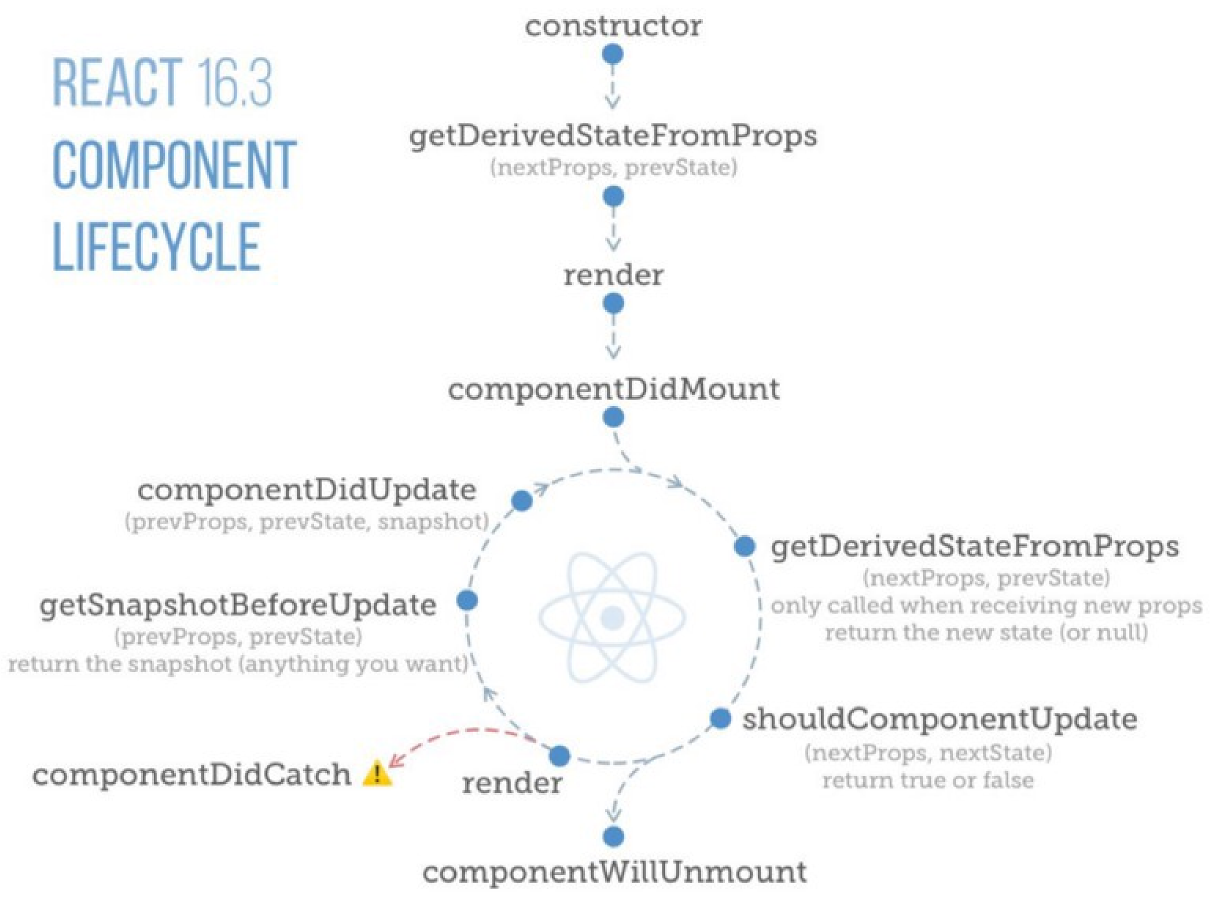
Update



The next phase in the **lifecycle** is when a **component** is **updated**.

A component is updated whenever there is a change in the component's **state** or **props**.

React has **five** built-in methods that gets called, in this order, when a component is updated:

- getDerivedStateFromProps()
- shouldComponentUpdate()
- render()
- getSnapshotBeforeUpdate()
- componentDidUpdate()

The **render**() method is required and will always be called, the others are optional and will be called if you define them.

getDerivedStateFromProps

Also, at updates, the **getDerivedStateFromProps** method is called. This is the first method that is called when a component gets updated.

This is still the natural place to set the **state** object based on the initial props.

The example below has a button that changes the favorite color to blue, but since the getDerivedStateFromProps() method is called, which updates the state with the color from the favcol attribute, the favorite color is still rendered as yellow:

Example:

If the component gets updated, the **getDerivedStateFromProps**() method is called:

```
class Header extends React.Component {

  constructor(props) {

    super(props);

    this.state = {favoritecolor: "red"};

  }

  static getDerivedStateFromProps(props, state) {

    return {favoritecolor: props.favcol };

  }

  changeColor = () => {

    this.setState({favoritecolor: "blue"});

  }

  render() {

    return (

      <div>
      <h1>My Favorite Color is {this.state.favoritecolor}</h1>

      <button type="button" onClick={this.changeColor}>Change
color</button>

      </div>

    );

  }

}



ReactDOM.render(<Header favcol="yellow"/>,
document.getElementById('root'));
```

shouldComponentUpdate

In the **shouldComponentUpdate**() method you can return a Boolean value that specifies whether React should continue with the rendering or not.

