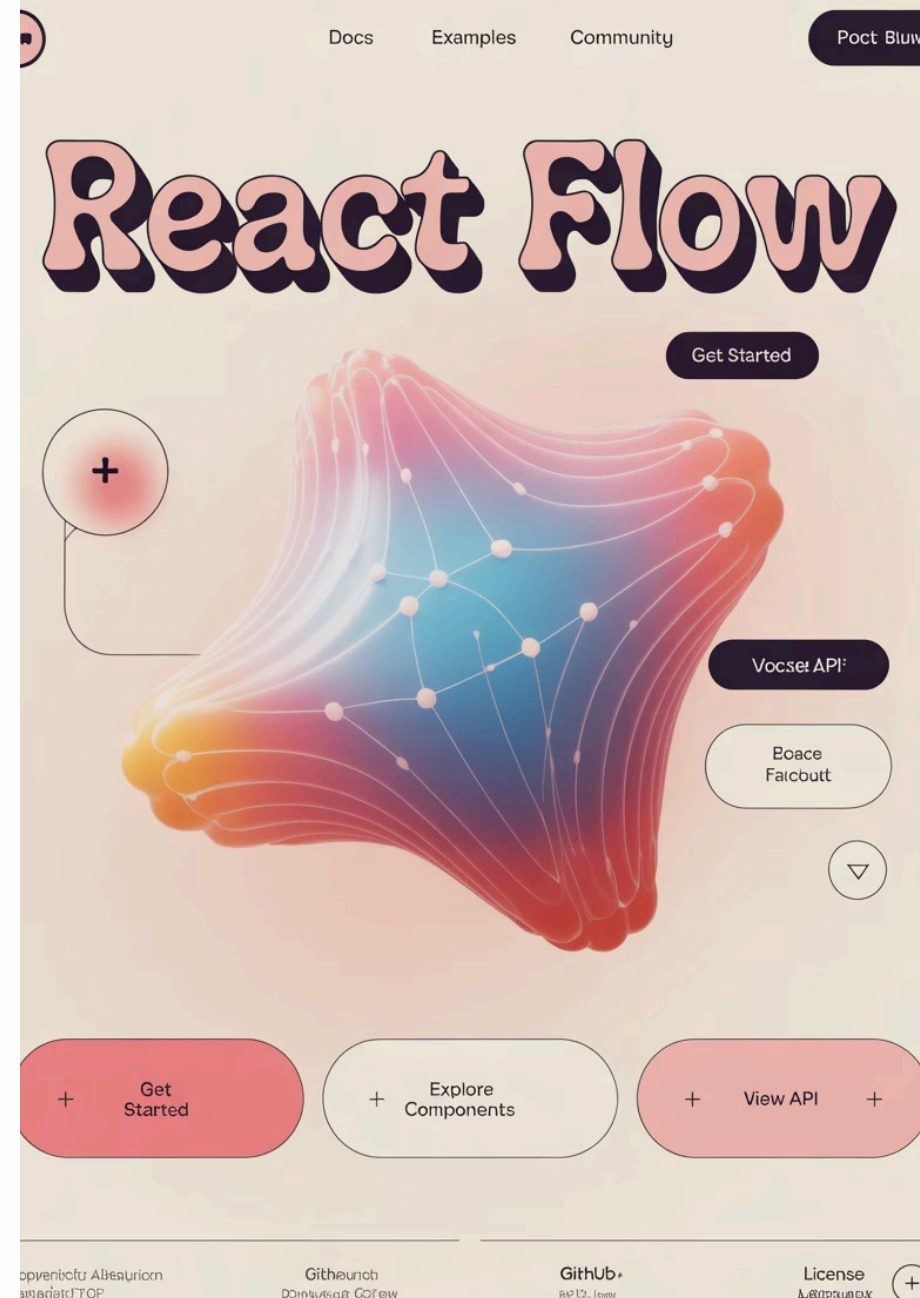
