React JS Components State and Props

1. What is React Js?

- React JS is a JavaScript library or framework that is use for building user interface based on component.
- It is used to create a single page application
- React was developed by Facebook. Jordan Walke one of the facebook's software engineers, created React and first it is used in Facebook newsfeed.

2. What is NPM in React Js?

- NPM provide by Node.js.
- NPM stands for Node Package Manager. When our App is created if we want to install packages and if we want to install node modules then also we use npm the command is: npm install.
- We can run our app using npm start.
- Check the npm version: npm –v.

3. What is Role of Node Js in react Js?

- NodeJS is a framework of JavaScript which is mainly used for working with the backend of our application or building the backend using JavaScript
- With the combination of Node and React, developers don't require learning complex back-end languages like Python or Ruby. They can use Node for server-side development and React for front-end code building without switching between frameworks and programming languages. And it saves resources, money, and time.

4. What is CLI command In React Js?
- We can use CLI in React JS used for Creating a React, install node dependencies as well as we have install other external libraries that we have required and we have also run our application using CLI.
- Ex. npx create-react-app my-app
- npm start
- npm install
- npm install react-router-dom@6

5. What is Components in React Js?

- Components are independent and reusable bits of code. Basically each and every functionality in React App is managed by component. For ex if we want to create a header then header is managing by header component. Inside header there is a there are many different pages like home, about and contact these pages has also its own component.
- There are two types of component
  1) Class component
  2) Function component
  - Class component always extends with React component
  - Inside class component if we want to return something then render is must required without render it gives us error and page is not return.
  - In function component it automatically return the page it doesn't required write anything else that's why function component is easy then class component. React also works with functional component.

6. What is Header and Content Components in React JS?

- Headers are compositions that extend standard navbar functionalities. They contain additional components like a jumbotern, sub-navbar, or image covers which serves as a containers for extra navigation elements- usually links, forms or call-to actions buttons.
- Content component is also known as pure component.
- A React component is considered pure if it renders the same output for the same state and props. For this type of class component, React provides the PureComponent base class. Class components that extend the React.PureComponent class are treated as pure components.

```
import React from 'react';

class PercentageStat extends React.PureComponent {

  render() {
    const { label, score = 0, total = Math.max(1, score) } = this.props;

    return (
      <div>
        <h6>{ label }</h6>
        <span>{ Math.round(score / total * 100) }%</span>
      </div>
    )
  }

}
export default PercentageStat;
```

7. How to install React Js on Windows, Linux Operating System? How to Install NPM and How to check version of NPM?

➢ You can go official side of node js and download for windows or linux any one you want.
➢ After installing node it automatically provide NPX and NPM
➢ For checking the NPM version you can type the command npm –v.

8. How to check the version of React JS?

➢ After create the App in react you can open the package.json file.
➢ Take a look under the dependencies section. It should list all of the dependencies of your project and one of those should be React.

```
"dependencies": {
  "@fortawesome/fontawesome-free": "^6.4.0",
  "@testing-library/jest-dom": "^5.16.5",
  "@testing-library/react": "^13.4.0",
  "@testing-library/user-event": "^13.5.0",
  "mdb-react-ui-kit": "^6.1.0",
  "react": "^18.2.0",
  "react-dom": "^18.2.0",
  "react-router-dom": "^6.14.1",
  "react-scripts": "5.0.1",
  "web-vitals": "^2.1.4"
},
```

9. How to change in components of React Js?

➢ React components automatically re-render whenever there is a change in their state or props. A simple update of the state, from anywhere in the code, causes all the User Interface (UI) elements to be re-rendered automatically. However, there may be cases where the render() method depends on some other data.

1. **Update in state:** The state change can be from a prop or setState change to update a variable(say). The component gets the updated state and React re-renders the component to reflect the change on the app.

2. **Update in prop:** Likewise the change in prop leads to state change and state change leads to re-rendering of the component by React.

3. **Re-rendering of parent component:** Whenever the components render function is called, all its subsequent child components will re-render, regardless of whether their props have changed or not.