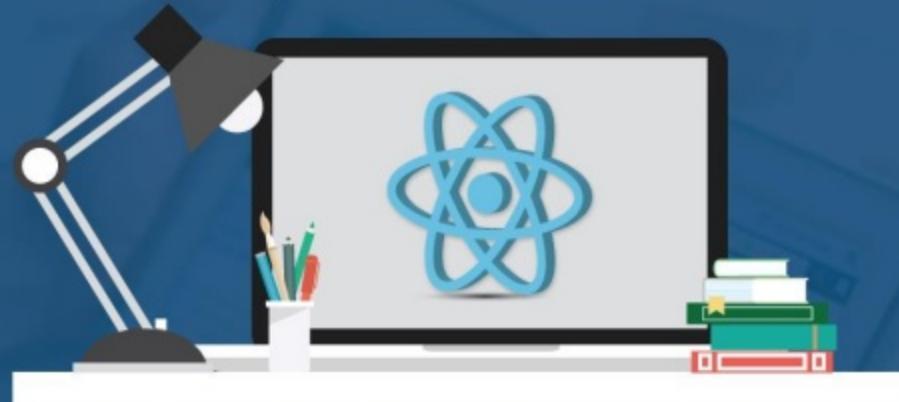


edureka!



ReactJS Tutorial



Why ReactJS?

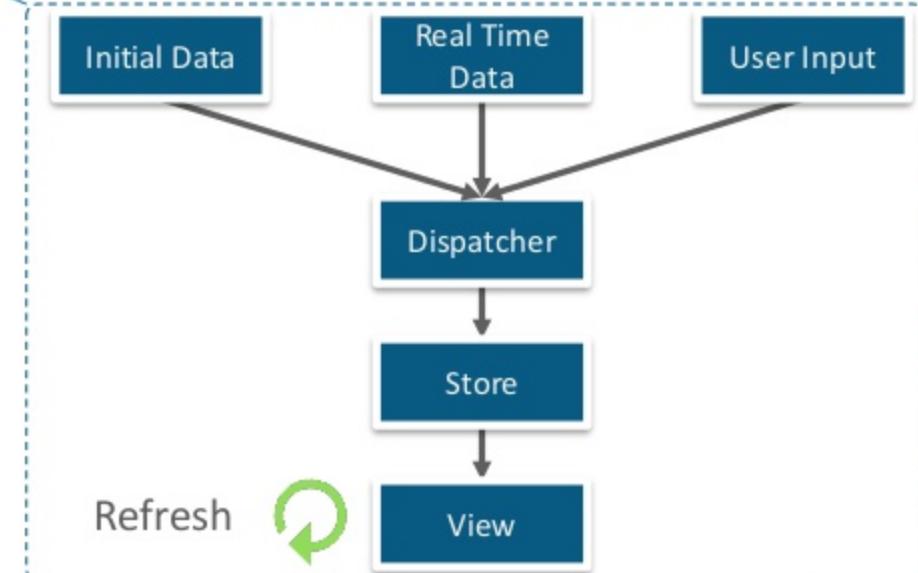
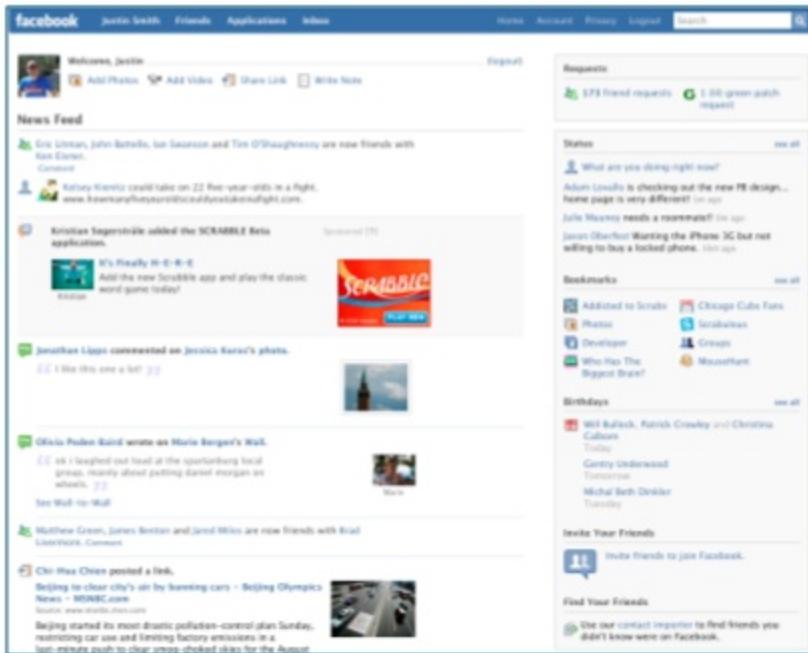
Why do we need ReactJS?

Why ReactJS

The screenshot shows the Facebook news feed for user 'Justin Smith'. At the top, there are links for 'Home', 'Account', 'Privacy', 'Logout', and a search bar. On the left, a sidebar displays 'Requests' (173 friend requests, 1 diff green patch request), 'Status' (status updates from friends like Adam Lovato and Julie Mousney), 'Bookmarks' (links to 'Addicted to Scrubs', 'Chicago Cubs Fans', etc.), and 'Birthdays' (upcoming birthdays for Will Bullock, Patrick Crowley, and Christina Calton). The main content area shows a news feed with various posts: a friend request from Eric Litman, a status update from Kelsey Kieritz, a post from Kristian Segerstråle about the SCRABBLE Beta app, a comment from Jonathan Lips on Jessica Kuras's photo, a post from Olivia Peden Baird on Marie Bergen's wall, a friend request from Matthew Green, and a link posted by Chi-Hua Chen about Beijing's pollution control measures.

Remember the Facebook newsfeeds before 2009, when each time you had to refresh the page for new updates ??

Why ReactJS



Why ReactJS

Drawbacks Of Traditional Data Flow

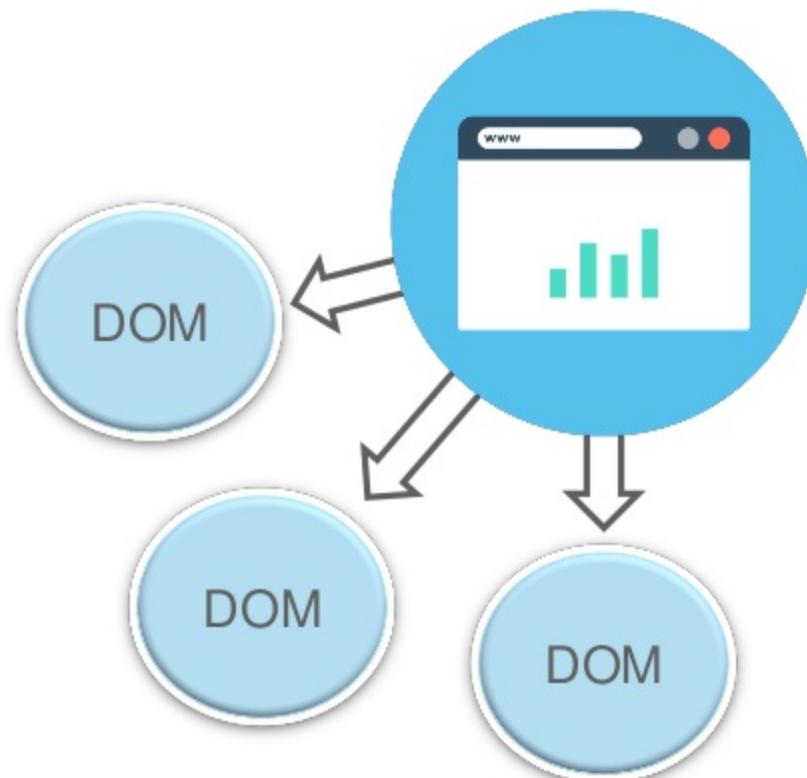
- Uses DOM (Document Object Model)
- More memory consumption
- Slow performance



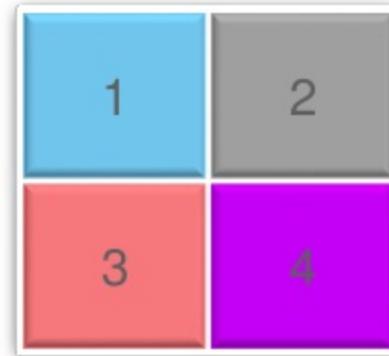
Why ReactJS

Drawbacks Of Traditional Data Flow

- Uses DOM (Document Object Model)
- More memory consumption
- Slow performance



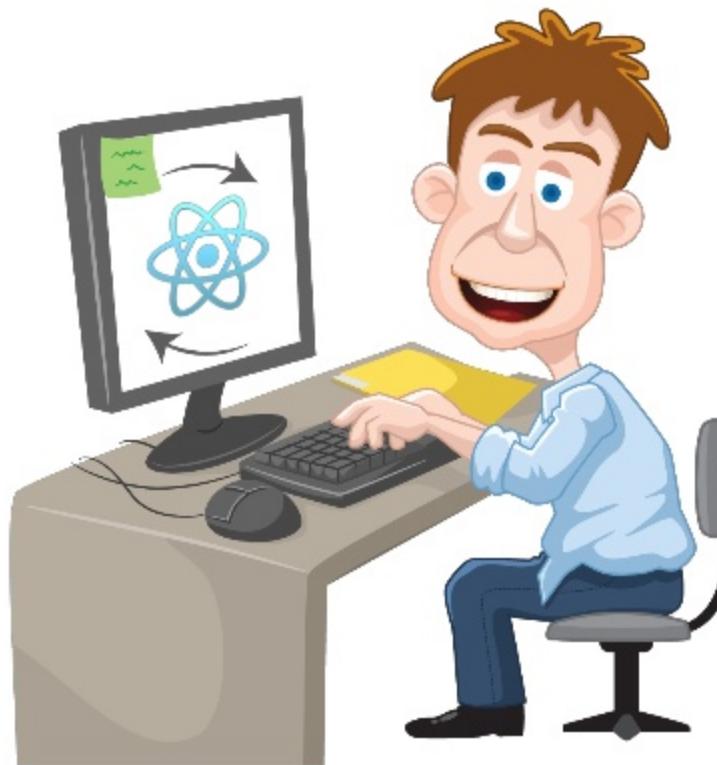
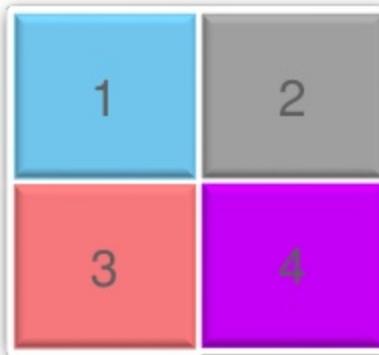
React JS



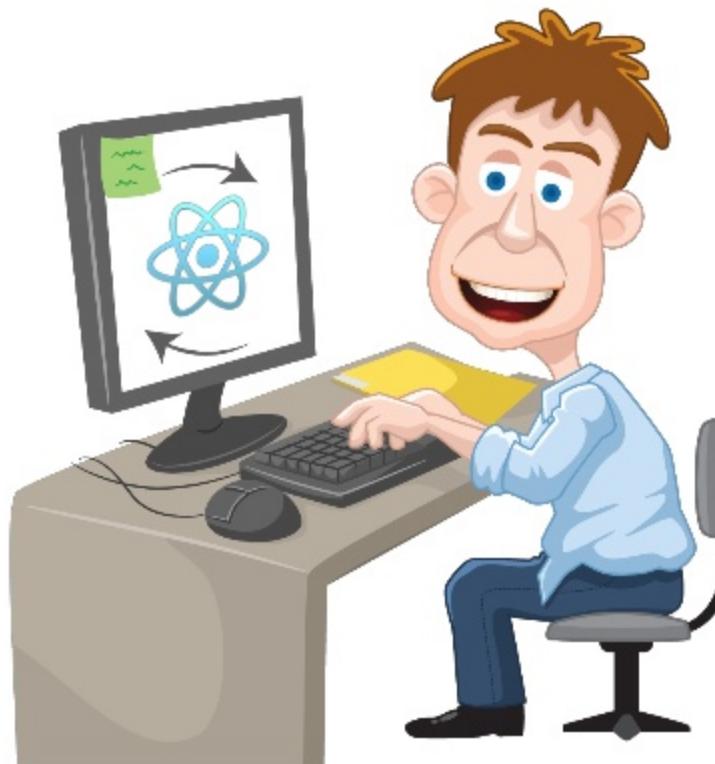
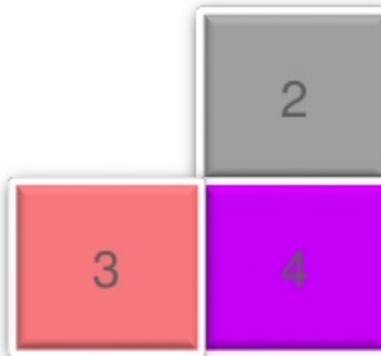
React JS



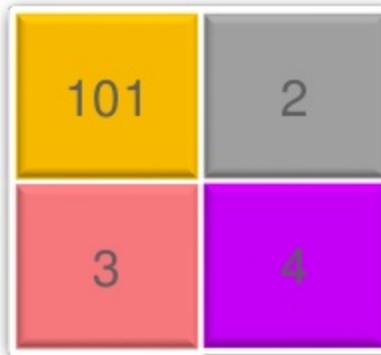
React JS



React JS



React JS

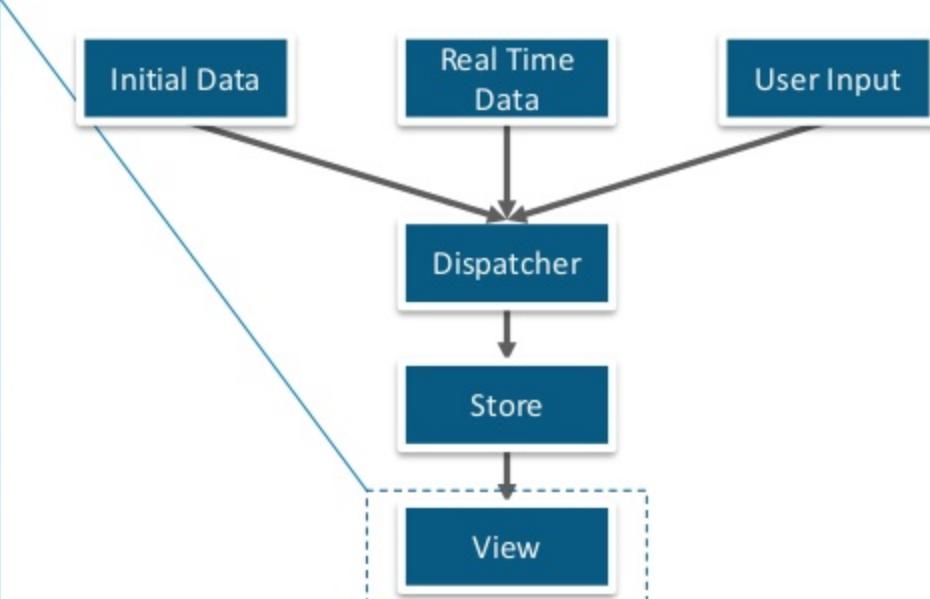


Why ReactJS?