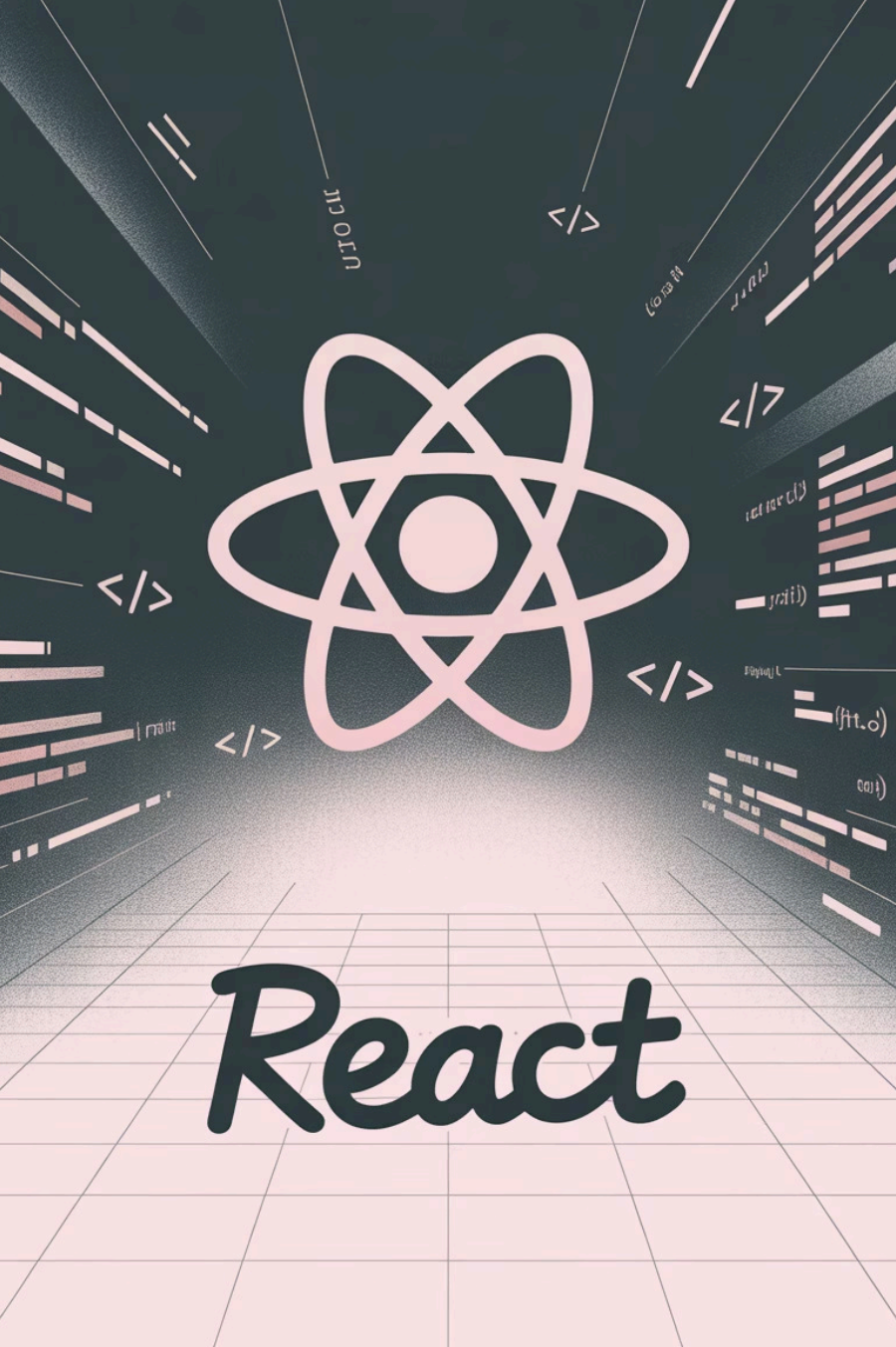


