# Lab 9
# Hosting a React App

*CSCI2720 Building Web Applications*

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# Agenda

- create-react-app
- Development server
- Optimized deployment
- Deploying in the cloud using Netlify

# Another way to set up a React app

- Earlier we used plain HTML `<script>` statements to use React, JSX, and React-router
- We can use a convenient tool *create-react-app* to set up an environment for React development
  - You have definitely seen this method more often in online tutorials
- At CSCI2720 VM, type this command:

```
npx create-react-app lab9-app
```

- **npx** is a tool from Node and npm

# Another way to set up a React app

- It takes quite a while to set up all the Node modules
  - If you read carefully, you can see that a *local git repo* is included
- First, go into the app directory

  ```
  cd lab9-app
  ```

- Here, these setups are provided

  ```
  1. npm start
  ```

  - A development server (*by default on port 3000*), to be discussed next…

  ```
  2. npm run build
  ```

  - Publishing a set of ***static*** files, optimized for production in `build`
  - You can serve the `build` directory with Node+Express, or using **`serve`** as suggested

# Task 1.

# Try the development server

- Let's try the development server
- You need to edit the file `package.json` to use your assigned port

```
cd lab9-app
```

*(you can skip this step if you're in already)*

```
nano package.json
```

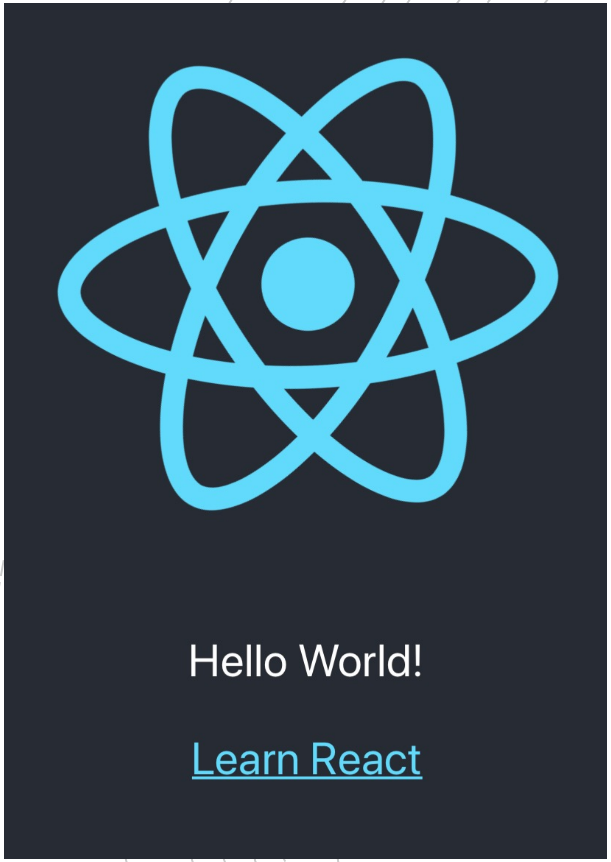
  - Find the line **`"start":`**… inside `"scripts"`, and change it to

```
"start": "PORT=xxxx react-scripts start",
```

  - Of course, use your port number instead of *xxxx*
  - Save the file and start the server by

```
npm start
```

  - Now you can visit the default app on *http://csci2720-g?.cse.cuhk.edu.hk*



Hello World!

- Use ***Ctrl+C*** in the shell to stop the server if needed
- Edit `src/App.js` and change the line to “Hello World!”
  - You can also edit the file *without stopping* the server, and new contents show up when you refresh the page

# Some difference here for React

- You could recognize some changes in syntax here in `App.js`
  - import lines
    - `import React from 'react';`
  - ReactDOM rendering
    - `export default App;`
- You should also take a look into `index.js`
- The *development server* blurs the line between backend and frontend, yet it’s actually only using Node to *compile* some frontend code and automatically serve it using Node
  - If you build the static files, you *compile* the frontend code and would manually serve it somewhere

## Task 2.

## Optimize for production

- Another way to serve the contents is to compile code into static files
- In the folder `lab9-app`, type this command:

```
npm run build
```

- The ***optimized*** static HTML/JS files will be ready in the `build` folder
  - Serve this folder with your favourite web server: Apache, Node, serve, …