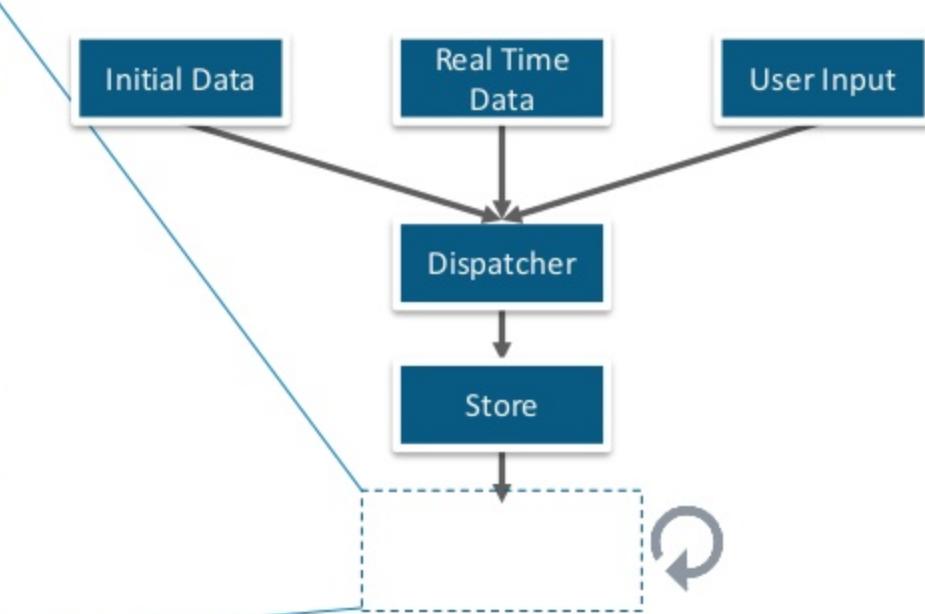


Facebook after implementation of ReactJS became more user friendly. Each time new stories are added, a **↑ New Stories** notification appears. Clicking which will automatically refresh the news feeds section.

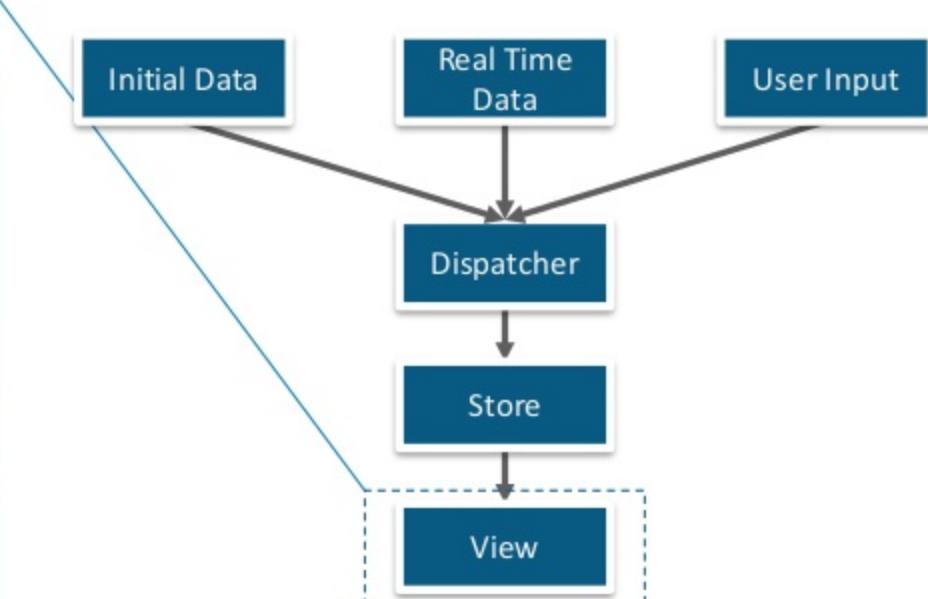
Why ReactJS?



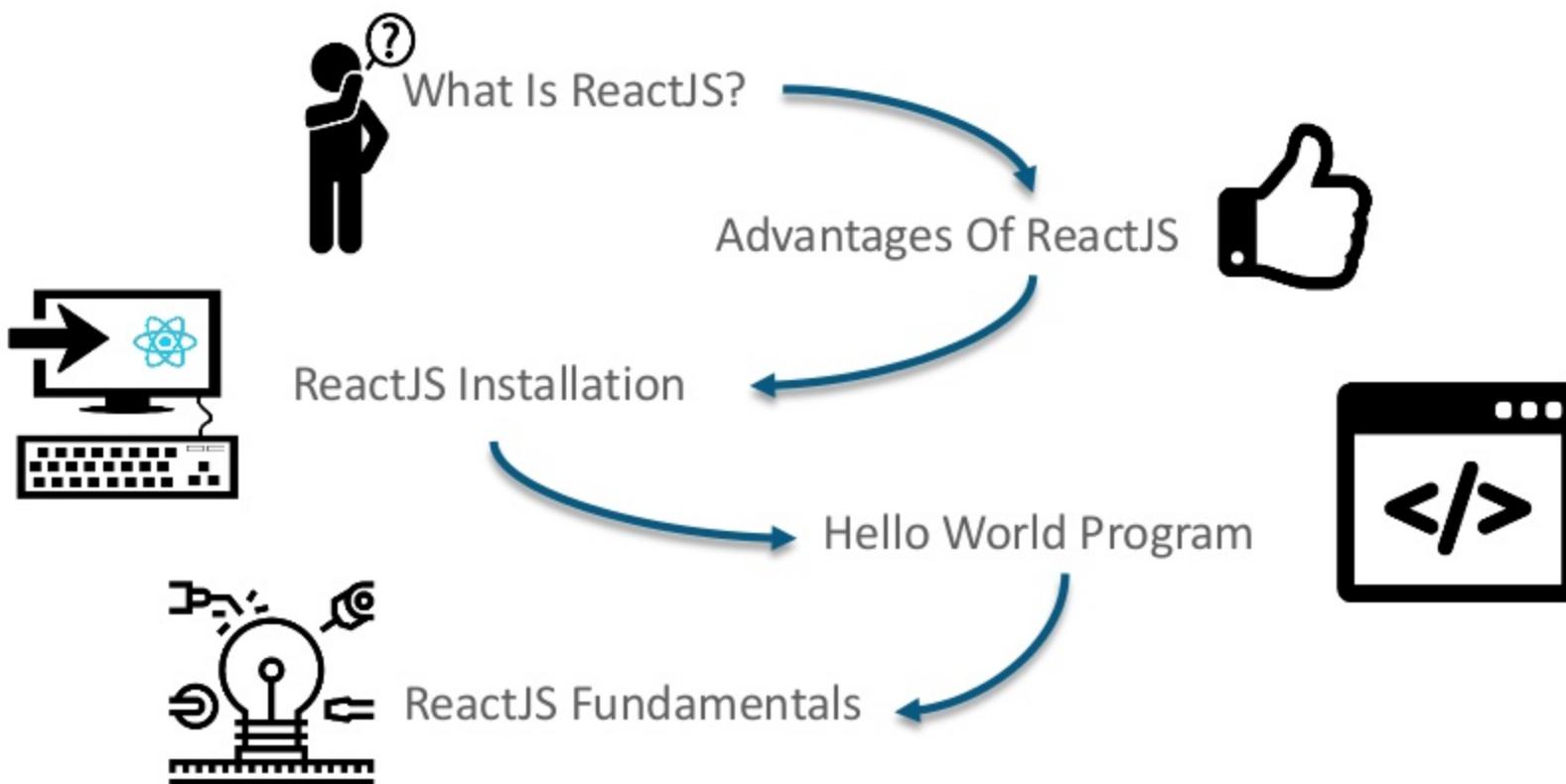
Why ReactJS?

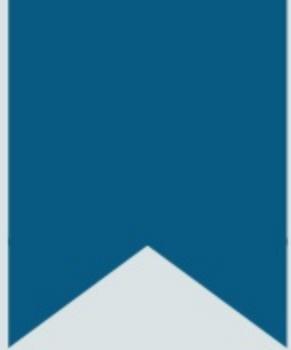


Why ReactJS?



Agenda



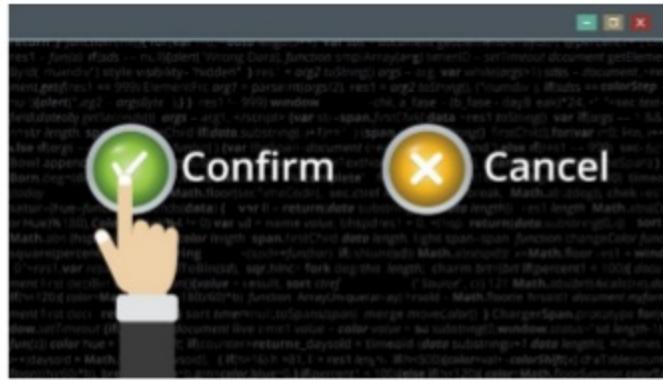


What Is ReactJS?

Now, let's understand what is ReactJS.

What Is ReactJS?

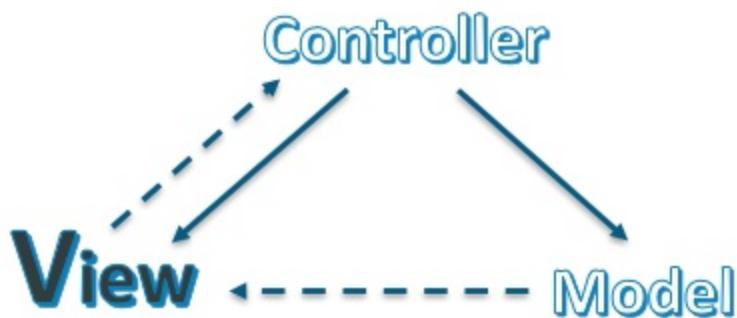
ReactJS is an open source JavaScript library used to develop User Interfaces.



ReactJS was introduced by Facebook on May, 2013. It was open sourced in March, 2015.

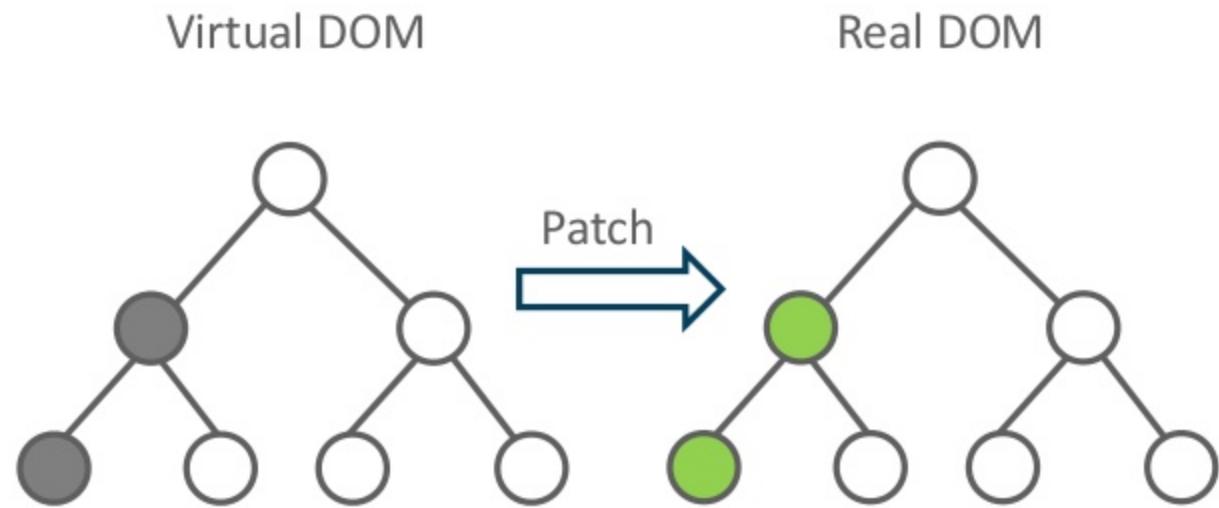
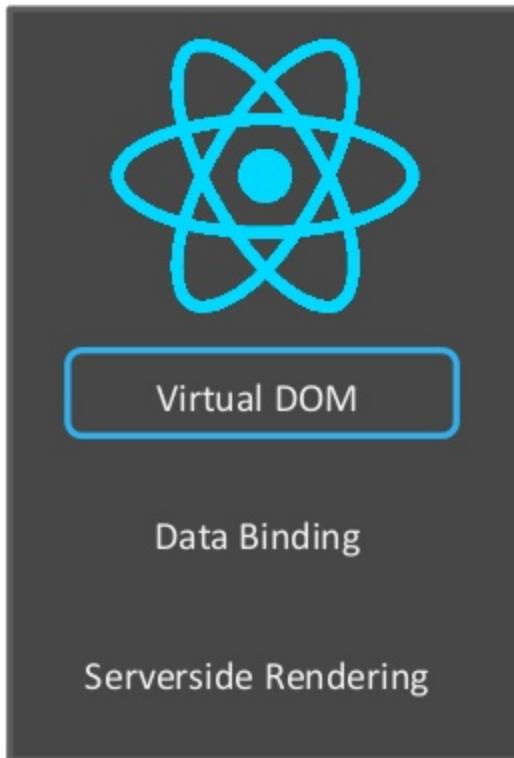
What Is ReactJS?

ReactJS is concerned with the components that utilizes the expressiveness of JavaScript with a HTML-like template syntax.

