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Modul Pembelajaran [Kode Modul]

[NAMA MODUL]

Pathway	:	
Sub Pathway	:	
Kompetensi	:	
Key Element	:	
Level	:	
Developer	:	
Approval	:	1. Mgr Learning Development 2. SM School of Dig Platform & Service

Sesuai Dirkom-10

Nama/ NIK/ Bidang Atau Nama Vendor

Modul Pembelajaran	:	React Introduction
Deskripsi Modul	:	React adalah framework untuk bahasa pemrograman Javascript yang digunakan untuk membuat user-interfaces (UI) yang interaktif dan dinamis. React dibangun oleh Facebook pada tahun 2011, dengan rilis ofisial dan umum pada 2013.
Enabling Learning Objective	:	Memahami tentang React sebagai salah satu tool untuk web development
Daftar Topik	:	1. Why learn ReactJS? 2. Prerequisite for ReactJS 3. Ways to install ReactJS, 4. Using the create react app command 6. Rethrowing 7. try…catch…finally 8. Global catch
Searching Keyword	:	1. React JS 2. Node.js 3. NPM and Yarn 4. Git 5. npx install 6. npx create-react-app

Telkom Corporate University
from competence to commerce

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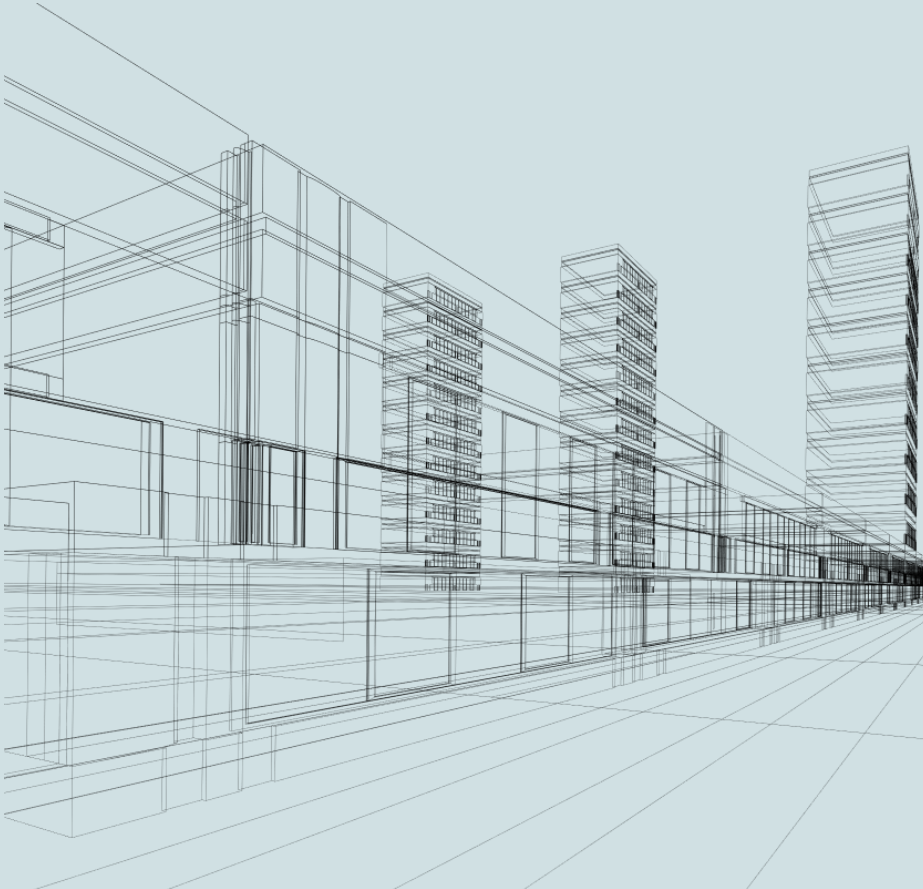
the world in your hand



