WEB422 Assignment 2

Submission Deadline:

Wednesday, July 3 @

<u>11:59am(noon)</u>

Assessment Weight:

7% of your final course Grade

Objective:

To continue to work with our "Weather" API on the client-side to produce a rich user interface for accessing data. We would like to redesign the Assignment1 using Next.js.
For this assignment, we will be leveraging our knowledge of React/Nextjs to create an interface for *viewing* weather/country info.
Note1: You're free to style your app however you wish, however the following specification outlines how we can use the React_Bootstrap. If you wish to add additional images, styles or functionality, please go ahead.
Note2: For assignment2, you are asked to design a NextJS app, however you have freedom to use either page-route (file-based) or App Route.

Specifications: The application should have the following features/functionality:

1) When user starts the app, It automatically extract the current date/time/location and display the local weather info (even before user search for any city).
   a. This should be considered as Home Route
2) User can enter “city name” or “city_name,country_code” in any letter-case with any number of space (between city_name and comma and country code).
   - If the city is not exist, the error message should appear below the search_box.
   - User should be able to press the search button or press “Enter” to start the search.
   - Use proper form validation and error handling (*you can use native form design or use the related hook!*)

   Hint: see if you can use dynamic route in developing the component!

3) User can enter “city ID” and get the related information
   - If the cityID is not exist, the error message should be appeared below the search_box.
   - User should be able to press the search button or press “Enter” to start the search.

   Hint: see if you can use dynamic route in developing the component!

4) The search result (list of cities) appears on the screen, controlled by **<u>pagination</u>** (3 records per page).
    a. The search result only includes a summary of cities' info in table or any other format (i.e cards). Here are the info: Country Flag, City Weather status (proper weather icon -- check API) and current temperature.
        Note: For the Flag, use openWeatherMap as follow: flag = "http://openweathermap.org/images/flags/" + country.toLowerCase() + ".png"; //get flag picture

    b. If user clicked on each city, the program displays the detail info about each city (including : weather condition, current temperature, max/min temperature, wind speed, humidity, pressure, sunrise and sunset, last updated).
        i. You have the flexibility of using any technique (Use your creativity, you may use "modal window" or other techniques) in designing the detail-window (can be a separate window or like expand-collapse window). Check the last page of this document for more picture of sample output.

    c. When user visits the detail of each city-weather-info, the app should keep the **city_id** and all weather info to the "visited_city_list", so when user click on the visited cities, the weather info will be extracted from the cache (stored data in *global state*) instead of calling the API. There is a menu item in App Navigational Menu for accessing "visited_city". This menu-item is empty at the beginning. You can consider a limit for the number of item in this list. User can select any city from the list of "visited_city" and check the details again (without entering city_name in the search box)
        Hint→This may require a visited_ROUTE with ":id"

5) The App should be designed to <u>have minimum API call.</u>
    a. Note: While it is important to get the updated weather info, but wherever possible, try to cache the data to reduce API calls.
    b. You may use any of the following API calls:
        i. https://api.openweathermap.org/data/2.5/find?q=""
        ii. http://api.openweathermap.org/geo/1.0/direct?q=""
        iii. https://api.openweathermap.org/data/2.5/weather?q=""
        iv. https://api.openweathermap.org/data/2.5/weather?id=""
        v. api.openweathermap.org/data/2.5/group?

    c. Use &cnt : Number of cities around the point that should be returned. The default number of cities is 5, the maximum is 50.
6) Wherever possible, use React Bootstrap for implementing the app layout

