

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 resmi dan umum pada 2013.
Enabling Learning Objective	:	Memahami tentang React sebagai salah satu tool untuk web development
Daftar Topik	:	<div> <ol style="list-style-type: none"> 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 </div>
Searching Keyword	:	<ol style="list-style-type: none"> 1. React JS 2. Node.js 3. NPM and Yarn 4. Git 5. npx install 6. npx create-react-app

REACTJS

React Introduction

Calvin Susanto Putra

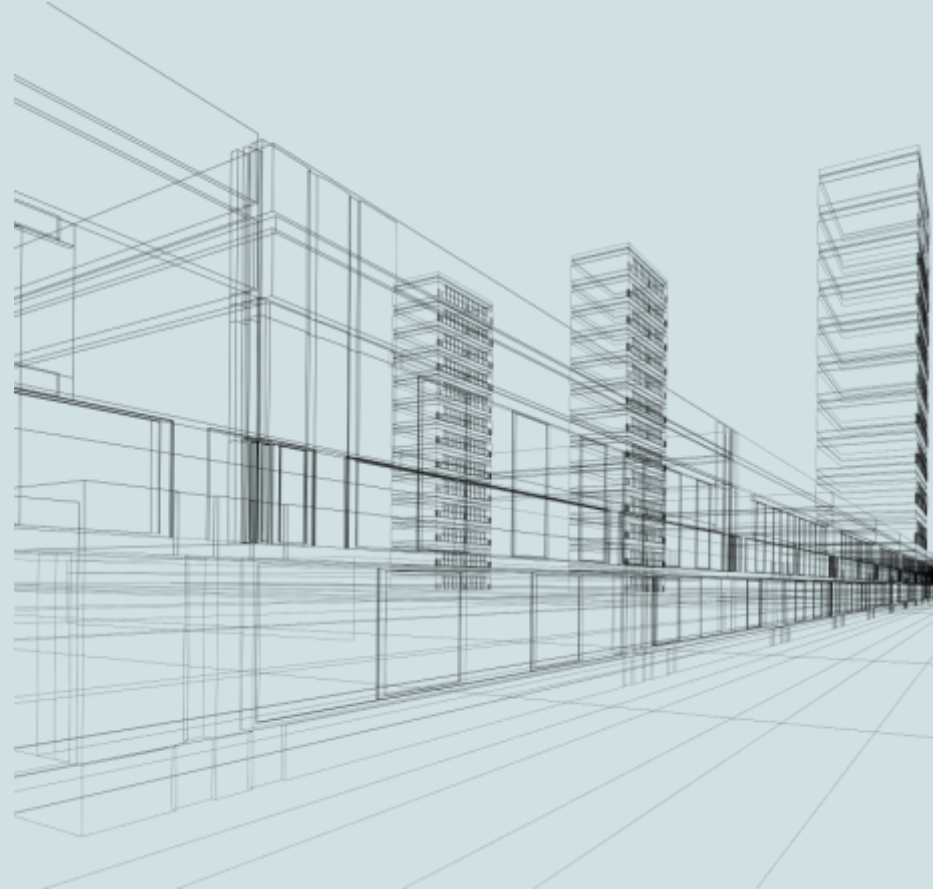


Table of Contents

- a. **React.JS Introduction**
- b. **Why Learn React.JS ?**
- c. **Prerequisites for React.JS**
- d. **Ways to install React.JS**
- e. **Using the create-react-app command**

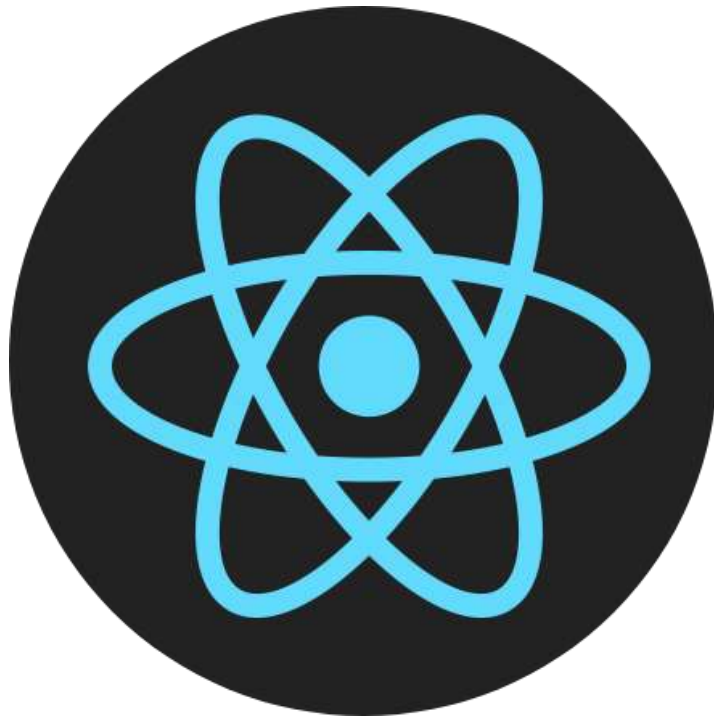
React Introduction

- 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.