React JavaScript Library Overview

Discover how React revolutionises web development with its component-based architecture and efficient rendering approach.

N by Naresh Chaurasia





What is React?

- 1 Open-source JavaScript library for building user interfaces
- 2 Created by Facebook, released in 2013
- 3 Powers both web and native applications

Why Use React?



Modular Approach

Build UIs with independent, reusable components for better organisation.



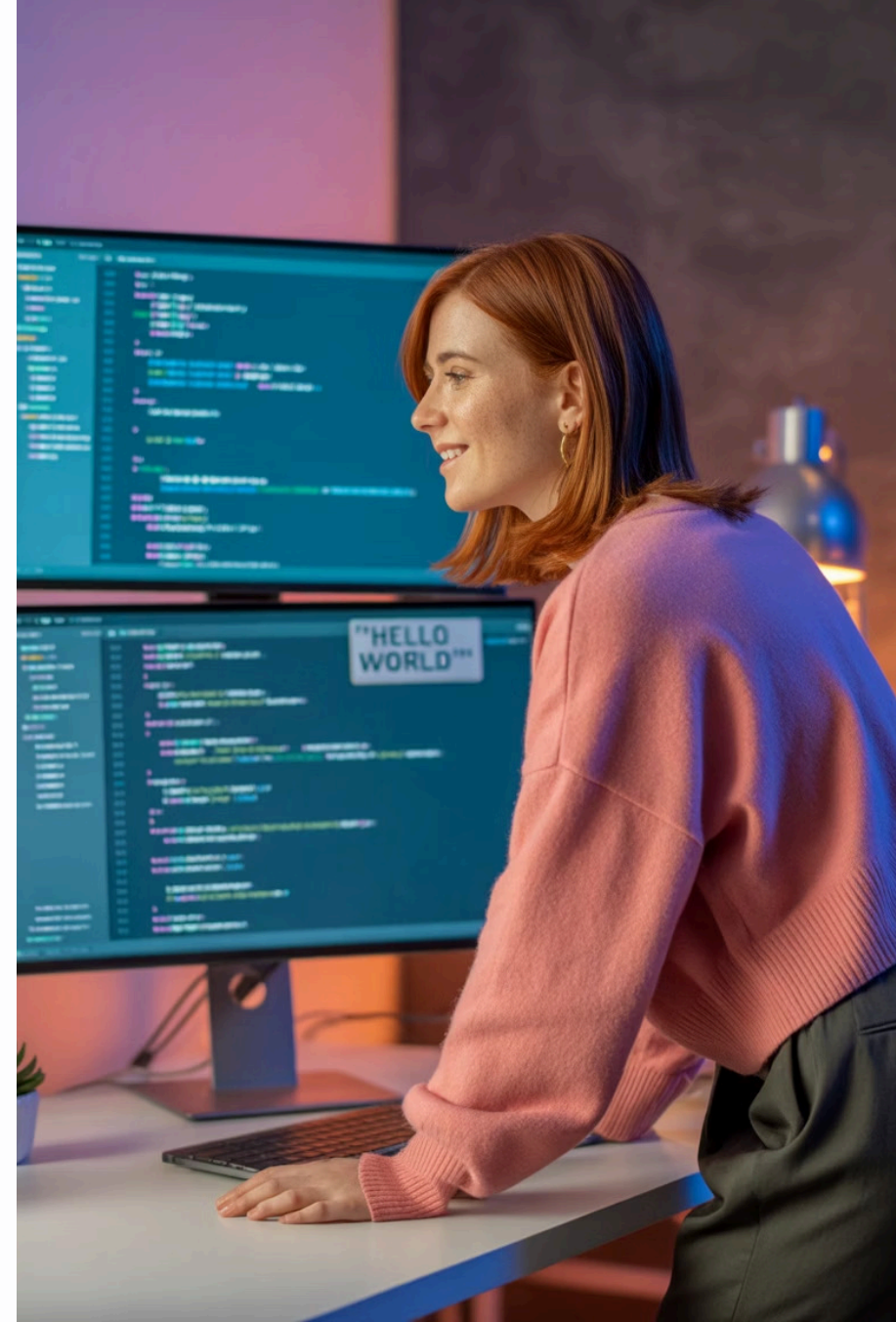
Efficient Updates

Virtual DOM ensures only necessary parts of the page are refreshed.



