

ReactJS

Constructor:

The constructor is a method used to initialize an object's state in a class. It automatically called during the creation of an object in a class.

The concept of a constructor is the same in React. The constructor in a React component is called before the component is mounted.

When you implement the constructor for a React component, you need to call **super(props)** method before any other statement. If you do not call **super(props)** method, **this.props** will be undefined in the constructor and can lead to bugs.

Syntax

```
Constructor(props){  
  super(props);  
}
```

Note: It used for binding event handler methods that occur in your component.

React lets you define components as classes or functions. Components defined as classes currently provide more features which are described in detail on this page.

To define a React component class, you need to extend `React.Component`:

```
class Welcome extends React.Component {  
  render() {  
    return <h1>Hello, {this.props.name}</h1>;  
  }  
}
```

Each component has several “lifecycle methods” that you can override to run code at particular times in the process.

<https://projects.wojtekmaj.pl/react-lifecycle-methods-diagram/>

A component's lifecycle has three main phases: the **Initial Phase**, **Mounting Phase**, the **Updating Phase**, and the **Unmounting Phase**.

1. Initial Phase

It is the **birth** phase of the lifecycle of a ReactJS component. Here, the component starts its journey on a way to the DOM. In this phase, a component contains the default Props and initial State. These default properties are done in the constructor of a component. The initial phase only occurs once and consists of the following methods.

- **getDefaultProps()**
It is used to specify the default value of this.props. It is invoked before the creation of the component or any props from the parent is passed into it.
- **getInitialState()**
It is used to specify the default value of this.state. It is invoked before the creation of the component.

2. Mounting Phase

In this phase, the instance of a component is created and inserted into the DOM. It consists of the following methods.

- **componentWillMount()**
This is invoked immediately before a component gets rendered into the DOM. In the case, when you call **setState()** inside this method, the component will not **re-render**.
- **componentDidMount()**
This is invoked immediately after a component gets rendered and placed on the DOM. Now, you can do any DOM querying operations.
- **render()**
This method is defined in each and every component. It is responsible for returning a single root **HTML node** element. If you don't want to render anything, you can return a **null** or **false** value.

3.Updating Phase

It is the next phase of the lifecycle of a react component. Here, we get new **Props** and change **State**. This phase also allows to handle user interaction and provide communication with the components hierarchy. The main aim of this phase is to ensure that the component is displaying the latest version of itself. Unlike the Birth or Death phase, this phase repeats again and again. This phase consists of the following methods.

- **componentWillRecieveProps()**
It is invoked when a component receives new props. If you want to update the state in response to prop changes, you should compare `this.props` and `nextProps` to perform state transition by using **`this.setState()`** method.
- **shouldComponentUpdate()**
It is invoked when a component decides any changes/updation to the DOM. It allows you to control the component's behavior of updating itself. If this method returns true, the component will update. Otherwise, the component will skip the updating.
- **componentWillUpdate()**
It is invoked just before the component updating occurs. Here, you can't change the component state by invoking **`this.setState()`** method. It will not be called, if **`shouldComponentUpdate()`** returns false.
- **render()**
It is invoked to examine **`this.props`** and **`this.state`** and return one of the following types: React elements, Arrays and fragments, Booleans or null, String and Number. If `shouldComponentUpdate()` returns false, the code inside `render()` will be invoked again to ensure that the component displays itself properly.
- **componentDidUpdate()**
It is invoked immediately after the component updating occurs. In this method, you can put any code inside this which you want to execute once the updating occurs. This method is not invoked for the initial render.

4. Unmounting Phase

It is the final phase of the react component lifecycle. It is called when a component instance is **destroyed** and **unmounted** from the DOM. This phase contains only one method and is given below.

- **componentWillUnmount()**

This method is invoked immediately before a component is destroyed and unmounted permanently. It performs any necessary **cleanup** related task such as invalidating timers, event listener, canceling network requests, or cleaning up DOM elements. If a component instance is unmounted, you cannot mount it again.