WEB TECHNOLOGIES

React JS – Keys

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Agenda

- Introduction to keys
- Keys - Sample code
- Map function
- Using map with key property

Keys

Introduction to keys

- Keys allow React to keep track of elements.
- This way, if an item is updated or removed, only that item will be re-rendered instead of the entire list.

Warning: Each child in an array or iterator should have a unique "key" prop.

- Keys need to be unique to each sibling.
- Special string attribute while creating list of elements in React
- Utilized to identify **specific virtual DOM elements** that have changed, added, or removed
- Generally, the key should be a unique ID assigned to each item.
- We can use the array index as a key.
- Not specifying the key property will display a warning on the console:

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Keys - Sample codes

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Using keys in a list of elements :

```
function SuperheroList() {
    const superheroes = [
        { id: 1, name: 'Batman' },
        { id: 2, name: 'Ironman' },
        { id: 3, name: 'Spiderman' }
    ];

    return (
        <div>
            {superheroes.map(hero => (
                <p key={hero.id}>{hero.name}</p> // Using 'id' as a unique key
            ))}
        </div>
    );
}

export default SuperheroList;
```

Specifying keys directly:

```
import React from 'react';

function SuperheroList() {
    return (
        [
            <p key="1">Batman</p>,
            <p key="2">Ironman</p>,
            <p key="3">Spiderman</p>
        ]
    );
}

export default SuperheroList;
```

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Keys - Sample codes

```
// Example usage
const todos = [
  { id: 1, text: 'Learn React' },
  { id: 2, text: 'Build a Project' },
  { id: 3, text: 'Review Concepts' },
];

// Rendering the TodoList component
const App = () => {
  return (
    <div>
      <h1>Todo List</h1>
      <TodoList todos={todos} />
    </div>
  );
};

export default App;
```

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Map function

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- Map is a data collection type where data is stored in the form of key-value pairs
- The value stored in the map must be mapped to the key
- The map is a JavaScript function that can be called on any array
- With the map function, we map every element of the array to the custom components in a single line of code
- Sample code:

```
const numbers = [1, 2, 3, 4, 5];

const doubled = numbers.map((number) => number * 2);

console.log(doubled);
```

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Using map with key property

- The provided code snippet will result in warning in react because the list items generated from the numbers arrays do not have a unique key property.
- React uses these keys to identify which items have changed, are added, or are removed, and not having keys can lead to inefficiencies and incorrect behavior when rendering lists.

```
import React from 'react';
import ReactDOM from 'react-dom';

const numbers = [1, 2, 3, 4, 5];
const listItems = numbers.map((number) => <li key={number}>{number}</li>);

ReactDOM.render(
    <ul>{listItems}</ul>,
    document.getElementById('root')
);
```

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Using map with key property

- Modified by **adding key property**(The modification primarily revolves around the proper use of **keys** in list rendering)

```
function NumberList(props) {
    const numbers = props.numbers; // Destructuring the numbers prop
    const listItems = numbers.map((number) =>
        <li key={number.toString()}> {number} </li>
    );
    return (
        <ul>{listItems}</ul> // Returning an unordered list containing the list items
    );
}

const numbers = [1, 2, 3, 4, 5]; // Array of numbers

ReactDOM.render(
    <NumberList numbers={numbers} />, // Rendering the NumberList component
    document.getElementById('root') // Targeting the root element in the HTML
);
```

THANK YOU

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