Industry Standard

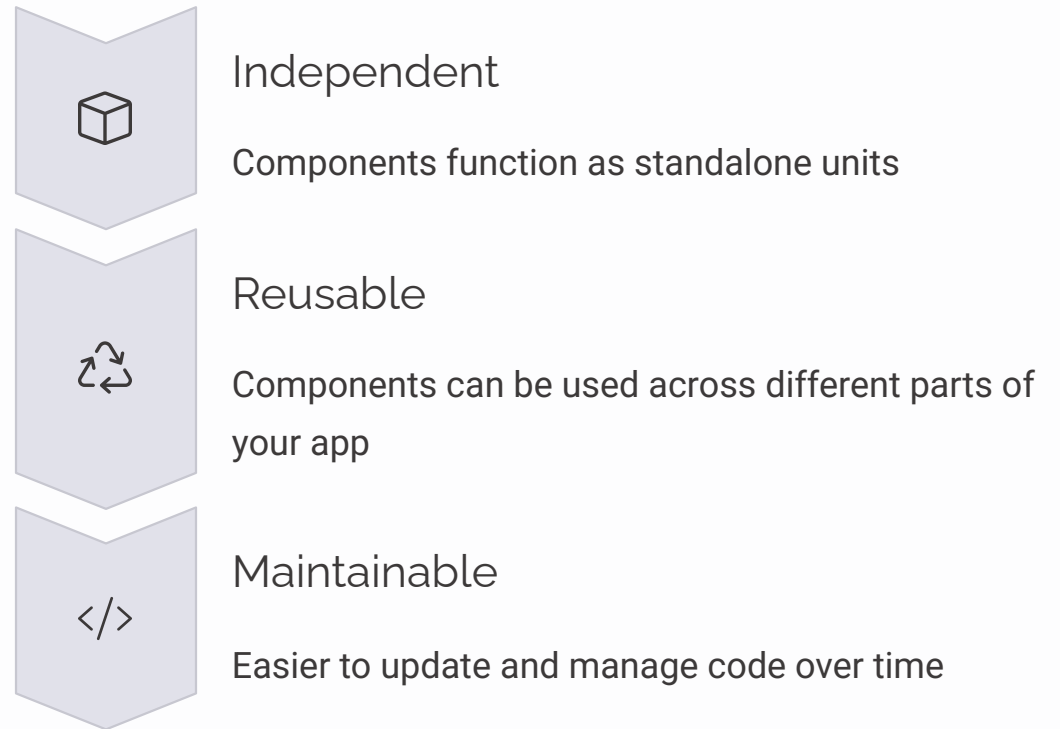
Popular choice for single-page and complex web applications.



Component-Based Architecture

React applications are built from independent, reusable components.

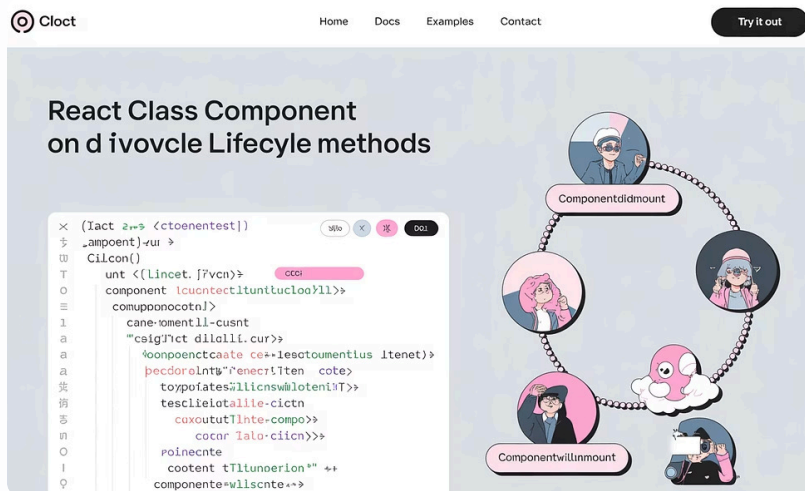
Each component encapsulates its own logic and rendering process.



