**Task 1**

**Do a write up for the followings:1. Difference between HTTP1.1 vs HTTP2**

Binary protocols – HTTP2 uses Binary protocols that consume less bandwidth, are more efficiently parsed and are less error-prone than the textual protocols used by HTTP/1.1. Additionally, they can better handle elements such as whitespace, capitalization and line endings.

Multiplexing – HTTP2 is multiplexed, i.e., it can initiate multiple requests in parallel over a single TCP connection. As a result, web pages containing several elements are delivered over one TCP connection. These capabilities solve the head-of-line blocking problem in HTTP/1.1, in which a packet at the front of the line blocks others from being transmitted.

Header compression – HTTP2 uses header compression to reduce the overhead caused by TCP’s slow-start mechanism.

Server push – HTTP2 servers push likely-to-be-used resources into a browser’s cache, even before they’re requested. This allows browsers to display content without additional request cycles.

Increased security – Web browsers only support HTTP2 via encrypted connections, increasing user and application security.

**2. HTTP version history**

* HTTP 0.9 - Time Berners-Lee released the first documented version of HTTP in 1991. It consisted of a single line containing a GET method and the path of the requested document. The response was just as simple, returning a single hypertext document without headers or any other metadata.
* HTTP 1.0 - Version 1.0 received official recognition in 1996, and coincided with the rapid evolution of the HTML specification, and the web browser. The main addition was “request headers” and “response headers”. Also, the new response headers allowed multiple file types such as HTML, plain text, images, and more.
* HTTP 1.1 - Version 1.1 was released in 1997 and became the Internet Standard. This version added many performance enhancements, such as keepalive connections, caching mechanisms, request pipelining, transfer encodings, and byte range requests. This new version was better and removed many of the ambiguities found in HTTP/1.0.
* HTTP 2.0 - Released in February 2015 by the Internet Engineering Task Force (IETF) focussed on improving the performance of HTTP.
* HTTP 3 - The new HTTP3, based on the QUIC protocol, is released in late 2019.

**3. List 5 differences between Browser JS vs Node Js**

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| --- | --- | --- |
| S. No. | Browser JS | Node js |
| 1 | Run time environment in web browser | Run time environment outside of browser |
| 2 | Basically used on client side | Basically used on server side |
| 3 | Has capability to add html tags | Does not have capability to add html tags |
| 4 | Supported by multiple browser engines | Can run only in V8 engine of Google chrome |
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**4. What happens when you type a URL in the address bar in the browser?**

When you enter a URL into a web browser

1. The browser looks up the IP address for the domain name via DNS
2. The browser sends a HTTP request to the server
3. The server sends back a HTTP response
4. The browser begins rendering the HTML
5. The browser sends requests for additional objects embedded in HTML (images, css, JavaScript) and repeats steps 2-4.
6. Once the page is loaded, the browser sends further async requests as needed.