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



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Prerequisites for Learning React

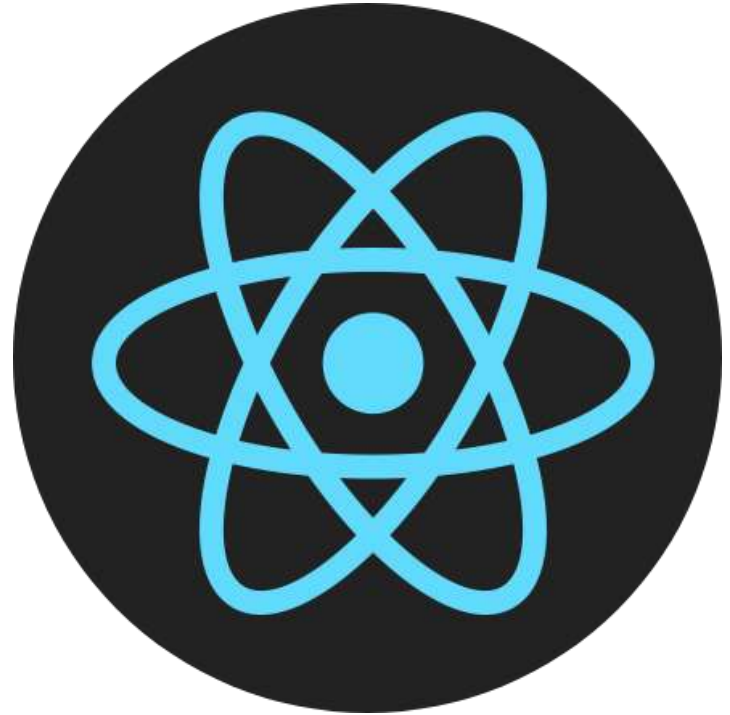


- HTML, CSS, JS
- An understanding of ES6/7 concepts
- Node.js and CLI (command-line interface)
- NPM or Yarn package managers
- Git version-control system

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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



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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

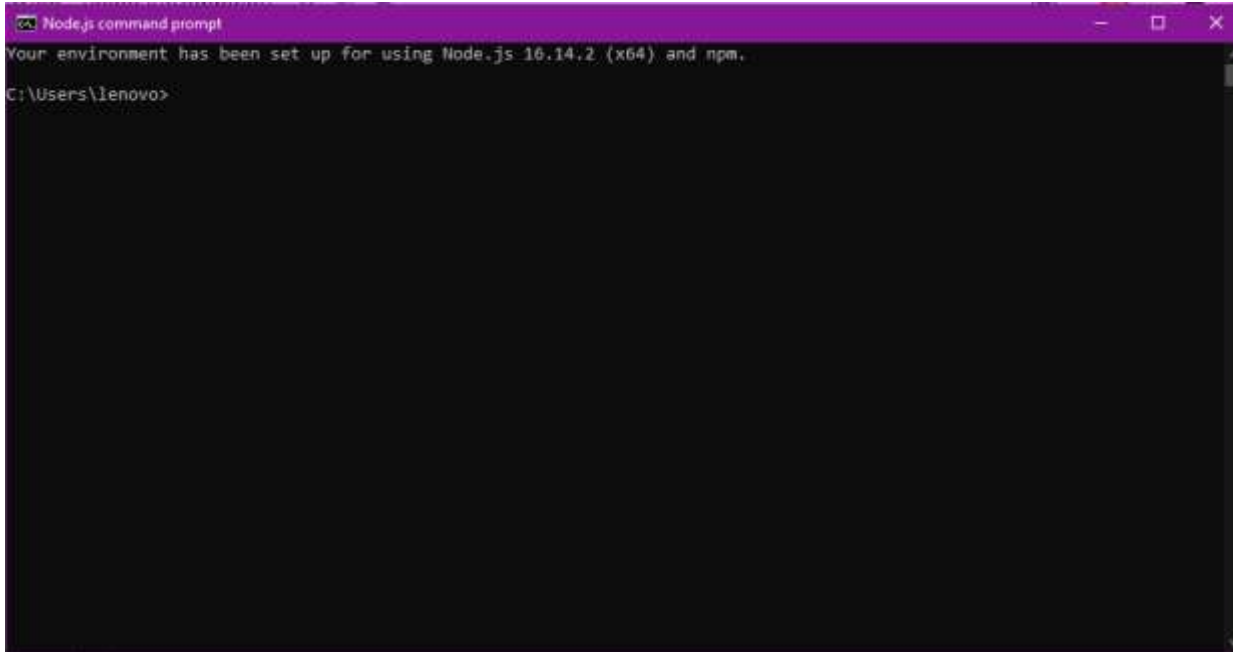
- Node.js is required to start hosting a virtual server for developing React applications.
- Furthermore, a Node.js runtime environment is one of the base requirements in installing package managers, namely :
 - NPM, by default, comes with Node.js and contains an official registry of external libraries, 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.



