



COMPONENTS

Advance

Introduction

One of the key facilities that React offers to the developers is the ability to create **custom components**. Apart from using regular HTML elements, a developer can design his own component and package it in form of a **Tag Entity**.

Developer can decide the name and attributes of custom tag and write a tag handler to implement the desired behaviour. The tag handler can be realised using a Function or a Class.

Tag
↓
<Greetings />

Tag handler
↓

```
function Greetings()  
{  
    return <h1>Hello!</h1>;  
}
```

Function Component

1. Update index.html file and
2. Hit the url from the browser <http://localhost:8081/>





```
<script src="https://unpkg.com/react@16/umd/react.development.js"
crossorigin></script>
<script src="https://unpkg.com/react-dom@16/umd/react-
dom.development.js" crossorigin></script>
<script src="https://unpkg.com/babel-standalone@6/babel.min.js">
</script>

<div id="root">
</div>

<script type="text/babel">

function Greetings()
{
  return <h1>Hello!</h1>;
}

ReactDOM.render(
  <Greetings />,
  document.getElementById("root")
);

</script>
```

Props

The custom tags can have attributes. The values assigned to the attributes in the tag are available to the tag handlers via the props object.





Diagram illustrating the relationship between a JSX element and its corresponding JavaScript function:

JSX Element: `<Greetings name="Archan" />`

- tag name:** Points to `<Greetings`
- attribute:** Points to `name = "Archan"`
- value:** Points to `"Archan"`

JavaScript Function:

```
function Greetings (props)
{
  return (
    <h1>
      Hello {props.name}!
    </h1>
  );
}
```

A dashed line connects the `name` attribute in the JSX element to the `props.name` in the JavaScript function, indicating prop passing.



```
<script src="https://unpkg.com/react@16/umd/react.development.js"
crossorigin></script>
<script src="https://unpkg.com/react-dom@16/umd/react-
dom.development.js" crossorigin></script>
<script src="https://unpkg.com/babel-standalone@6/babel.min.js">
</script>

<div id="root">
</div>

<script type="text/babel">

function Greetings(props)
{
  return <h1>Hello {props.name}!</h1>;
}

const el = <Greetings name="Archan" />;

ReactDOM.render(
  el,
  document.getElementById("root")
);

</script>
```

Class Component





index.html



```

<script src="https://unpkg.com/react@16/umd/react.development.js"
crossorigin></script>
<script src="https://unpkg.com/react-dom@16/umd/react-
dom.development.js" crossorigin></script>
<script src="https://unpkg.com/babel-standalone@6/babel.min.js">
</script>

<div id="root">
</div>

<script type="text/babel">

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

ReactDOM.render(
  <Greetings name="Jagrat" />,
  document.getElementById("root")
);

</script>

```

Composite Component

index.html

```

<script src="https://unpkg.com/react@16/umd/react.development.js"
crossorigin></script>
<script src="https://unpkg.com/react-dom@16/umd/react-
dom.development.js" cross①origin></script>
<script src="https://unpkg.com/babel-standalone@6/babel.min.js">

```

 script>

```
<div id="root">
</div>

<script type="text/babel">

function Header(props)
{
  return <h1>{props.text}</h1>;
}

function Login()
{
  return <div>
    <Header text="Login" />
    <form>
      <label>Username</label>
      <input type="text"></input>
      <br/>
      <br/>
      <label>Password</label>
      <input type="password"></input>
      <br/>
      <br/>
      <input type="submit" value="Go"></input>
    </form>
  </div>;
}

ReactDOM.render(
  <div>
    <Login />
    <br/>
    <br/>
    <Login />
  </div>,
  document.getElementById("root")
);
```



