

Comsats university Islamabad, Abbottabad campus



## Assignment 02

Topic: "React Through the Ages: An Overview of Key Versions and Features"

Name: Taifoor Farid (FA22-BSE-051)

M Umer(FA22-BSE-053)

Submitted To: Mukhtiar Zamin

Subject: SDA

# "React Through the Ages: An Overview of Key Versions and Features"

## 1. Introduction

React is a JavaScript library for building user interfaces, maintained by Meta (formerly Facebook) and a community of developers. It focuses on creating reusable UI components and managing state efficiently, making it a cornerstone of modern web development.

## 2. Evolution of Architecture

### React v0.3.0

- **Release Date:** July 17, 2013
- **Major Features:**
  - Introduction of React as a library for creating reusable components.
  - Virtual DOM introduced to optimize rendering performance.
  - Component lifecycle methods introduced (e.g., `componentDidMount`, `componentWillUnmount`).
- **Release Notes:** Initial release with Virtual DOM for efficient UI updates.

### React v15.0.0

- **Release Date:** April 2016
- **Major Features:**
  - Support for stateless functional components.
  - Introduction of `React.createElement` to build elements without JSX.
  - Enhanced performance for rendering updates.
- **Release Notes:** Focused on improving the rendering engine and component structure.

## React v16.0.0 (React Fiber)

- **Release Date:** September 26, 2017
- **Major Features:**
  - Complete rewrite of the React core with React Fiber.
  - Enhanced reconciliation process for rendering updates.
  - Support for error boundaries to handle component errors gracefully.
  - Introduction of fragments to group elements without adding extra DOM nodes.
- **Release Notes:** React Fiber revolutionized the reconciliation process, improving rendering.

## React v18.0.0

- **Release Date:** March 29, 2022
- **Major Features:**
  - Concurrent rendering mode for improved UI responsiveness.
  - `useTransition` and `useDeferredValue` hooks for managing transitions and deferred updates.
  - Automatic batching of state updates for improved performance.
  - Server-side rendering (SSR) enhancements with `ReactDOM.createRoot`.
- **Release Notes:** Focused on concurrent rendering and modern UI responsiveness.

## 3. Group Member Contributions

Research has done by taifoor farid  
architecture diagram is done by M umer  
formatting and documentation is done by both

## 4. Conclusion

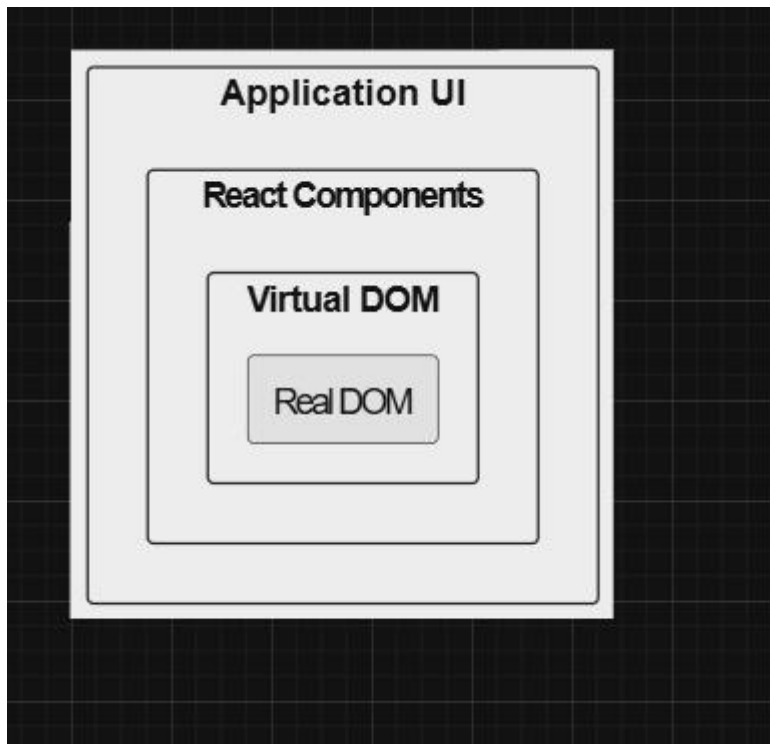
The evolution of React demonstrates its ability to adapt to modern development challenges. From introducing the Virtual DOM to supporting concurrent rendering, React has consistently provided tools to create dynamic and efficient web applications.