The default value is **true**.

The example below shows what happens when the **shouldComponentUpdate**() method returns **false**:

Example:

Stop the **component** from **rendering** at any update:

```
class Header extends React.Component {

  constructor(props) {

    super(props);

    this.state = {favoritecolor: "red"};

  }

  shouldComponentUpdate() {

    return false;}

  changeColor = () => {

    this.setState({favoritecolor: "blue"});

  }

  render() {

    return (

      <div>
      <h1>My Favorite Color is {this.state.favoritecolor}</h1>

      <button type="button" onClick={this.changeColor}>Change
color</button>

      </div>

    );

  }}

ReactDOM.render(<Header />, document.getElementById('root'));
```

Example:

Same example as above, but this time the **shouldComponentUpdate**() method returns true instead:

```
class Header extends React.Component {

  constructor(props) {

    super(props);

    this.state = {favoritecolor: "red"};

  }

  shouldComponentUpdate() {
    return true;

  }

  changeColor = () => {

    this.setState({favoritecolor: "blue"});

  }

  render() {

    return (

      <div>

      <h1>My Favorite Color is {this.state.favoritecolor}</h1>

      <button type="button" onClick={this.changeColor}>Change
color</button>

      </div>

    );

  }

}


ReactDOM.render(<Header />, document.getElementById('root'));
```

Render

The **render**() method is, of course, called when a component gets updated. It has to re-render the **HTML** to the **DOM** with the new changes.

The example below has a button that changes the favorite color to blue:

Example:

Click the button to make a change in the component's state:

```
class Header extends React.Component {

  constructor(props) {

    super(props);

    this.state = {favoritecolor: "red"};

  }

  changeColor = () => {

    this.setState({favoritecolor: "blue"});

  }

  render() {

    return (
      <div>

      <h1>My Favorite Color is {this.state.favoritecolor}</h1>

      <button type="button" onClick={this.changeColor}>Change
color</button>

      </div>

    );

  }

}

ReactDOM.render(<Header />, document.getElementById('root'));
```

getSnapshotBeforeUpdate

In the **getSnapshotBeforeUpdate**() method, you have access to the props and state before the update, meaning that even after the update, you can check what the values were before the update.

If the **getSnapshotBeforeUpdate**() method is present, you should also include the componentDidUpdate() method. Otherwise, you will get an error.

The example below might seem complicated, but all it does is this:

When the component is mounting, it is rendered with the favorite color, "**red**."

When the component has been mounted, a timer changes the state, and after one second, the favorite color becomes "**yellow**."

This action triggers the update phase, and since this component has a **getSnapshotBeforeUpdate**() method, this method is executed and writes a message to the empty **DIV1 element**.

Then the **componentDidUpdate**() method is executed and writes a message in the empty **DIV2** element:

Example:

Use the **getSnapshotBeforeUpdate**() method to find out what the state object looked like before the update:

```
class Header extends React.Component {

 constructor(props) {

  super(props);

  this.state = {favoritecolor: "red"};

 }

 componentDidMount() {

  setTimeout(() => {

   this.setState({favoritecolor: "yellow"})

  }, 1000)

 }

 getSnapshotBeforeUpdate(prevProps, prevState) {

  document.getElementById("div1").innerHTML =

  "Before the update, the favorite was " + prevState.favoritecolor;
  }

  componentDidUpdate() {

    document.getElementById("div2").innerHTML =

    "The updated favorite is " + this.state.favoritecolor;

  }

  render() {

    return (

      <div>

        <h1>My Favorite Color is {this.state.favoritecolor}</h1>

        <div id="div1"></div>

        <div id="div2"></div>

      </div>

    );

  }

}

ReactDOM.render(<Header />, document.getElementById('root'));
```

componentDidUpdate

The **componentDidUpdate** method is called after the component is updated in the DOM.

The example below might seem **complicated**, but all it does is this:

When the component is mounting, it is rendered with the favorite color, "**red**."

When the component has been mounted, a timer changes the state, and the color becomes "**yellow**."

This action triggers the update phase, and since this component has a componentDidUpdate method, this method is executed and writes a message in the empty DIV element:

Example:

The componentDidUpdate method is called after the update has been rendered in the DOM:

```
class Header extends React.Component {

  constructor(props) {

    super(props);

    this.state = {favoritecolor: "red"};
```

```
}

componentDidMount() {

  setTimeout(() => {

    this.setState({favoritecolor: "yellow"})

  }, 1000)

}

componentDidUpdate() {

  document.getElementById("mydiv").innerHTML =

  "The updated favorite is " + this.state.favoritecolor;

}

render() {

  return (

    <div>

    <h1>My Favorite Color is {this.state.favoritecolor}</h1>

    <div id="mydiv"></div>

    </div>
    );
  }
}
ReactDOM.render(<Header />, document.getElementById('root'));
```