What is React JS ?

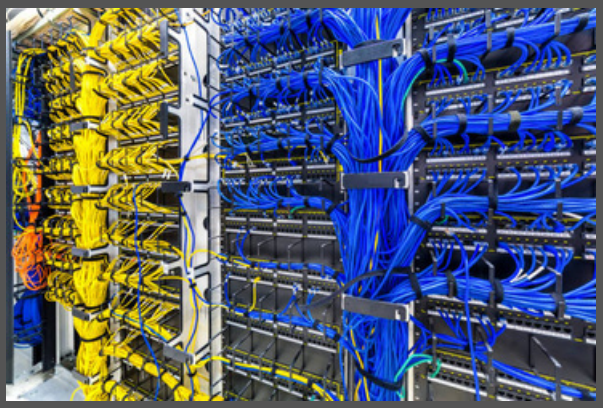
A JavaScript library for building user interface.

- It is a bunch of code written in JS that help developers to easily develop and maintain web pages.
- You have question now. I have HTML, CSS and JS for creating web pages. Then why react? 🤔
- For small applications the HTML, CSS, Vanilla JS will be enough.
- But if you consider the same thing for **big scale** dynamic application like chat , live cricket score application, imagine your Pure Vanilla JS code.
- It may be tons of lines with lot of events ,functions changing the DOM frequently.
- The thing become difficult here. It is hard to manage after certain stage. It will become cumbersome like this.

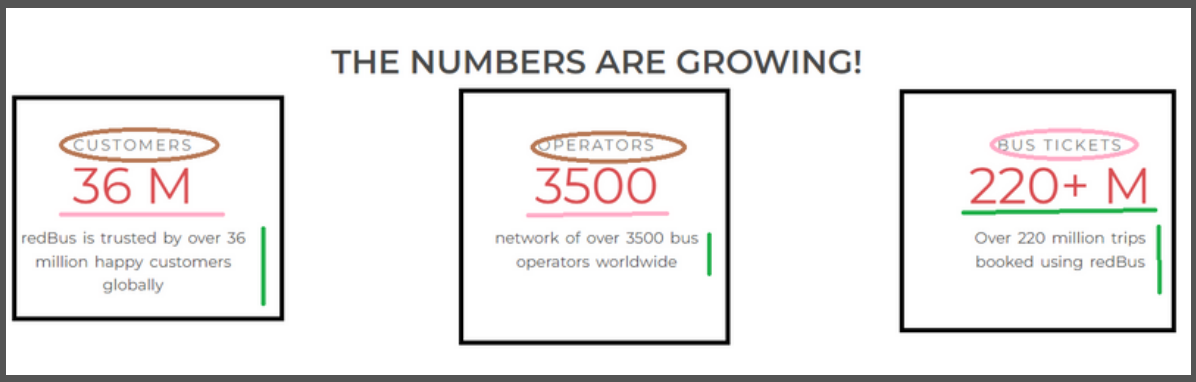
Components

What react basically do?

- It split web page into components . So it will become easier to manage like this.



- In terms of web page let's see how we can understand the components. we have to design in way that we have to split components as much possible



- From seeing above image from Redbus you can understand the components.
- In that there is one **parent component** which is **main container**
- In these parent component there are two components
  =>One is Title - Which shows the message "the number are grow"
  =>One is Content - which shows actual statistics
- In that statistics component there is three components
  =>Statistics title
  =>count
  =>Message of statistics

Reusability

- The advantage of components is not only easier to manage, but reusability.

- If tomorrow i want to add new statistic in above code like

1. Title - Routes
2. 10k + routes
3. Over 10000 routes around 6 countries

- In these scenario, there is no need for new code. Just pass these input into component it will render the new statistics.
- So if you change style in component it will automatically reflect in every statistics.
- The developer job is to wisely **split the web page into components** for easier management and maximum reusability
- In simple words if we use the pure vanilla JS it will become more difficult to develop the complex app and it takes lot of time and effort.
- So React team introduced the library for this, so developer will focus on business application not on this all things. **Makes the life easier**.

Virtual DOM

What is DOM first ?

- The Document Object model is a conversion of HTML Document into tree structure with required properties that have to render.
- Then by using that tree structure browser start rendering into screen.
- If any changes required, we will traverse and change the DOM content. It can be done by Vanilla JS also.

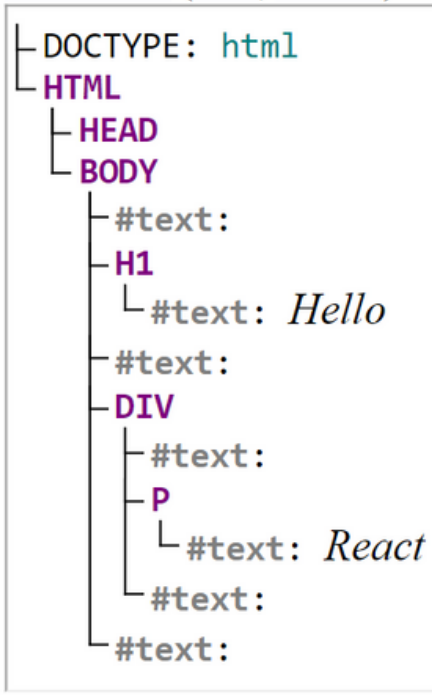
Best Example:

HTML CONTENT

```
<!DOCTYPE html>
<body>
  <h1>Hello</h1>
  <div >
    <p> React </p>
  </div>
</body>
```

DOM VISUALIZER

DOM view (hide, refresh):



Access DOM and changing values

Run

```
<html>
<body>


<p id="p1">Original Content Render</p>

<script>

setTimeout(function(){document.getElementById("p1").innerHTML = "Repacled content by JS"},10000);
</script>

</body>
</html>
```

Original Content Render

```
<html>
<body>


<p id="p1">Original Content Render</p>

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</body>
</html>
```

Repacled content by JS

What react internally do it is having one virtual dom.

- When we update any DOM things, it will update in virtual DOM first. And then it compare with previous version of virtual DOM.
- By using it will make necessary changes in original browser DOM.
- The react will help us in updating the DOM efficiently by using the concept virtual DOM.
- If we do the same thing in vanilla JS, the thing become difficult to achieve. So react will take care in background.