Functional vs Class Components

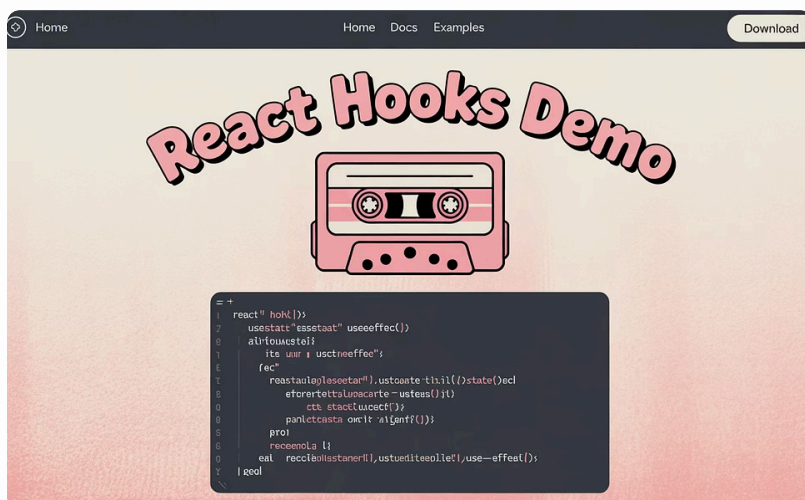
Functional Components

Simple functions that return JSX. Now the modern standard in React development.



Class Components

Older syntax that supported state and lifecycle methods before hooks were introduced.



Hooks

Bring state management and side effects to functional components.

JSX: JavaScript XML

```
function Welcome() {  
  const name = "Developer";  
  return (  

```

Hello, {name}!

