

# Safe Distance Web App

INFO 6150 Final Project

# Nav Bar

- Implemented App Nav bar using `REACT ROUTER`.
- Router paths
  - /home
  - /admin/
    - /login
    - /logout
    - /dashboard
    - /users
    - /register
  - user/report

SAFE DISTANCE

REPORT

LOGIN



SAFE DISTANCE

USERS

LOGOUT

# 1. Connection to mongodb atlas

## 2. Backend: Rest API for admins

### 3. Frontend: Register and Login pages

- Create admin routers
- Register and login pages UI design
  - Field validation when register
- Admin account can be created with email and password
  - All emails are unique
  - password gets encrypted with salt, both stored in database
  - Admin accounts needs to be activated by other admins before login

**Login | Register**

Fan

 Last name   
Please fill out this field.

123@.com  
'.' is used at a wrong position in '.com'.


Should contain small letters  
Should contain capital letters


**Register!**

```
_id: ObjectId("5f2f138ad2eee02420ad2474")
activateStatus: true
first_name: "admin"
last_name: "admin"
email: "admin@admin.com"
password: "85d2ee40466dfefc6508e27eed9b5852c77c11caf5e5d171ced85e0ae307d6ded61a16..."
salt: "5f8b71db50254839"
date: 2020-08-08T21:05:14.524+00:00
__v: 0
```

encrypted

**Login | Register**


 Email Address


 Password

Login

**Login | Register**

 First name

 Last name

 Email Address

 Password

Register!

SAFE DISTANCE

REPORT

LOGIN

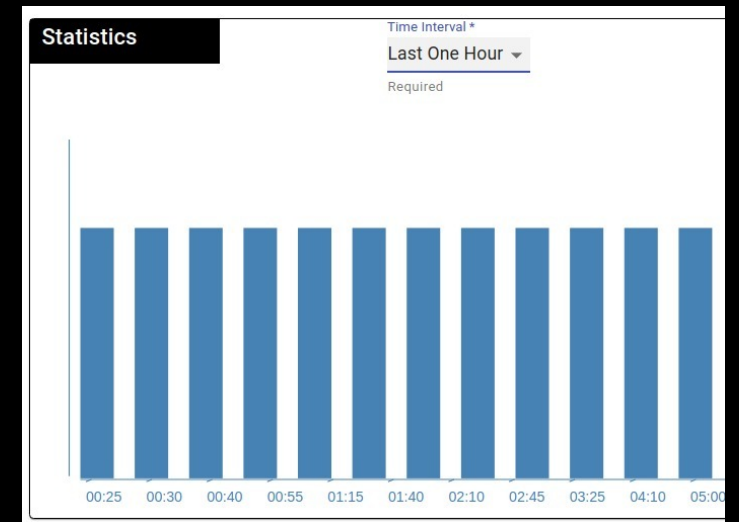
SAFE DISTANCE

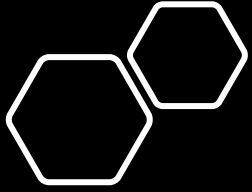
USERS

LOGOUT

# Dashboard Statistics

- On dashboard, a dropdown is added to select time range within last 6 hours.
- Any appSession pushing location data in that time interval will be considered active.
- A Bar chart with number of active users by time is created. Implemented using D3
- Implemented timeInterval search API - ``/locationStats/:interval``.





# File Structure

## NAV BAR

- Navbar – NarBar.js
- WelcomePage.js – Router

## DASHBOARD STATISTICS

## Safe Distance App

- Action/index.js
- Admin/AdmindashboardStats.js
- LocationStatsChart – locationstats.js
- Index.js – Redux

## Safe Distance Service

- App.js
- locationStatsController.js

# 1.Heatmap

## 2.UI

- Installation
  - Created React-redux App.
- Heatmap
  - Created methods to get the locations of the users.
  - Every user who was active within last 10 minutes, their locations will be fetched.
  - Integrated GoogleMapReact into react App.
- UI
  - Created Design for all pages(.jpg format) .
  - Worked on Admin Dashboard design.

