

Introduction

ReactJs

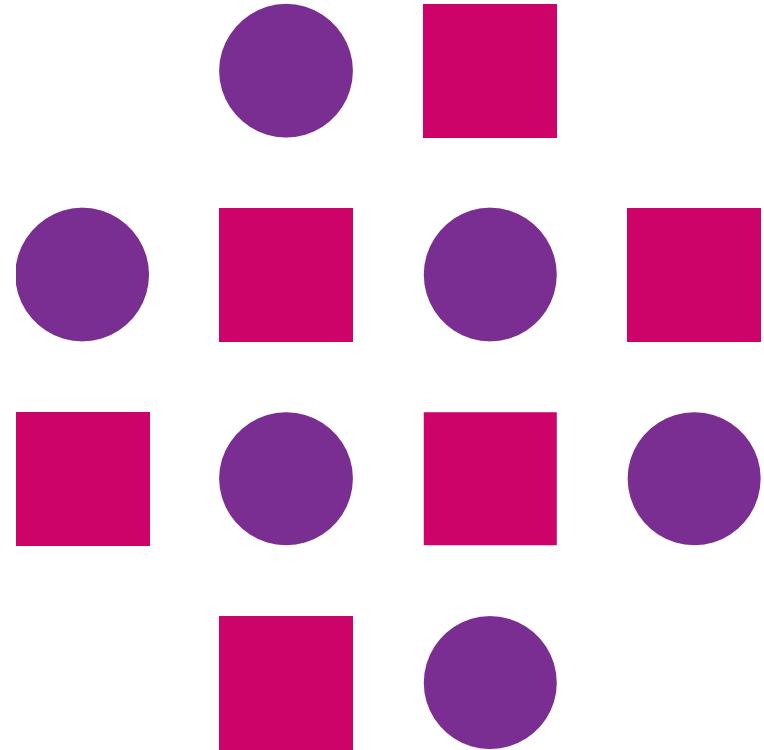
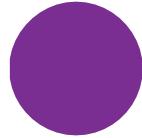


Table of Content

- MERN Stack
- Introduction to ReactJs
- Why ReactJs
- Features of ReactJs



MERN Stack

The **MERN Stack** consists of four main technologies: MongoDB, Express.js, React, and Node.js.

MERN Stack Components:

- **MongoDB:** This is a **database** that stores data in a flexible, document-based format.
- **Express.js:** This is a web application framework for **Node.js** that helps you manage routes, handle HTTP requests, and create APIs. Think of it as a set of tools and rules to organise your web server.
- **React:** This is a JavaScript library for building **user interfaces**.
- **Node.js:** This is a **JavaScript runtime** that allows you to run JavaScript on the server side.

REACTJS

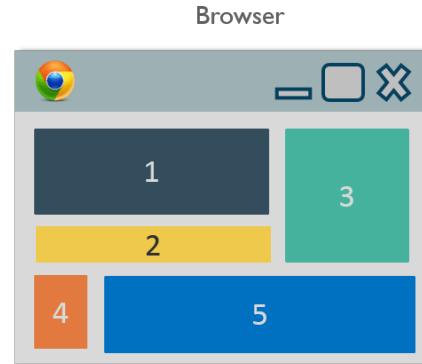
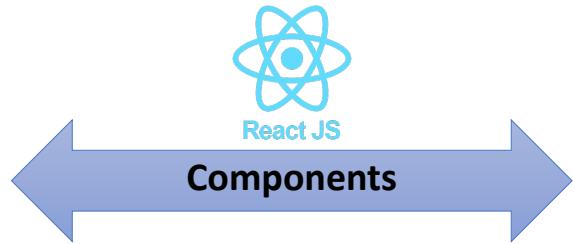
JavaScript library for building user interfaces