REACTJS

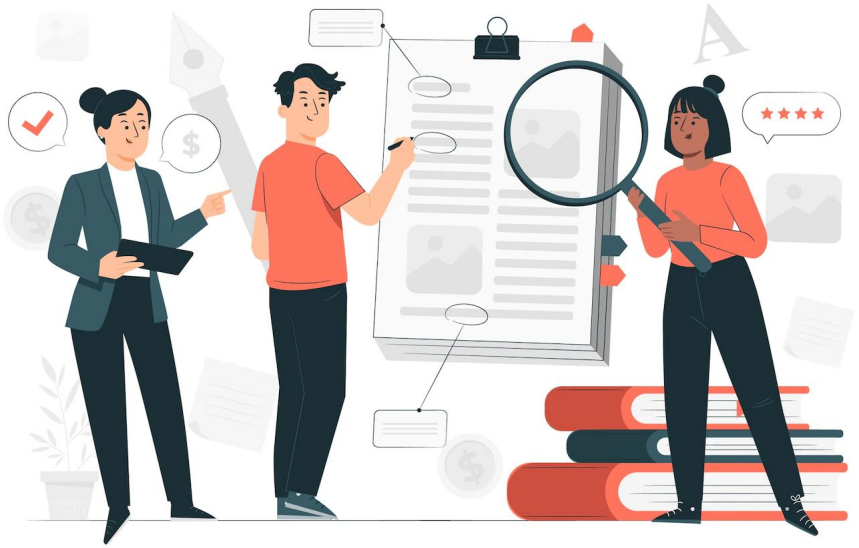
React Introduction

Calvin Susanto Putra

Table of Contents

React Introduction

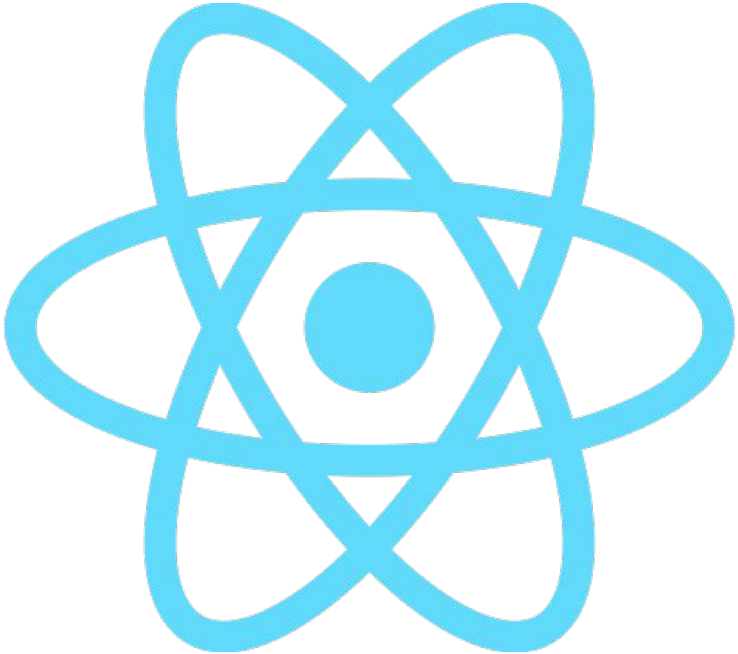
- For creating reusable UI components, ReactJS is a declarative, effective, and adaptable JavaScript toolkit.
- It is an open-source front end library that is only in charge of the application's view layer.
- Jordan Walke, a software engineer at Facebook, developed it.
- Facebook created and maintained it at first, and then used it in products like WhatsApp and Instagram.
- ReactJS was created by Facebook in its newsfeed area in 2011, but it wasn't made available to the general public until May 2013.



storyset - freepik.com

Why Learn React.JS ?

- React is component-based, saving workload and time by breaking down an interface into reusable, modular components to build dynamic UI.
- This is how it works:
  - with a declarative syntax, it cuts down on development time and grants web apps cross-platform capabilities
  - representing a component's state simply requires a declaration or utility function
  - being supported by FAANG companies means that React retains a popular status and strong community support



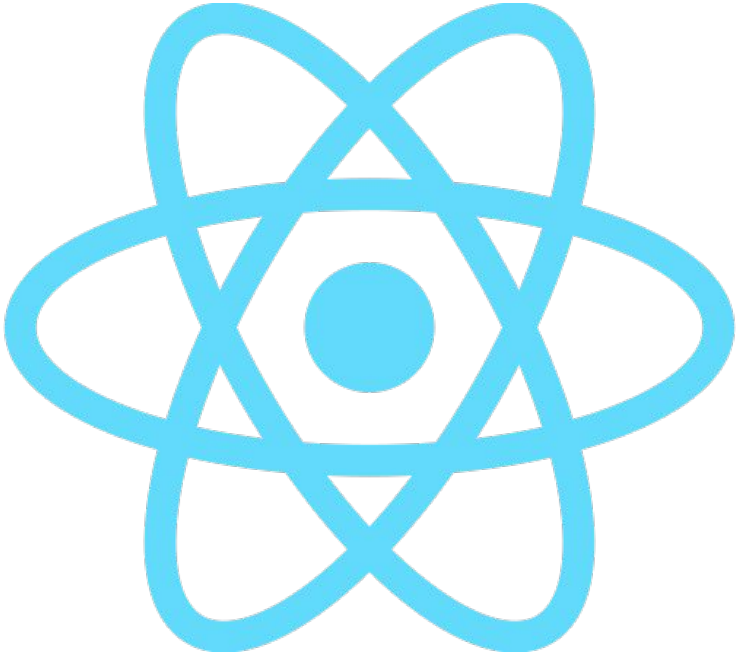
Facebook - github.com

Prerequisites for Learning React

- HTML, CSS, JS
- An understanding of ES6/7 concepts
- Node.js and CLI (command-line interface)
- NPM or Yarn package managers
- Git version-control system

