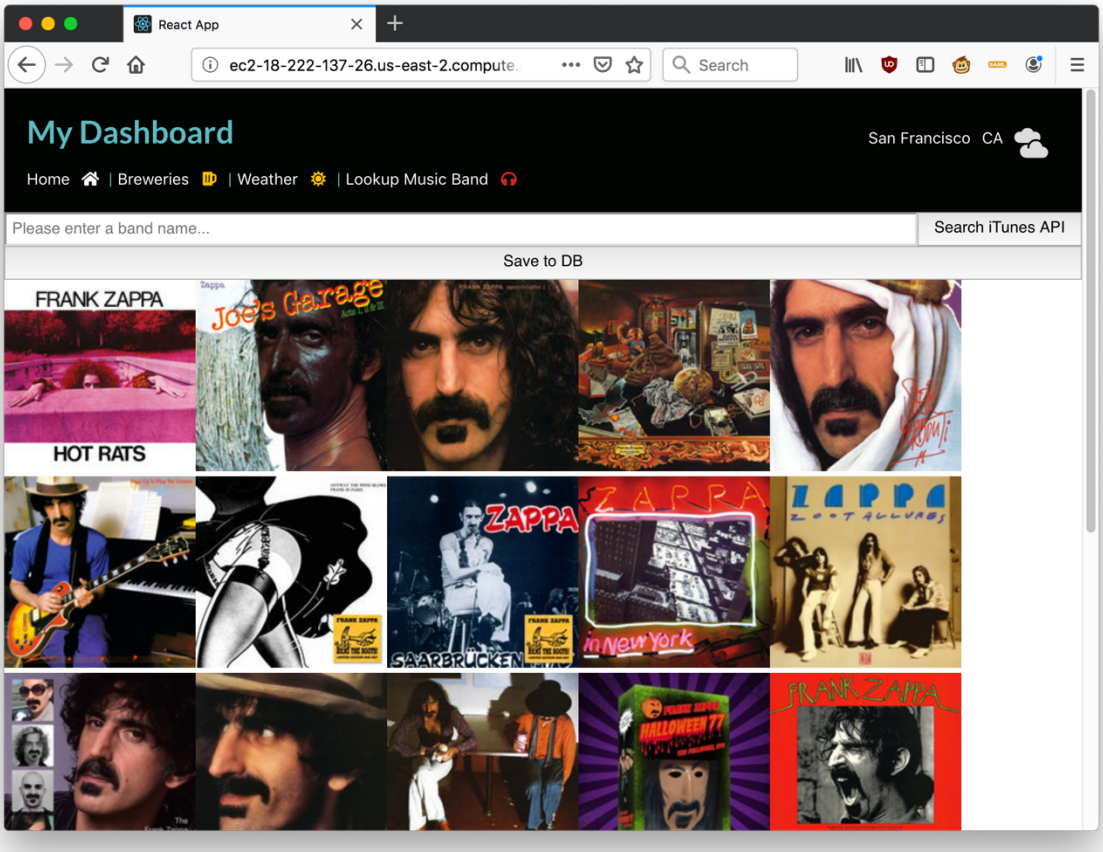
Search
My Dashboard
San Francisco CA
Home | Breweries | Weather | Lookup Music Band
Frank Zappa
Search iTunes API
REVOLVER
LET IT BE
THE BEATLES
PAST MASTERS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Please enter a band name...
Search iTunes API
Save to DB
FRANK ZAPPA
HOT RATS
Joe's Garage
ZAPPA
in New York
SAARBRUCKEN
HALLOWEEN 77
FRANK ZAPPA