## 5. References

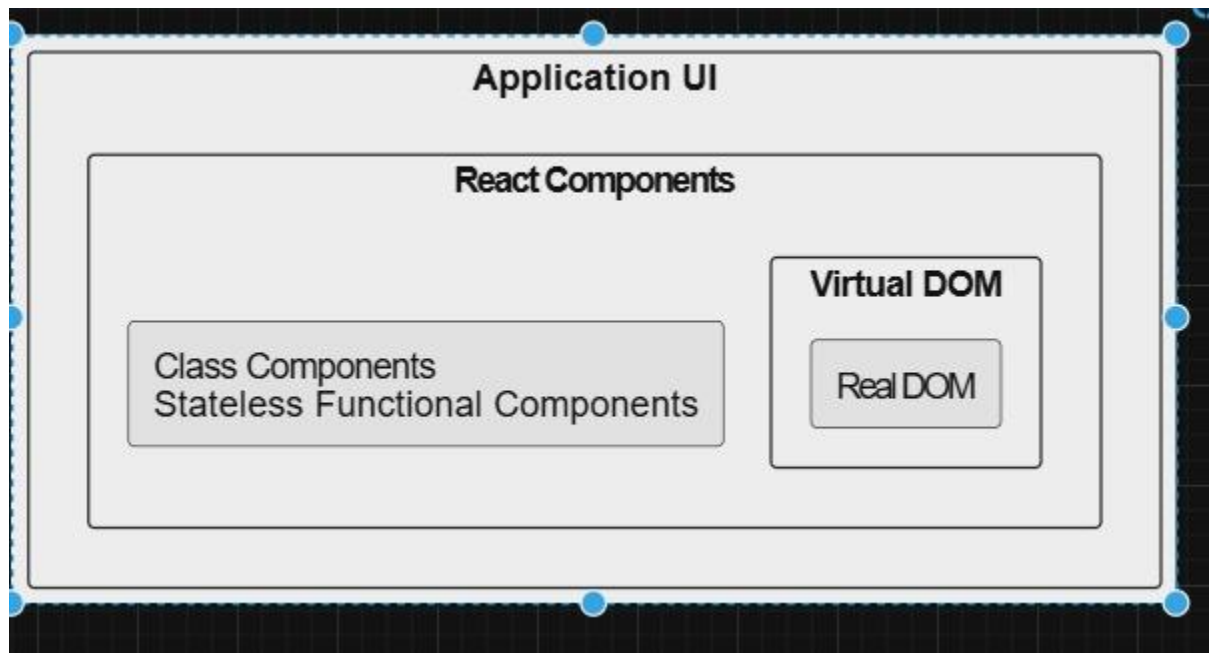
- React Official Documentation
- React Release Notes
- Community blogs and articles.

Architecture Diagram

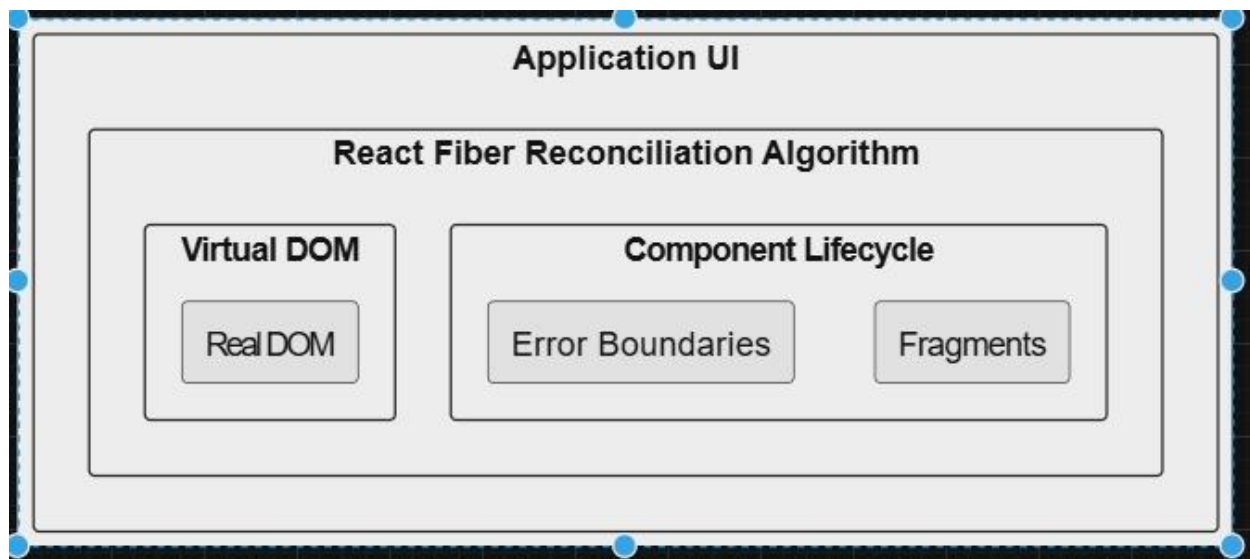
**Reactv0.3.0**



**React v15.0.0**



#### React v16.0.0 (React Fiber)



## React v18.0.0