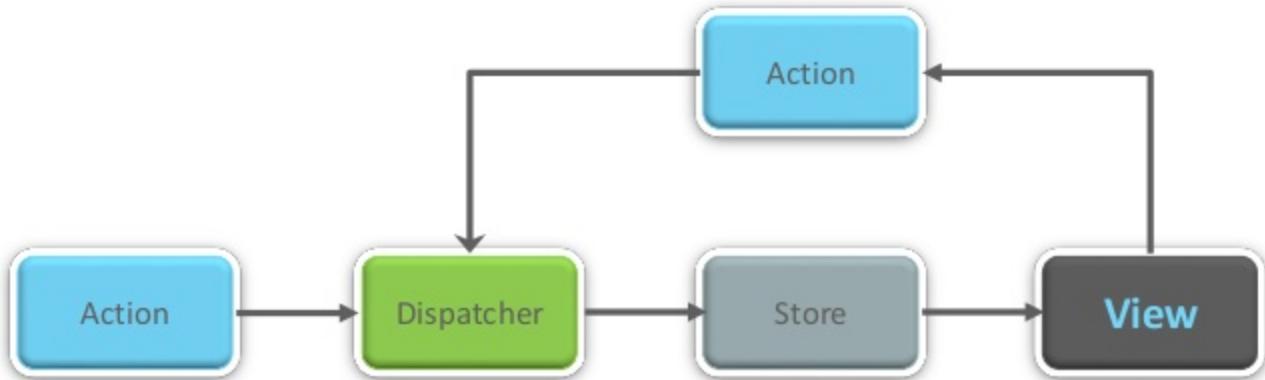
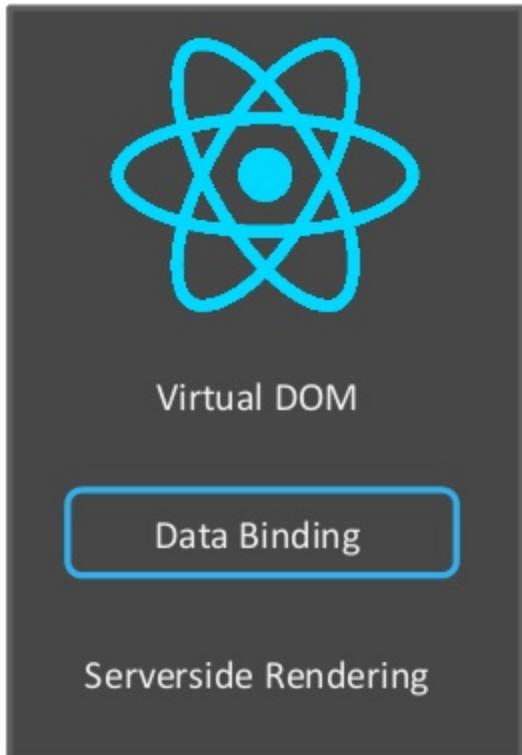


It is basically the View in MVC
(Model-View-Controller)

Aspects Of ReactJS?

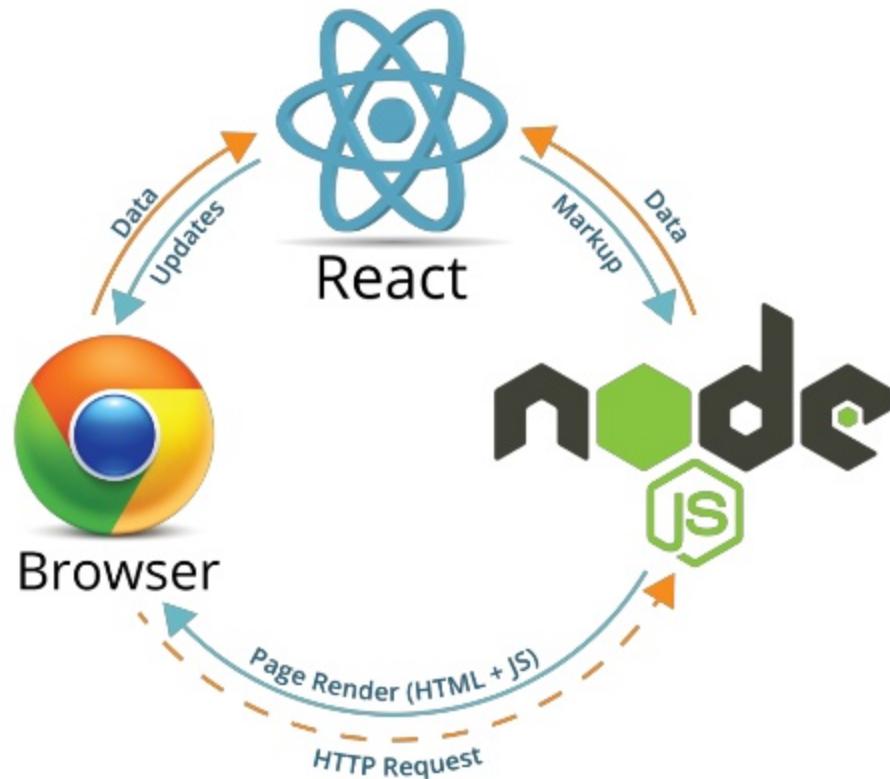
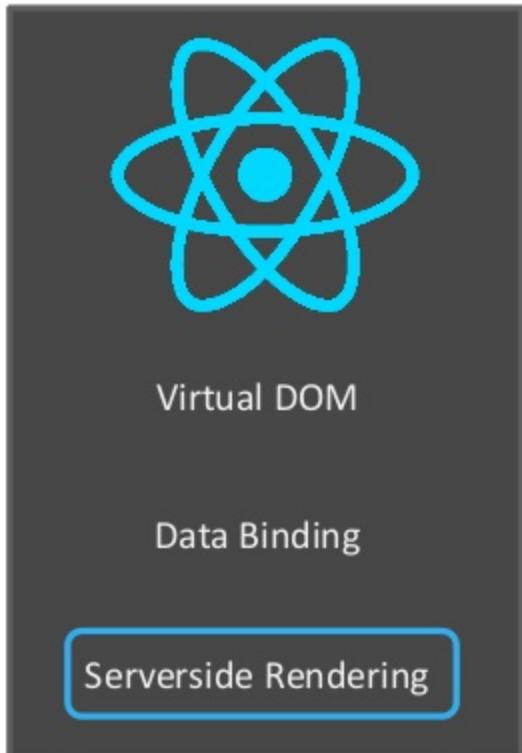


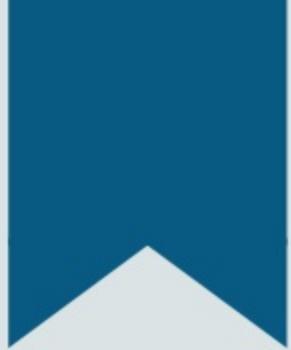
Aspects Of ReactJS?



One Way Data Binding

Aspects Of ReactJS?





Advantages of ReactJS

Let's find out the advantages of ReactJS.

Advantages of ReactJS

Application's performance is increased

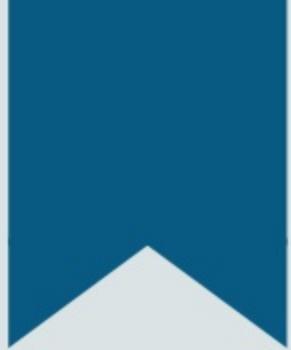


Used on Client as well as Server Side

Readability is improved



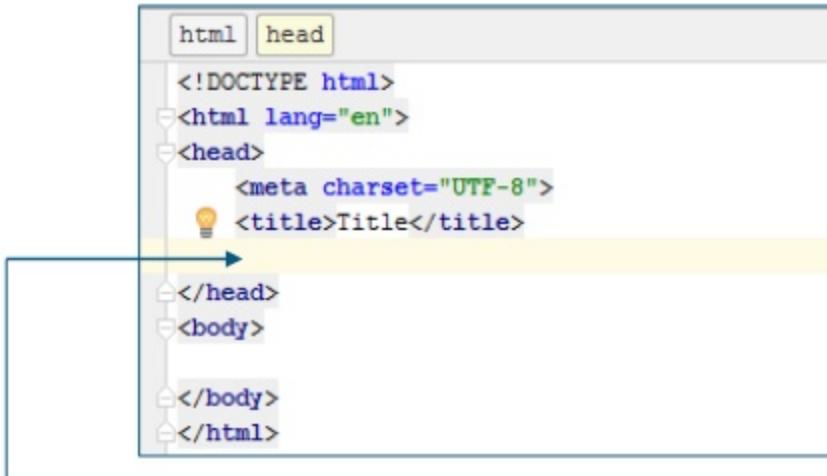
Easily used with other frameworks



ReactJS Installation

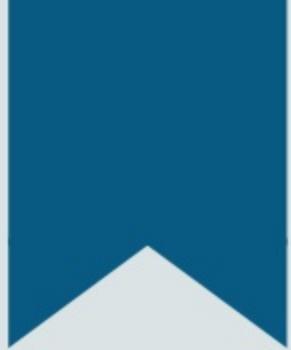
Let's get started with ReactJS.

ReactJS Installation



Add these <script> tags inside
<head> tag of your HTML code.

```
<script src="https://cdnjs.cloudflare.com/ajax/libs/react/0.13.3/react.js"></script>
<script src="https://cdnjs.cloudflare.com/ajax/libs/react/0.13.3/JSXTransformer.js"></script>
<script src="https://cdnjs.cloudflare.com/ajax/libs/jquery/2.1.1/jquery.min.js"></script>
```



Hello World Program

Let's start coding with ReactJS.

Hello World Program

```
1  var MyForm= React.createClass(          MyForm
2    {                                     MyForm
3      render: function() {               MyForm
4        return (                         MyForm
5          <div>                      MyForm
6            <h1> Hello World</h1>       MyForm
7          </div>                     MyForm
8        );                          MyForm
9      }                                MyForm
10     }                                MyForm
11   );                                 MyForm
12   ReactDOM.render(                  MyForm
13     <MyForm/>, document.getElementById('container')MyForm
14   );                                 MyForm
15
```

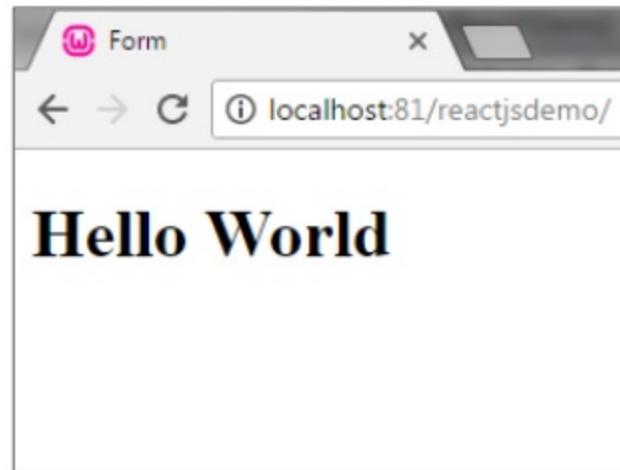
Hello World Program

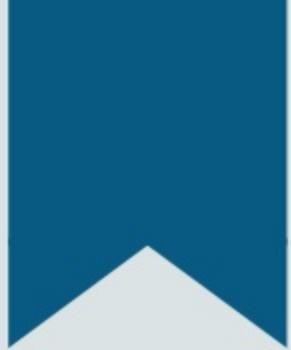
The screenshot shows a code editor interface with a hierarchical tree view on the left side. The root node is 'html'. Under 'html' are two children: 'body' (which is selected) and 'head'. The 'head' node has several children: 'meta charset="UTF-8"', 'title', and four 'script' tags with sources 'build/react.min.js', 'build/react-dom.min.js', 'build/browser.min.js', and 'build/jquery.min.js'. The 'body' node has three children: a 'head' element (with a yellow lightbulb icon), a 'body' element (which is also selected), and a 'div' element with the id 'container'. The 'div' element has one child: a closing 'div' tag. The 'body' element has one child: a closing 'body' tag. The entire 'html' node has one child: a closing 'html' tag.

```
1  html
2      body
3          <head>
4              <meta charset="UTF-8">
5              <title>Form</title>
6              <script src="build/react.min.js"></script>
7              <script src="build/react-dom.min.js"></script>
8              <script src="build/browser.min.js"></script>
9
10             <script src="build/jquery.min.js"></script>
11             <script src="build/textToLink.js"></script>
12             <script src="build/ajaxPostReact.js"></script>
13             <script src="form.js" type="text/babel"></script>
14
15             <head>
16             <body>
17                 <div id="container">
18                     </div>
19             </body>
20         </html>
```

Hello World Program

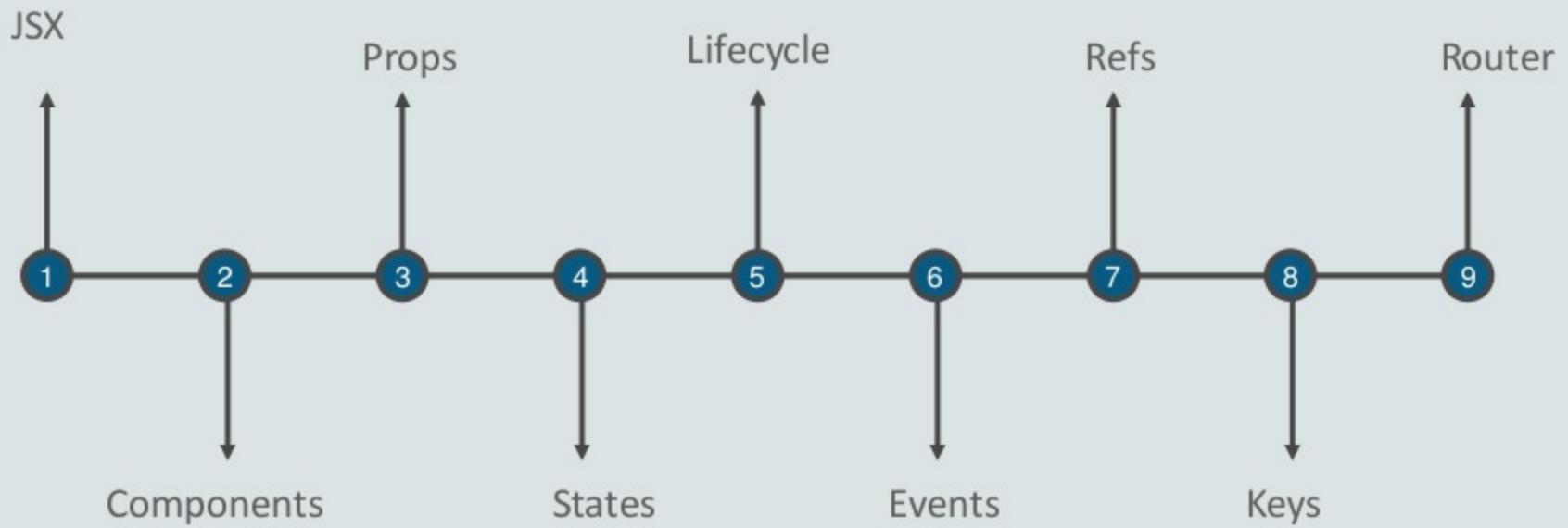
This is how the output will look like:



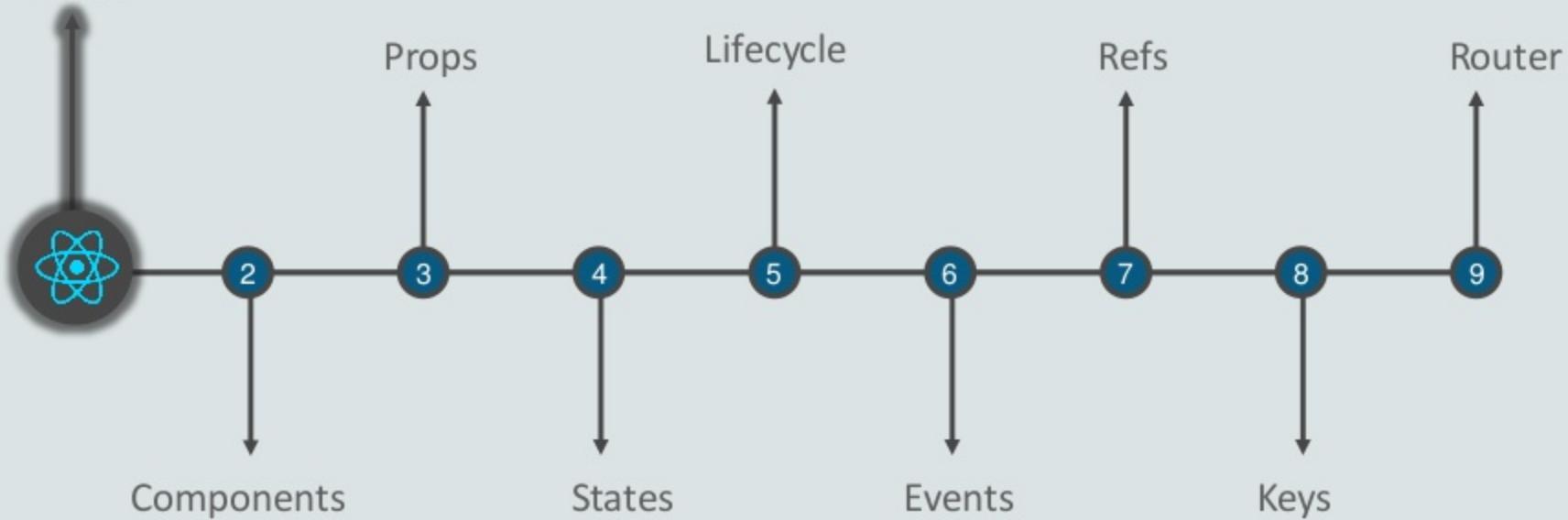


ReactJS Fundamentals

Let's find out about various concepts we just used in our code



JSX



JSX

```
const element = <h2> Edureka! </h2> ;
```

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

- ✓ JSX stands for JavaScript XML
- ✓ Makes HTML easy to understand
- ✓ It is Robust
- ✓ Boosts up the JS performance



JSX Uses

Regular JSX

JSX Nested Elements

Specifying Attributes

Embedding JavaScript

```
var MyComponent = React.createClass({
  render : function () {
    return (
      <div>
        Hello World!!!
      </div>
    );
  });
});
```

JSX Uses

Regular JSX

JSX Nested Elements

Specifying Attributes

Embedding JavaScript

```
var MyComponent = React.createClass( {  
  render : function () {  
    return (  
      <div>  
        <h1>Header</h1> ←  
        <h2>Content</h2> ←  
        <p>This is the content!!!</p> ←  
      </div>  
    );  
  }  
});
```

<h1>,<h2>,<p> nested
inside <div>

JSX Uses

Regular JSX

JSX Nested Elements

Specifying Attributes

Embedding JavaScript

```
var styles={ backgroundcolor: 'cyan' };
var MyComponent=React.createClass({
  render : function () {
    return (
      <div style={styles}>←
        <h1>Header</h1>
        </div>
    );
  }
});
```

Adding Attributes

JSX Uses

Regular JSX

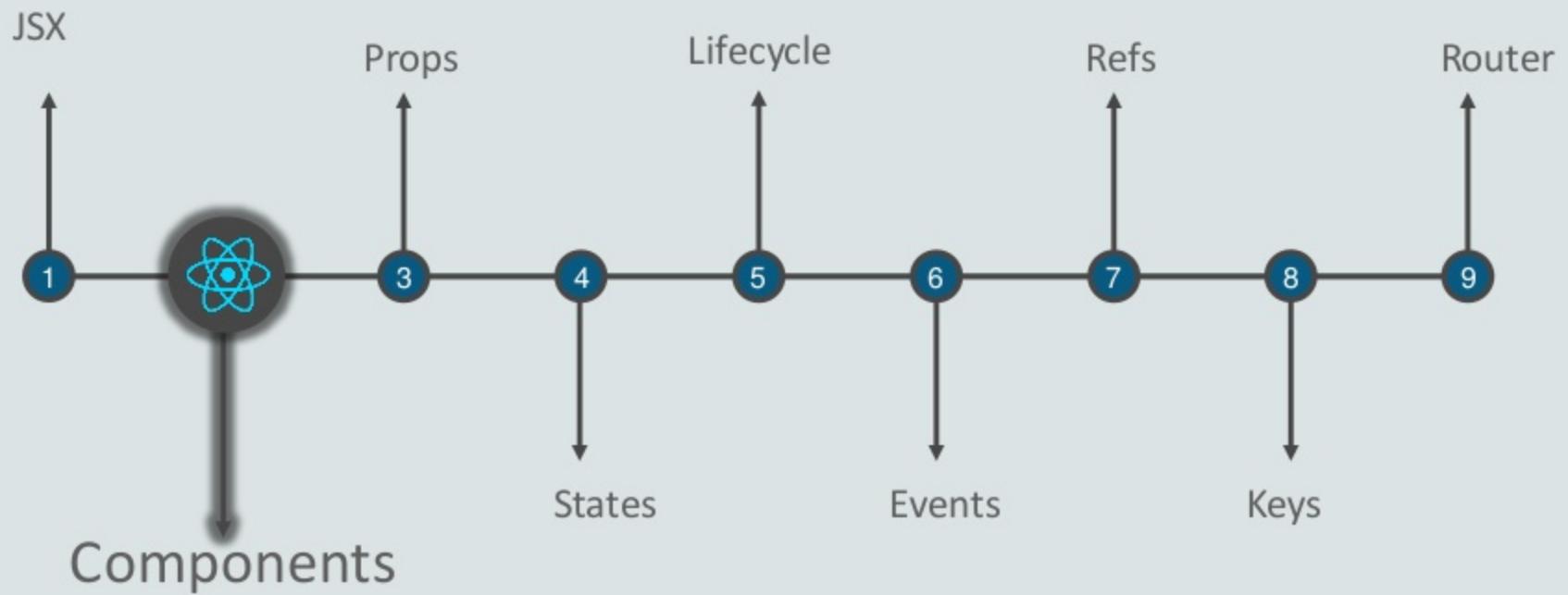
JSX Nested Elements

Specifying Attributes

Embedding JavaScript

JavaScript Expression

```
var MyComponent = React.createClass({  
  render: function () {  
    return (  
      <div>  
        <h2> {2+4} </h2>  
      </div>  
    );  
  }  
});
```



Components

The screenshot shows a Facebook group page titled "ReactJS for developers". The left sidebar contains navigation links for the group, including "Discussion", "Members", "Events", "Photos", and "Shortcuts" (with items like "Spring Framework", "EDITOR SPRING FRAM...", "JavaSE, JavaEE, Ja...", "Spring Framework", "Spring : The powerful fra...", "ALGORITHME & PR...", "Myanmar Java Use...", and "See more"). The main content area features a post by "Mohammad El Shah" from April 1, which reads: "React Js Appointment Calender I need your help. Is there already a React js event calendar, which is totally FREE-to-use .. also commercially.... See More". Below the post are "Like" (1), "Comment", and "Share" buttons, and a reply from "Kiran Killae Rajaram" asking for explanation. A comment input field says "Write a comment...". On the right side, there's a "ADD MEMBERS" search bar, a "MEMBERS" section showing 32 members with profile pictures, a "SUGGESTED MEMBERS" section with three suggestions (Archana Yadav, Prity Bajaj, Sharmistha Dey) each with an "Add Member" button, a "DESCRIPTION" field, a "CREATE NEW GROUPS" section with a "Create Group" button, and a "RECENT GROUP PHOTOS" section with a "React" thumbnail.

Components

The screenshot shows a Facebook group page for "ReactJS for developers". A blue box labeled "Component 1" highlights the group name and its status as a "Public Group". The main content area displays a post from "Mohammad El Shah" asking for help with a React.js Appointment Calendar. Below the post, there are two comments: one from "Kiran Killae Rajaram" asking for explanation, and another from "Pooja B". The right sidebar includes sections for "ADD MEMBERS", "MEMBERS", "SUGGESTED MEMBERS", "DESCRIPTION", "CREATE NEW GROUPS", and "RECENT GROUP PHOTOS".

Component 1

ReactJS for developers

Public Group

Discussion

Members

Events

Photos

Search this group

Shortcuts

- Spring Framework
- EDITOR SPRING FRAM...
- JavaSE, JavaEE, Ja...
- Spring Framework
- Spring : The powerful fra...
- ALGORITHME & PR...
- Myanmar Java Use... 20+

See more

Write Post | Add Photo/Video | Add File | More

Write something...

Photo/Video Feeling/Activity ...

RECENT ACTIVITY

Mohammad El Shah April 1

React Js Appointment Calender

I need your help.

Is there already a React js event calendar, which is totally FREE-to-use .. also commercially.... See More

Like Comment Share

1 Seen by 9

Kiran Killae Rajaram Could you please explain.

Like · Reply · May 12 at 1:02pm

Write a comment...

Pooja B

Home

Add Member

Add Member

Add Member

See More

Add a Description

Tell people what this group is about.

Create Group

Groups make it easier than ever to share with friends, family and teammates.

See All

React

Components

The screenshot shows a Facebook group page titled "ReactJS for developers". A blue box labeled "Component 2" highlights the sidebar on the left.

Sidebar (Component 2):

- ReactJS for developers (Public Group)
- Discussion
- Members
- Events
- Photos
- Search this group
- Shortcuts
 - Spring Framework
 - EDITOR SPRING FRAM...
 - JavaSE, JavaEE, Ja... 1
 - Spring Framework
 - Spring : The powerful fra...
 - ALGORITHME & PR... 19
 - Myanmar Java Use... 20+
- See more

Group Page Content:

Recent Activity:

Mohammad El Shah (April 1)
React Js Appointment Calender
I need your help.
Is there already a React js event calendar, which is totally FREE-to-use .. also commercially.... See More

Like Comment Share

1 Seen by 9

Kiran Killae Rajaram Could you please explain.
Like · Reply · May 12 at 1:02pm

Write a comment...

Right Sidebar:

ADD MEMBERS: Enter name or email address...
32 Members

MEMBERS: Archana Yadav, Prity Bajaj, Sharmistha Dey

SUGGESTED MEMBERS: Add Member

DESCRIPTION: Add a Description
Tell people what this group is about.

CREATE NEW GROUPS: Create Group

RECENT GROUP PHOTOS: See All

React

Components

The screenshot shows a Facebook group page for "ReactJS for developers". A blue box highlights the sidebar navigation menu on the left, which includes options like "Discussion", "Members", "Events", "Photos", and "Search this group". An arrow points from the text "Component 3" to this sidebar.

RECENT ACTIVITY

Mohammad El Shah April 1
React Js Appointment Calender
I need your help.
Is there already a React js event calendar, wich is totally FREE-to-use ..
also commercially.... See More

Like Comment Share

1 Seen by 9

Kiran Killae Rajaram Could you please explain.
Like · Reply · May 12 at 1:02pm

Write a comment...

OLDER

Pooja B

ADD MEMBERS

+ Enter name or email address...

MEMBERS 32 Members

SUGGESTED MEMBERS

Archana Yadav Add Member
Prity Bajaj Add Member
Sharmistha Dey Add Member

See More

DESCRIPTION Add a Description
Tell people what this group is about.

CREATE NEW GROUPS

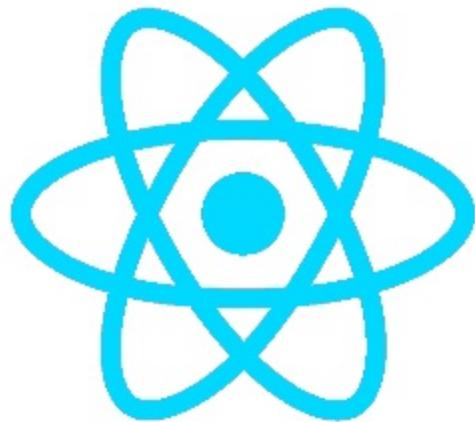
Groups make it easier than ever to share with friends, family and teammates.

