1)What is React

React is JavaScript library used build SPA. It follows component based approach which help in building reusable UI Component

2)Features of React JS

1. It follows one way data flow

* It givs more control over data, debugging easy, also application more flexible that increases efficiency.

1. It uses virtual DOM instead of real DOM
2. component based approach
3. use of jsx file make the application simple and code
4. higher performance of react js applications

Limitations of React Js

* It is library not a framework
* Use of jsx make learning complex
* Coding get complex as its uses inline templating

3)Different Between Virtual and Real DOM

Real DOM updates slow as compare to Virtual DOM

Real DOM update HTML directly as Virtual DOM not update HTML directly

Real DOM create new DOM of any update happen as Virtual DOM update JSX

Real DOM – Manipulation is very expensive as Real DOM manipulation is very easy

4)What is JSX

JSX is shortend of javascript XML. it allows us to write HTML inside javasript file. Basically it represents whats our UI will be look like

5)What is Virtual DOM

A virtual DOM is lightweight javascript object which is originally copy of real DOM. Virtual DOM is node tree having collection of nodes each node represent one element their attribute and content as Object

Virtual DOM work in three steps

1. When any updation happen the entire UI is re-rendered in virtual DOM representation
2. React maintain two copy of virtual DOM one is use to store the current state of object and another is used to store previous state of object, Now when DOM updated then the difference between two virtual DOM is calculated
3. Once the calculation is done only diff is move to real DOM

6)What is Component

Components are building block of react applications. Components splits entire UI of application into small reusable and independent piece of code. React render each component without affecting other components

7)What is Render()

Render method is used to render HTML content to web page. It return only single element if we want to render multiple elemenet warp all inside one element or use react fragment

8)What is Props

The props are input to component. Pass as single value or as object having set of values.we can say that props are used to pass data from one component to another

Props are immutable

9)What is States

State are build in object in react. Which contain data or information of component. Component can change over time whenever state is changes component get re-renders

Can not pass state to another component

10) What Is Ref

Ref is shortend used for reference it is an attribute to store reference of particular node or react elements react property with help we manipulate DOM.

Refs are used to access DOM elements. And perform DOM manipulations

Ref is created by using useRef hook

Use Cases of ref :

* Managing focus, text selection or media playback
* Triggering Animation

11) What is Controlled Component

In a controlled component, the value of input element is controlled by react state, we store value of input element inside the code, by using event-based callback function

When user enter data inside input field of component onChage callback function gets triggered, we check whether the value entered is valid or invalid, if value is valid, we change the state, and re-render the input element with new value

12) What is UnControlled Component

In a uncontrolled component, the value of input element is controlled by DOM itself, Basically react does not perform any when there is changes made to input element

To access value of input element in uncontrolled component we use ref attribute of javascript DOM method

13)Higher Order Components : -

HOC is an advanced technique in react for reusing component logic

HOC nothing but plain javascript function that takes one component as argrument and it return new enhanced component

Basically it is use to define logic in one place and share across multiple components

Use for re usability

Suppose we we have two component component A and B in component A we have one counter functionality same in component B but for counter increment is increase by onClick and in B component it increase by onMouseOver

So it causes performance or code readability and duplicacy issue we using same logic in both components

They are similar to JavaScript functions used for adding additional functionalities to the existing component.

14) Significance of Keys

Keys are used to uniqually identify DOM element. These keys must be unique number or string using with react just reorder element instead of rendering them all. This leads to increase in performance

15) React Routing

In a React Application react routing handle by react router. It allows us to define route path different part of applications and map them to specific component

16) Server Side Rendering

In server side rendering initial rendering of react applications done on server. Server gerrate HTML for initial state of application and send to brower, then react takes over the application and continue to function as SPA

Improves performance for search engine

For eg. HTML written in PHP file are render thoroughly server side

In client side rendering. React application is render entirely in the brower

For eg. React js, Angular js

HTMl generate through client side, front end by javascript known as client side rendering

HTML generate through server side by means HTML code written php file runs on server known as server side rendering

Benefits on Client Side Redering for fast loader time and more responsive pages. Application targeting user are fast internet connection

Benefits on Server Side Renering for SEO and application targeting user for slow internet connection

17) Stateless and Statefull Component

Staleless component also known as presentational component that does not maintain there internal state. They receive data through props and only render UI based on props. They are simple functions takes props and return JSX

Stateful components also known as smart components that maintain there internal state

IN general iti is recommended to use stateless component to make application simple and easy to understand. Stateful component should when necessary to maintain state and handle complex logic

18) Pure Component

Pure components are the components do not re-render when props and state has been updated with same value. Because it no re-render because same value is set thus its increase performances.