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Prerequisites for Learning React

- An example of a Node.js terminal:

A screenshot of a Windows command prompt window titled "Node.js command prompt". The window has a blue title bar with standard Windows window controls (minimize, maximize, close). The main area of the window is black with white text. The first line of text reads: "Your environment has been set up for using Node.js 16.14.2 (x64) and npm." The second line shows the current directory: "C:\Users\lenovo>". There is a vertical scrollbar on the right side of the window.

```
Node.js command prompt
Your environment has been set up for using Node.js 16.14.2 (x64) and npm.
C:\Users\lenovo>
```

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>`



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```
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.



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Prerequisites for Learning React

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

```
C:\Users\lenovo\Desktop\JAMStack Dev\React\disney-p-clone> git init
Reinitialized existing Git repository in C:/Users/lenovo/Desktop/JAMStack Dev/React/disney-p-clone/.git/

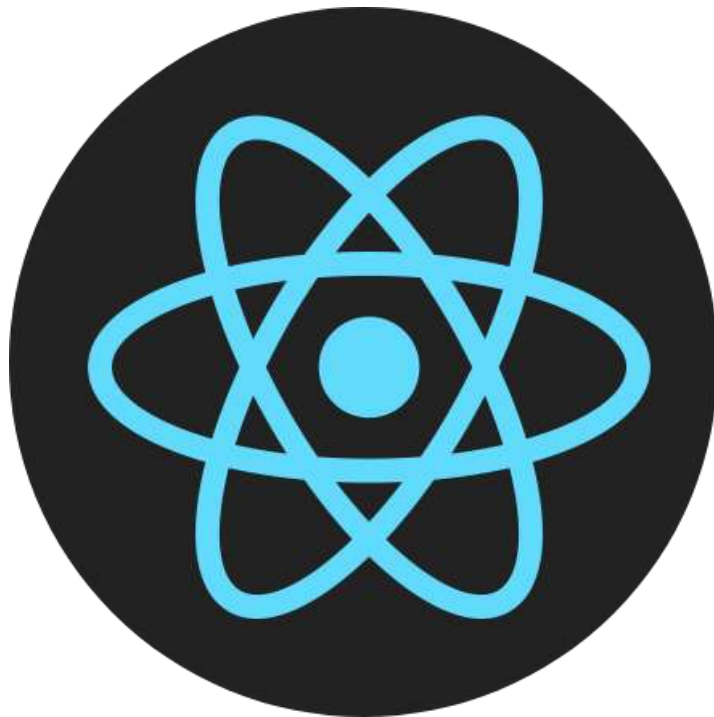
C:\Users\lenovo\Desktop\JAMStack Dev\React\disney-p-clone> git add .
warning: LF will be replaced by CRLF in package-lock.json.
The file will have its original line endings in your working directory

C:\Users\lenovo\Desktop\JAMStack Dev\React\disney-p-clone> git commit -m "update demo"
[master 3682317] update demo
1 file changed, 18 insertions(+)
create mode 100644 src/components/HelloWorld.jsx

C:\Users\lenovo\Desktop\JAMStack Dev\React\disney-p-clone> git push -u origin master
Enumerating objects: 8, done.
Counting objects: 100% (8/8), done.
Delta compression using up to 2 threads
Compressing objects: 100% (5/5), done.
Writing objects: 100% (5/5), 617 bytes | 123.00 KiB/s, done.
Total 5 (delta 2), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (2/2), completed with 2 local objects.
To https://github.com/Delos-343/Disney-Plus-2.0.git
   b749034..3682317  master -> master
Branch 'master' set up to track remote branch 'master' from 'origin'.
```

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.