</script>

Templating Props

Instructions

1. Install body-parser on the server side
2. Update server.js file
3. Update index.html file and
4. Execute server.js file and hit the url from the browser <http://localhost:8081/>

index.html

```
<script src="https://unpkg.com/react@16/umd/react.development.js"
crossorigin></script>
<script src="https://unpkg.com/react-dom@16/umd/react-
dom.development.js" crossorigin></script>
<script src="https://unpkg.com/babel-standalone@6/babel.min.js">
</script>

<div id="root">
</div>

<script type="text/babel">

function Header(props)
{
  return <h1>{props.text}</h1>;
}

function Login(props)
{
  return <div>
    <Header text={props.header} />
    <form action={props.endpoint} method="POST">
      <label>Username: </label>
```



```
<input type="text" name="username" ></input>
<br/>
<br/>
<label>Password: </label>
<input type="password" name="password"></input>
<br/>
<br/>
<input type="submit" value="Go"></input>
</form>
</div>;
}

ReactDOM.render(
  <div>
    <Login header="Login1" endpoint="/one" />
    <br/>
    <br/>
    <Login header="Login2" endpoint="/two" />
  </div>,
  document.getElementById("root")
);

</script>
```



**server.js**

```
const express = require('express');
const bodyParser = require('body-parser');
const app = express();

app.use(bodyParser.urlencoded({ extended: true }));
app.use(express.static("public"));

function login(req,res)
{
  let username = req.body.username;
  let password = req.body.password;
  res.send(`

# 


```


Component Decomposition

index.html


```
<script src="https://unpkg.com/react@16/umd/react.development.js"
crossorigin></script>
<script src="https://unpkg.com/react-dom@16/umd/react-
dom.development.js" crossorigin></script>
<script src="https://unpkg.com/babel-standalone@6/babel.min.js">
</script>

<div id="root">
</div>
```





```
script type="text/babel">
```




```
function Header(props)
{
  return <h1>{props.text}</h1>;
}
```

```
function LabelledInput(props)
{
  return <div>
    <label>{props.label}</label>
    <input type={props.type} name={props.name} >
  </input>
  </div>;
}
```

```
function Login(props)
{
  return <div>
    <Header text={props.header} />
    <form action={props.endpoint} method="POST">
      <LabelledInput label="Username: " type="text"
name="username"/>
      <br/>
      <br/>
      <LabelledInput label="Password: "
type="password" name="password"/>
      <br/>
      <br/>
      <input type="submit" value="Go"></input>
    </form>
  </div>;
}
```

```
ReactDOM.render(
  <div>
    <Login header="Login1" endpoint="/one" />
    <br/>
```



```

<br />
<Login header="Login2" endpoint="/two" />
</div>,
document.getElementById("root")
);
</script>

```

Class Based

index.html

```

<script src="https://unpkg.com/react@16/umd/react.development.js"
crossorigin></script>
<script src="https://unpkg.com/react-dom@16/umd/react-
dom.development.js" crossorigin></script>
<script src="https://unpkg.com/babel-standalone@6/babel.min.js">
</script>

<div id="root">
</div>

<script type="text/babel">

class Header extends React.Component
{
  render()
  {
    return <h1>{this.props.text}</h1>;
  }
}

class LabelledInput extends React.Component
{
  render()
  {
    return <div>
      <label>{this.props.label}</label>
      <input type={this.props.type} name=

```

```
this.props.name} ></input>  
    </div>;  
}  
}  
  
class Login extends React.Component  
{  
  render()  
  {  
    return <div>  
      <Header text={this.props.header} />  
      <form action={this.props.endpoint}  
method="POST">  
        <LabelledInput label="Username: "  
type="text" name="username"/>  
        <br/>  
        <br/>  
        <LabelledInput label="Password: "  
type="password" name="password"/>  
        <br/>  
        <br/>  
        <input type="submit" value="Go"></input>  
      </form>  
    </div>;  
  }  
}  
  
ReactDOM.render(  
  <div>  
    <Login header="Login1" endpoint="/one" />  
    <br/>  
    <br/>  
    <Login header="Login2" endpoint="/two" />  
  </div>,  
  document.getElementById("root")  
  
</script>
```





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