**Reactjs**

Reactjs is a JavaScript library used for building user interfaces.

Reactjs is an open source JavaScript library for building user interface. It is primarily used for building single page application where user interaction dynamically update the content.

It is developed by Facebook. React allows developer to create reusable UI component, making the code more modular and easier to maintain.

It uses virtual dom to update actual dom which optimize the rendering process for better performance

**JSX**

JSX stands for JavaScript XML.JSX allow us to write HTML in react.

JSX allow us to write HTML elements in JavaScript and place them into the dom without createElement() and appendChild() methods.

**Why JSX**

* It is faster than the normal JavaScript as it performs optimizations while translating to regular JavaScript.
* It makes it easier for us to make template.
* Instead of separating the markup and logic in separate files, react uses component for this purpose.
* As JSX is expression, we can use it inside of if statements and for loops, assign it to variables, accept it as arguments, or return it from functions.

**Expressions in JSX**

With JSX we can write expressions inside curly braces {}.

The expression can be variable, or property, or any other valid JavaScript expression. JSX will execute the expression and return the result.

**React keys**

React keys are special attribute that we need to include when creating list of elements in React. They help react identify which items have changed, updated or deleted from the lists.

It is useful when we dynamically created component or when the users alter the lists.

**Purpose**

The main purpose of keys in React is to optimize the reconciliation process (the process of updating the UI to match the new state).when we render a list of items in react, it needs to efficiently update the UI when the list changes.

React compares the new list with the previous one and updates only the necessary parts of the UI.keys help React determine which items have changed, been inserted, or been removed.

**Unique Identification**

Keys are unique identifiers for elements within a list. When react renders a list, it uses keys to keep track of each elements identity. This allows react to efficiently update the UI without re-rendering the entire list.

**Preventing re-ordering bugs**

Keys are essential for preventing re-ordering bugs. Without keys, React may mistakenly re-order elements based solely on their position in the array. This can lead to unexpected behavior, especially if the elements have internal state or if their order affects the ui.

**Choosing keys**

It is important to choose keys that are stable, unique and predictable. Using stable identifiers ensures that React can correctly identify elements across re-renders.