Create Group

RECENT GROUP PHOTOS See All

React

Components



1

Everything in ReactJS is component

2

Each Component Return a DOM Object

3

It splits the UI into independent reusable pieces

4

Each independent piece is processed separately

5

It can refer other components in output

6

It can be further split into smaller components

Components

- ✓ A valid React component, accepts a single ‘props’ object argument to produce a React element.
- ✓ These are called “functional” as they literally are JavaScript functions.

```
<button onClick={this.handleClick}>Click Here</button>
```



Prop

Components

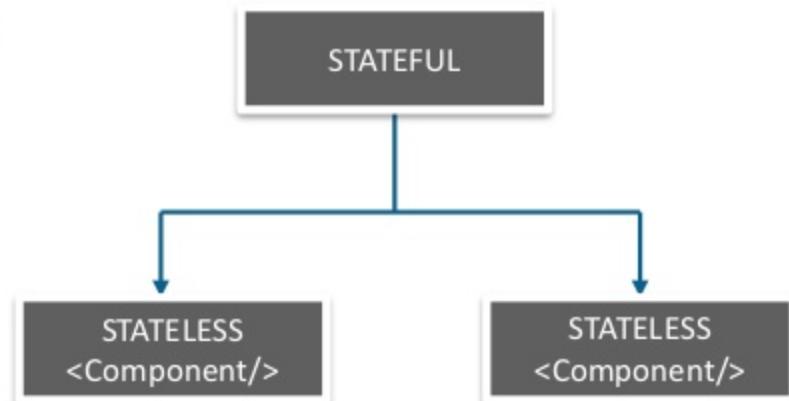
Simplest way of defining a component is through JavaScript



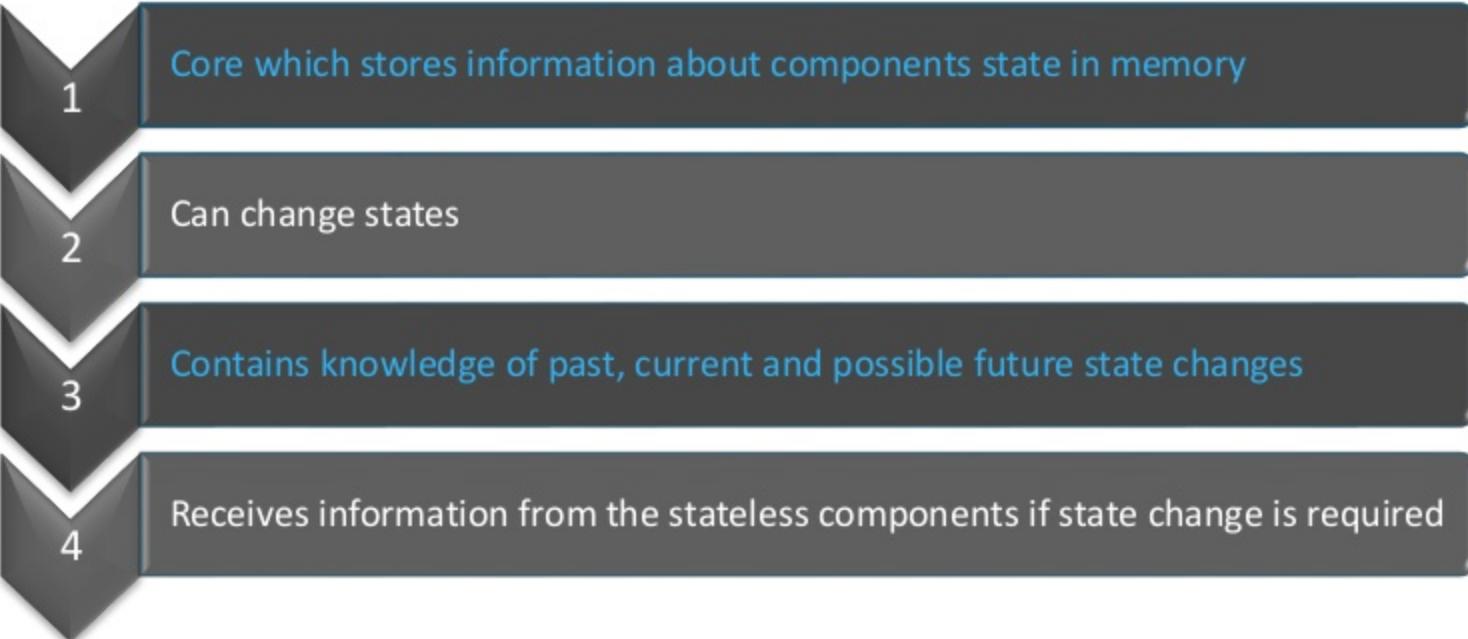
```
function PropDemo(props) {  
  return <h1> Hello...{props.name}</h1>  
}
```

Components in ReactJS can be in two forms:

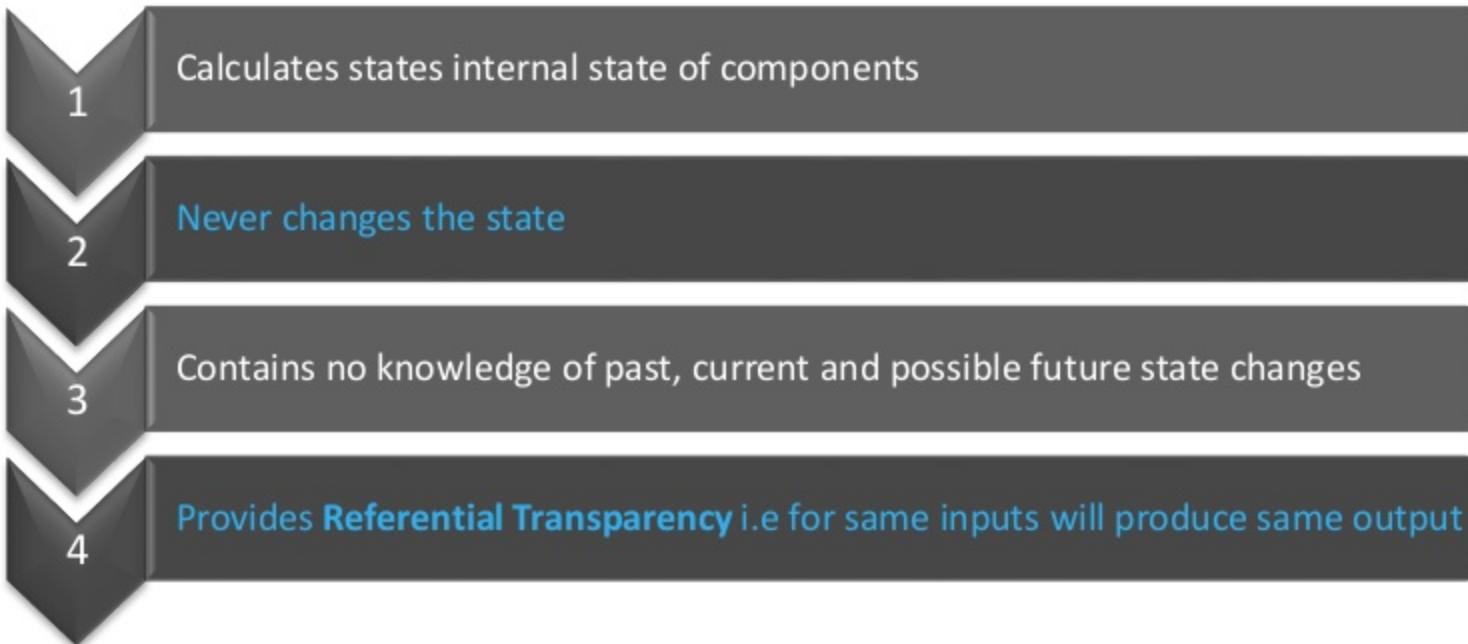
1. **Stateful**: Remembers everything it does
2. **Stateless**: Doesn't remembers anything it does.

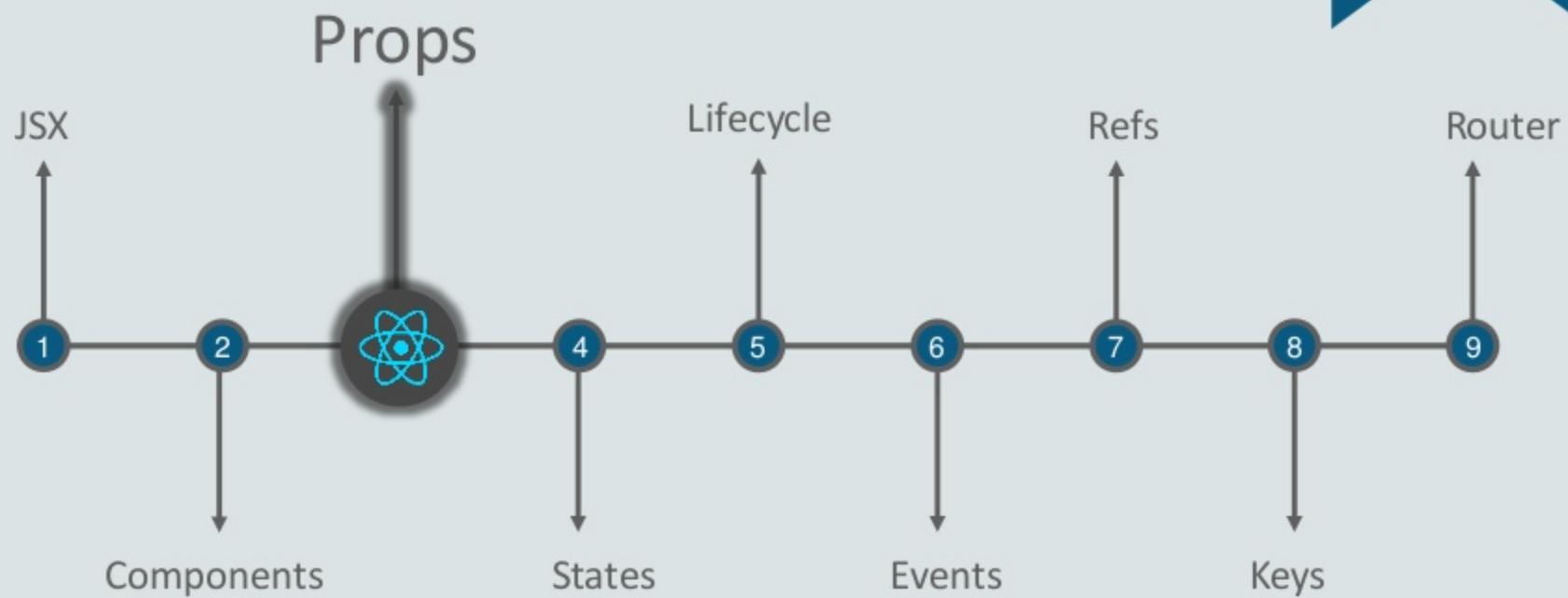


Stateful Components

- 
- 1 Core which stores information about components state in memory
 - 2 Can change states
 - 3 Contains knowledge of past, current and possible future state changes
 - 4 Receives information from the stateless components if state change is required

Stateless Components

- 
- 1 Calculates states internal state of components
 - 2 Never changes the state
 - 3 Contains no knowledge of past, current and possible future state changes
 - 4 Provides **Referential Transparency** i.e for same inputs will produce same output

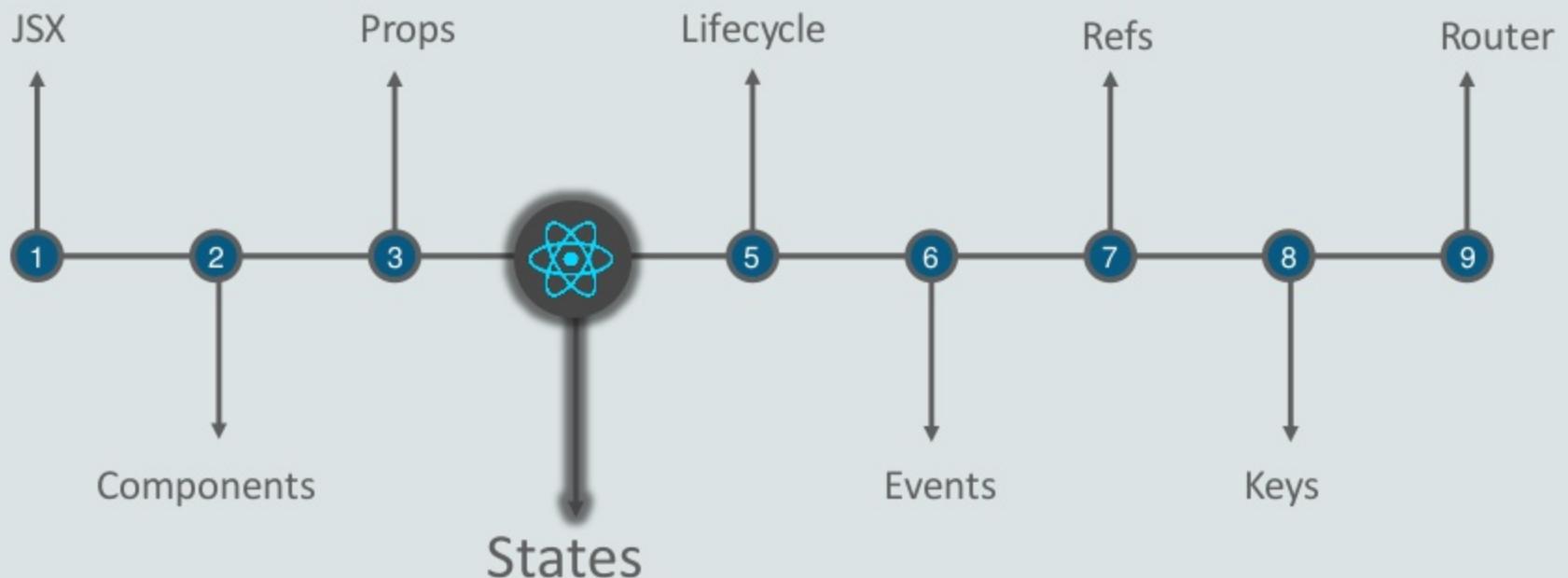


Props

- ✓ Props are read-only components
- ✓ Whether components are declared as function or class, it must never change its *props*
- ✓ Such components are called 'pure functions'

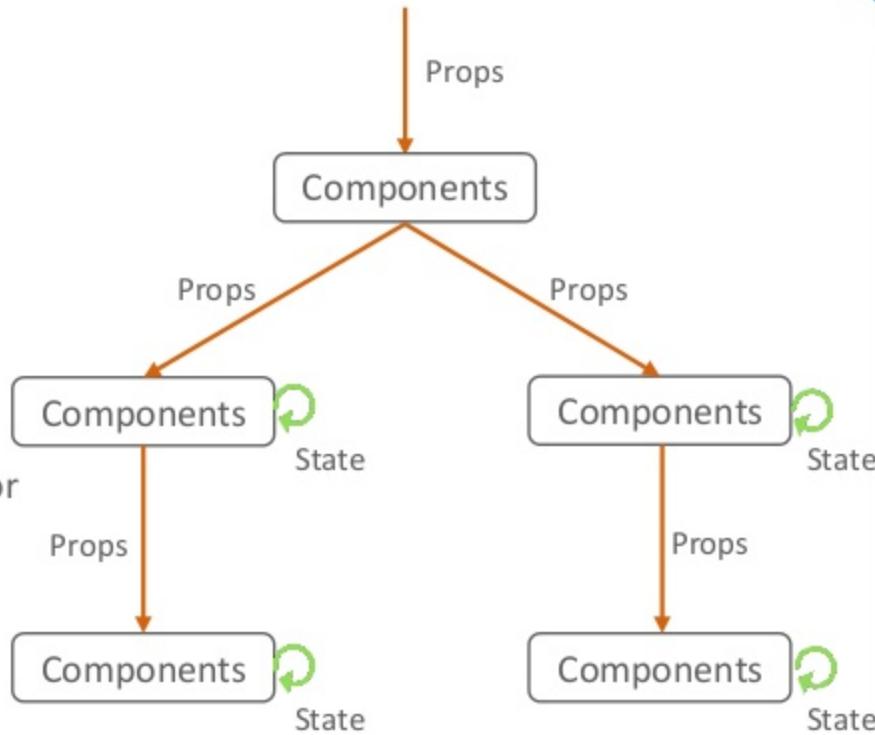
```
function sum(x,y) {  
    return x+y ;  
}
```