SAFE DISTANCE

USERS

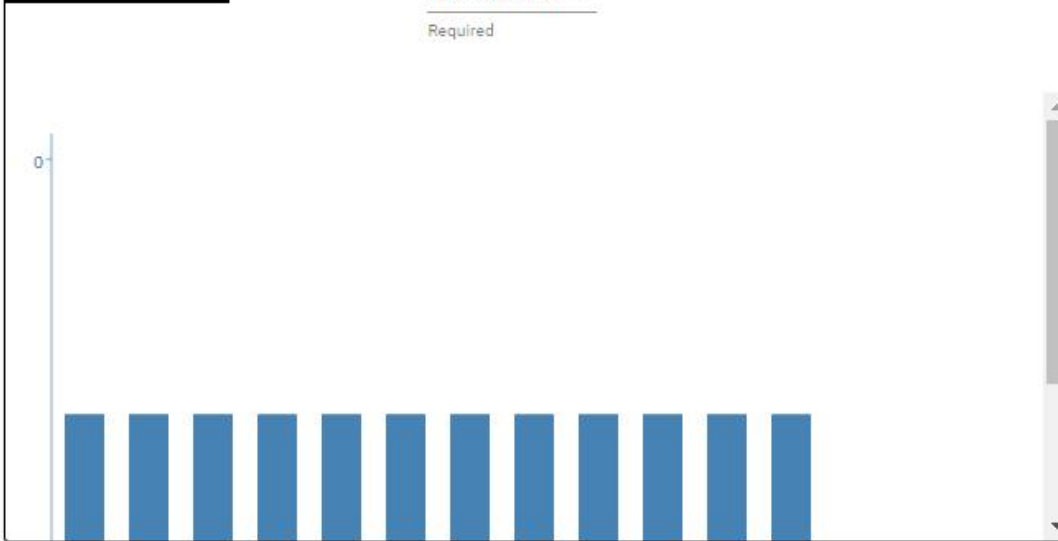
LOGOUT

## Statistics

Time Interval \*

Last One Hour ▾

Required



## Heat Map



## App settings

### Set Alert Information

Alert Radius: 0.1

Alert Number Of People: 100

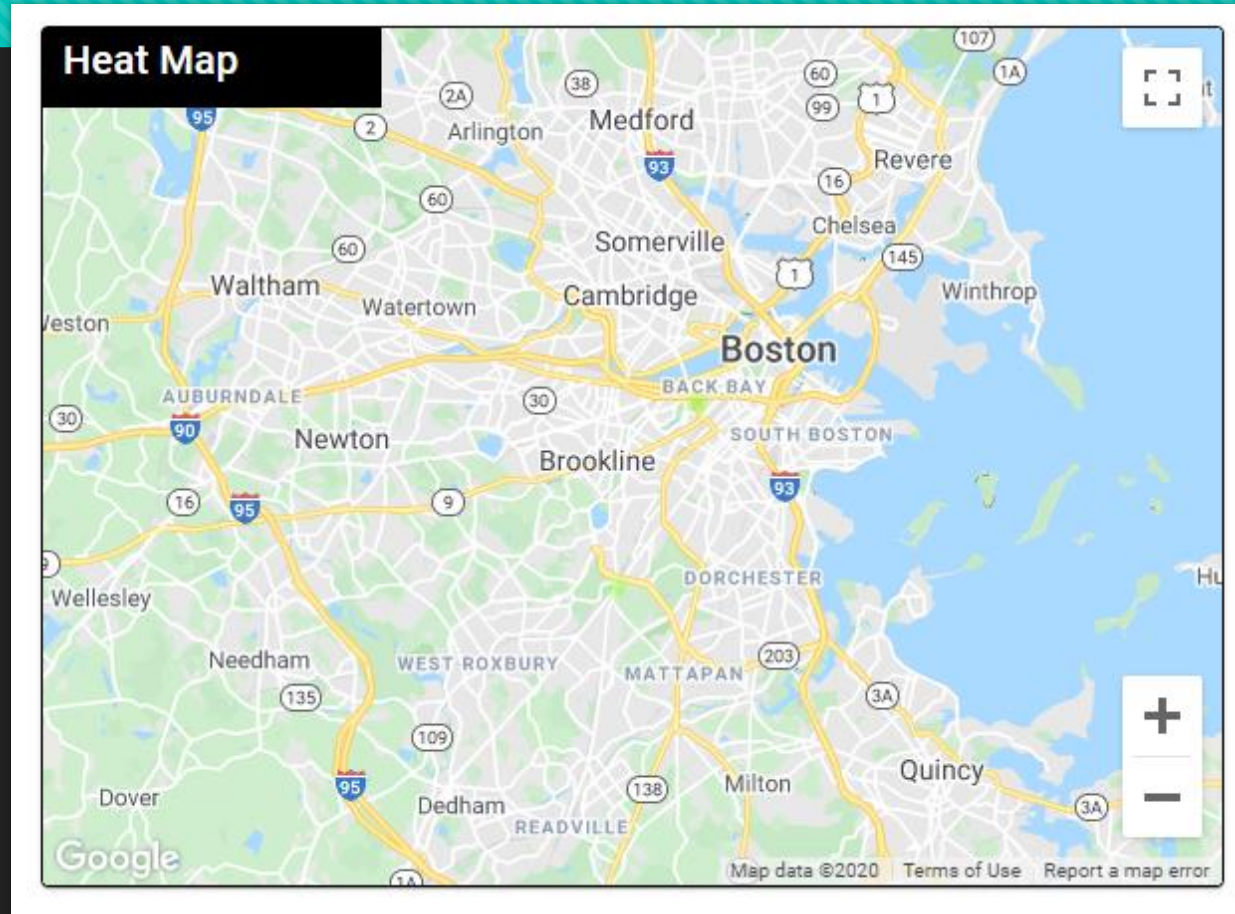
radiu  
m 0.1

number of people  
humans 100

CONFIRM  
CHANGE



# Heat map



# Location, Reports & ActiveTable

- Implement user location data collection & push it to the server at constant interval.
- App user can report COVID-19 Test result anonymously.
- System admin can approve or decline user account creation request.
  - On admin dashboard, create a approve account card.
  - Show list of user accounts.
  - The account can be activated or unactivated by selecting checkboxes.
- UI: User Home and report pop-up

## Location Data Implement

Show Location

Latitude: 42.3459638

Longitude:-71.0884662

Post

```
Response {type: "cors", url: "https://prod.mengchen-gao.me/appSessions/5f3383ac30c
ee638d8ca4dd7/Locations", redirected: false, status: 200, ok: true, ...}
  body: (...)
  bodyUsed: false
  headers: Headers {}
  ok: true
  redirected: false
  status: 200
  statusText: ""
  type: "cors"
  url: "https://prod.mengchen-gao.me/appSessions/5f3383ac30cee638d8ca4dd7/locatio...
  __proto__: Response
```

Geolocation API

setState

```
// Get coordinates by geolocation api
getLocation(){
  if (navigator.geolocation){
    return new Promise(res =>{
      navigator.geolocation.getCurrentPosition((position)=>{
        this.getCoordinates(position)
        res()
      })
    })
  } else {
    alert ("Location is not available")
  }
}
```

```
// Set corrdinate in state
getCoordinates(position){