Imagine you're building a house





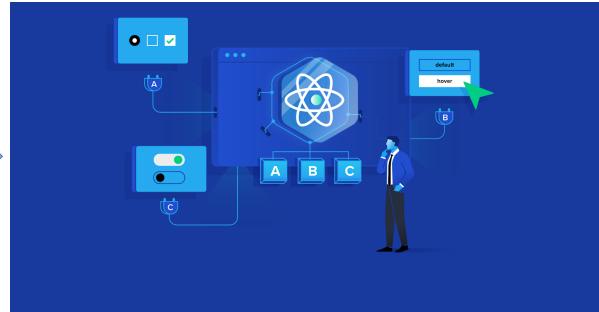
Interior designer uses different furniture pieces, colors, and decorations, and so on..



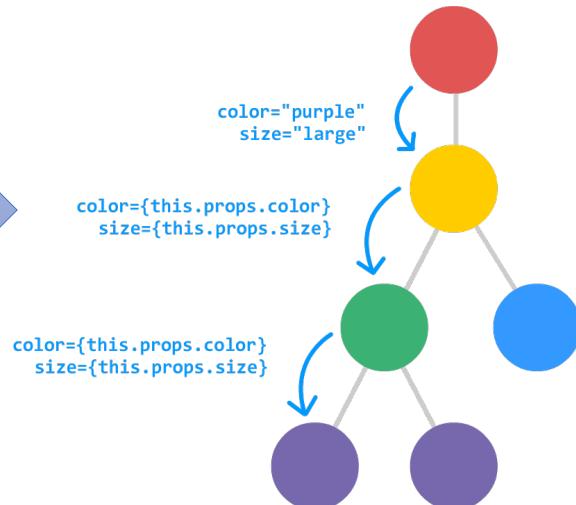
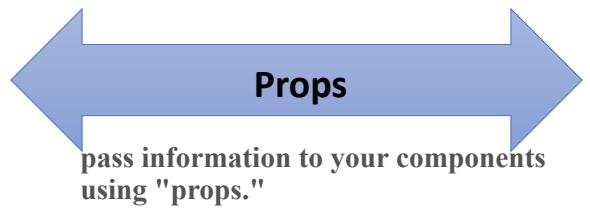
Each component represents a part of your web page



Smart Home System

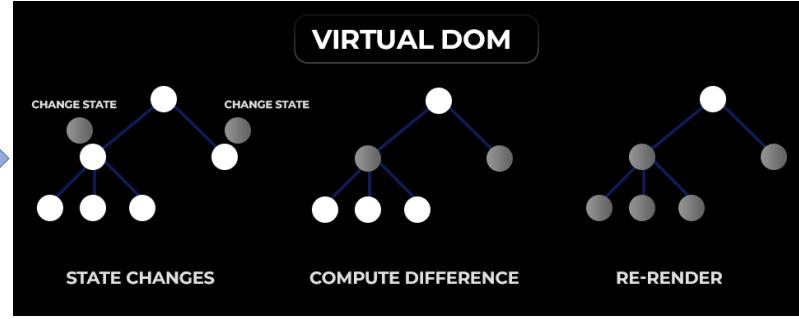


which color do you want for your walls?

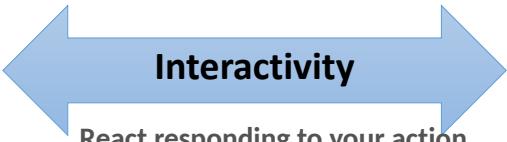




Blueprint of the room



Blueprint of your UI that React uses to efficiently update and render changes.



React responding to your action
and updating the interface
accordingly.