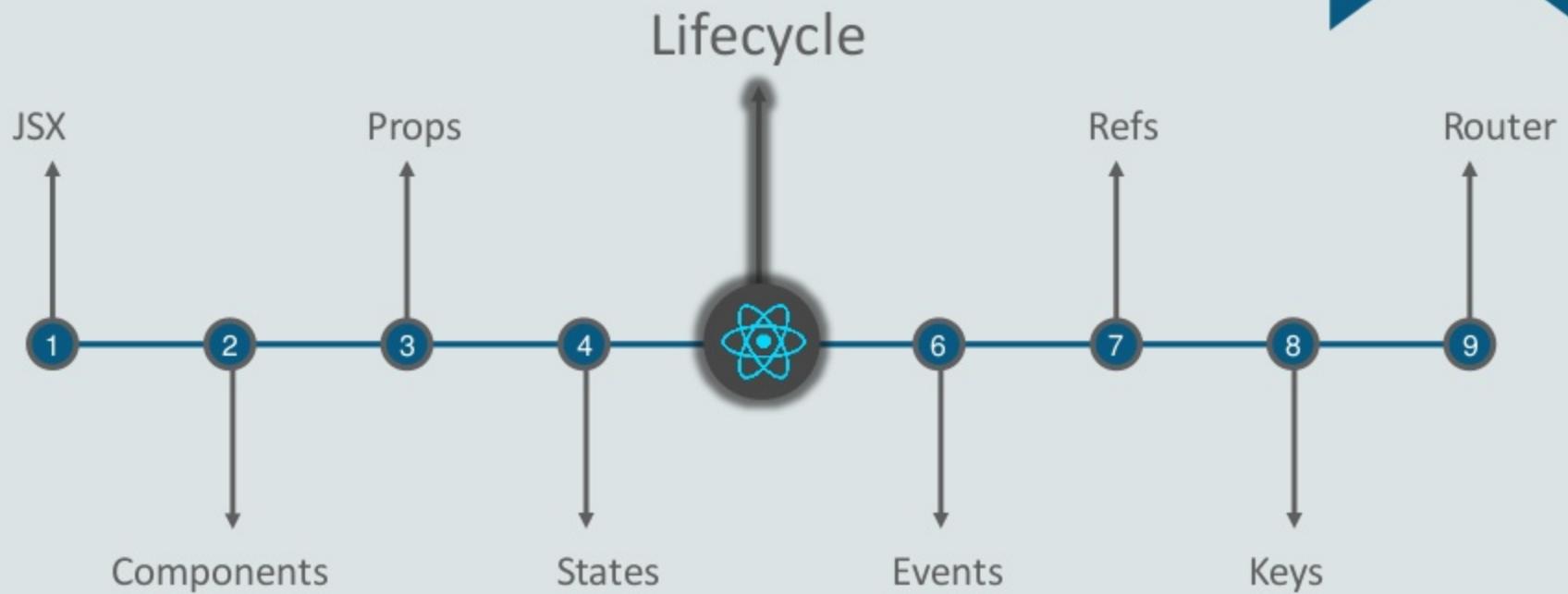
RULE: *All React components must act like pure functions with respect to their props.*



States

- ✓ Heart of react components
- ✓ Must be kept as simple as possible
- ✓ Determines components rendering and behavior
- ✓ Creates dynamic and interactive components

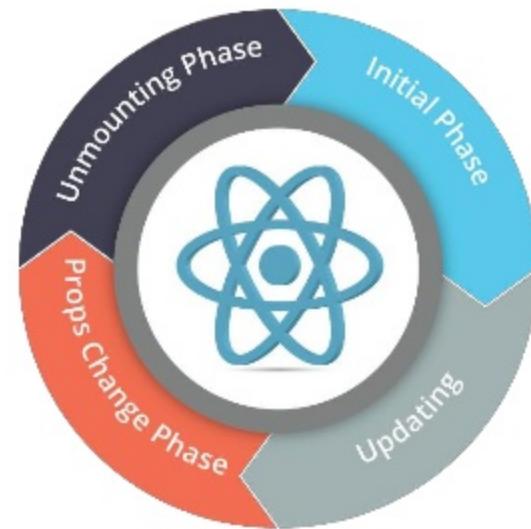




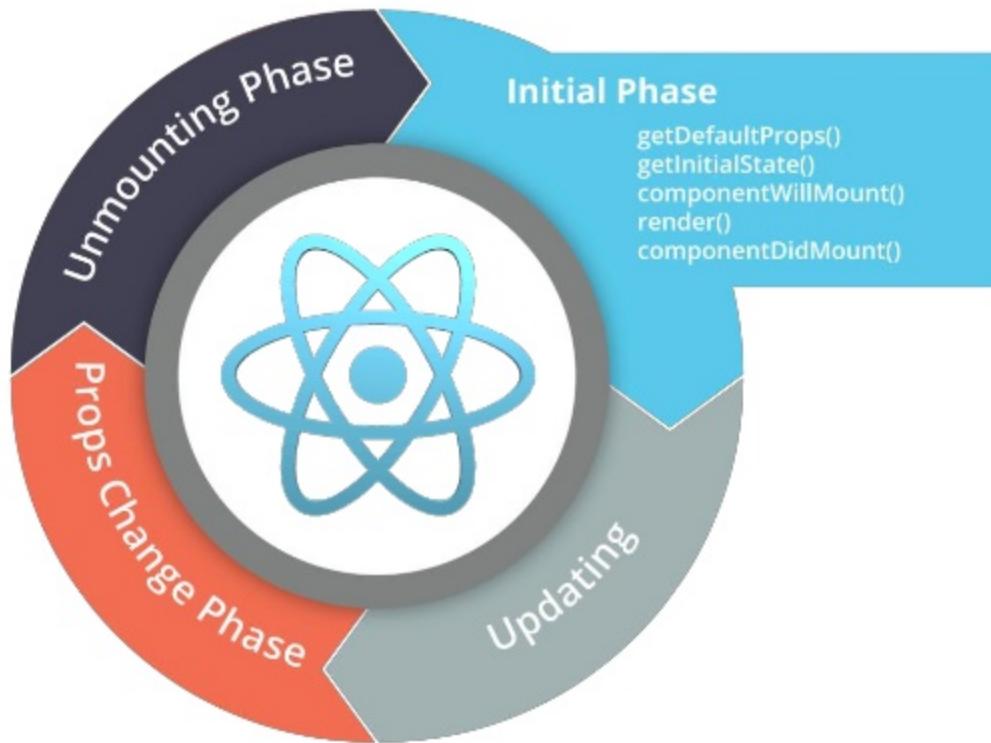
Lifecycle

React provides various methods which notifies when certain stage of the lifecycle occurs called **Lifecycle methods**

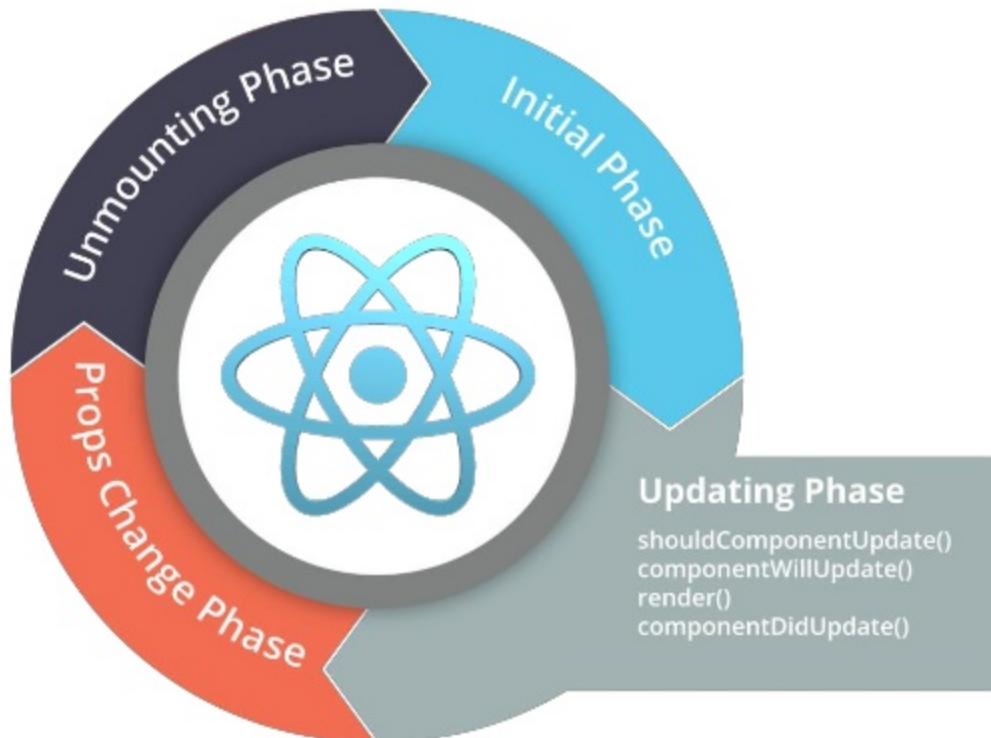
- ✓ These are special event handlers that are called at various points in components life
- ✓ Code can be added to them to perform various tasks
- ✓ They are invoked in a predictable order
- ✓ Entire lifecycle is divided into 4 phases.