  this.setState({
    latitude: position.coords.latitude,
    longitude: position.coords.longitude,
    appSessionID: Cookies.get('AppSessionId')
  })
}
```

## Location Data Implement

Show Location

Latitude: 42.3459638

Longitude:-71.0884662

Post

```
Response {type: "cors", url: "https://prod.mengchen-gao.me/appSessions/5f3383ac30cee638d8ca4dd7/locations", redirected: false, status: 200, ok: true, ...}
  body: (...)
  bodyUsed: false
  headers: Headers {}
  ok: true
  redirected: false
  status: 200
  statusText: ""
  type: "cors"
  url: "https://prod.mengchen-gao.me/appSessions/5f3383ac30cee638d8ca4dd7/locatio..."
  __proto__: Response
```

```
// Send location date at an interval
componentDidMount(){

  this.interval = setInterval(()=>{
    this.setState({
      appSessionID: Cookies.get('AppSessionId')
    });
    if(this.state.appSessionID !== undefined){
      this.getLocation().then(res => {
        const options = {
          method: 'POST',
          headers: {
            'Content-Type': 'application/json'
          },
          body: JSON.stringify(this.state)
        };
        fetch ('https://prod.mengchen-gao.me/appSessions/' + this.state.appSessionID + '/locations', options).then (response => {
          console.log(response);
        })
      })
    }
  }, 60000);
}
```

setInterval  
Fetch API

# Report COVID-19 Test

**Covid-19 Report**  
your report will remain anonymous

Status:

**SUBMIT**

**Please Choose Your Covid-19 Status Truthfully**

COVID-19 is declared a pandemic because of the speed at which it has spread globally. COVID-19 can affect anyone, and the disease can cause symptoms ranging from mild to very severe.

