**TASK 1**

**Do a write up for the followings:**

**1. Difference between HTTP1.1 vs HTTP2**

**2. Http version history**

**3. List 5 difference between Browser JS (console) vs Nodejs**

**4. What happens when you type a URL in the address bar in the browser?**

**SOLUTIONS**

**Ans 1.**

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| --- | --- | --- |
| **S.no.** | **HTTP1.1** | **HTTP2** |
| 1 | It supports connection reuse i.e., for every TCP connection there could be multiple requests and responses, and pipelining where the client can request several resources from the server at once. | Uses multiplexing, where over a single TCP connection resources to be delivered are interleaved and arrive at the client almost at the same time. It is done using streams which can be prioritized, can have dependencies and individual flow control. It also provides a feature called server push that allows the server to send data that the client will need but has not yet requested. |
| 2 | HTTP/1.1 provides faster delivery of web pages and reduces web traffic | HTTP/2 utilizes multiplexing and server push to effectively reduce the page load time by a greater margin along with being less sensitive to network delays. |
| 3 | Text based protocol that is in the readable form. | It is a binary protocol (HTTP requests are sent in the form of 0s and 1s). Needs to be converted back from binary in order to read it. |
| 4 | Uses SSL/TLS for secure encrypted communication. | It also has some minimum standards, such as minimum key size for encryption. TLS 1.2 etc. |

**Ans 2.** HTTP has four versions — HTTP/0.9, HTTP/1.0, HTTP/1.1, and HTTP/2.0. Today the version in common use is HTTP/1.1 and the future will be HTTP/2.0.

**Ans 3.**

| **Node.js** | **Browser** |
| --- | --- |
| 1. Node doesn't have a predefined "window" object because it doesn't have a window to draw anything. | 1. "window" is a predefined global object which has functions and attributes, that have to deal with window that has been drawn. |
| 1. "location" object is related to a particular URL, that means it is for page specific. So, node doesn't require that. | 1. "location" is another predefined object in browsers, that has all the information about the URL we have loaded. |
| 1. Node doesn't have "document" object also, because it never has to render anything in a page. | 1. "document", which is also another predefined global variable in browsers, has the html which is rendered. |
| 1. Node has "global", which is a predefined global object. It contains several functions that are not available in browsers, because they are needed for server side works only. | 1. Browsers may have an object named "global", but it will be the exact one as "window". |
| 1. "require" object is predefined in Node which is used to include modules in the app. | 1. Browsers don't have "require" predefined. You may include it in your app for asynchronous file loading. |
| 1. In Node everything is a module. You must keep your code inside a module. | 1. Modules are not mandatory in client-side JavaScript, i.e., in browsers. |
| 1. Node is headless. | 1. Browsers are not headless. |
| 1. Node processes request object. | 1. Browsers processes response objects. |

**Ans 4.**

1. You enter a URL into a web browse
2. The browser looks up the IP address for the domain name via DNS.
3. The browser sends a HTTP request to the server
4. The server sends back a HTTP response. The response has HTML, CSS, JS files that are processed by the rendering engine to create the layout tree (DOM and CSSOM) and the JS file is converted into binary
5. The browser begins rendering the HTML in a meaningful webpage through the UI backend
6. The browser sends requests for additional objects embedded in HTML (images, CSS, JavaScript) and repeats steps 3-5.
7. Once the page is loaded, the browser sends further async requests as needed.