CSC667 fall 2019 final project - team Basicgram

For our final project, we implemented a startup style app based off Instagram called Basicgram. In our application, users are able to browse a global feed of images posted by themselves & other users. On top of posting images with captions to the global feed, users can leave comments on any post and browse other users' profiles, as well as their own profiles.

We implemented the following features:

- Sign Up/Registration
- Login
- Logout
- Browse a Feed of Posts
- Create a new Post (Image with a caption)
- Comment on Posts
- View User Profile
- View other Users' Profiles by clicking on other Users' usernames

Furthermore, all posts and comments update in real-time. Images are also uploaded almost instantaneously.

How the project was completed

Our team was split into frontend and backend groups and each group assigned tasks among themselves. We reviewed and tested each other's code before merging. The team communicated through slack and trello, and meetings during class.

Technologies

We used MERN Stack (MongoDB, Express, React and Node.js.) as our basic tech bundled with websocket, Redis, and kafka. We chose Material-UI as our UI framework since it comes with a huge set of pre-built components and supported documentation for faster development. The app is hosted on an EC2 instance on AWS. The application's public IP is 13.59.168.81 and it can be accessed at ec2-13-59-168-81.us-east-2.compute.amazonaws.com:3000.

Hardships encountered

Frontend - The biggest challenge we faced in frontend was to setup the redux data flow with the API's. Sharing a state between different components and keeping everything up-to-date without any errors was something we occasionally struggled with. Additionally, at the start, shifting from plain old React to React Hooks had its fair share of challenges because some of us were still accustomed to the old syntax.

Image Storage - One challenge was to figure out how to store images in MongoDB. We solved this by using a third party storage API, and saving the URL of the images into the mongodb.

Backend - Due to the amount of technologies on the backend, its challenges were to understand the many different APIs and libraries being used, which meant that everyone working on the backend had to know kafka, redis, mongoose, websockets, and express.

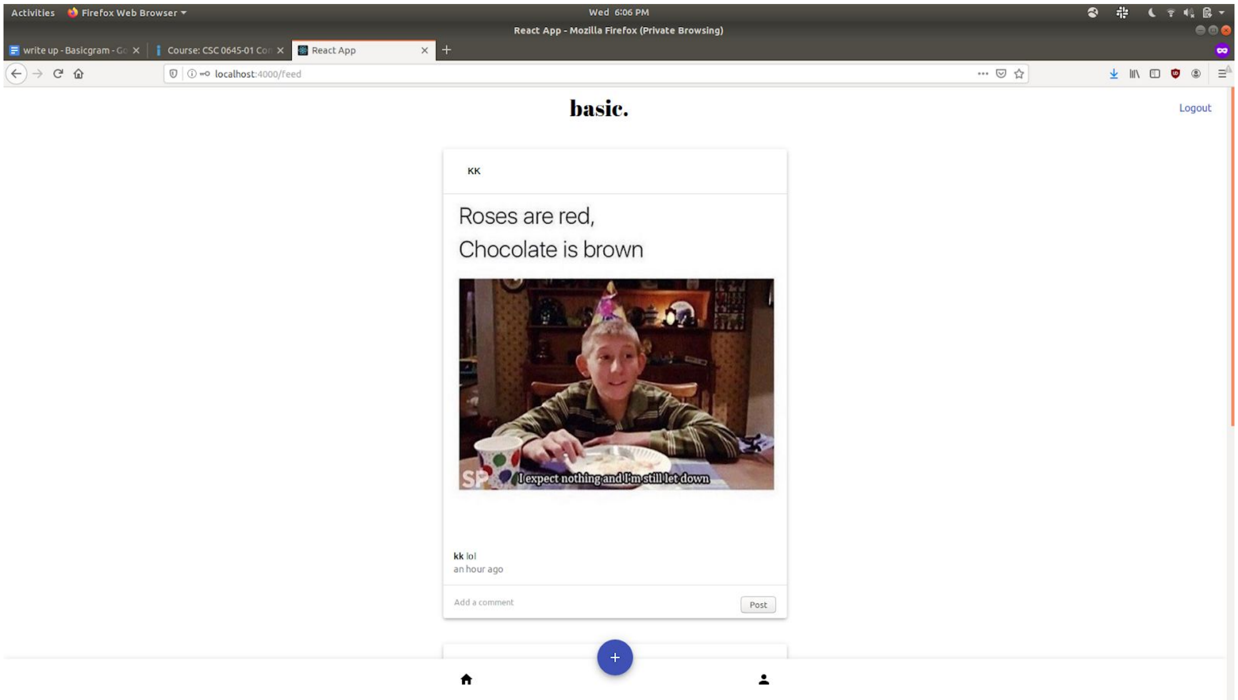
Kafka - Kafka was one of the last things we implemented for our application. Due to the scale & complexity of our application, it took us a fair amount of time to figure out how and where to incorporate Kafka into our application. After setting up the Publishers, we had issues configuring the Subscribers together with the web sockets to work together. Furthermore, it was hard to test & debug because a Kafka Zookeeper instance is required to manage the Kafka server, or cluster in other words. In the end, we used the Docker stack from lab11 to test our conveyor locally.

