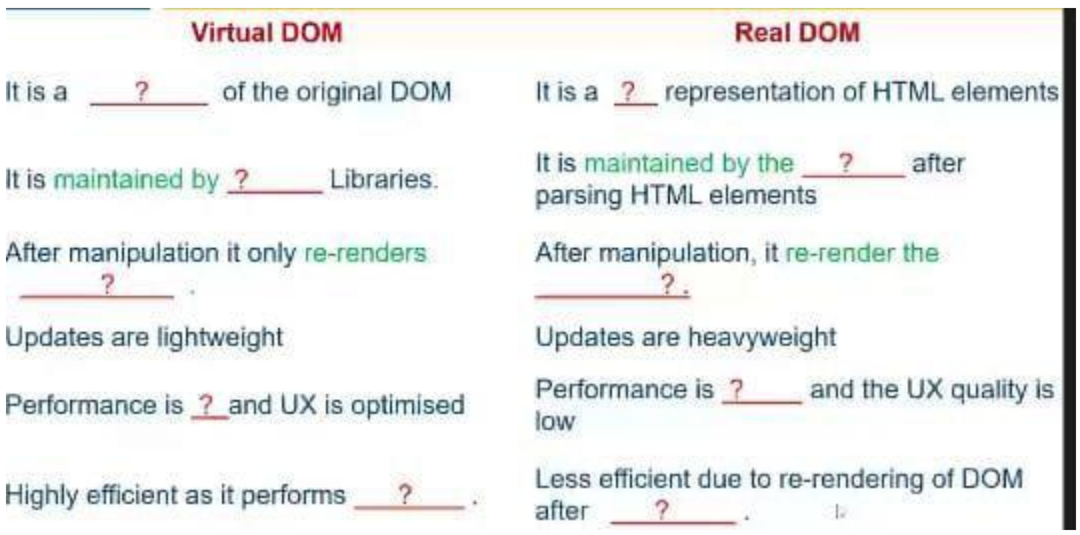
IAD CLASSWORK 5-FEB-2025



Virtual DOM	Real DOM
It is a ___?___ of the original DOM	It is a _?_ representation of HTML elements
It is maintained by _?_____ Libraries.	It is maintained by the ___?___ after parsing HTML elements
After manipulation it only re-renders ___?___ .	After manipulation, it re-render the ___?.
Updates are lightweight	Updates are heavyweight
Performance is _?_ and UX is optimised	Performance is _?___ and the UX quality is low
Highly efficient as it performs ___?___ .	Less efficient due to re-rendering of DOM after ___?___ .

Virtual DOM

1. It is a copy of the original DOM.

2. It is maintained by React Libraries.

3. After manipulation, it only re-renders changed parts.

4. Updates are lightweight.

5. Performance is fast, and UX is optimized.

6. Highly efficient as it performs diffing.

Real DOM

1. It is a representation of HTML elements.

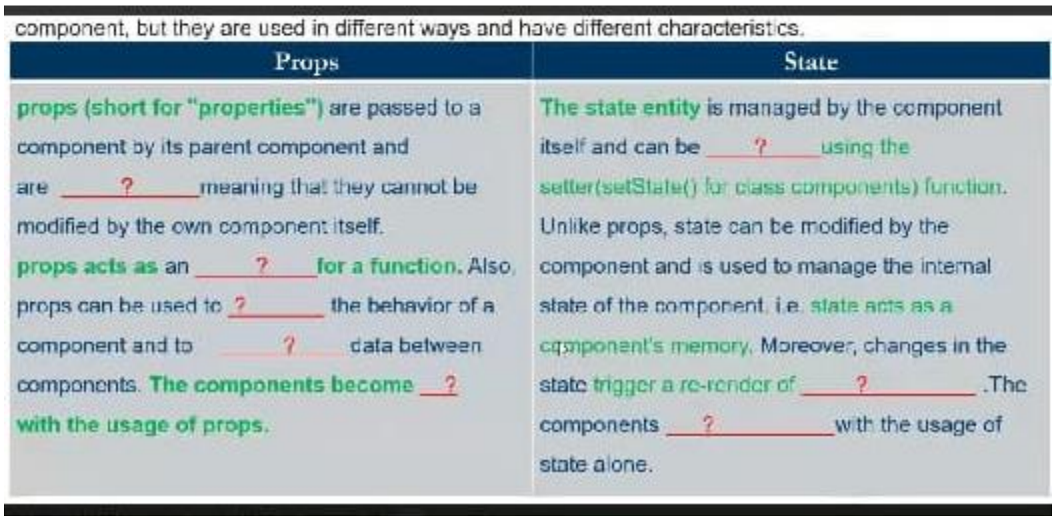
2. It is maintained by the browser after parsing HTML elements.