7) Add NavBar to assist user to navigate between Home page and "Visited City". Use proper Route to manage user navigation (consider NotFound route as well)
   a. To begin, add the following import statements
      i. { Navbar, Nav, NavItem, NavDropdown, MenuItem, FormGroup, FormControl, Grid, Row, Col } from react-bootstrap
         Note: The given NavBar/MenuItem only works with react-Bootstrap 3. but in newer version, instead of MenuItem, it should be Dropdown.Item
      ii. { Link, Switch, Redirect, Route } from react-router-dom
      iii. { LinkContainer } from react-router-bootstrap
   b. we may add the following "state" values to our App component:
      i. recentlyViewed – default value: []
      ii. searchId – default value: ""
   c. To track which cities have been recently viewed by the client, we may add two internal functions to the respected component; the first of which is called called viewedCity(id) with the following specification:
      i. Creates a copy of the recentlyViewed array, ie: "allRecentlyViewed"
      ii. Pushes the value of "id" into the "allRecentlyViewed" array only if it's not already in the array

      hint: To access the previously visited route in Next.js, you can utilize the useRouter hook provided by Next.js's next/router package along with the useEffect hook to track route changes. You can use *global state* and store the previous route in state and update it whenever the route changes.
   d. To design the NavBar, you may use the following JSX code (in the return value of our App component) This will allow us to show a navbar built using React-Bootstrap components.

```
<div>
  <Navbar inverse collapseOnSelect staticTop>
    <Navbar.Header>
      <LinkContainer to="/">
        <Navbar.Brand>
          WEB422 -
          Weather
        </Navbar.Brand>
      </LinkContainer>
```

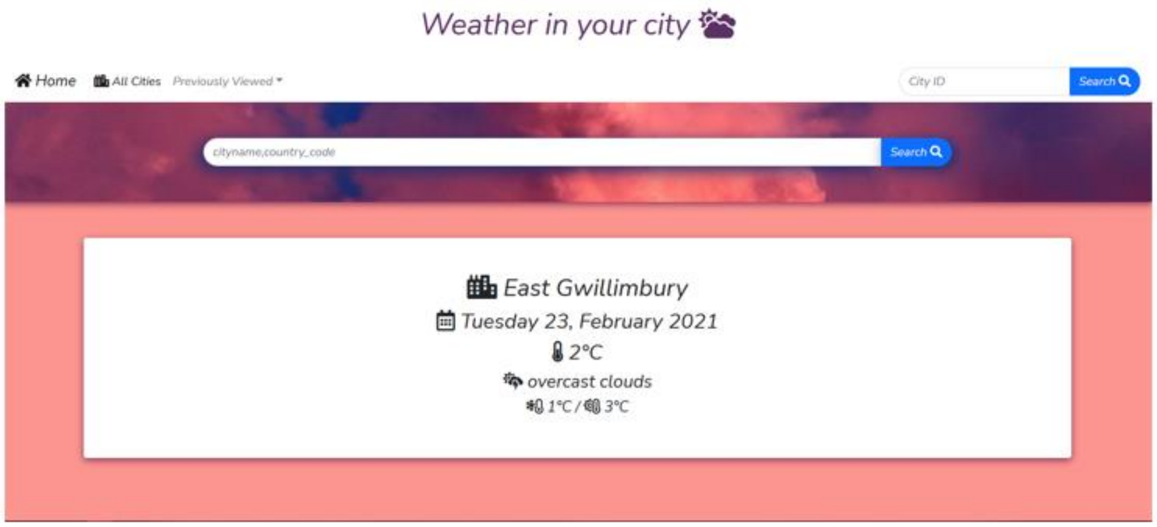
```
            <Navbar.Toggle />
          </Navbar.Header>
          <Navbar.Collapse>
            <Nav>
            <LinkContainer to="/Cities">
              <NavItem>All Cities</NavItem>
            </LinkContainer>
              <NavDropdown title="Previously Viewed" id="basic-nav-dropdown">
              {recentlyViewed.length > 0 ?
                recentlyViewed.map((id, index)=>(
                  <LinkContainer to={`/City/${id}`} key={index}>
                    <MenuItem >City: {id}</MenuItem>
                  </LinkContainer> )) :
                <MenuItem>...</MenuItem>}
              </NavDropdown>
            </Nav>
            <Navbar.Form pullRight>
              <FormGroup>
                <FormControl type="text" onChange={updateSearchId} placeholder="City ID" />
              </FormGroup>{' '}
              <Link className="btn btn-default" to={"/City/" + searchId}>Search</Link>
            </Navbar.Form>
          </Navbar.Collapse>
        </Navbar>
      </div>
```

