**HANDBOOK**

**Google Developer Student Clubs Universitas Sumatera Utara**

**Introduction to ReactJS**

1. **Google Developer Student Clubs**

Google Developer Student Clubs (GDSC) is a club community for students, designed to help them build skills and knowledge in mobile and web application development. This program is open and can be followed by all students, ranging from basic level developers, to advanced levels to improve their abilities. This program is intended to be a place for students to be able to learn and collaborate to solve problems in the development of mobile and web applications. Google Developers through the Developer Student Clubs (GDSC) program is looking for active students and students from various universities in Indonesia, both public and private. Some of the benefits obtained from this activity are getting the latest information about the Google Developers program in Indonesia, getting direct access to the Google Developer team in Indonesia and ASIA Pacific, having the opportunity to study with Googlers and Developer Experts, and collaborating with GDSC Leaders throughout Indonesia.

1. **ReactJS Workshop**

React is an open-source JavaScript library used for front-end development, which was developed by Facebook. Its component-based library lets you build high-quality user-interfaces for web apps. ReactJS is very popular and often used by developers to build web applications as it can be used for building reusable UI components.

Beside that, ReactJS uses a declarative programming concept which can help us to easily predict what will happen to our application because we only write what we want and ReactJs will handle the entire building process. ReactJs uses JavaScript ES6.

Why ReactJS? Nowadays, ReactJs is one of the most used Javascript libraries for front-end development. This is because ReactJs has more superiority than the other libraries. For example :

1. Easier to learn, provides simple library and lots of tutorials
2. Rich user interfaces, easier to build high quality user interfaces
3. Faster development, speed your work with many development tools
4. Trusted by great companies such as Facebook, Dropbox, Netflix, and so on
5. Is one of the most popular front-end technologies
6. Strong community support

ReactJS is part of learning materials on GDSC USU Front End Development Learning Path. In this learning path, the members of GDSC USU will be provided with some learning materials such as Workshop and Task. In the workshop, GDSC USU will invite the experts in this field to become a speaker and also help GDSC USU to provide a task for the members that are taking this learning path.

1. **Details**

In this workshop, students will learn about fundamentals of ReactJS :

1. JSX

JSX is a syntax extension to JavaScript. JSX stands for Javascript XML and it is a very useful tool for React developers. JSX is an extension of the JavaScript language which provides a way to structure component rendering using syntax similar to HTML. JSX gives us the ability to write HTML elements in Javascript and place them in the DOM by converting the HTML tags into React elements without the need for other methods like createElement() or appendChild(). This combination of Javascript and HTML leads to having more powerful applications with boosted performance.

1. Functional Component

Functional components are some of the more common components that will come across while working in React. A functional component is basically a JavaScript/ES6 function that returns a React element (JSX). These are simply JavaScript functions. We can create a functional component to React by writing a JavaScript function. These functions may or may not receive data as parameters. In the functional Components, the return value is the JSX code to render to the DOM tree.

1. States and Props

React has another special built-in object called state, which allows components to create and manage their own data. So unlike props, components cannot pass data with state, but they can create and manage it internally.

While Props is short for properties and they are used to pass data between React components. React’s data flow between components is unidirectional (from parent to child only).

1. LifeCycle

Every React component has a lifecycle of its own, the lifecycle of a component can be defined as the series of methods that are invoked in different stages of the component’s existence.

1. Handling Event

Event handlers determine what action is to be taken whenever an event is fired. This could be a button click or a change in text input. Handling events with React elements is very similar to handling events on DOM elements.

There are some syntax difference between React and DOM :

* React event are named using camelCase, rather than lowercase
* With JSX you pass a function as the event handler, rather than string.

1. **Task**

For each live workshop, the members will be given a task to do based on the topic of the workshop. In this workshop, participants will be asked to build a simple todo list website using ReactJS. This website can be used to write down the member’s activity and task.

The website should fulfill some criteria, such as :

1. Read a list of activities
2. Add activities
3. Delete activities
4. Mark as completed

**Scoring System**

| Criteria | Ratings | | | Total Points |
| --- | --- | --- | --- | --- |
| Qualified | Half Qualified | Not Qualified |
| Meet the website’s criteria | 22-30 | 10-21 | <10 | 30 |
| The use of Functional Component | 16-20 | 10-15 | <10 | 20 |
| The use of Handling Event | 16-20 | 10-15 | <10 | 20 |
| Understanding of ReactJS | 11-15 | 5-10 | <5 | 15 |
| Creativity | 11-15 | 5-10 | <5 | 15 |
| **Total Points** | | | | 100 |

1. **Workshop Schedule**

**“*Introduction to ReactJS*”**

**Session Form :** Learning Basic ReactJS for Members of GDSC USU  
 **Day/Date : Saturday, December 3rd 2022**  
 **Duration :** Speaker Session 1.45 - 3.45 PM (120 minutes)

QnA Space 3.45 - 4.15 PM (30 minutes)

**Place :** 101 and 102 Lecture Room Information Technology Program

1. **Tools**

Here are the tools you need to prepare before attending this workshop :

* Text editor (Visual Studio Code, Sublime Text, etc)
* JavaScript Package Manager (npm, pnpm, or Yarn)

1. **Target Participant**

All members of GDSC USU

1. **Person In Charge**

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1. **Closing**

This TOR is structured as a reference implementation of activities in general. As for the other technical matters that require revision, because of the needs of the effectiveness of activities in order to meet the maximum target of the activities that can make a positive impact on the target group, it will be arranged later.