# Deploying the React app in Netlify

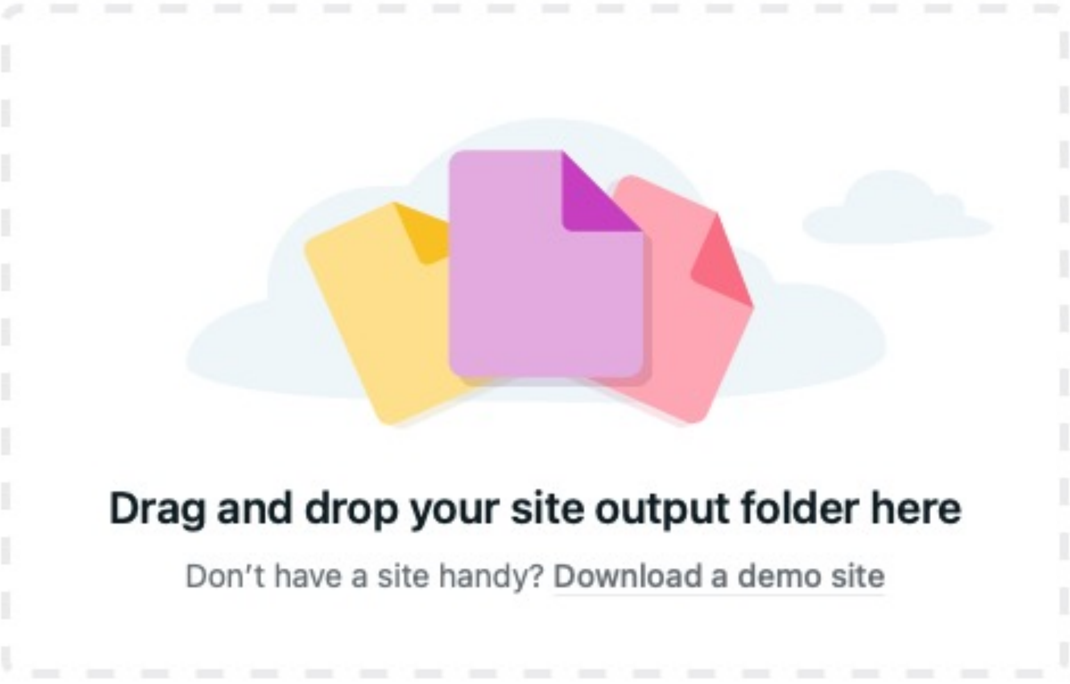
- A growing trend is to use serverless platforms for web apps
- We will use the free service of ***Netlify*** to host our app (while there are more possibilities!)
- The code could be hosted on an online git repo (e.g. GitHub)
    - Or, we will simply upload the static files!

# Host the app in the Cloud

- Using an SFTP (SSH File Transfer Protocol) client, you can get and put files to and from the CSCI2720 VM
  - *e.g.* FileZilla, MobaXterm, Cyberduck, …

1. Download the **`build`** folder from `lab9-app` to your local computer
2. Go to [www.netlify.com](www.netlify.com) and apply for a free account
   - *Note*: we don't force you to sign up for an account if you don't want to
3. Set up your team and make sure you are only using the free service

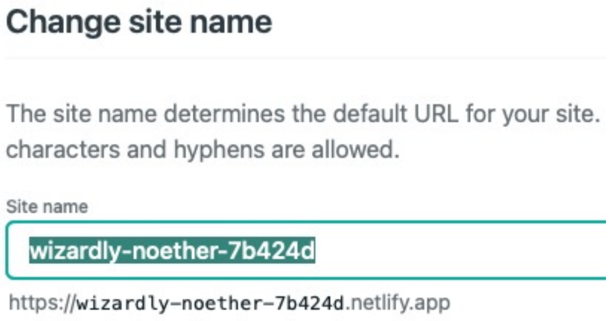
# Host the app in the Cloud



Drag and drop your site output folder here

Don’t have a site handy? Download a demo site

4. Access https://app.netlify.com/drop and put your **build** folder there
5. A curious name has been generated for your site: change it in “*site name*” if you wish!
   - If you want, it is possible to pay to use a custom domain instead of *.netlify.app
6. Your web app is ready in the cloud!
   - There are more settings around and you may feel free to explore



Change site name

The site name determines the default URL for your site.
characters and hyphens are allowed.

Site name

wizardly-noether-7b424d

https://wizardly-noether-7b424d.netlify.app

# Just a primer…

- This lab serves only a tiny taste of serverless environment for you
- We will try further on the very powerful AWS environment later
  - *Indeed, Netlify can also communicate with AWS for certain services…*

# Submission

- No submission is needed for labs
- Hope that you have learnt something useful!
- There is no assignment for serverless deployment