Sprint 3 Demo

Building Cyber Infrastructure for Researchers

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Team Members:

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What we learned this sprint

- Using the OpenWhisk CLI
- Standing up a Kubernetes cluster
- OpenWhisk with Kubernetes
- OpenWhisk API calls with UI

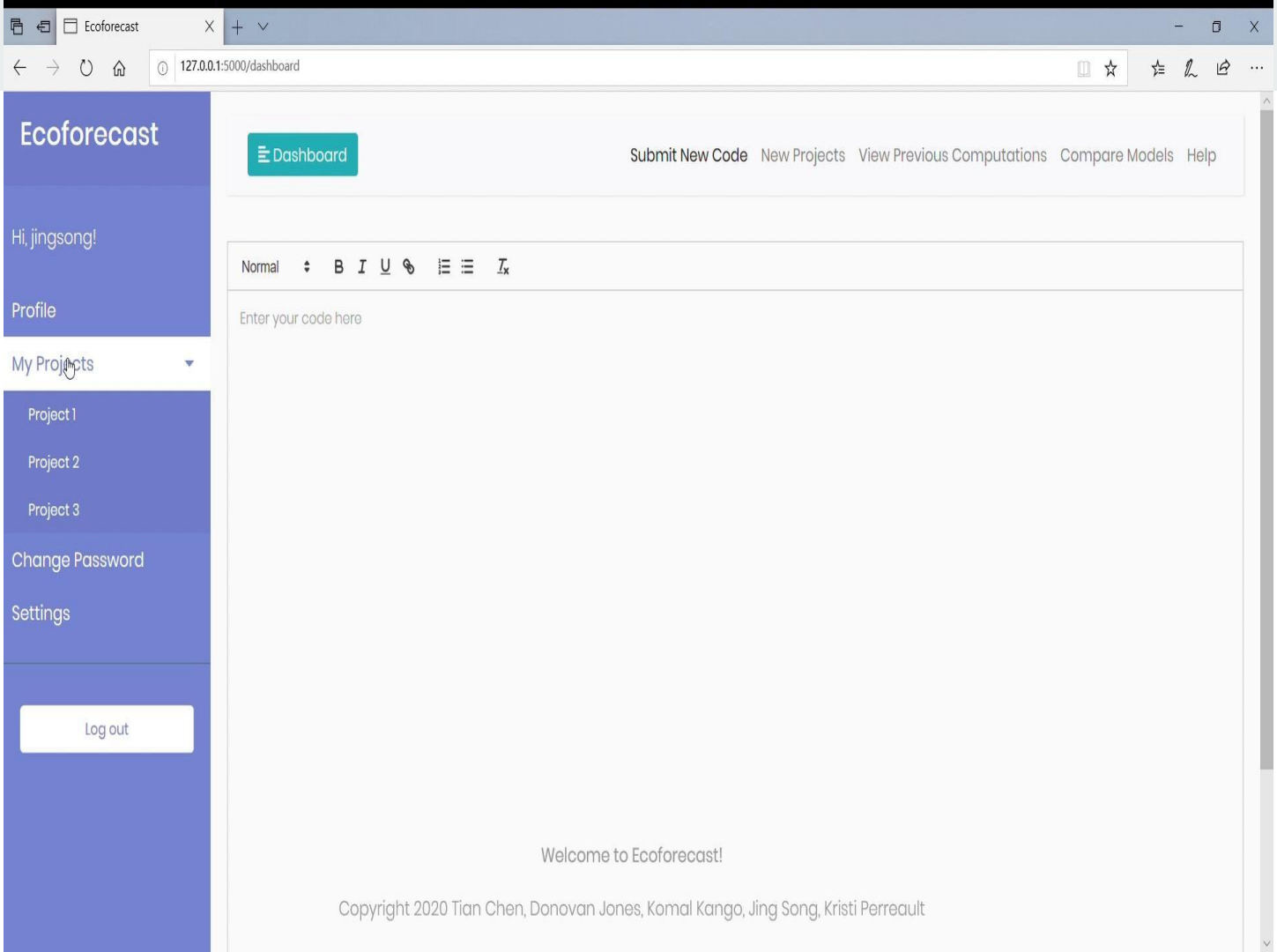
Kubernetes Progress

- Successfully deployed application on minikube (a single-node Kubernetes cluster)
- Still working on how to deploy OpenWhisk on Kubernetes
  - Including multiple node kubernetes

UI Progress

- Dashboard Sidebar
- New Project Search page
- Email request to join new projects