Deployment - Understanding docker-compose, docker swarms, and docker stacks, was definitely the main issues for deployment. Furthermore, we had to set up the configurations properly in code through process.env and understand how to pass in configs to other docker services.

Teamwork - Because this project is due at the end of the semester, it was hard for us to meet up altogether to discuss & work together, as everyone was busy handling other classes (and work) at the same time. Matter of fact, we never had a full-team meeting outside of class. But thankfully, each of us did our assigned tasks, not to mention that some of us were happy to take up more responsibilities than others.

UI Screenshots of all screens

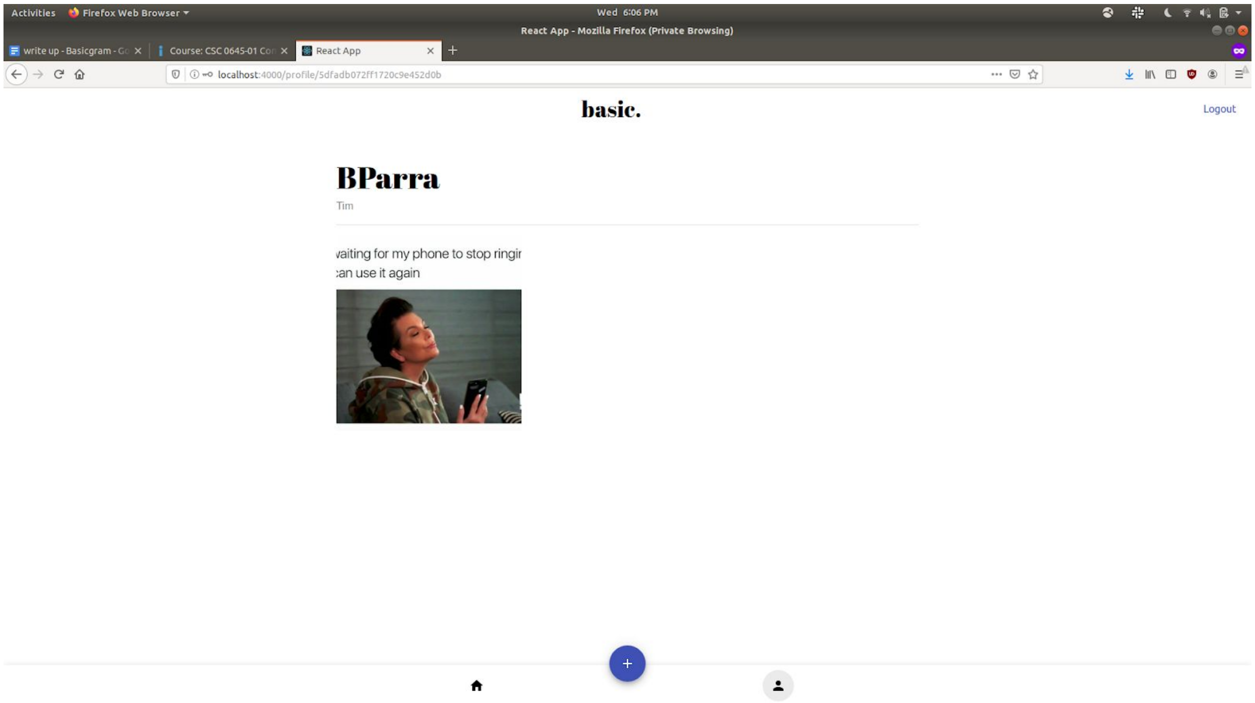
Feed page:



Roses are red,
Chocolate is brown

kk lol
an hour ago

User’s own profile:

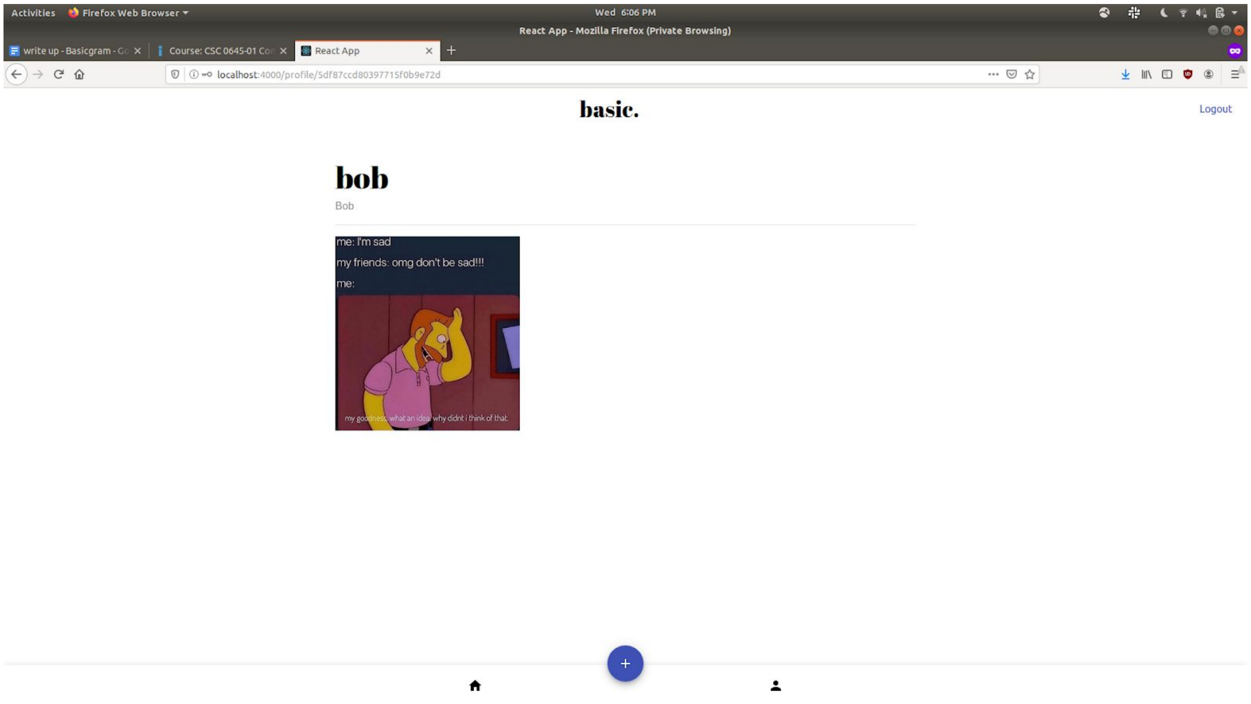

Activities
Firefox Web Browser
Wed 6:06 PM
React App - Mozilla Firefox (Private Browsing)
write up - Basicgram - Go
Course: CSC 0645-01 Con
React App
localhost:4000/profile/5dfadb072ff1720c9e452d0b
basic.
Logout
+