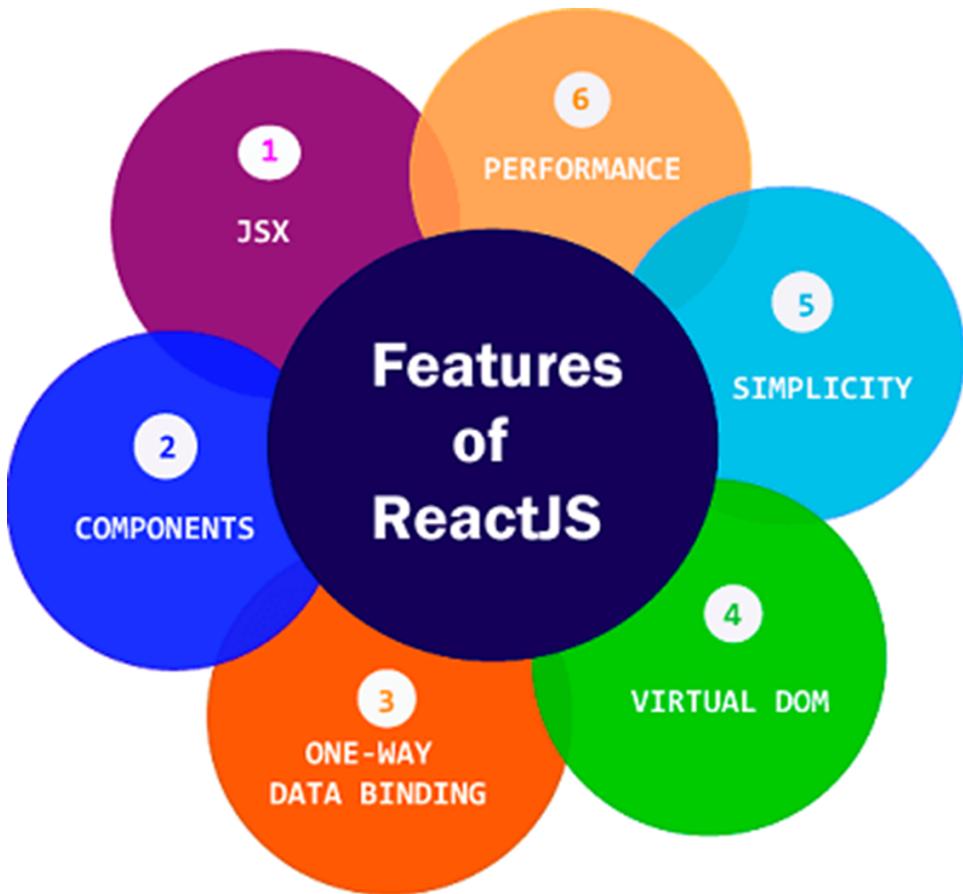
Home to be comfortable and responsive

What is ReactJS?

- React is a **JavaScript library** for building user interfaces.
- Developed and maintained by **Facebook**, React was first released in 2013.
- It's used to create dynamic and interactive web applications.
- React is the most popular library for making **Single-Page Applications**.
- React is a key part of the **MERN stack** (MongoDB, Express.js, React, Node.js).
- It is an open-source library, which means it is **available for free** and has a large and active community of developers.

Why React?

- Traditional web development involves HTML, CSS, and JavaScript, but it can become complex and hard to manage.
- React simplifies the process by using components to create modular and reusable UI elements.
- Components make it easier to update, maintain, and scale web applications.