React component that updates only when its props and state have changed in contrast in non-pure component re-renders each time the parent component re-renders, regardless of whether its props or state have changed

Main difference between the React.Component and React.PureComponent that React.Component doesn’t implement shouldComponentUpdate() method

19) handle optimization in a large React Application

i) Use of React Developer Tool :

It allows you to track performance of individual components and identify which components are causing most re-redering

ii) Use ShouldComponentUpdate() Life Cycle Method :

This method allows you to control when component should update based on props and state

iii) Use PureComponent and Memo instead of Components :

These are more efficient alternatives to React.Component that only re-render when props or state have changed.

iv) Use the useEffect hook to handle side effects :

This hook allows you to run side effects, such as network requests, after a component has rendered.

v) Use the useMemo hook to memoize expensive calculations :

This hooks allow to remember result of expensive calculations and only recalculate expressions if there is change in input values

vi) Lazy Loading :

Lazy Loading is technique where you only load component that are needed for current view. This greatly increases the performance of applications

vii) Code Splitting :

Code splitting is technique where you split your application into smaller chucks of code that are loaded on loades

20) Error Handling in React Application

For Error Handling I use try and catch block with useEffect hook

21) Different way to pass data through components

We can use props to transfer data between different components pass props as property through components. Also we can pass data through using component tree using context rather than having to go through each level of tree. You can create contect object containing provider and a consumer in order to use context

22) Different between class component and function component

i)Function component is plain javascript functions that takes in props and return react element Class compoment is javascript class that extent component class used render() method to return react element

ii)One major difference between the class component and function component is class component has its own state while functional component not have but from react 16.8 functional component also has state using hooks

iii)Functional components are considered has simpler, easier to understand and test and has better performance than class components

iv) the main difference between function and class components in React is that function components are simpler, more straightforward, and easier to understand, while class components are more powerful and provide more advanced features, but are also more complex.

23) Prop Drilling

Prop drilling is the process of passing data from one component via several interconnected components to the component that needs it

Redux Interview Questions :-

1) What is Redux

Redux is open source javascript library for managing and centralise application state it acts like state container means it is used to maintain data across multiple components. It is very small and no dependencies

2) Data Flow in Redux

Redux follows the unidirectional data flow. It means that your application data will follow in one-way binding data flow

An action is dispatched when a user interact with the application

After that reducer receive the dispatched actions, perform somesort of operations and return new state

Then new state is stored in store and then through the provider it is passed through all components of react application. When state in store updated page gets re-render

Which help of useSelector() we can retrieve state as per our need

3) What is Action

In the react architecture actions are nothing but plain javascript object that contain type field.they are thought of event that is used to describe something happened in applications

4) What is Reducers

In the react achitecuture reducres are pure functions which take two arguments one is previous state and action method. With help of reducer method we update state in react applications

5) What is Store

Store in react used to hold application state. Redux can have only one store per application. Whenever store is create in react need to specify the reducer

There are different inbuild store() method in redux such as

getState() => we can access current state of application

dispatch(action) => we can update current state of application

subsribe() => this method accept function as parameter which execute anytime when state in store get changes

6) Why we use redux

Redux gives us flexibility to store and manage state at centralize level.so we access state at any component or update it as per our coovience

7) Redux principals

i) single source of Truth : The global state of our application is always put away in an object tree one store

ii) state is Read only : the only way to change the state in dispatch an action

iii) Changes are made with pure functions : it always return same output if we pass same argrument to function

iv) One way data binding

8)What is middleware

React middleware acts a medium between dispatching an event and handling over action to the reducer

Redux is an open source library written in scripting language javascript. Redux primary purpose is to manage and centralise the application state help in maintaining consistency throughout the application which makes debugging and testing easier. It is based on flux design pattern

A Container where you can store your whole data like array

What is Redux in React Js

Redux in react which allows the components in react to react data from the redux store and dispatch action to the store for updating the data. It help us in managing state via unidirectional data flow

Core Concept :-

Every piece of code in your application can not change the state, to change the state you need dispatch an action

An Action Is plan object that describe intention of change with type property. It must have property with tells which type of action we need to perform(What to do). But don’t tell how to do

Actions and States are two parameters held by function called Reducer. the change is perform by reducer.

Reducer only way to change state in Redux.making it more predictable, centralised and debuggable

Core principal of Redux :-

1. Single source of truth : the global state of our application always put away in an object tree inside one store
2. The State is read only : the only way to change state by emitting action, an object explaining what has happened
3. Changes are made with pure functions: in order to define how the state tree is being transformed by the action, we write pure functions
4. Immutability, One way data flow, Predictability of outcome

Data Flow in Redux :-