3. After manipulation, it re-renders the entire DOM.

4. Updates are heavyweight.

5. Performance is slow, and the UX quality is low.

6. Less efficient due to re-rendering of DOM after every update.


component, but they are used in different ways and have different characteristics.

Props	State
props (short for "properties") are passed to a component by its parent component and are ____?____ meaning that they cannot be modified by the own component itself. props acts as an ____?____ for a function. Also, props can be used to __?____ the behavior of a component and to ____?____ data between components. The components become __?__ with the usage of props.	The state entity is managed by the component itself and can be ____?____ using the setter(setState() for class components) function. Unlike props, state can be modified by the component and is used to manage the internal state of the component. i.e. state acts as a component's memory. Moreover, changes in the state trigger a re-render of ____?____ .The components ___?_____ with the usage of state alone.

Props

1.props (short for "properties") are passed to a component by its parent component and are immutable, meaning that they cannot be modified by the own component itself.

2.Props act as an argument for a function.

3.Also, props can be used to control the behavior of a component and to pass data between components.

4.The components become reusable with the usage of props.

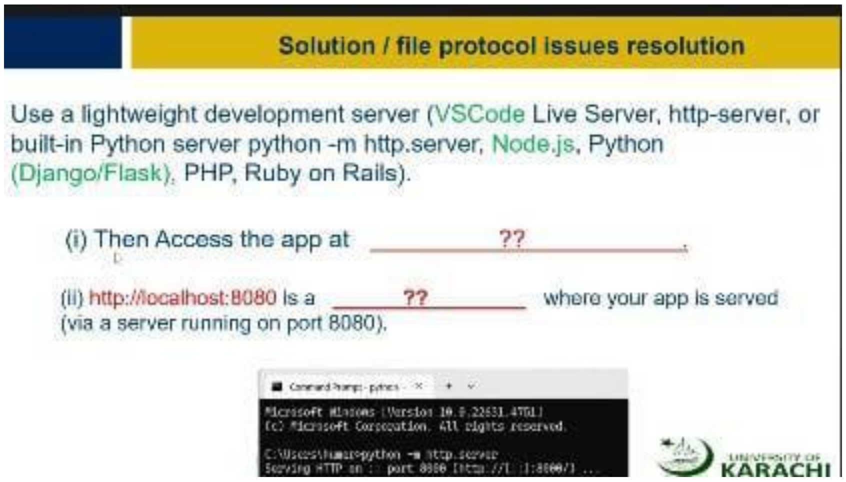
State

1.The state entity is managed by the component itself and can be updated using the setter (setState(), for class components) function.

2.Unlike props, the state can be modified by the component and is used to manage the internal state of the component, i.e. the state acts as a component's memory.

3.Moreover, changes in the state trigger a re-render of the component.

4.The components re-render with the usage of state alone.



Solution / file protocol issues resolution

Use a lightweight development server (VSCode Live Server, http-server, or built-in Python server python -m http.server, Node.js, Python (Django/Flask), PHP, Ruby on Rails).

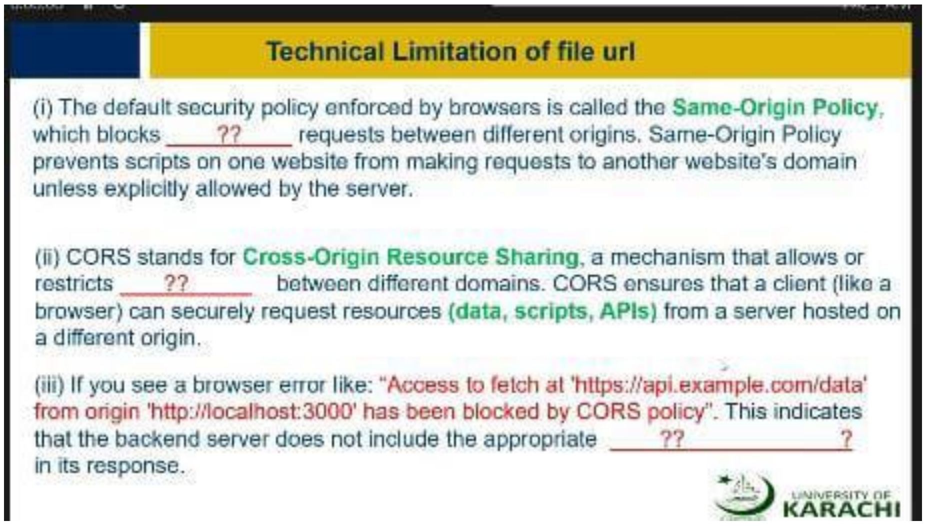
(i) Then Access the app at ______??______.