Prerequisites for Learning React

- HTML and CSS:
    - semantic HTML tags comprised the fundamental principles in understanding the format of JSX or Javascript XML to build React-based applications.
    - the box-model, selectors and classes, as well as mobile-responsiveness are critical in understanding the dynamism and intractability of user-interfaces
    - both languages are done entirely in JS, and stored as local or global variables



Facebook - github.com

Prerequisites for Learning React

- A visualization of JSX :

```
3   const HelloWorld = () => {
4     return (
5       <div>
6           <Heading> Hello World </Heading>
7       </div>
8     )
9   }
10
11  const Heading = styled.h1`
12      font-weight: 500;
13      font-size: 25px;
14      padding-bottom: 1rem;
15  `;
```

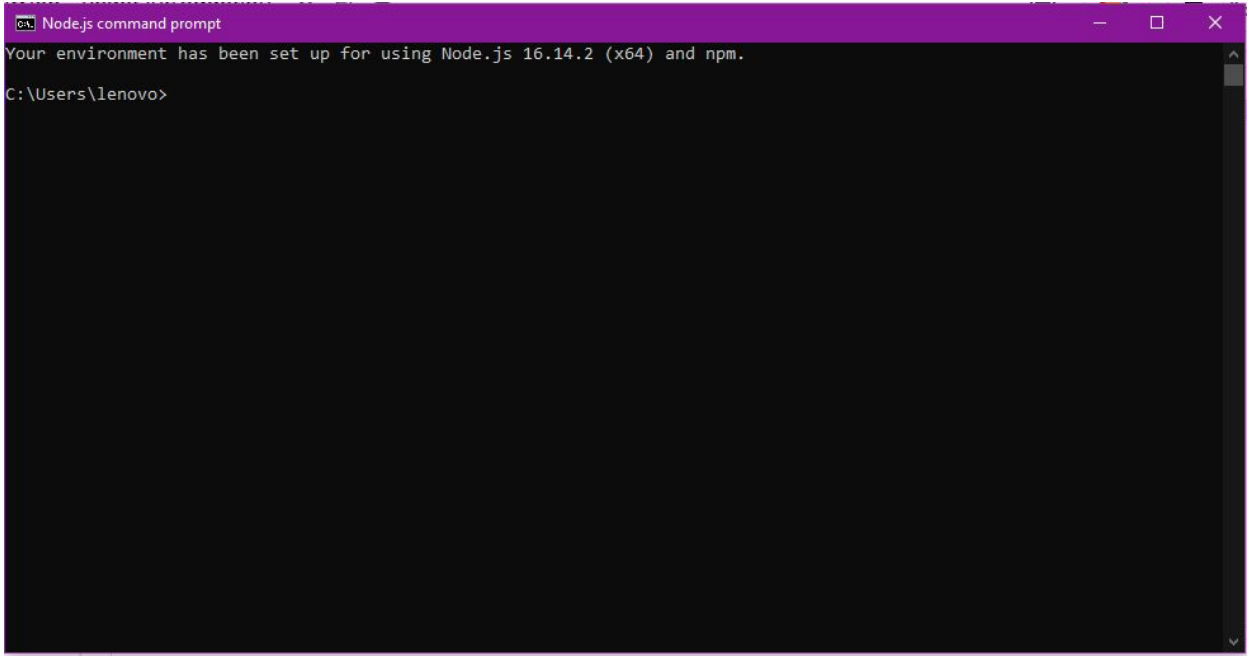
Prerequisites for Learning React

- Node.js is required to start hosting a virtual server for developing React applications.
- Furthermore, a Node.js runtime environment is one of the base requirements in installing package managers, namely :
    - NPM, by default, comes with Node.js and contains an official registry of external libraries, ready to be installed by commands
    - Yarn maintains the same role, albeit does not come with Node.js by default. Rather, it is an independent 3rd-party software with an emphasis on speed, security, and consistency of module installations.

node.js - nodejs.org

Prerequisites for Learning React

- An example of a Node.js terminal:



Prerequisites for Learning React

- Package managers and related software aids in the automation of installation, update, configuration, and deprecations of external libraries or “packages”.
- The following lists the standard package-management system for React:
    - NPM is bundled in a Node.js Runtime Environment, and is available upon Node.js installation. It is written in the following command form:
    - npm install >package-name>
    - Yarn operates in a similar manner with :
      yarn add <package-name>

npm - npmjs.com

```
C:\Users\lenovo\Desktop\JAMStack Dev\React\disney-p-clone> npm install

up to date, audited 1506 packages in 42s

178 packages are looking for funding
  run `npm fund` for details

7 high severity vulnerabilities

To address issues that do not require attention, run:
  npm audit fix

To address all issues (including breaking changes), run:
  npm audit fix --force

Run `npm audit` for details.
```

Prerequisites for Learning React

- Git is a version-control system used for real-time collaboration and documentation between developers, often in remote teams.