Demo


Ecoforecast
127.0.0.1:5000/dashboard
Ecoforecast
Hi, jingsong!
Profile
My Projects
Project 1
Project 2
Project 3
Change Password
Settings
Log out
Dashboard
Submit New Code
New Projects
View Previous Computations
Compare Models
Help
Normal
Enter your code here
Welcome to Ecoforecast!
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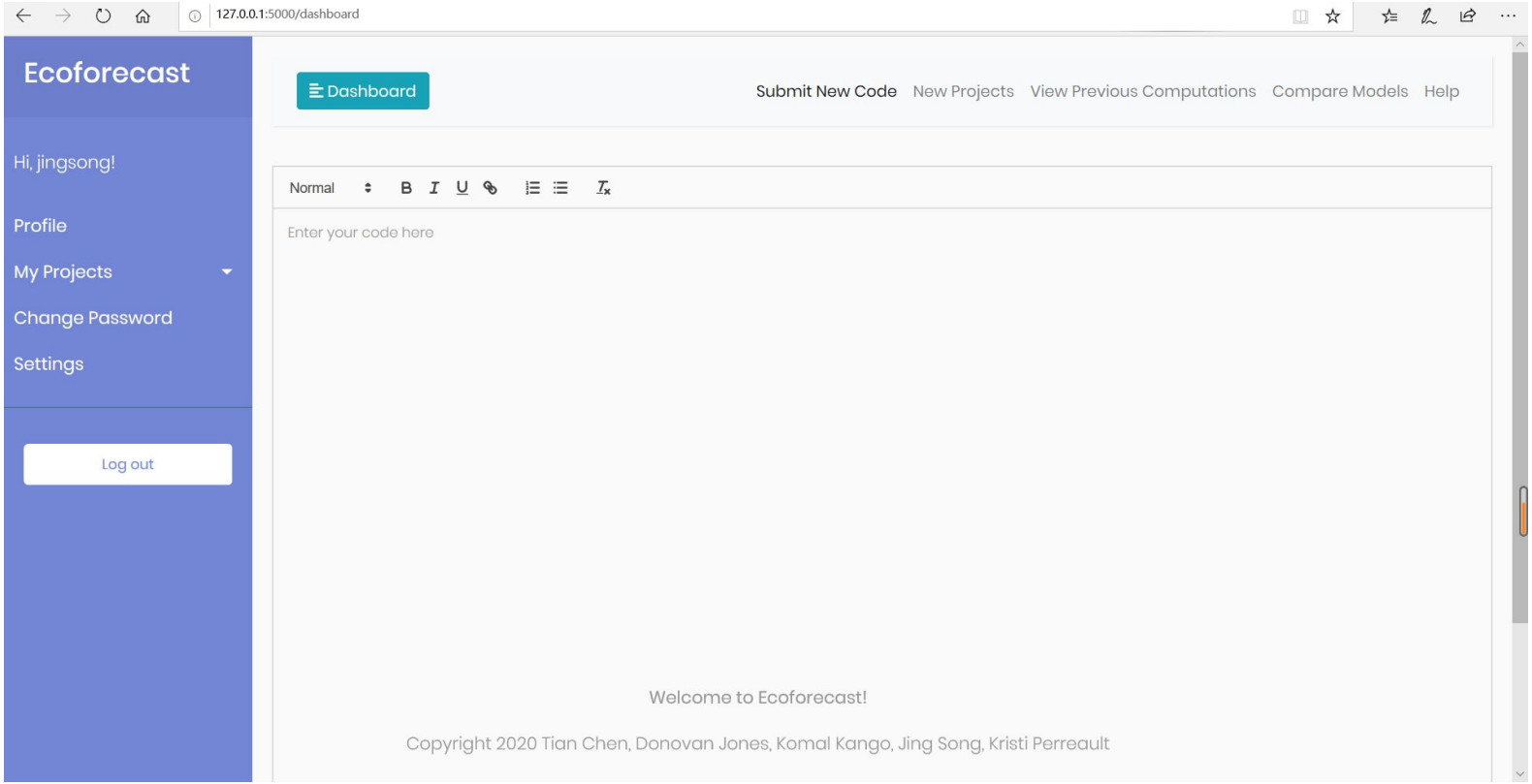
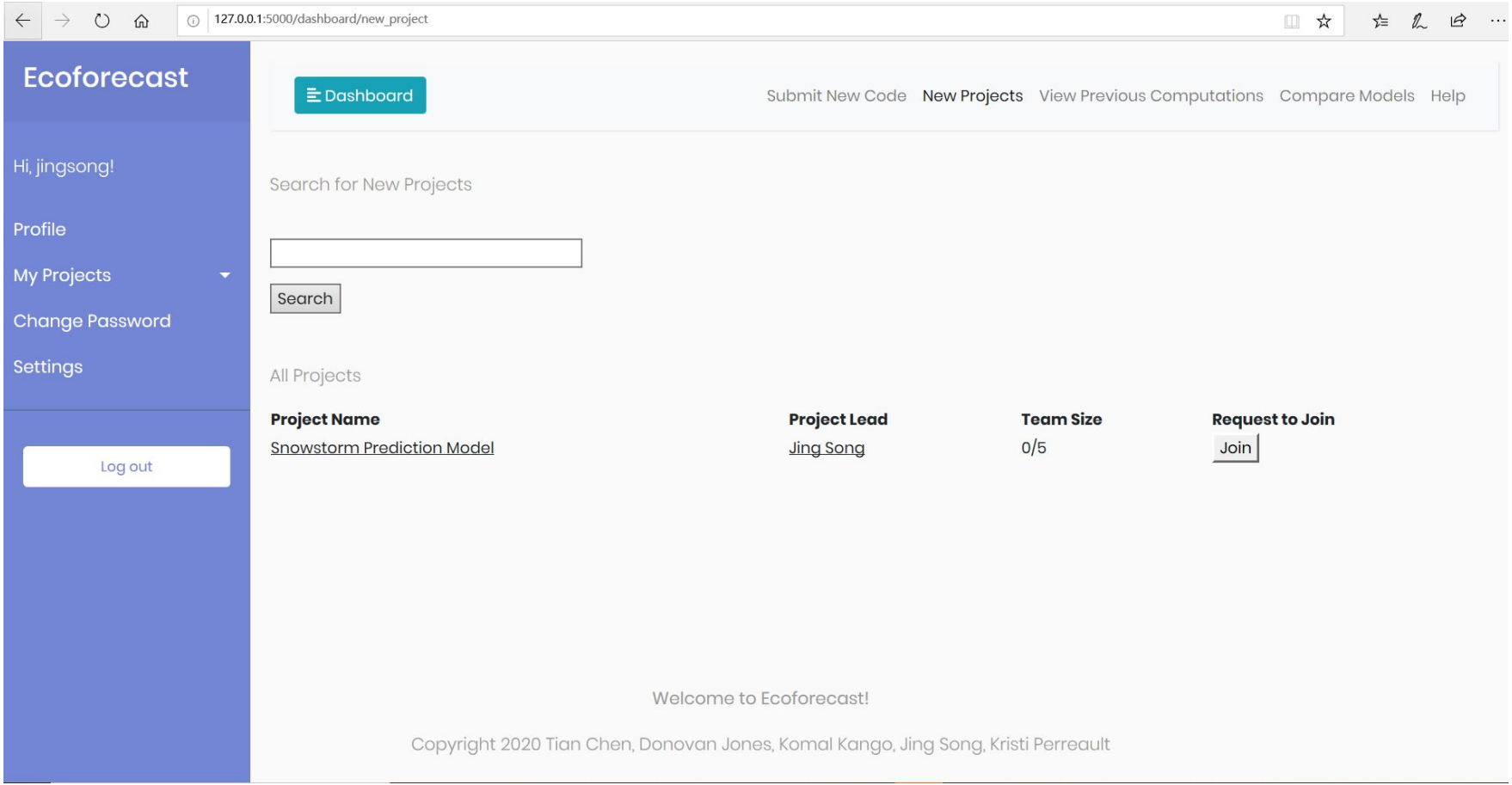
If video does not work...