Welcome to React

```
);}
```

1

Syntax extension that allows HTML-like code in JavaScript

2

Improves readability by visually connecting UI and logic

3

Compiles to `React.createElement()` function calls

Virtual DOM Explained

Create Virtual DOM

React builds a lightweight copy of the UI in memory

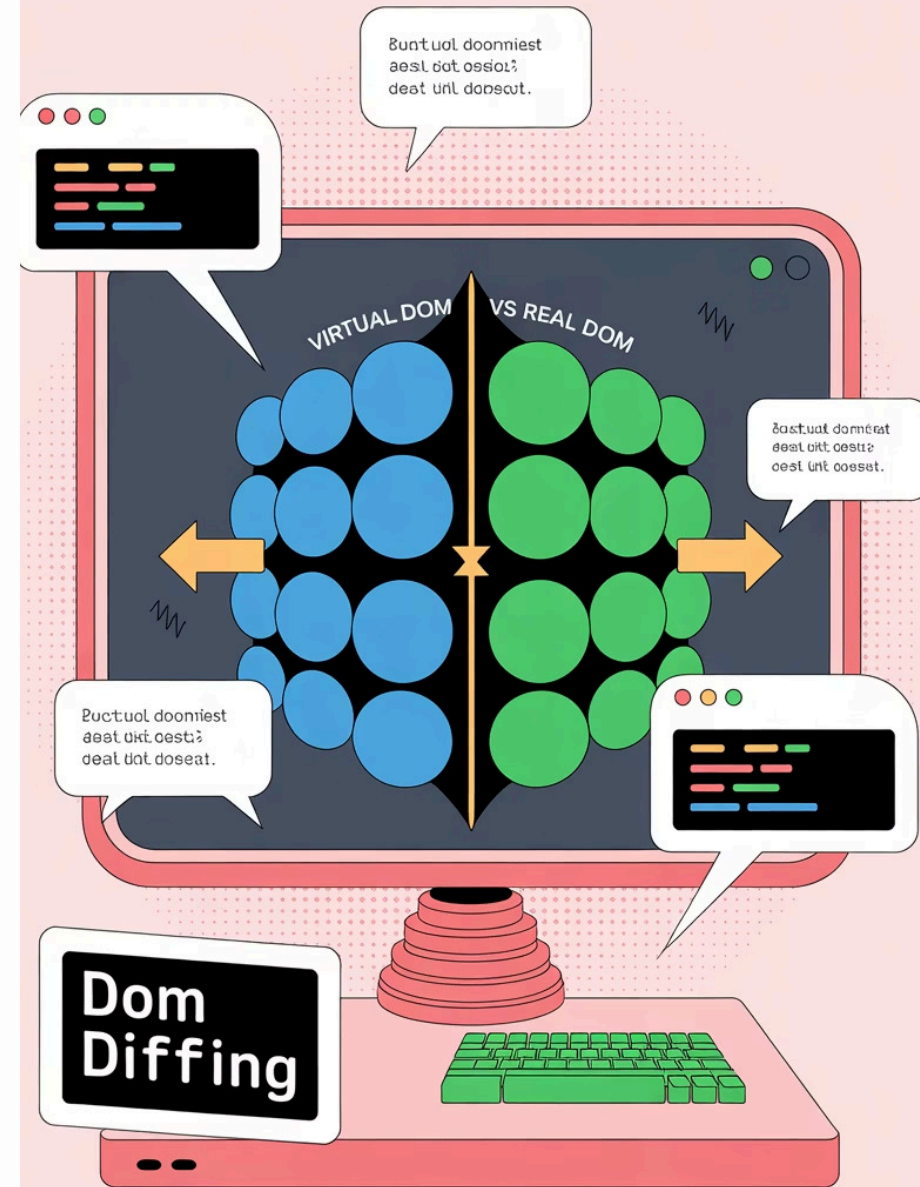
Calculate Differences

When state changes, React compares new and old virtual DOMs

Update Real DOM

Only changed elements are updated in the browser's DOM

This process minimises expensive DOM operations for better performance.



Declarative UI Paradigm

Imperative (Traditional)

```
// Step-by-step instructions
const el = document.getElementById('btn');
el.innerHTML = 'Click Me';
el.className = 'primary';
el.onclick = () => alert('Clicked!');
```

Declarative (React)

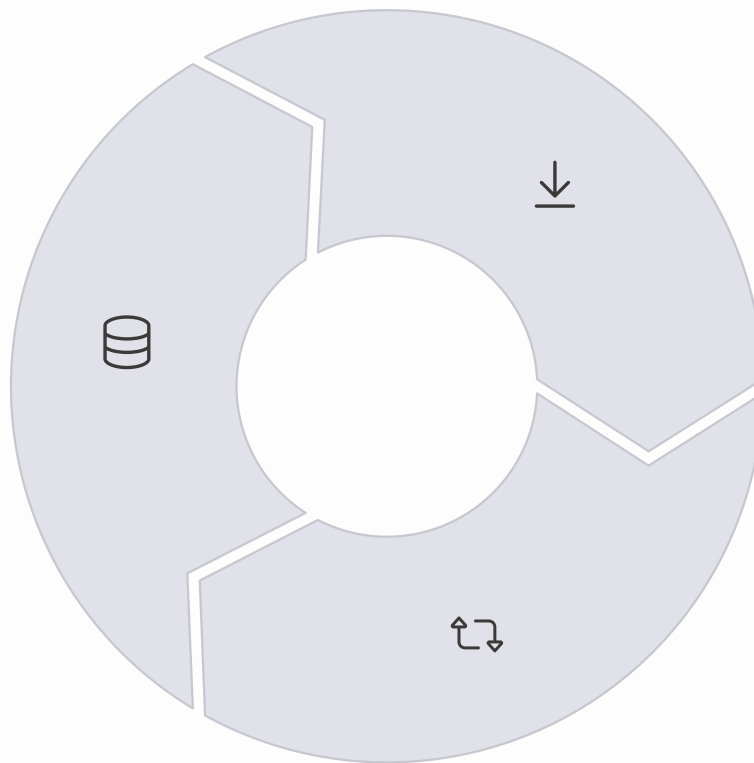
```
// Describe desired result
return (
```

```
  alert('Clicked!') > Click Me );
```

React handles DOM updates automatically when your state changes.

State and Props

State
Component's internal memory.
Managed with `useState` hook or class
state. Changes trigger re-renders.