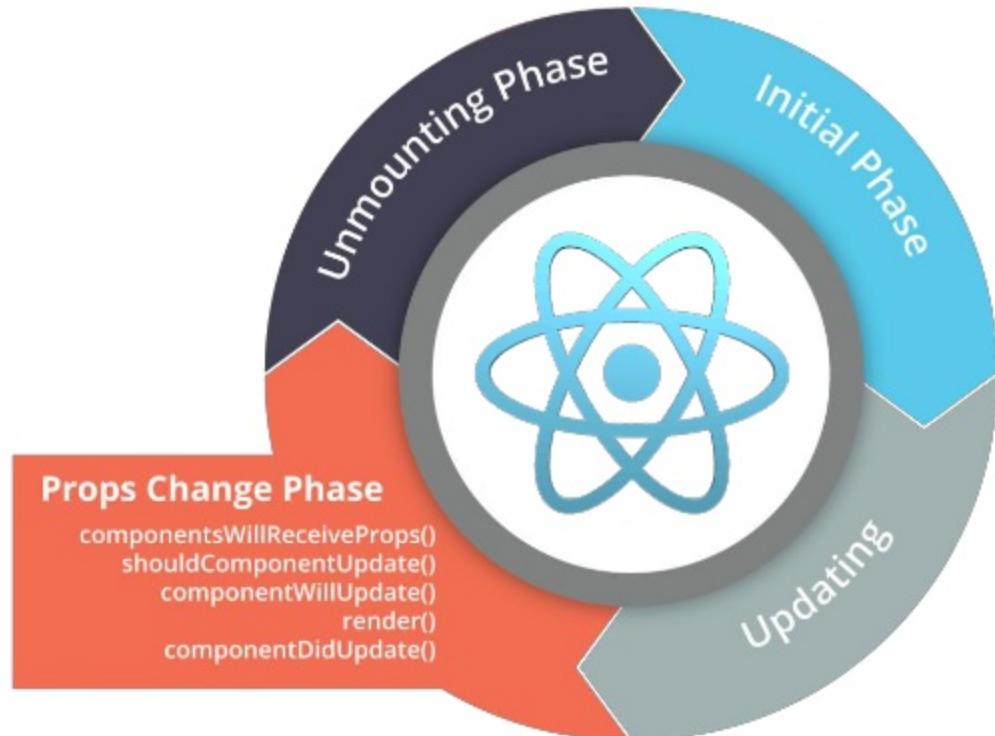
Initial Phase



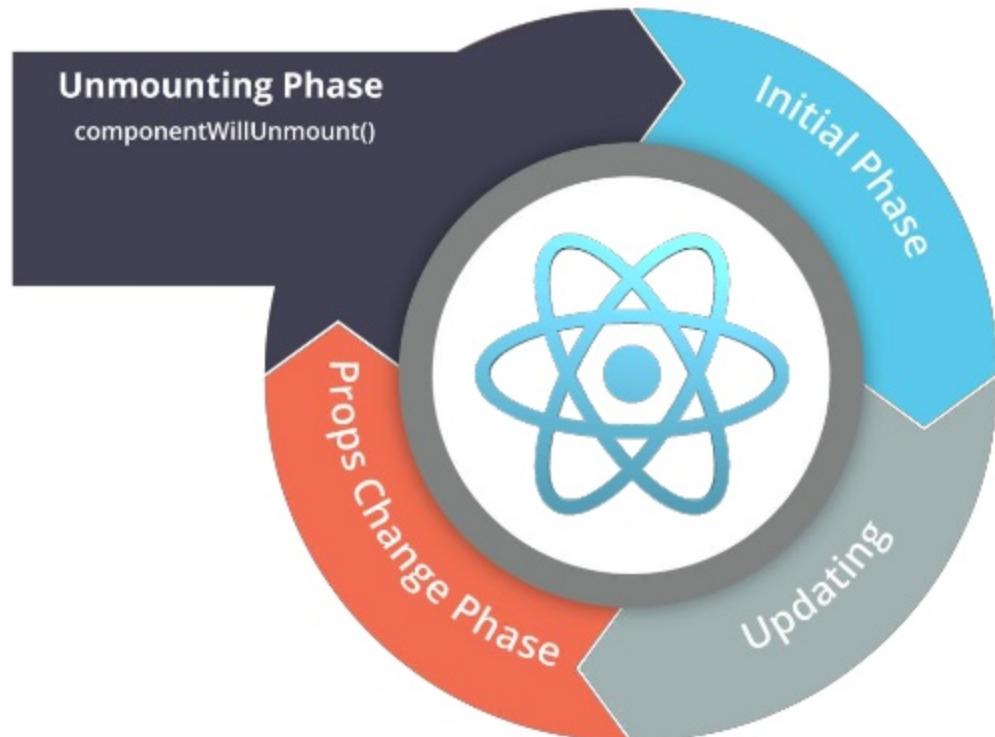
Updating Phase

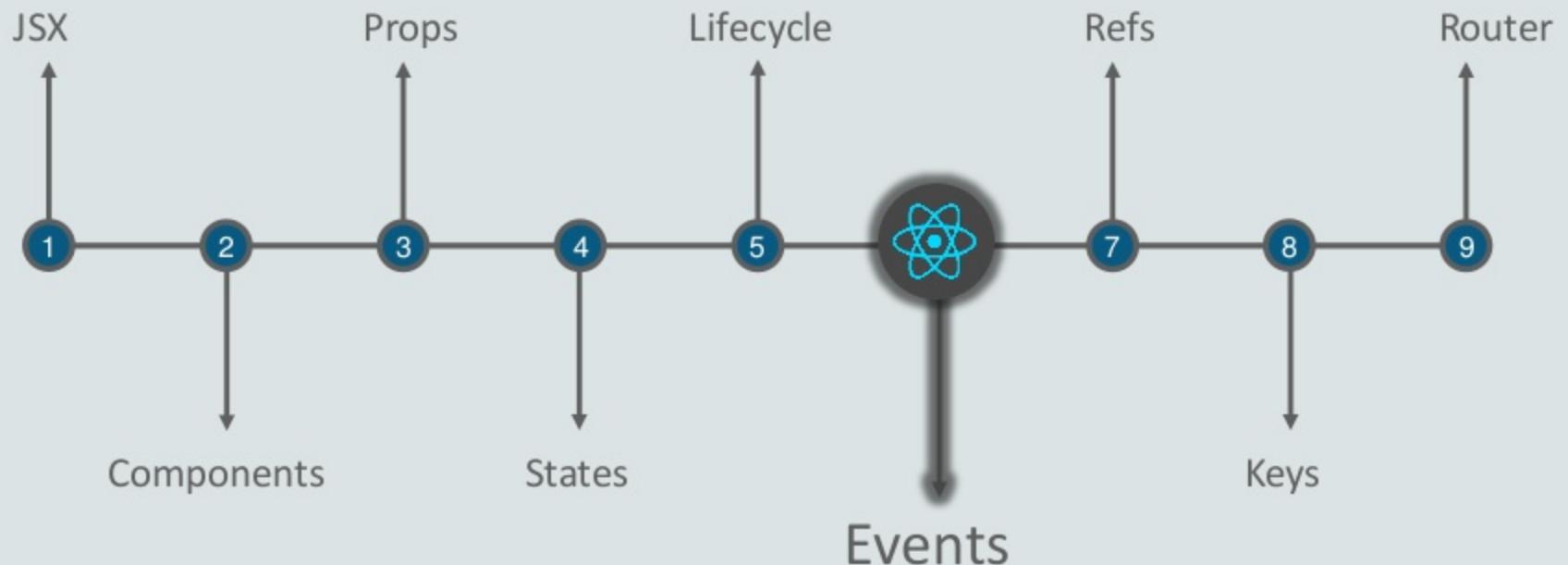


Props Change Phase



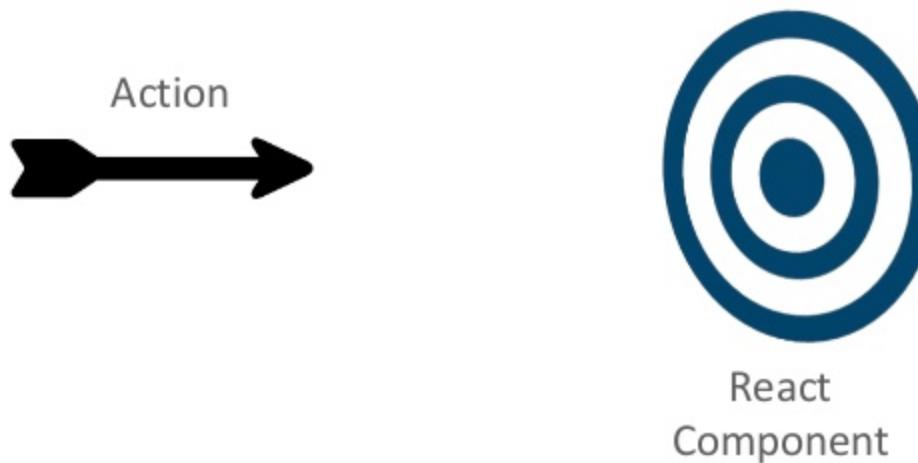
Unmounting Phase





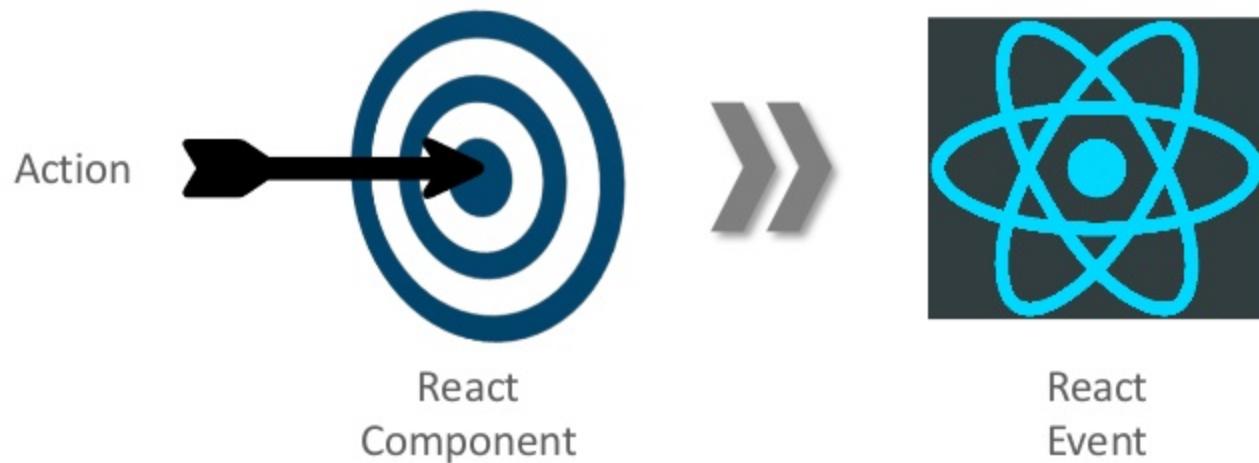
Events

Events are the triggered reactions to specific actions like mouse hover, mouse click, key press etc.



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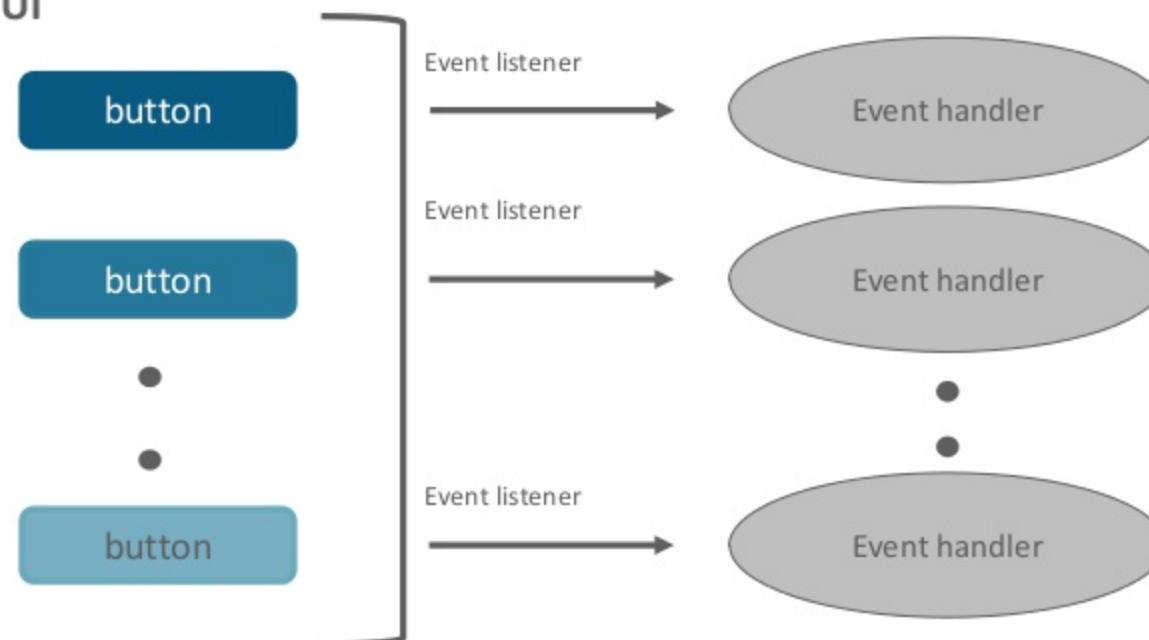


Events

- ✓ Events pass event arguments to the event handler
- ✓ Whenever an event is specified in JSX, a synthetic event is generated
- ✓ This synthetic event wraps up the browser's native event and are passed as argument to the event handler

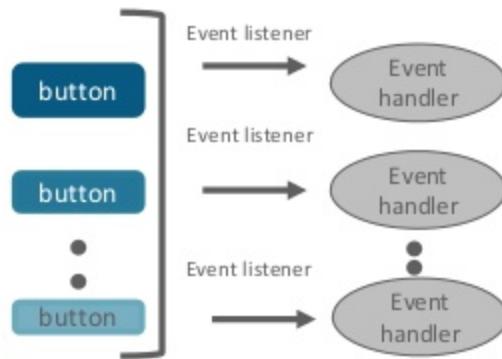
Event

In other UI

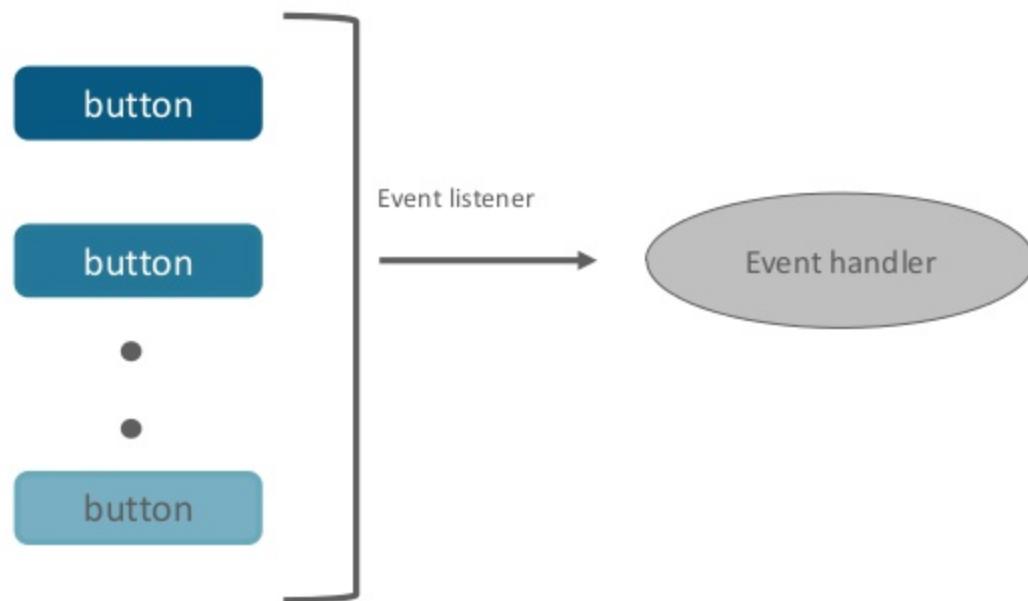


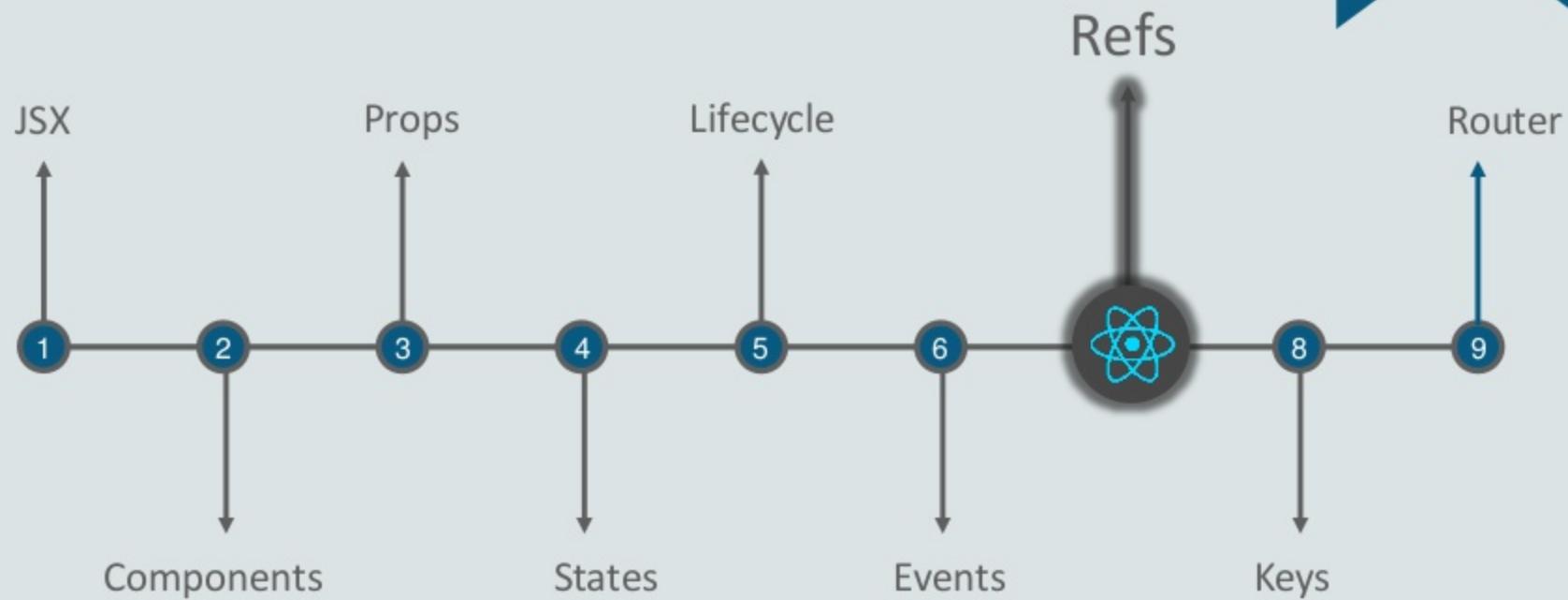
Event

In other UI



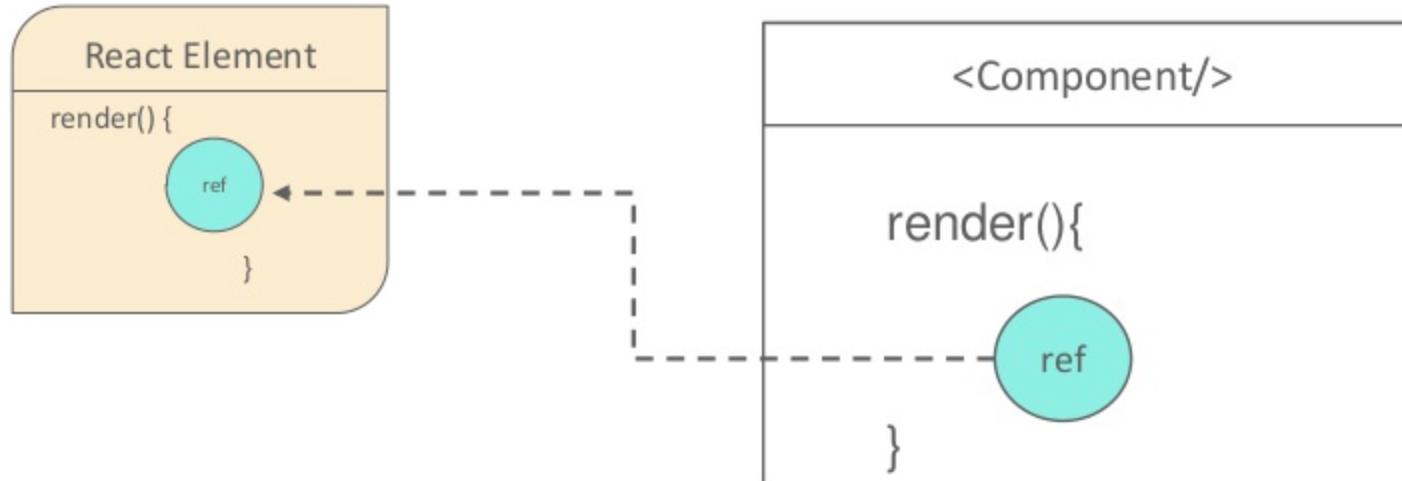
In React





Refs

- ✓ Refs stands for references
- ✓ Refs are used to return references to a particular element or component returned by render().