BParra

Tim

vaiting for my phone to stop ringir
:an use it again

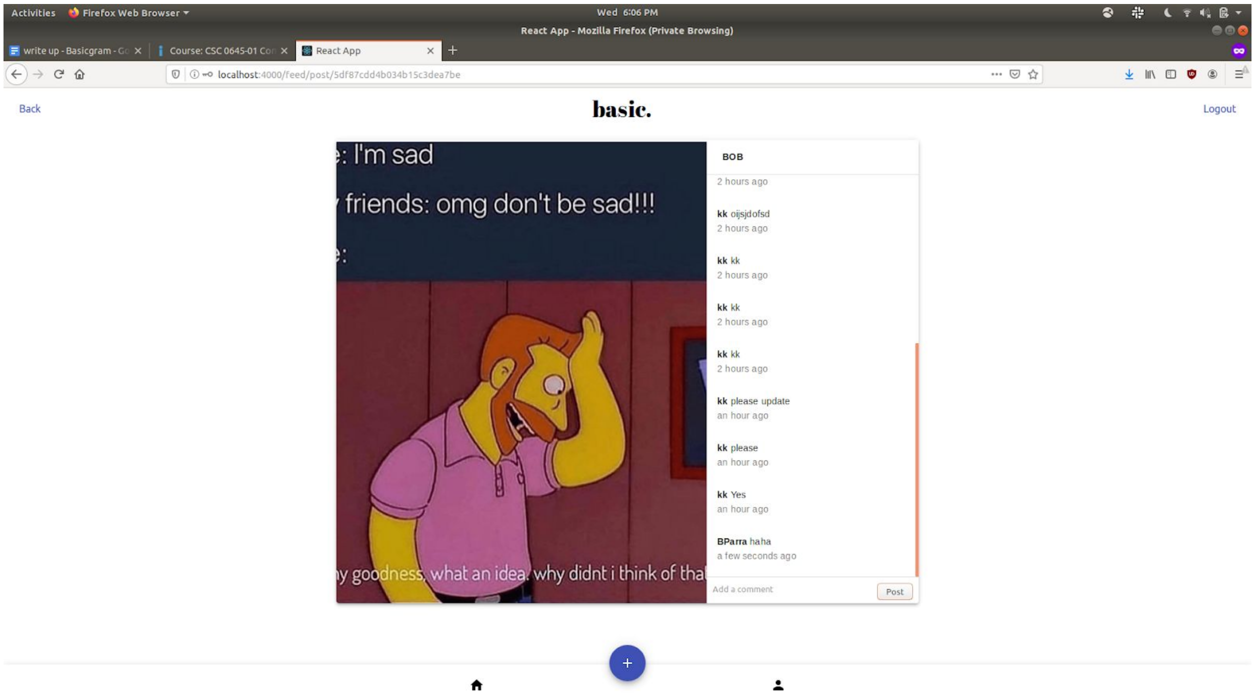
Other User’s Profile:


Activities
Firefox Web Browser
Wed 6:06 PM
React App - Mozilla Firefox (Private Browsing)
write up - Basicgram - Go
Course: CSC 0645-01 Con
React App
localhost:4000/profile/5df87ccd80397715f0b9e72d
basic.
Logout
me: I'm sad
my friends: omg don't be sad!!!
me:
my goodness, what an idea. why didnt i think of that.
+

bob

Bob

Comments/posting details:


Activities
Firefox Web Browser
Wed 6:06 PM
React App - Mozilla Firefox (Private Browsing)
write up - Basicgram - Go
Course: CSC 0645-01 Cor
React App
localhost:4000/feed/post/5df87cdd4b034b15c3dea7be
Back
basic.
Logout
: I'm sad
friends: omg don't be sad!!!
:
y goodness, what an idea. why didnt i think of that