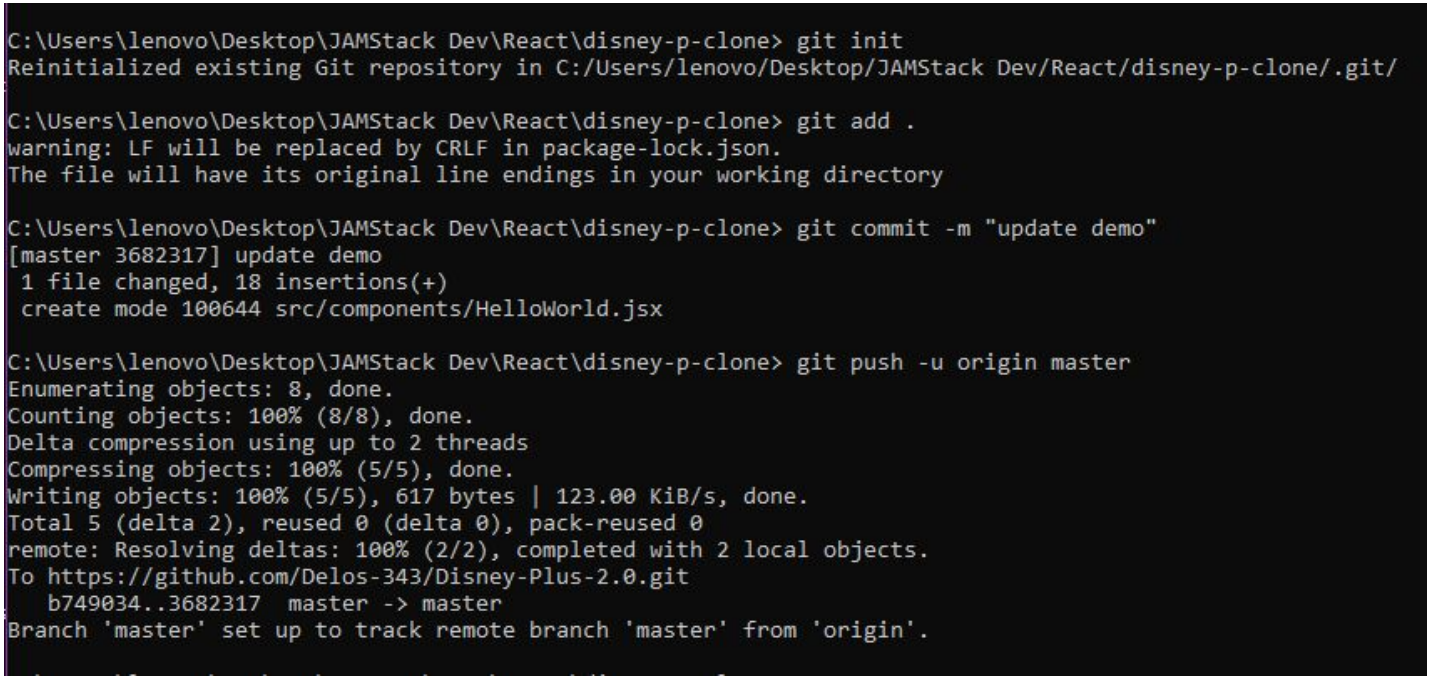
- utilizing a Node.js terminal or Git Bash, the system allows teams to “pull” a request or clone a Github repository, and then push updates to the code - a redundancy against inconsistent code.

- Git is best used with Microsoft Visual Studio Code due to its integrated Git extensions or plugins and direct Github connectivity.

git - git-scm.com

Prerequisites for Learning React

- A Git instance running on a Node.js terminal:

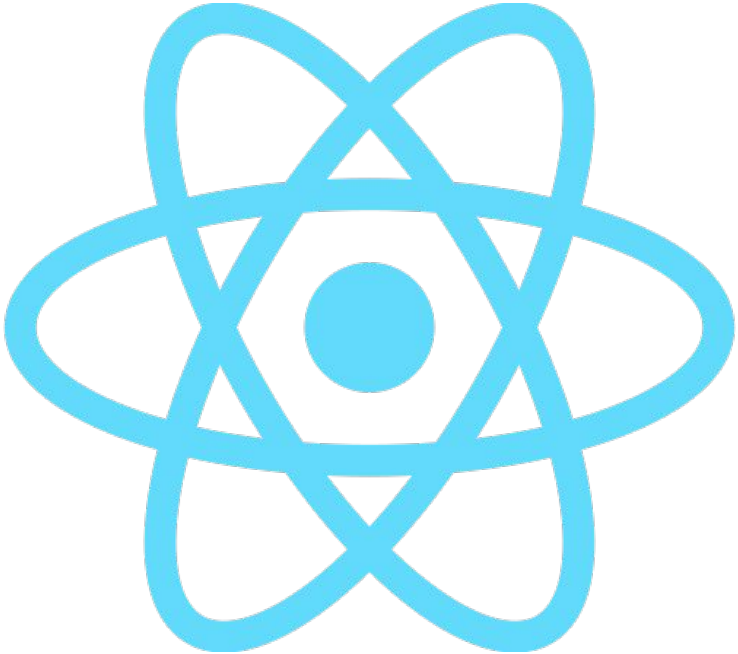


Ways to install React.JS

- To setup a React project calls for the creation of a stable runtime environment and virtual server to host the application. To do this requires Node.js.

- However, a React App has a basis in two components:
    - Babel is a Javascript transpiler, converting code into another form - in this case, from XML to base Javascript as used on the web.

    - Webpack is a module bundler used to quickly swap or load independent modules.



Facebook - github.com

Ways to install React.JS

- To install a React.JS application manually, a directory must first be made as a root folder.

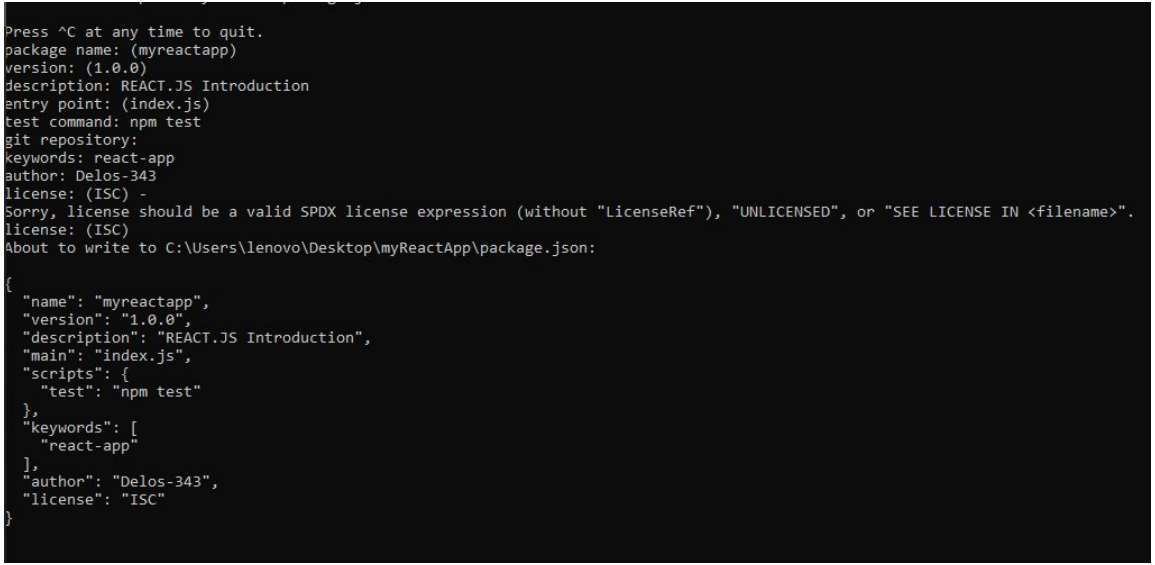
```
C:\Users\lenovo\Desktop>mkdir myReactApp

C:\Users\lenovo\Desktop>cd myReactApp
```

- Once the folder has been created, track the directory and initialize an empty Git repository

```
C:\Users\lenovo\Desktop\myReactApp>npm init
This utility will walk you through creating a package.json file.
It only covers the most common items, and tries to guess sensible defaults.

See `npm help init` for definitive documentation on these fields
and exactly what they do.

Use `npm install <pkg>` afterwards to install a package and
save it as a dependency in the package.json file.
```

Ways to install React.JS

- Once done, the terminal will ask for the user to fill in the blanks accordingly. This will also initialize a package.json file.