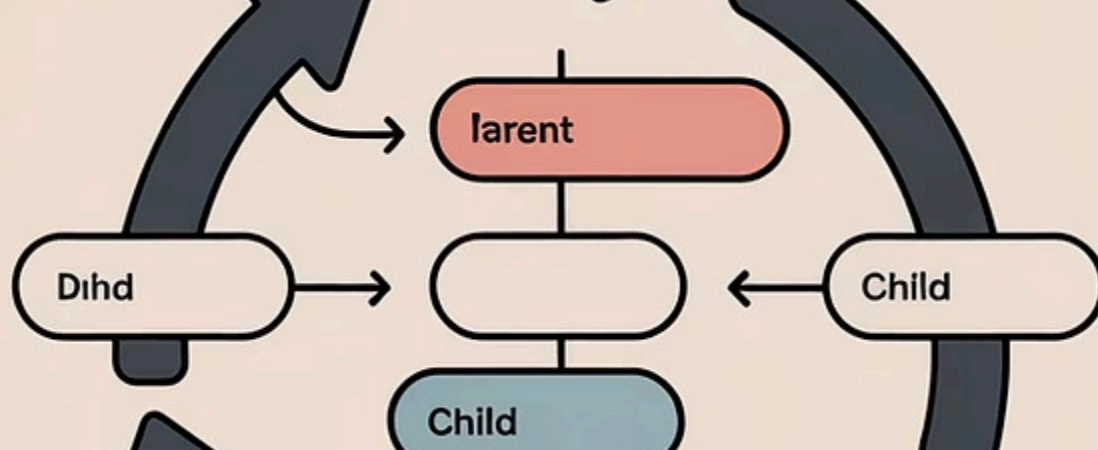


Props

Data passed from parent to child
components. Read-only within the
receiving component.

Render

Components re-render when state
changes or new props are received.



Unidirectional Data Flow



Parent Component

Owns and updates state, passes data down as props



Child Components

Receive data via props, request changes via callbacks



Predictable Results

One-way flow makes debugging easier

This pattern ensures changes follow a consistent, trackable path through your application.

React Hooks



useState

Adds state to functional components.
Returns current state and update function.



useEffect

Handles side effects like API calls,
subscriptions, and DOM updates.

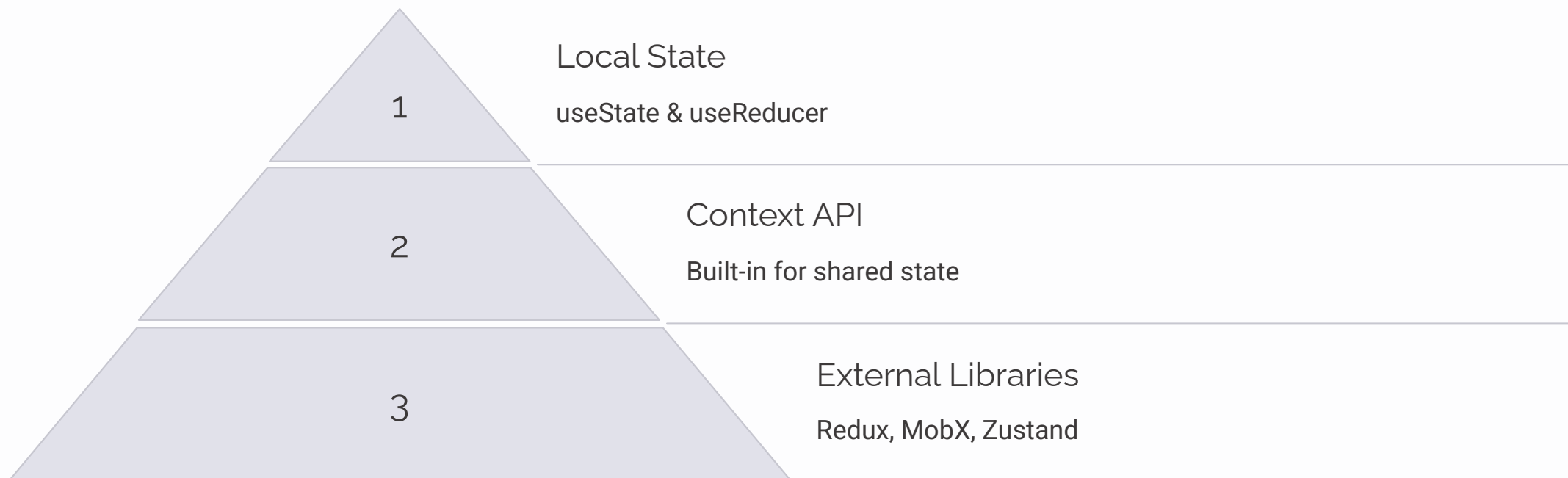


Custom Hooks

Create reusable stateful logic to share
between components.