BOB

2 hours ago

kk oijsjdofsd
2 hours ago

kk kk
2 hours ago

kk kk
2 hours ago

kk kk
2 hours ago

kk please update
an hour ago

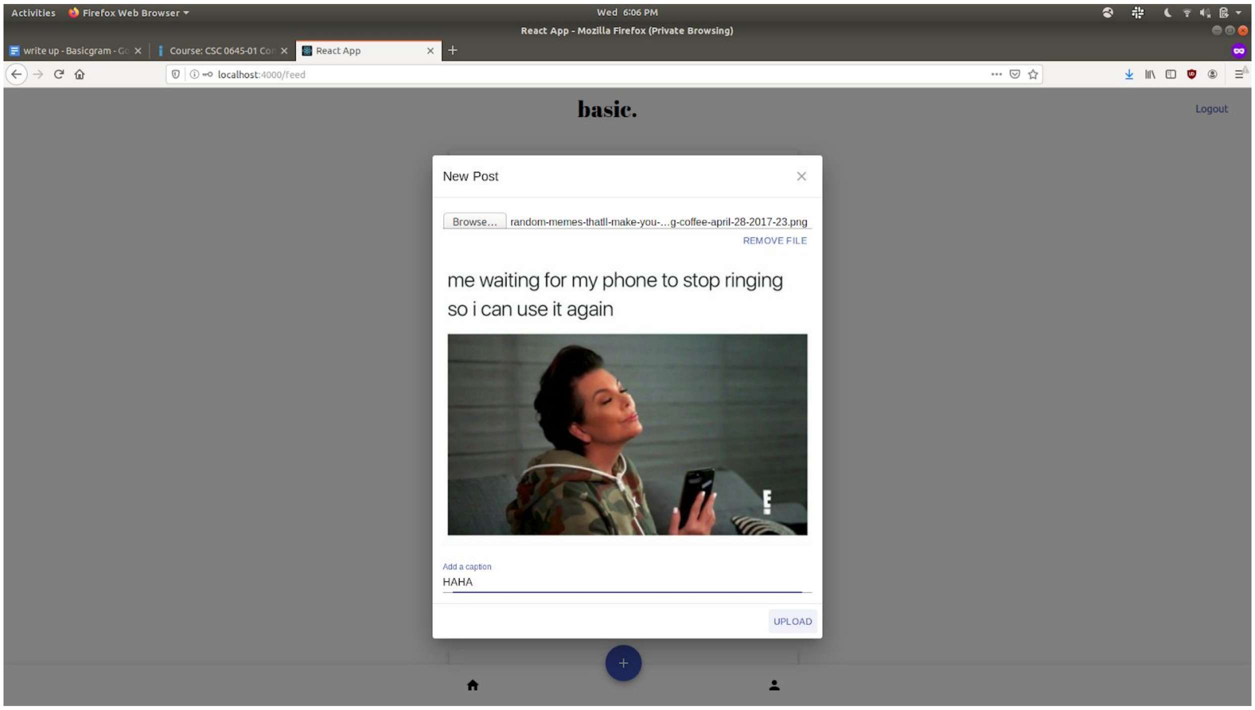
kk please
an hour ago

kk Yes
an hour ago

BParra haha
a few seconds ago

Add a comment

New post


Activities
Firefox Web Browser
Wed 6:06 PM
React App - Mozilla Firefox (Private Browsing)
write up - Basicgram - Go
Course: CSC 0645-01 Cor
React App
localhost:4000/feed
basic.
Logout