Ways to install React.JS

- Press any button to confirm the project with a name of your own choosing.

```
Is this OK? (yes)
```

- Install React and React-Dom, this can be done in a single command:.

```
C:\Users\lenovo\Desktop\myReactApp>npm install react react-dom --save

added 2 packages, and audited 6 packages in 15s

found 0 vulnerabilities
```

Ways to install React.JS

- The next step is to install webpack, webpack-dev-server and webpack-cli.

```
C:\Users\lenovo\Desktop\myReactApp>npm install webpack webpack-dev-server webpack-cli --save

added 304 packages, and audited 310 packages in 5m

36 packages are looking for funding
  run `npm fund` for details

found 0 vulnerabilities

C:\Users\lenovo\Desktop\myReactApp>Step 4 - Install babel
'Step' is not recognized as an internal or external command,
operable program or batch file.
```

Ways to install React.JS

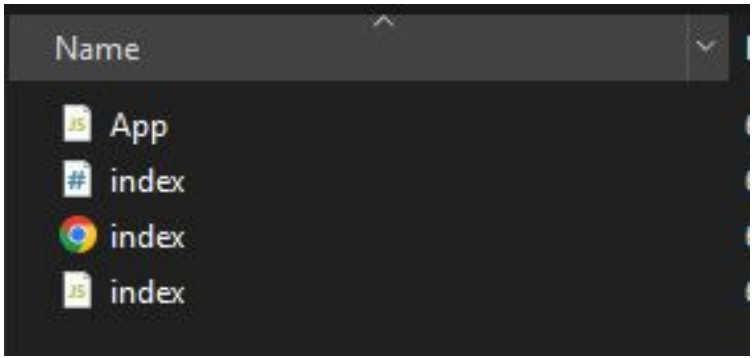
- Install Babel and its plugins:
  - babel-core, babel-loader, babel-preset-env, babel-preset-react and, html-webpack-plugin

```
C:\Users\lenovo\Desktop\myReactApp>npm install webpack webpack-dev-server webpack-cli --save

added 304 packages, and audited 310 packages in 5m

36 packages are looking for funding
  run `npm fund` for details

found 0 vulnerabilities

C:\Users\lenovo\Desktop\myReactApp>Step 4 - Install babel
'Step' is not recognized as an internal or external command,
operable program or batch file.
```

Ways to install React.JS

- Create a source folder with the following files:
  - index.html
  - App.js
  - index.js
  - index.css

```
C:\Users\lenovo\Desktop\myReactApp> mkdir src

C:\Users\lenovo\Desktop\myReactApp>cd src

C:\Users\lenovo\Desktop\myReactApp\src> echo> index.html

C:\Users\lenovo\Desktop\myReactApp\src> echo> App.js

C:\Users\lenovo\Desktop\myReactApp\src> echo> index.js

C:\Users\lenovo\Desktop\myReactApp\src> echo> index.css
```



Using the create-react-app command

- Alternatively, one can simply run the create-react-app command

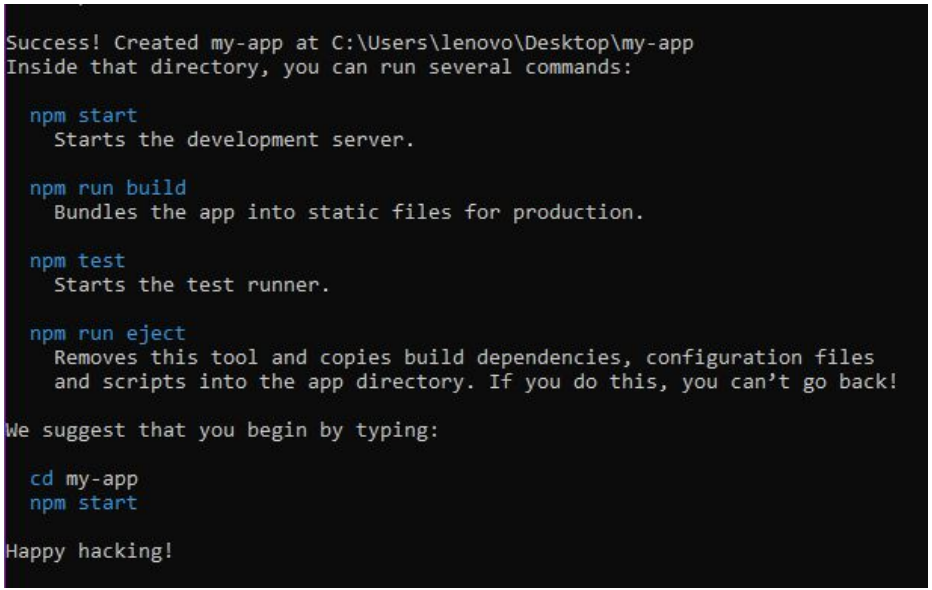
```
C:\Users\lenovo\Desktop> npx create-react-app my-app
```

- Node.js and accompanying package managers (NPM, Yarn) must be installed beforehand

- Ensure that the root directory is created with access to a secure network connectivity

Using the create-react-app command

- If successful, the results should look like this:



Using the create-react-app command

- To jumpstart the application, change the directory into the project folder and run the command:

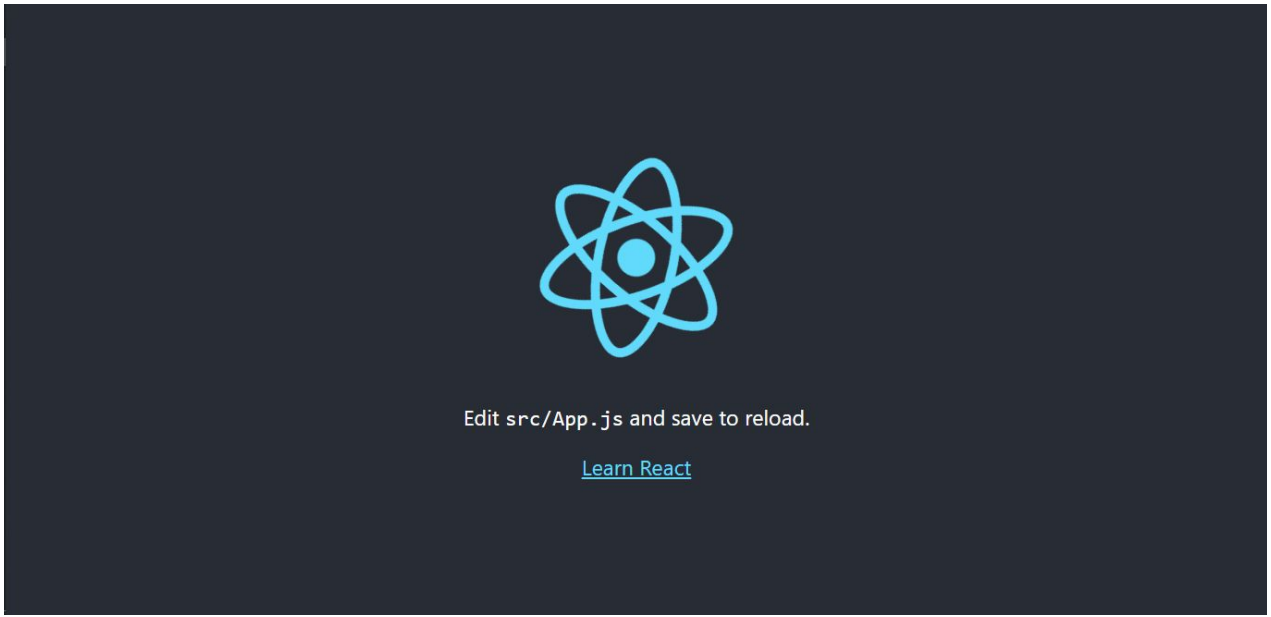
```
C:\Users\lenovo\Desktop> cd my-app

C:\Users\lenovo\Desktop\my-app> npm run start
```

- The app is accessible through localhost:8000

```
(node:12212) [DEP_WEBPACK_DEV_SERVER_ON_AFTER_SETUP_MIDDLEWARE] DeprecationWarning: 'onAfterSetupMiddleware' option is deprecated. Please use the 'setupMiddlewares' opt
ion.
(Use `node --trace-deprecation ...` to show where the warning was created)
(node:12212) [DEP_WEBPACK_DEV_SERVER_ON_BEFORE_SETUP_MIDDLEWARE] DeprecationWarning: 'onBeforeSetupMiddleware' option is deprecated. Please use the 'setupMiddlewares' o
ption.
Starting the development server...
Compiled successfully!

You can now view my-app in the browser.

  Local:            http://localhost:3000
  On Your Network:  http://192.168.0.180:3000

Note that the development build is not optimized.
To create a production build, use npm run build.

webpack compiled successfully
```

Using the create-react-app command

- The application should look like this:



References

- https://codersera.com/blog/why-learning-reactjs-makes-sense-in-2020/#:~:text=Why%20you%20should%20learn%20ReactJS,thinking%20behind%20'Design%20Systems'.
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- https://www.freecodecamp.org/news/learning-react-roadmap-from-scratch-to-advanced-bff7735531b6/
- https://www.tutorialspoint.com/reactjs/reactjs_environment_setup.htm
- https://docs.microsoft.com/en-us/windows/dev-environment/javascript/react-on-windows
- https://leanpub.com/reactjs-documentation-pdf

