**React Learning Plan**

**Catalog**

1. Pre-requisites (Installation)
2. Basics about HTML, CSS
3. Basic to advanced JavaScript Topics
4. Basics of DOM
5. About SPA and its Advantages
6. File structure
7. React Topics
8. Unit Testing

9.Practical Assignments

Pre-requisites

1. We will explain and help to install the required packages into the system and set up the environment.
2. Will explain the purpose of each package that we are installing

Basics about HTML, CSS

1. To start with React, we need to know the basics of HTML and CSS and JavaScript. So, the basics of HTML and CSS will be explained.

**Before dive into the React training, you need be familiar with these Javascript topics.**

Basic to advanced JavaScript Topics

1.Values and Variables

2.Data Types

3.let, const and var

4.Basic Operators

5.Operator Precedence

6.Strings and Template Literals

7.Taking Decisions: if / else Statements

8.Type Conversion and Coercion

9.Equality Operators: == vs. ===

10.Boolean Logic

11.Logical Operators

12.The switch Statement

13.Statements and Expressions

14.The Conditional (Ternary) Operator

15.Activating Strict Mode

16.Functions

17.Function Declarations vs. Expressions

18.Arrow Functions

19.Functions Calling Other Function

20.Basic Array Operations (Methods)

21.Introduction to Objects

22.Dot vs. Bracket Notation

23.Object Methods

24.Iteration: The for Loop

25.Looping Arrays, Breaking and Continuing

26.Looping Backwards and Loops in Loops

27.The while Loop

28.Scoping in Practice

29.Hoisting

30.this Keyword

31.Destructuring Arrays

32.Destructuring Objects

33.The Spread Operator (...)

34.Rest Pattern and Parameters

35.Short Circuiting (&& and ||)

36.The Nullish Coalescing Operator (??)

37.Logical Assignment Operators

38.Looping Arrays: The for-of Loop

39.Enhanced Object Literals

40.Optional Chaining (?.)

41.Looping Objects: Object Keys, Values, and Entries

42.Maps: Fundamentals , Iteration

43.Default Parameters

44.How Passing Arguments Works: Value vs. Reference

45.First-Class and Higher-Order Functions

46.Functions Accepting Callback Functions

47.Functions Returning Functions

48.The call and apply Methods

49.The bind Method

50.Immediately Invoked Function Expressions (IIFE)

1. Closure & Examples
2. Debouncing & Throtling
3. prototype
4. prototypal inheritance
5. undefined vs not defined
6. Recursion

Basics of DOM

1.Explanation of the basics of the Document Object Model.

2.How HTML, CSS, and JavaScript work as a Web Page

About SPA and its Advantages

Explanation of the basics of the Single Page Application and list out some of it advantages

1. Comparison with other languages

File structure

we'll discuss how to construct a files and folders structure in React and how to organize files into directories.

React has no opinions on how to put files and folders. Even so, there are a few standard strategies that are well-liked in the real-time that you could want to understand.

React Topics

Please see the list of React topics below that will be covered in to help you understand and perform in the React Library. Theoretical and practical approaches will be used to discuss each one in depth.

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| 1. | What is React? and installation of react. |
| 2. | Why react? |
| 3. | Virtual DOM |
| 4. | Data binding |
| 5. | JSX |
| 6. | Components |
| 7. | What is  Functional components? |
| 8. | What is  Class components? |
| 9. | Nesting components |
| 10. | Props |
| 11. | State |
| 12. | State vs Props |
| 13. | SetState() |
| 14. | Event handling in react |
| 15. | Why we use bind() in event handler? |
| 16 | Methods as props |
| 17 | Conditional rendering |
| 18 | List rendering |
| 19 | Lists and Keys |
| 20 | Index as key anti-pattern |
| 21 | Styling and CSS basics in React |
| 22 | How to fetch rest  API in functional component ? |
| 23 | Component life cycle methods |
| 24 | Component Mounting life cycle methods |
| 25 | Component Updating life cycle methods |
| 26 | Component Unmount life cycle method |
| 27 | Fragments |
| 28 | Pure Components |
| 29 | Memo |
| 30 | Refs |
| 31 | Refs with class components |
| 32 | Forwarding Refs |
| 33 | Portals |
| 34 | Error Boundary |
| 35 | Higher Order components |
| 36 | Hooks in React |
| 37 | Usestate hook |
| 38 | Usestate and previous state |
| 39 | Use state with object |
| 40 | Use state with array |
| 41 | Useeffect hook |
| 42 | Useeffect after render |
| 43 | Conditionally run effects |
| 44 | Run effects only once |
| 45 | Useeffect with cleanup |
| 46 | Custom hooks |
| 47 | Folder structure for react js |
| 48 | Create a new react app |
| 49 | Assignments |
| 50 | Demo Project |

Some hands-on exercises will be provided at the end of each topic.

Unit Testing

1. Explanation of Unit Testing and its purpose
2. Tools that can be used for Unit Testing
3. An explanation for how to write test case scenarios for a real-time application
4. About the challenging real-time scenarios

Practical Assignments

1. Assignments can be planned to cover all the topics discussed.
2. Solution Code base can be provided for the questions planned