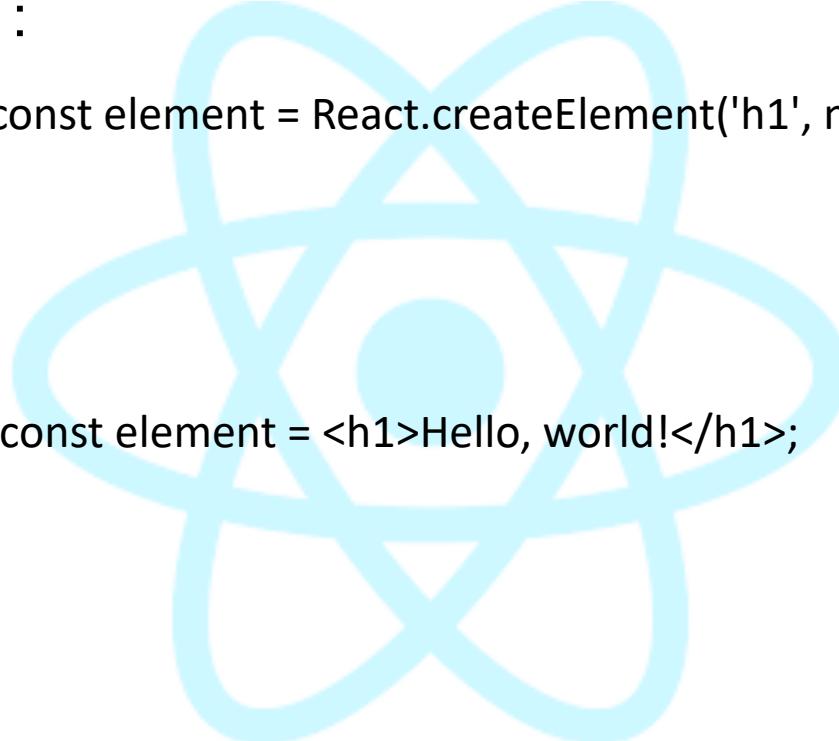
JSX

- JSX is a syntax extension for JavaScript.
- It allows you to write HTML-like code in your JavaScript.
- JSX simplifies the process of creating and rendering React components.



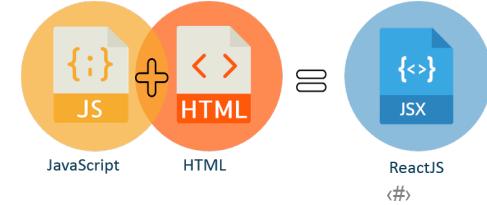
Without JSX :

```
const element = React.createElement('h1', null, 'Hello, world!');
```



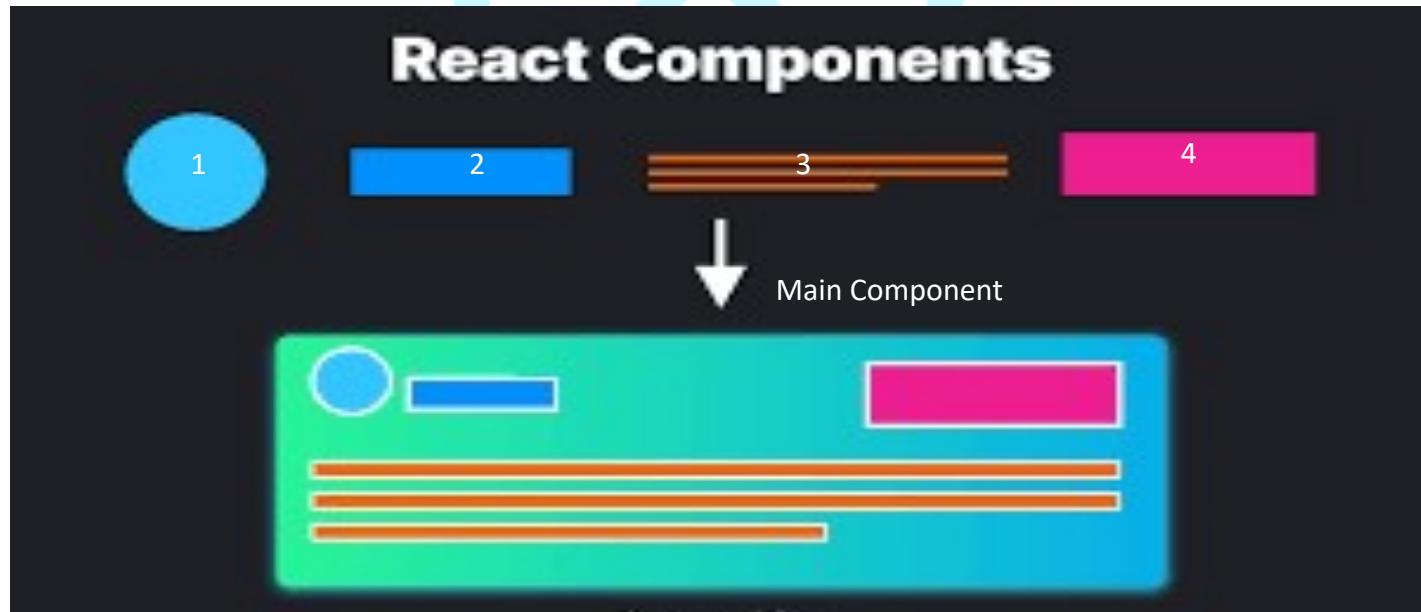
With JSX :