[CLOSE](#)

Please select

Positive

**Thank you!**  
Your health statue has been updated!

You Current Covid-19 Report:  
**Positive**  
Please Quarantine!!!

**NEWREPORT**

Negative

**Thank you!**  
Your health statue has been updated!

You Current Covid-19 Report:  
**Negative**  
Please Keep Social Distancing!

**NEWREPORT**

## Report COVID-19 Test

Covid-19 Report  
your report will remain anonymous

Status:

state

Get Report

```
this.state = {
```

```
  covid19: null,  
  appSessionID: null,  
  covidStats: false,  
  unsubmitted: true,  
  alteropen: false
```

```
};
```

```
<select className='options' ref={this.optionsRef} onChange={this.getreport}>  
  <option value='Select'> Please Select</option>  
  <option value='Positive'> Positive </option>  
  <option value='Negative'> Negative </option>
```

```
// Get report content when choosing  
getreport(){  
  console.log(this.optionsRef.current.value);  
  if(this.optionsRef.current.value === 'Positive'){  
    this.setState({  
      covidStats: true,  
      covid19: "Positive",  
    })  
  }  
  if(this.optionsRef.current.value === 'Negative'){this.setState({  
    covidStats: false,  
    covid19: "Negative"  
  })}  
  
  this.setState({  
    appSessionID: Cookies.get('AppSessionId'),  
  });  
}  
  
// Running getreport in componentDidMount  
componentDidMount(){  
  this.getreport()  
}  
  
// Change submit status  
submit(){  
  this.setState(  
    {unsubmitted: !this.state.unsubmitted}  
  )  
}
```

## Report COVID-19 Test

**Covid-19 Report**  
your report will remain anonymous

Status:

**SUBMIT**

Fetch API

After Submitting

```
// Send report when clicking submit button. Alter will show if making no choice
report(){
  if(this.optionsRef.current.value === 'Select'){
    this.setState({
      alteropen:true
    })
  }
  else{
    fetch('https://prod.mengchen-gao.me/appSessions/'+this.state.appSessionID+'/reports', {
      method: "PUT",
      mode:"cors",
      headers:{ "Content-Type": 'application/x-www-form-urlencoded' },
      body: `covid19=${this.state.covidStats}`

    }).then(response=>{
      return response.json()
    })
    this.submit()
  }
}

{
  this.state.unsubmitted?
  <div>
    <CardContent className="content">
      <Typography variant="h6">Covid-19 Report</Typography>
      <Typography variant="body2" color="textSecondary">your report will remain anonymous</Typography>
      <br/>
      <Typography variant="body1">Status:
        <select className='options' ref={this.optionsRef} onChange={this.getreport}>
          <option value='Select'> Please Select</option>
          <option value='Positive'> Positive </option>
          <option value='Negative'> Negative </option>
        </select>
      </Typography><br/>
      <ColorButton variant="contained" color="primary" className={useStyles.margin}
        onClick={ this.report}>
        Submit </ColorButton>
      </CardContent></div>
  :
  <div className="newcontent">
    <Typography variant="h6">Thank you! </Typography>
    <Typography variant="body2" color="textSecondary">Your health statue has been updated!</Typography>
    <br/>
    <Typography variant="body2" color="textSecondary">You Current Covid-19 Report:</Typography>
    <Typography variant="h5">{this.state.covid19}</Typography>

    {
      this.state.covidStats?
      <div><Typography variant="body2" color='error' >Please Quarantine!!!</Typography></div>
      :
      <div><Typography variant="body2" color='inherit'>Please Keep Social Distancing!</Typography></div>
    }
  <br/>
}
```