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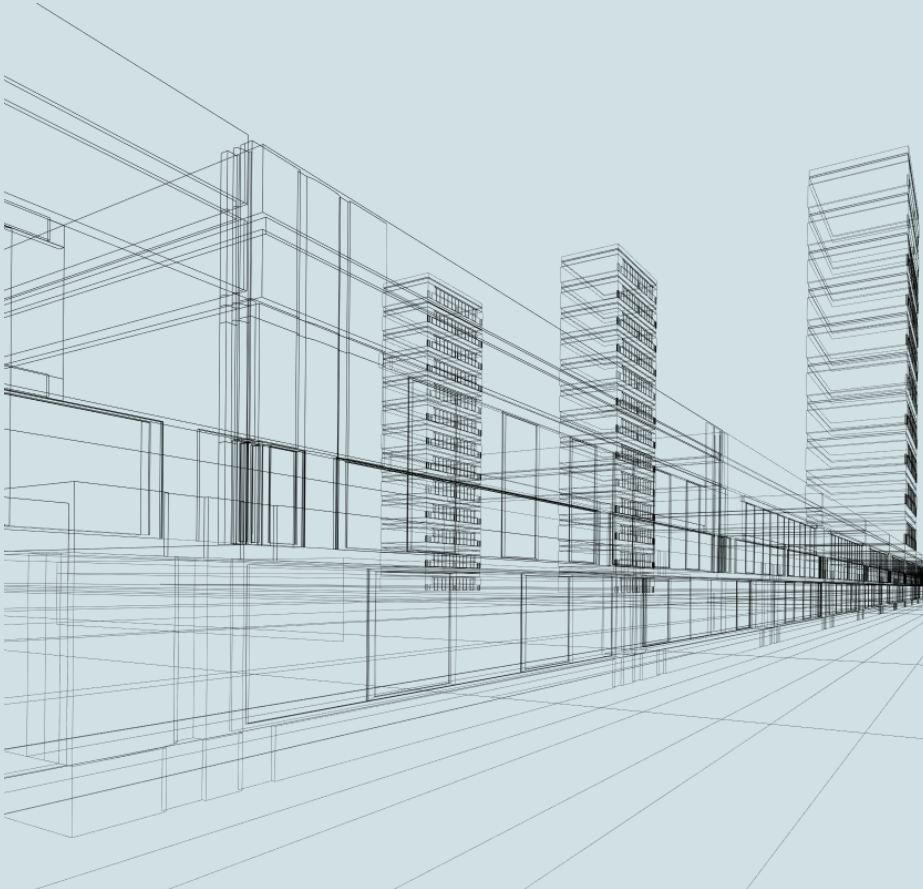

REACTJS

React Introduction

Calvin Susanto Putra

Kelengkapan Modul

- Pre & Post Test (minimal 10 soal, pilihan ganda a-d)
- Pre Reading
- Teaching Notes
- Referensi

Assessment – [Pre & Post Test]

Pre-Reading

ReactJS is a Javascript library for building user interfaces. This PDF ebook is a portable offline reference guide for the community, can be printed or synced with your kindle for a better reading experience. It's based on ReactJS version v.16.13.1

This is an excellent reference format for ReactJS beginners, is not a tutorial just the official documentation for your reference

TEACHING NOTES*

Lesson/Topics | Case Study | Clips | Games | Others : . . . . . .

OBJECTIVES

Memahami tentang konsep dasar nya ReactJS

PERSIAPAN

Offline: Laptop
Online: Link Zoom

OVERVIEW

React adalah framework untuk bahasa pemrograman Javascript yang digunakan untuk membuat user-interfaces (UI) yang interaktif dan dinamis. React dibangun oleh Facebook pada tahun 2011, dengan rilis ofisial dan umum pada 2013.

DIRECTION

- Menjelaskan apa, bagaimana dan tujuan dari kegiatan;
- Mengatur dan mengelola arah dan jalan-nya diskusi;
- Memberikan contoh-contoh, kasus dan ilustrasi;
- Memberikan apresiasi dalam tanya jawab;
- Memberikan debrief atau insight/pesan dari kegiatan;
- Memberikan dan menyampaikan kesimpulan dan di tiap sesi atau di akhir sesi

PERALATAN YANG DIBUTUHAN

Offline : Laptop

Online: Link Zoom

***Catatan :** jumlah halaman teaching Note dapat ditambah seauai kebutuhan*

TEACHING NOTES 2/2*

DIRECTION

Section (slide/clip/case/etc)	**Activities** (Hal apa yang akan dilakukan untuk setiap section-nya)	**Description** (hal-hal spesifik yang harus dilakukan, misal : penjelasan dan atau penekanan materi, pengelolaan arah dan jalannya diskusi, wrap up/insight atau debrief, etc)
5	Presentasi, Diskusi	Menjelaskan tentang gambaran umum tentang React
6	Presentasi, Diskusi, Case Study	Menjelaskan tentang introduksi React dan kenapa ia popular
7 - 14	Presentasi, Diskusi, Case Study	Menjelaskan tentang persyaratan dan tools untuk menggunakan React
15 - 21	Presentasi, Diskusi, Case Study	Menjelaskan tentang installasi React secara manual dan automated
22 - 25	Presentasi, Diskusi, Case Study	Menjelaskan tentang penggunaan command “npx create-react-app”