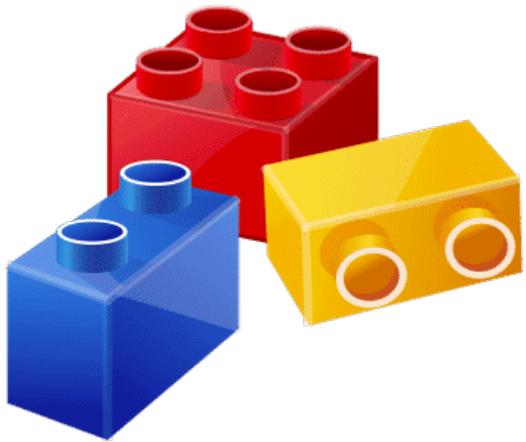
```
const element = <h1>Hello, world!</h1>;
```



Components

- A component is an independent, **reusable** bit of code which divides the **UI** into smaller pieces.





Component (Building Blocks)



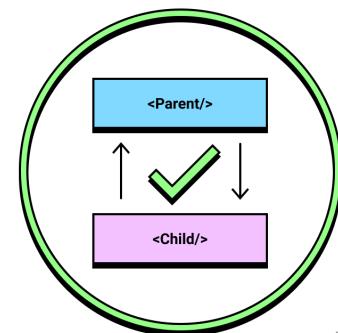
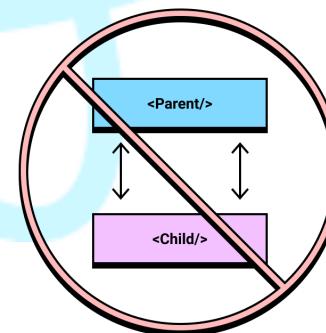
Website(Final Product)

State and Props

- React components can have two types of data: **state** and **props**.
- **State:** Represents dynamic data that can change within a component.
Managed using the useState hook.
- **Props:** Short for properties. Data is passed from parent to child components to customize their behaviour or appearance.

Unidirectional Data Flow

- React follows a unidirectional data flow.
- Data flows in a single direction, from parent components to child components.
- This makes tracking and managing data changes more predictable.



Virtual DOM

- React uses a Virtual DOM (Document Object Model) to improve performance.
- Virtual DOM is a lightweight copy of the actual DOM.
- When there are changes, React updates the Virtual DOM first and then efficiently updates the real DOM.

Interactivity

- React enables the creation of interactive user interfaces.
- Components respond to user actions, like button clicks, by updating the state and triggering re-renders.
- This provides a seamless and dynamic user experience.

Reusability

- React promotes reusability by creating components that can be reused across the application.
- Components can be imported and used wherever needed.
- This reduces redundancy and makes code more manageable.

Web Stack Academy (P)
Ltd

#83, Farah Towers,
1st floor, MG Road,
Bangalore – 560001

M: +91-80-4128 9576

T: +91-98862 69112

*Thank
you*

www.webstackacademy.com

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