(ii) http://localhost:8080 is a ______??______ where your app is served (via a server running on port 8080).

```
Microsoft Windows [Version 10.0.22631.4751]
(c) Microsoft Corporation. All rights reserved.

C:\Users\humair>python -m http.server
Serving HTTP on :: port 8000 (http://[::]:8000/) ...
```

1. Then Access the app at **http://localhost:PORT**
2. **http://localhost:8080** is a **local development server** where your app is served (via a server running on port 8080).



Technical Limitation of file url

(i) The default security policy enforced by browsers is called the Same-Origin Policy, which blocks ____??____ requests between different origins. Same-Origin Policy prevents scripts on one website from making requests to another website's domain unless explicitly allowed by the server.

(ii) CORS stands for Cross-Origin Resource Sharing, a mechanism that allows or restricts ____??____ between different domains. CORS ensures that a client (like a browser) can securely request resources (data, scripts, APIs) from a server hosted on a different origin.

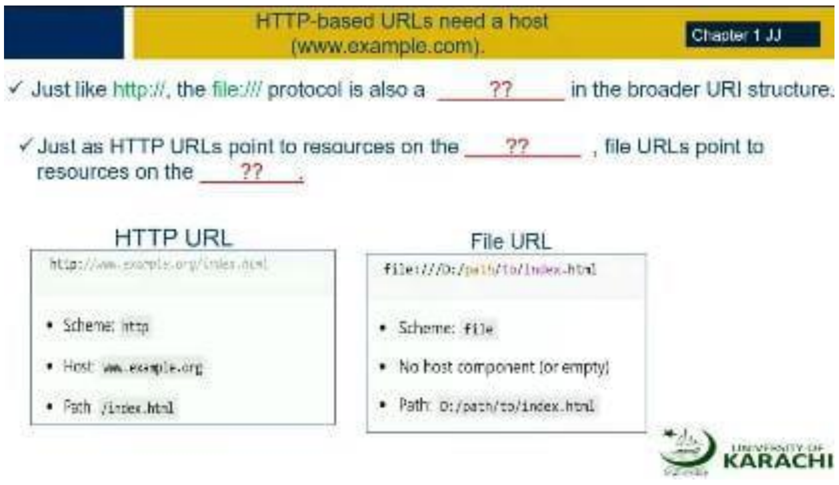
(iii) If you see a browser error like: "Access to fetch at 'https://api.example.com/data' from origin 'http://localhost:3000' has been blocked by CORS policy". This indicates that the backend server does not include the appropriate ____??____? in its response.

1. The default security policy enforced by browsers is called the **Same-Origin Policy**, which blocks **cross-origin** requests between different origins. Same-Origin Policy prevents scripts on one website from making requests to another website's domain unless explicitly allowed by the server.

2. CORS stands for **Cross-Origin Resource Sharing**, a mechanism that allows or restricts **cross-origin requests** between different domains. CORS ensures that a client (like a browser) can securely request resources (**data, scripts, APIs**) from a server hosted on a different origin.

3. If you see a browser error like:
"Access to fetch at 'https://api.example.com/data' from origin 'http://localhost:3000' has been blocked by CORS policy."

This indicates that the backend server does not include the appropriate **CORS headers** in its response.



HTTP-based URLs need a host (www.example.com).

Chapter 1 JJ

✓ Just like http://, the file:/// protocol is also a ___??___ in the broader URI structure.

✓ Just as HTTP URLs point to resources on the ___??___ , file URLs point to resources on the ___??___.

HTTP URL

```
http://www.example.org/index.html
```

- Scheme: `http`
- Host: `www.example.org`
- Path: `/index.html`

File URL

```
file:///D:/path/to/index.html
```

- Scheme: `file`
- No host component (or empty)
- Path: `D:/path/to/index.html`

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1. Just like **http://**, the **file://** protocol is also a **URI scheme** in the broader URI structure.

2. Just as HTTP URLs point to resources on the **web**, file URLs point to resources on the **local file system**.

1. **JSX stands for**: JavaScript XML

- It is a syntax extension for JavaScript used with React to describe the UI structure in a way that looks similar to HTML.

2. **Client-side vs. Server-side Rendering**:

- **Client-Side Rendering (CSR)**: The browser loads a minimal HTML file and then fetches and renders content dynamically using JavaScript. It improves user experience but can have SEO drawbacks.
- **Server-Side Rendering (SSR)**: The server processes and sends fully rendered HTML pages to the client. This improves SEO and initial load time but can slow down performance for dynamic interactions.

3. **DOM stands for**: Document Object Model

- It represents the structure of a web page as a hierarchical tree of elements, allowing JavaScript to manipulate HTML and CSS dynamically.