

# Navigating the Web: The Interviewer's Frequently Asked Question!

**Question:** "Can you walk me through the processes that occur in a browser when a user clicks on a hyperlink?"

1. **User Input:** Click on a hyperlink.
2. **URL Parsing:** Parse the URL from the hyperlink.

```
1 Hyperlink: https://www.example.com/path/to/resource
2 Parsed URL:
3   - Protocol: HTTPS
4   - Domain: www.example.com
5   - Path: /path/to/resource
```

3. **DNS Resolution:** Resolve the domain name to an IP address.

```
1 www.example.com -> 93.184.216.34
```

4. **TCP Connection:** Establish a TCP connection with the web server.
5. **HTTP Request:** Send an HTTP request to the server.

```
1 GET /path/to/resource HTTP/1.1
2 Host: www.example.com
```

6. **Server Processing:** Process the request on the server and generate an HTTP response.

```
1 HTTP/1.1 200 OK
2 Content-Type: text/html
3 Content-Length: 1234
4
5 [Actual content of the webpage]
```

7. **HTTP Response:** Receive the HTTP response containing the requested content.
8. **Client-Side Processing:** Parse HTML, build the Document Object Model (DOM), and fetch additional resources (CSS, JavaScript, images).
9. **Render Tree Construction:** Construct the render tree, considering CSS styles and layout information.
10. **Layout:** Determine the position and size of each element in the render tree (layout or reflow process).
11. **Paint:** Paint the pixels on the screen based on the layout information and styles (paint or rasterization process).
12. **Display:** Display the final rendered page in the browser window.