Refs Use Cases

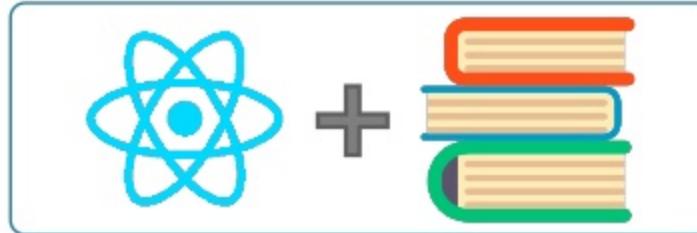
- Managing focus, text selection or media playback

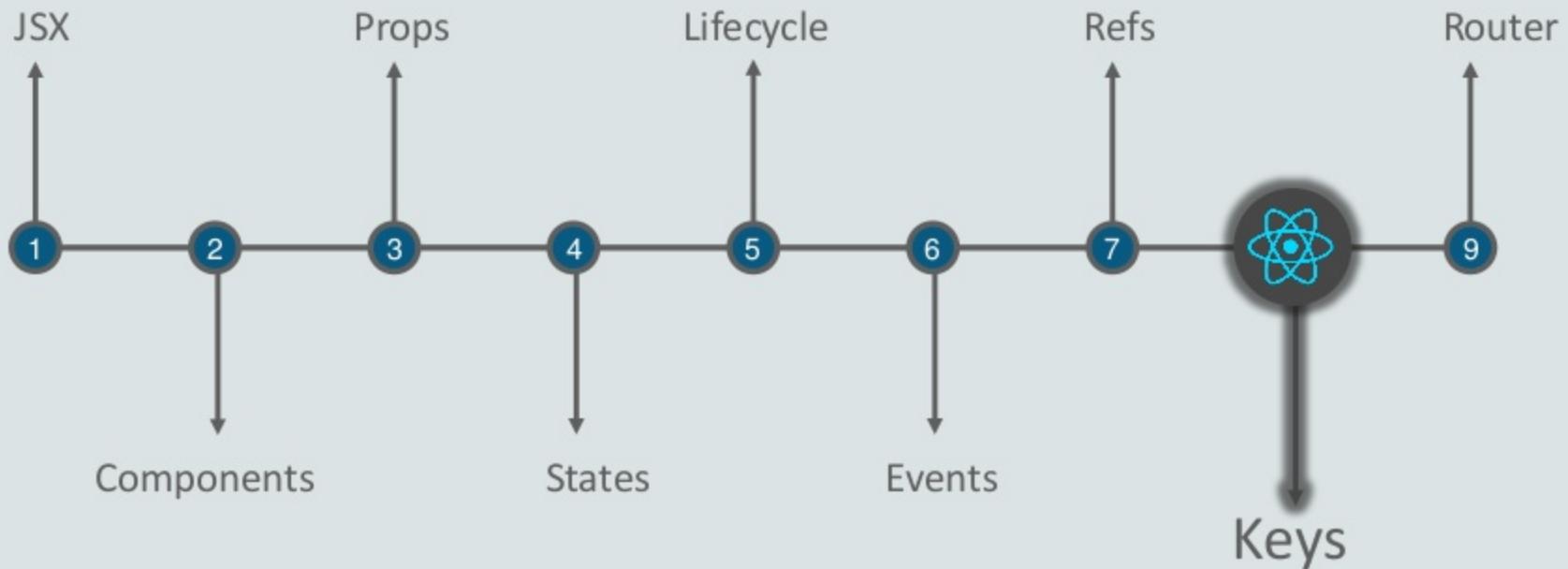


- Triggering imperative animations



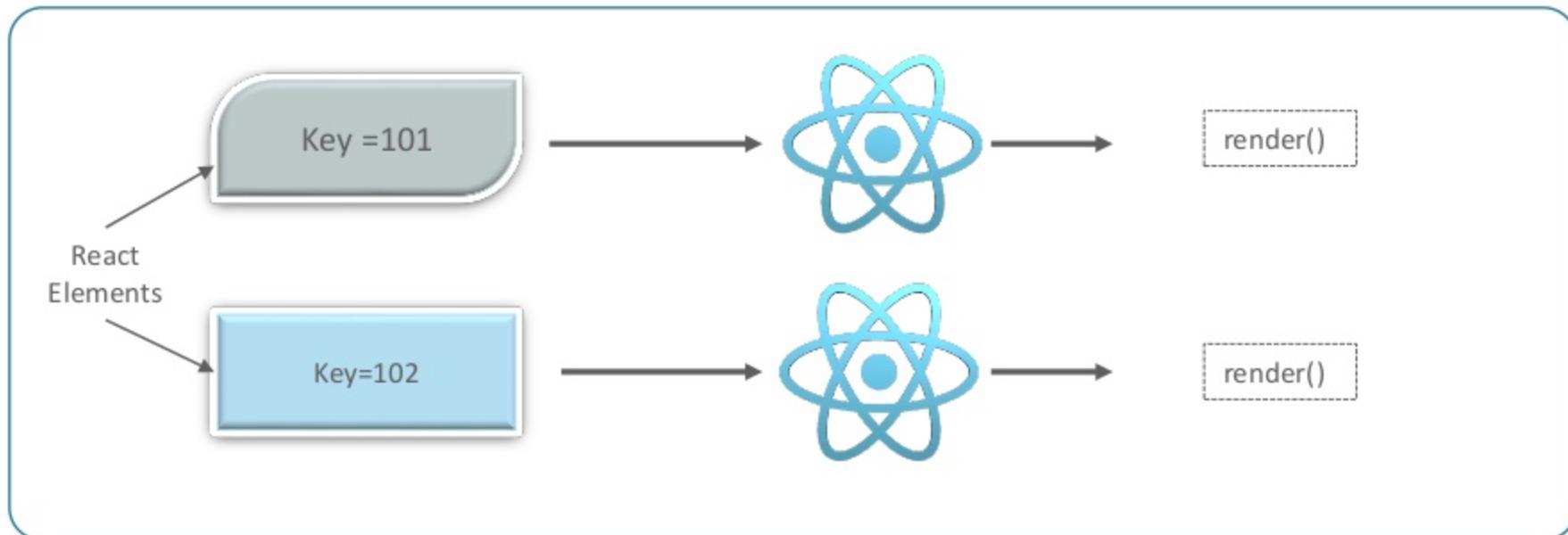
- Integrating with third-party DOM libraries





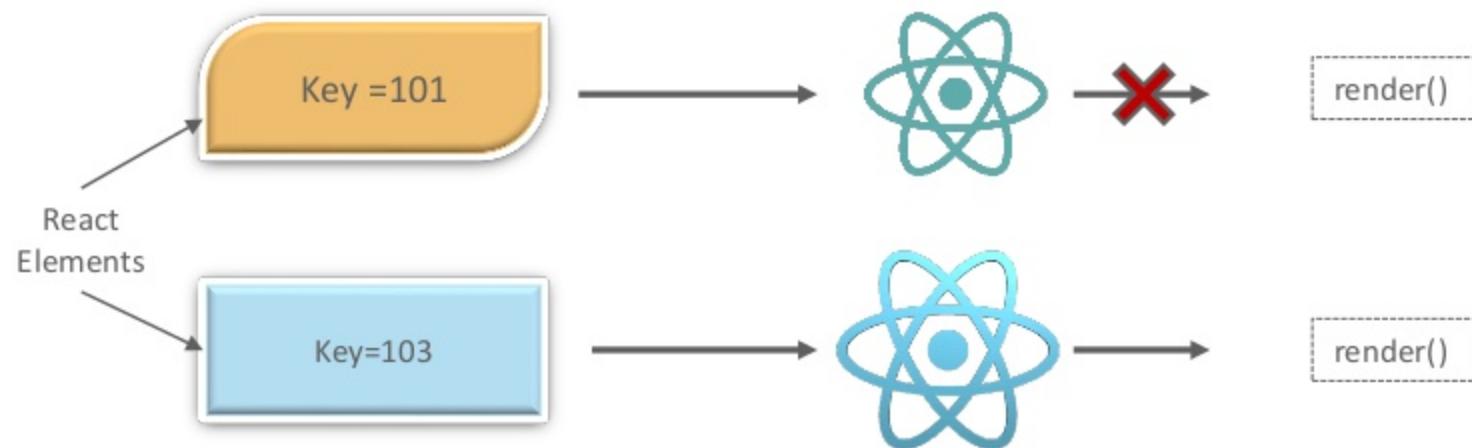
Keys

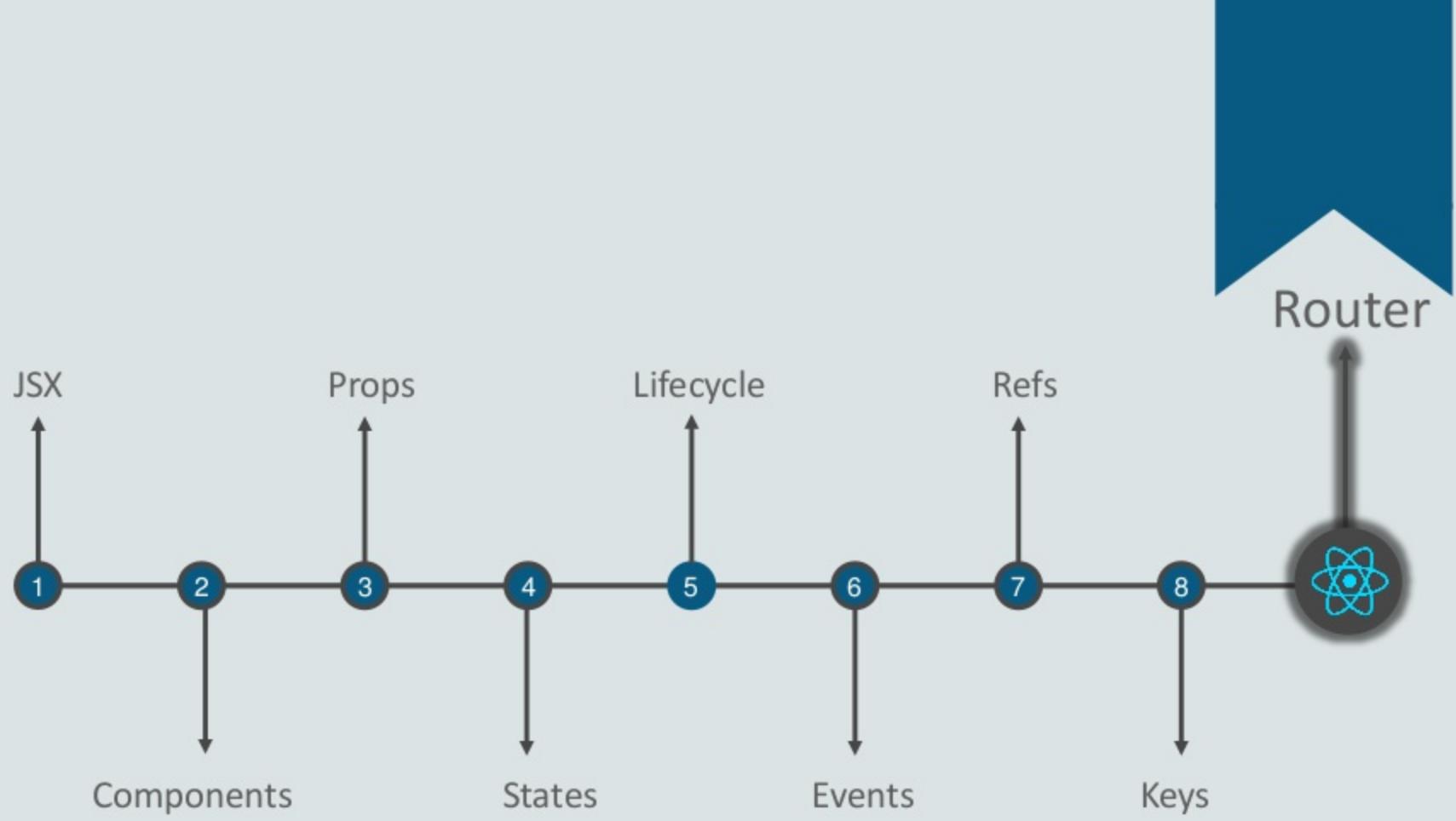
Keys are the elements which helps React to identify components uniquely

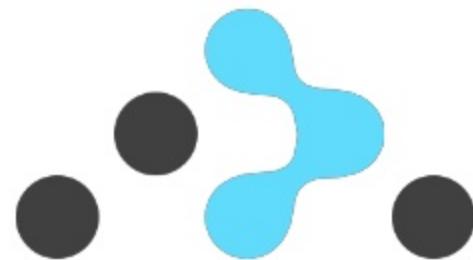


Keys

Keys are the elements which helps React to identify components uniquely







- ✓ React Router is a powerful routing library built on top of React Framework.
- ✓ It helps in adding new screens and flows to the application very quickly.
- ✓ It keeps the URL in sync with data that's being displayed on the web page.

Router Advantages

- 1 Easily understands the application views.
- 2 It can restore any state and view with simple URL.
- 3 It handles nested views and the resolutions.
- 4 State can be restored by the user by moving backward and forward.
- 5 It maintains a standardized structure and behavior.
- 6 While navigating it can do implicit CSS transitions.



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