## Report COVID-19 Test Result

| Users |                         |          |       |                          |                                     |
|-------|-------------------------|----------|-------|--------------------------|-------------------------------------|
| 1be4  | admin@admin3.com        | admin    | admin | 2020-08-09T09:02:19.693Z | <input checked="" type="checkbox"/> |
| 17937 | tang.jie1@husky.neu.edu | Jasper   | Dom   | 2020-08-09T15:07:39.889Z | <input checked="" type="checkbox"/> |
| 16624 | vanga.m@husky.neu.edu   | Manasa   | Vanga | 2020-08-10T00:16:35.679Z | <input checked="" type="checkbox"/> |
| 23a   | gao@gao.com             | mengchen | gao   | 2020-08-11T18:13:26.541Z | <input checked="" type="checkbox"/> |
| 4bdc  | zmz@zmz.com             | mz       | z     | 2020-08-12T02:03:53.330Z | <input checked="" type="checkbox"/> |

Fetch API

```
// Get all user data
componentDidMount() {
  fetch("https://prod.mengchen-gao.me/admins")
    .then(res => res.json())
    .then(
      (result) => {
        this.setState({
          isLoading: true,
          users: result
        });
        console.log(this.state)
      },

      (error) => {
        this.setState({
          isLoading: true,
          error
        });
      }
    )
}
```

```
{this.state.users.map((value, key) => (
  <TableRow key={key}>

    <TableCell>{value._id}</TableCell>
    <TableCell>{value.email}</TableCell>
    <TableCell>{value.first_name}</TableCell>
    <TableCell>{value.last_name}</TableCell>
    <TableCell>{value.date}</TableCell>
    <TableCell padding="checkbox">
      <Checkbox
        checked={value.activateStatus}
        ref={this.check}
        onChange={e=>this.activate(e, value._id)}
      />
    </TableCell>
  </TableRow>
)}
```



## Report COVID-19 Test Result

| Users |                         |          |       |                          |                                     |
|-------|-------------------------|----------|-------|--------------------------|-------------------------------------|
| 1be4  | admin@admin3.com        | admin    | admin | 2020-08-09T09:02:19.693Z | <input checked="" type="checkbox"/> |
| 17937 | tang.jie1@husky.neu.edu | Jasper   | Dom   | 2020-08-09T15:07:39.889Z | <input checked="" type="checkbox"/> |
| l6624 | vanga.m@husky.neu.edu   | Manasa   | Vanga | 2020-08-10T00:16:35.679Z | <input checked="" type="checkbox"/> |
| 23a   | gao@gao.com             | mengchen | gao   | 2020-08-11T18:13:26.541Z | <input checked="" type="checkbox"/> |
| 4bdc  | zmz@zmz.com             | mz       | z     | 2020-08-12T02:03:53.330Z | <input checked="" type="checkbox"/> |

Active Users

```
// Active or unactive users by checkbox
activate = (event, _id) =>{

  let activateStatus = event.target.checked;
  const options = {
    method: 'PUT',
    headers: {
      'Content-Type': 'application/json'
    },
    body: JSON.stringify({"activateStatus": activateStatus})
  };
  fetch ('https://prod.mengchen-gao.me/admins/' + _id, options).then (response => {

    let users = this.state.users
    users = users.map(user=>{
      if(user._id === _id){
        user.activateStatus = activateStatus
      }
      return user
    })
    this.setState({
      users
    })

    console.log(response);
  })
  console.log(activateStatus)
}
```

```

}))).then(getParams()).then((locations) => {
  // userLocation.push(locations);
  [].push.apply(userLocation, locations)

  for(let key in userLocation){
    let dis = GetDistance(
      userLocation[key].latitude, userLocation[key].longitude,
      myLocation[0].latitude, myLocation[0].longitude
    );
    // if(dis<=RadiuAndNum[0].radiu){
    if(dis<=RadiuAndNum[0].radiu){
      whoIsDangers.add(userLocation[key].appSessionID);
    }
  }
}

if(covid19[0].covid19=="true"){
  // console.log("YYZZ:"+number);
  for(let key of whoIsDangers){
    console.log("whoisdangers:"+key);
    updatePeopleNearby(key, newValue);
  }
}

if(whoIsDangers.size>=numSet){
  console.log("numSet:"+numSet+" "+whoIsDangers.size);
  updateMyself(id, newValue)
}