Introduced in React 16.8, hooks are now the standard for new React code.

State Management Solutions



Choose the simplest solution that meets your app's complexity needs. Small apps often only need local state, while larger applications benefit from more structured approaches.

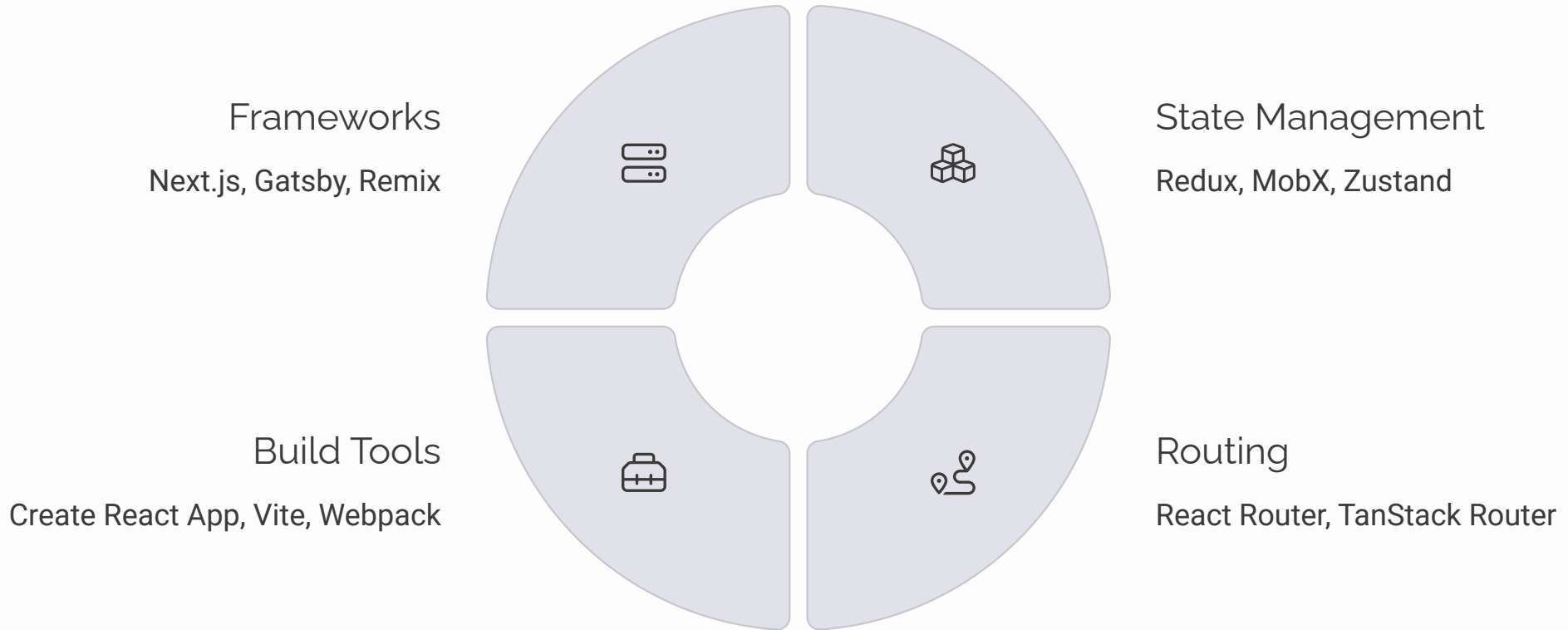
React Beyond the Web: React Native



Write once, run on multiple platforms with React Native.

- 1 Build truly native iOS and Android apps using React
- 2 Share logic between web and mobile platforms
- 3 Used by Instagram, Discord, Shopify, and more

React Ecosystem and Tooling



Rich ecosystem provides solutions for common development challenges.

Summary and Industry Impact

200K+

GitHub Stars

One of the most popular open-source projects

15M+

Weekly Downloads

From npm package registry

Used By Industry Leaders

- Facebook & Instagram
- Netflix & Airbnb
- Dropbox & WhatsApp

React continues evolving with concurrent rendering and server components.