Note) Try to manage Async Ajax call using promise or async/await wherever is required

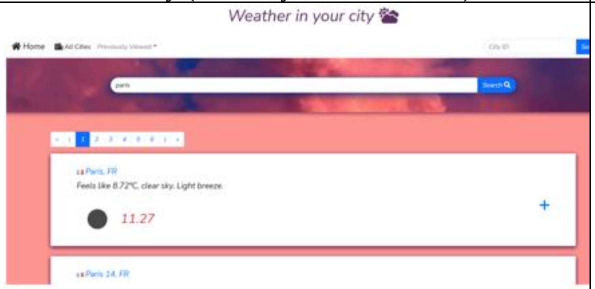
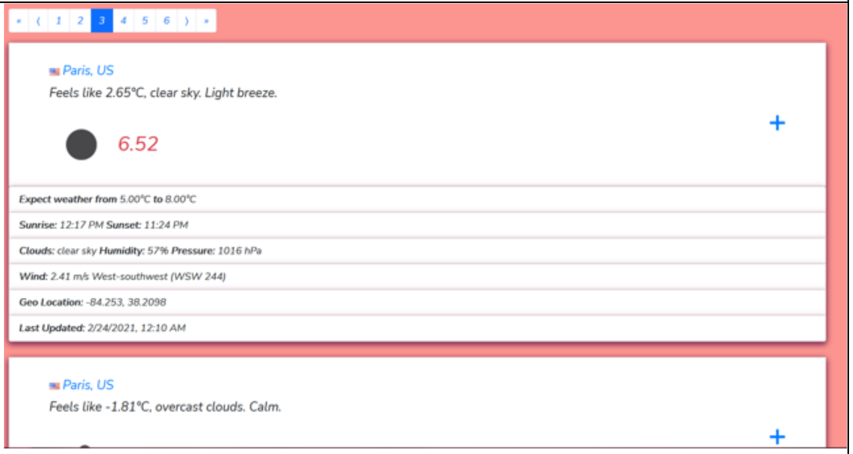
e) Provide user an option to choose the “unit of measurement” in the UI to be able to show the weather info in Fahrenheit or Celsius. (*you may consider a default value for unit of measurement and give user the option, like dropdown_list or radio_button to choose the desire ones*)

Application at a glance: (the following snapshots only is an example and shouldn't be use as a reference for layouting/styling, some of the info-fields may not appeared in the below screenshot. Please read the instruction and use the below images as a general skeleton, I know you can design it in your own creative way 😉)

Home page:



East Gwillimbury
Tuesday 23, February 2021
2°C
overcast clouds
1°C / 3°C

Search for a city (summary of weather info)	When click on '+' for more info
	

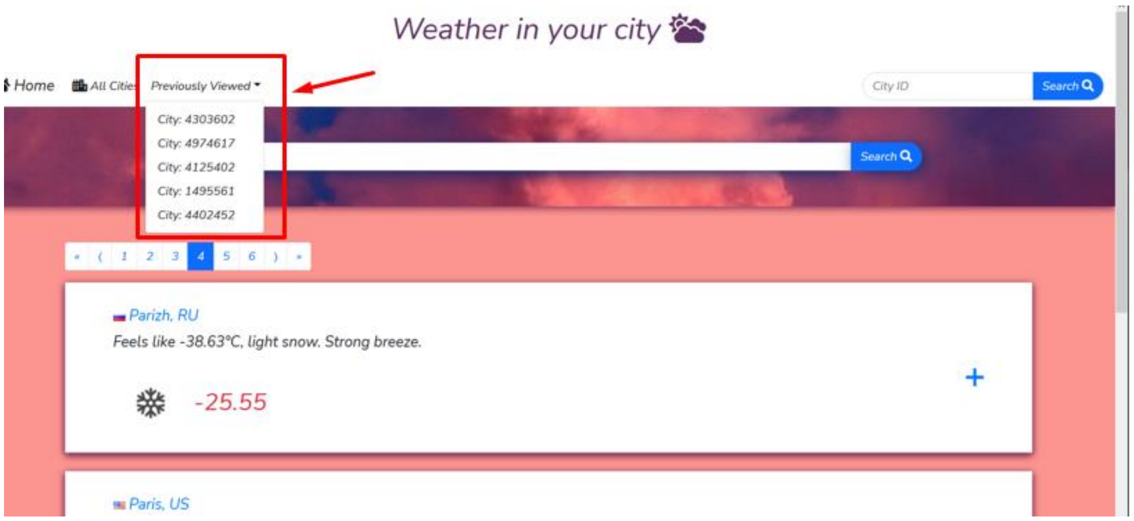
Paris, FR
Feels like 8.72°C, clear sky. Light breeze.
11.27
Paris 14, FR

Paris, US
Feels like 2.65°C, clear sky. Light breeze.
6.52

Expect weather from 5.00°C **to** 8.00°C
Sunrise: 12:17 PM **Sunset:** 11:24 PM
Clouds: clear sky **Humidity:** 57% **Pressure:** 1016 hPa
Wind: 2.41 m/s West-southwest (WSW 244)
Geo Location: -84.253, 38.2098
Last Updated: 2/24/2021, 12:10 AM

Paris, US
Feels like -1.81°C, overcast clouds. Calm.

List of visited cities



Rubric:

- Use OpenWeatherMap API (JSON data), collect/process all required data. (1)
- Error Handling(API, search keyword) (1)
- Layout (Menu + Show result in Summary/Detail layout) (1)
- Use React Bootstrap in design (1)
- Use React Route + NavBar + visited_cities(1.5)
- Apply React Pagination (Display three records per page) (1.5)
- Try to reduce the number of API calls (0.5)
- Coding style + Presentation (walkthrough, challenges, self evaluation) (0.5)

Assignment Submission:

- Add the following declaration at the top of your index.js file

```
/*********************************************************************************
*  WEB422 – Assignment 2
*  I declare that this assignment is my own work in accordance with Seneca Academic Policy.
*  No part of this assignment has been copied manually or electronically from any other source
*  (including web sites) or distributed to other students.
*
*  Name: ______________________ Student ID: __________________ Date: ____________________
*
*
********************************************************************************/
```

- Compress (.zip) the files in your Visual Studio working directory **without node_modules** (this is the folder that you opened in Visual Studio to create your client side code).

Important Note:

- Submitted assignments must run locally, ie: start up errors causing the assignment/app to fail on startup will result in a **grade of zero (0)** for the assignment.
- **LATE SUBMISSIONS for assignments**. There is a deduction of 10% for Late assignment submissions, and after three days it will grade of zero (0).
    - In case if you need an extension on an assignment, please submit the incomplete work by the deadline and email me prior to the deadline. Upon evaluating your situation, I may give you an extension.
- Assignments should be submitted along with a video-recording which contains a detailed walkthrough of solution. Without recording, the assignment can get the maximum of 1/3 of the total.
    - If you are running out of time, you can submit the project+screenshot by deadline and submit the video within 24 hours after deadline.
    - The video recording should consist of a walkthrough explanation of code in vs-code as live demo of the final product, as well as explain challenges you faced and your self-evaluation.
    - Note: If video recording takes time and you are running out of time for submitting the assignment, you can submit the assignment by the deadline and submit the video recording within 24 hours after the deadline.