127.0.0.1:5000/dashboard/new_project
Ecoforecast
Dashboard
Submit New Code
New Projects
View Previous Computations
Compare Models
Help
Hi, jingsong!
Profile
My Projects
Change Password
Settings
Log out
Search for New Projects
Search
All Projects
Project Name
Project Lead
Team Size
Request to Join
Snowstorm Prediction Model
Jing Song
0/5
Join
Welcome to Ecoforecast!
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UI TO-DOs

- Connection with back-end (in progress)
- User Hierarchy
- Data Visualization

OpenWhisk Progress

- Implemented OpenWhisk CLI
  - Setup from Apache documentation
- Wrote Script commands in app.py
- Called OpenWhisk API in the UI
- Invoked call to OpenWhisk API on “Submit”
- Connected to our instance in MOC to deploy
- Response in Postman

OpenWhisk Progress

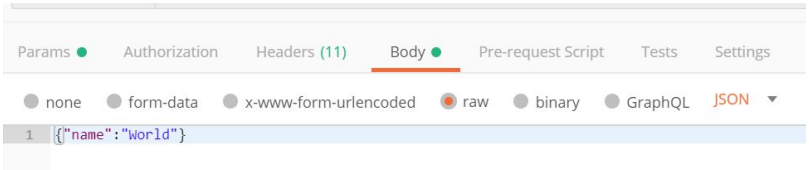
```
ubuntu@test:~$ wsk action invoke helloPy --blocking --param name World -i -v
```

```
REQUEST:
[POST]  https://172.17.0.1/api/v1/namespaces/_/actions/helloPy?blocking=true&result=false
Req Headers
{
  "Authorization": [
    "Basic MjNiYzQ2YjEt
  ],
  "Content-Type": [
    "application/json"
  ],
  "User-Agent": [
    "OpenWhisk-CLI/1.0 (2020-02-25T19:20:55.482+0000) linux amd64"
  ]
}
Req Body
{"name":"World"}

RESPONSE:Got response with code 200
Resp Headers
{
  "Access-Control-Allow-Headers": [
    "Authorization, Origin, X-Requested-With, Content-Type, Accept, User-Agent"
  ],
  "Access-Control-Allow-Methods": [
    "GET, DELETE, POST, PUT, HEAD"
  ],
  "Access-Control-Allow-Origin": [
    "*"
  ],
  "Connection": [
    "keep-alive"
  ],
```

OpenWhisk Progress

Post Request:



Response:


```
{
    "activationId": "232fa441dc374548afa441dc37854853",
    "annotations": [
        {
            "key": "path",
            "value": "guest/helloPy"
        },
        {
            "key": "waitTime",
            "value": 1661
        },
        {
            "key": "kind",
            "value": "python:3"
        },
        {
            "key": "timeout",
            "value": false
        },
        {
            "key": "limits",
            "value": {
                "concurrency": 1,
```

What we still need to learn

- Working with Kubernetes
- How to work with Chameleon
  - Add/remove nodes with Kubernetes
- Stronger understanding of the MOC so that we can deploy the infrastructure

Release Planning

Release #3 (due week 6) - DONE/CARRYOVER

- OpenWhisk running on Kubernetes cluster
- OpenWhisk API call from UI
- Code submission page in UI

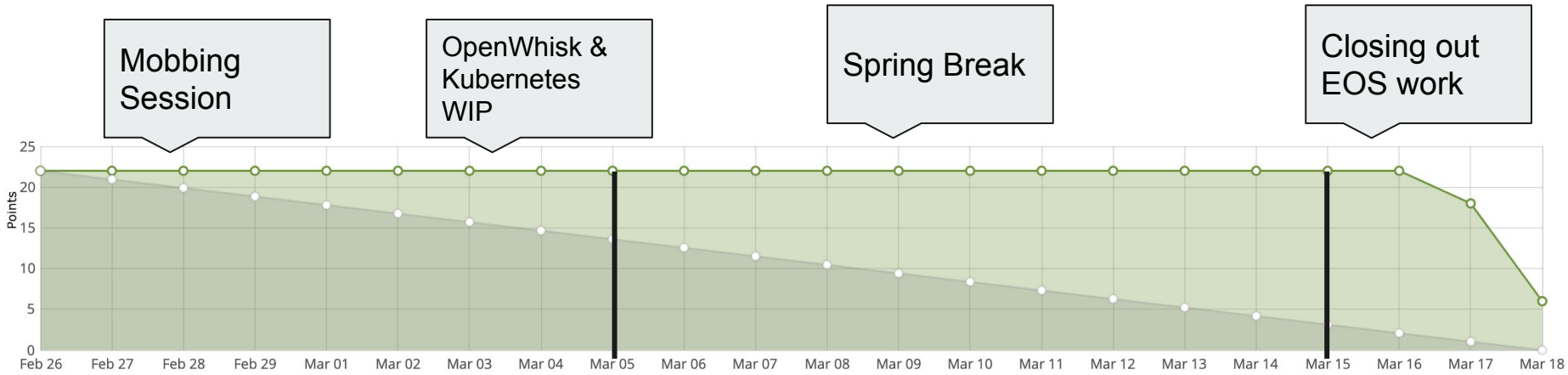
Release #4 (due week 8)

- Kubernetes
- Add & remove Chameleon nodes as workers on Kubernetes
- Create basic UI to add/remove these nodes

Sprint 3 Problems

- Lots of disruptions this sprint
  - Midterms
  - Spring break
  - Coronavirus
  - Shift to virtual model
- OpenWhisk has been difficult to get up and running
  - Poor documentation
  - Local setups are all different
  - Prereqs with security and python setup

Sprint 3 Burndown Chart



Questions?