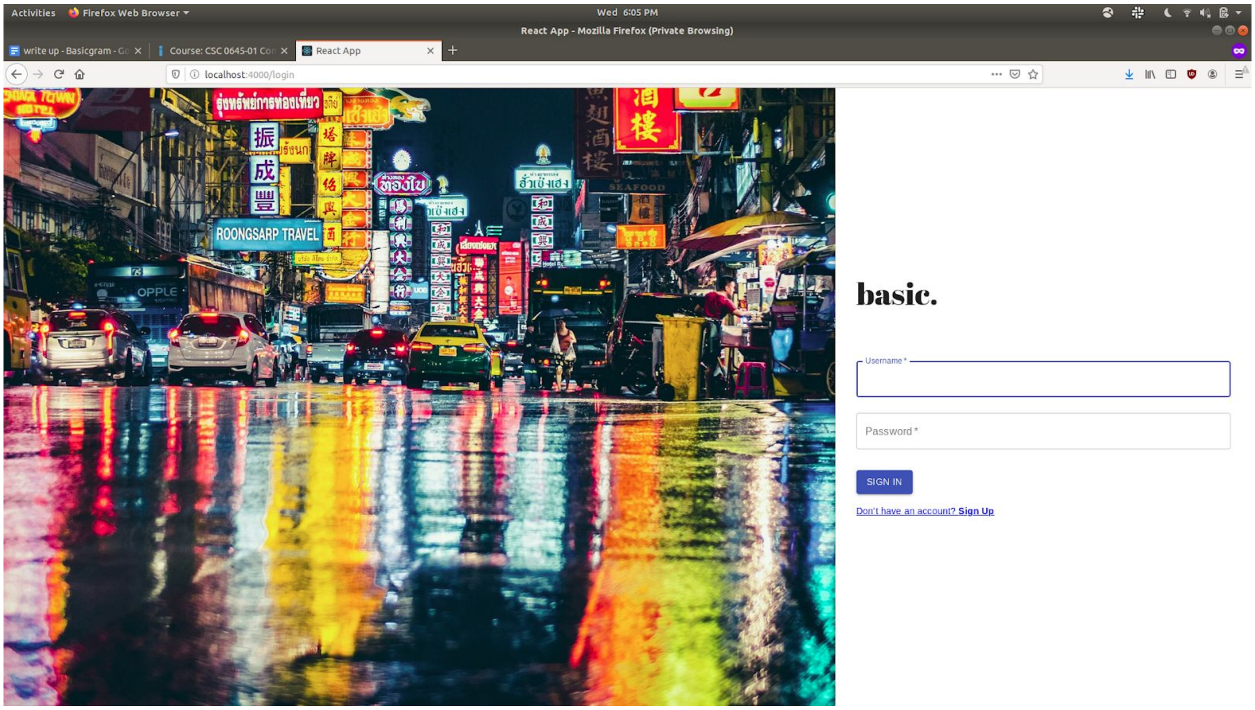
New Post

Browse... random-memes-thatll-make-you-...g-coffee-april-28-2017-23.png

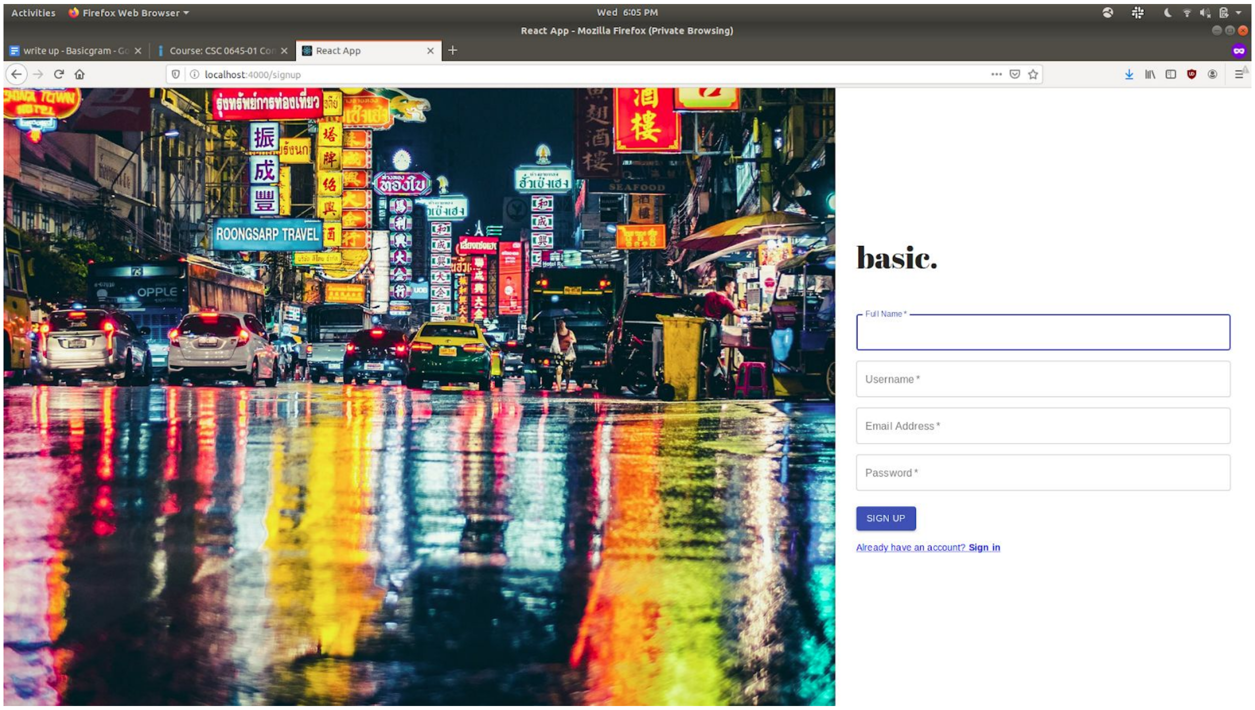
REMOVE FILE
me waiting for my phone to stop ringing so i can use it again

Add a caption
HAHA

Login:



Signup:


Activities
Firefox Web Browser
Wed 6:05 PM
React App - Mozilla Firefox (Private Browsing)
write up - Basicgram - Go
Course: CSC 0645-01 Cor
React App
localhost:4000/signup
basic.
Full Name *
Username *
Email Address *
Password *
SIGN UP
Already have an account? Sign in