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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.

```
Press ^C at any time to quit.
package name: (myreactapp)
version: (1.0.0)
description: REACT.JS Introduction
entry point: (index.js)
test command: npm test
git repository:
keywords: react-app
author: Delos-343
license: (ISC) -
Sorry, license should be a valid SPDX license expression (without "LicenseRef"), "UNLICENSED", or "SEE LICENSE IN <filename>".
license: (ISC)
About to write to C:\Users\lenovo\Desktop\myReactApp\package.json:

{
  "name": "myreactapp",
  "version": "1.0.0",
  "description": "REACT.JS Introduction",
  "main": "index.js",
  "scripts": {
    "test": "npm test"
  },
  "keywords": [
    "react-app"
  ],
  "author": "Delos-343",
  "license": "ISC"
}
```

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

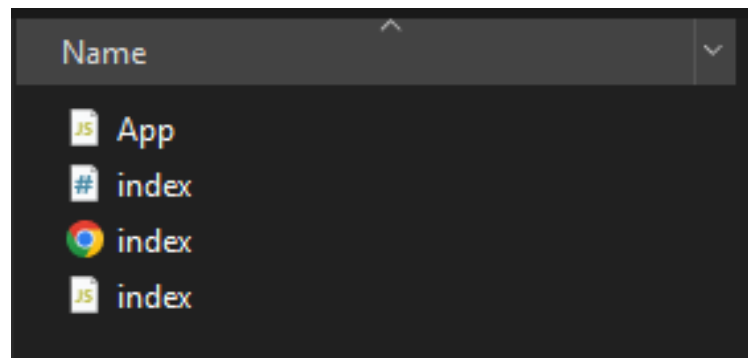
found 0 vulnerabilities

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:

```
Success! Created my-app at C:\Users\lenovo\Desktop\my-app
Inside that directory, you can run several commands:

  npm start
    Starts the development server.

  npm run build
    Bundles the app into static files for production.

  npm test
    Starts the test runner.

  npm run eject
    Removes this tool and copies build dependencies, configuration files
    and scripts into the app directory. If you do this, you can't go back!

We suggest that you begin by typing:

  cd my-app
  npm start

Happy hacking!
```

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' option.  
(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' option.  
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:



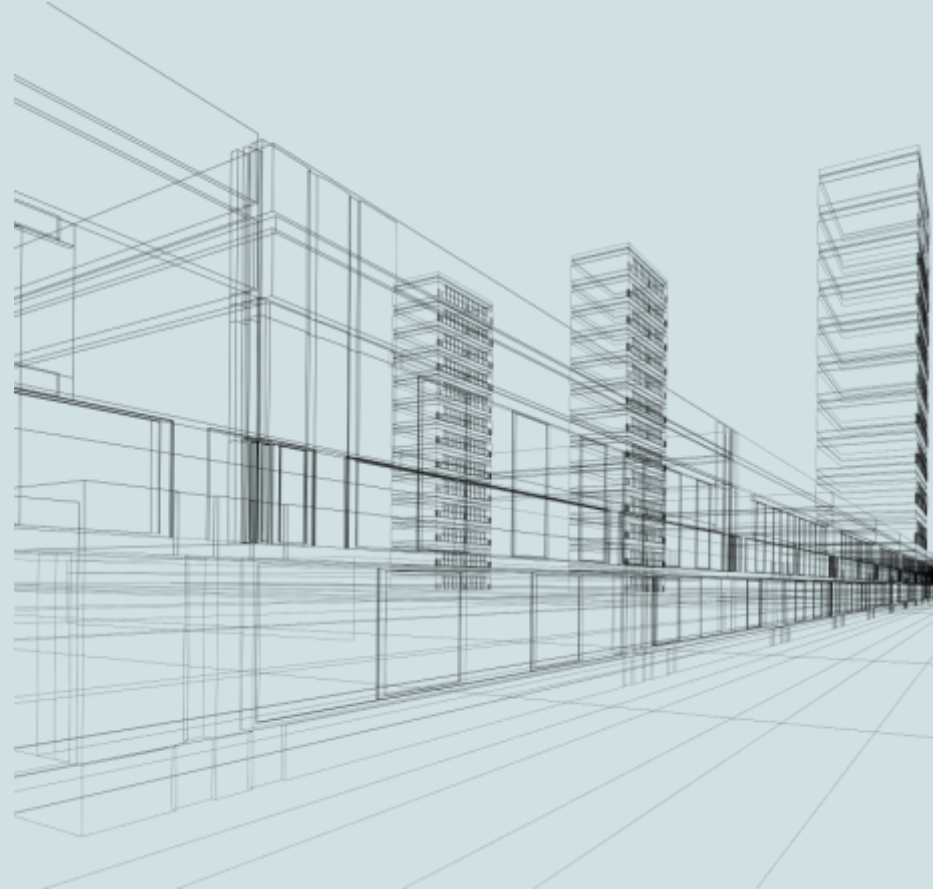
References

- <https://codersera.com/blog/why-learning-reactjs-makes-sense-in-2020/#:~:text=Why%20you%20should%20learn%20ReactJS,thinking%20behind%20'Design%20Systems'>.
- <https://www.codecademy.com/resources/blog/3-reasons-to-learn-react/>
- <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>

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 resmi 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 sesuai kebutuhan*

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 populer
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”

References

Ilya Kantor (2022), “Error handling, "try...catch"”,
<https://javascript.info>