```

- ❑ 1. implementation of appSettings and ActivateTable UI
- ❑ 2. implementation of app settings API (admin can set radius and number of people)
- ❑ 3. Background implementation of alert
  - a. send a notification to current user if too many people nearby ( >number of people in app settings )
  - b. send notifications to people nearby if current user report positive

# Set Alert Information

Alert Radius: 0.1

Alert Number Of People: 100

radius  
0.1

number of people  
humans 100

CONFIRM  
CHANGE

## Users

| Id                       | Email                  | FirstName | LastName | CreatedDate        |
|--------------------------|------------------------|-----------|----------|--------------------|
| 5f2f138ad2eee02420ad2474 | admin@admin.com        | admin     | admin    | 2020-08-08T21:05:1 |
| 5f2f24ba442d11659893ac47 | tangjasper66@gmail.com | Jie       | Tang     | 2020-08-08T22:18:3 |
| 5f2fbaac7878c22808cc1be2 | admin@admin1.com       | admin     | admin    | 2020-08-09T08:58:2 |
| 5f2fbb3f7878c22808cc1be3 | admin@admin2.com       | admin     | admin    | 2020-08-09T09:00:4 |
| 5f2fbb9b7878c22808cc1be4 | admin@admin3.com       | admin     | admin    | 2020-08-09T09:02:1 |

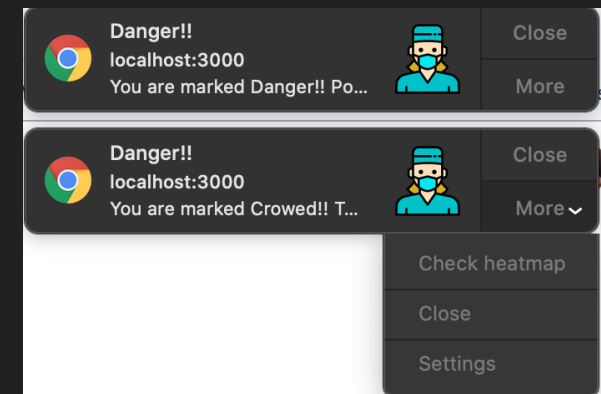
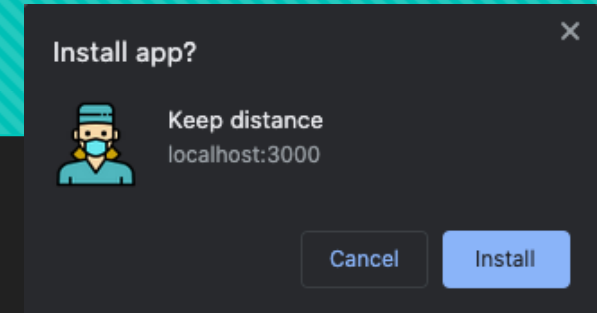
| LastName | CreatedDate              | IsActive?                           |
|----------|--------------------------|-------------------------------------|
| admin    | 2020-08-08T21:05:14.524Z | <input checked="" type="checkbox"/> |
| Tang     | 2020-08-08T22:18:34.263Z | <input checked="" type="checkbox"/> |
| admin    | 2020-08-09T08:58:20.268Z | <input checked="" type="checkbox"/> |
| admin    | 2020-08-09T09:00:47.196Z | <input checked="" type="checkbox"/> |
| admin    | 2020-08-09T09:02:19.693Z | <input checked="" type="checkbox"/> |

# 1. PWA Support

## 2. Rest API

## 3. Deploy

- Installation
  - Get a new AppSessionID every time installed.
- Cache
- AppSession management
  - Create a AppSession, store the appSessionID in cookies, set up header of X-APP-SESSION header for calls
  - Generate origin report for every AppSession
- Push Notification
  - Create subscription info for every AppSession based on the server's public web-push key
  - Store subscription info within AppSession collection
  - Setted up PUSH feature on backend, to support the alerting feature
  - Every in danger user can get Notification in background
- Created AppSession routes and Cleaned up / merged other routes
- Deployed backend server on AWS EC2



# Thank you!

[Show Demo](#)