**Task 1:**

**1. Difference between HTTP1 and HTTP2**

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| **HTTP1** | **HTTP2** |
| It uses text command to complete request response cycle | It uses binary command (0s and 1s) to complete request response cycle |
| If there aretwo requests to be performed, HTTP1 requires two separate connections to perform the two different tasks | Server push capability allows the server to send additional cacheable information to the client that isn’t requested but is anticipated in future requests |
| Files in HTTP1 protocol are downloaded one by one. | It allows asynchronous file downloading |
| The server can accept the resources in the order they are pushed | The server can prioritize pushed resources. |
| Reusing resources in the cache is not possible as the cache memory is under- utilized in HTTP1 | The client saves pushed resources in the cache. The client can reuse these cached resources across different pages. |
| Headers are used as they are received and hence redundant header frames are not ignored. | HTTP/2 compress a large number of redundant header frames. It uses the HPACK specification as a simple and secure approach to header compression. |

**2. HTTP Version history**

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| **Version** | **Year** | **Methods** |
| 0.9 | 1991 | GET |
| 1.0 | 1996 | GET, HEAD, POST |
| 1.1 | 1997 | GET, HEAD, POST, PUT, DELETE, TRACE, OPTIONS |
| 2.0 | 2015 | GET, HEAD, POST, PUT, DELETE, TRACE, OPTIONS, CONNECT, PATCH |
| 3.0 | 2020 | **NA** |

**3. Differences between JS and NodeJs**

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| **JS(Console)** | **NodeJs** |
| Javascript is a programming language that is used for writing scripts on the website. | NodeJS is a Javascript runtime environment. |
| It is basically used on the client-side. | It is mostly used on the server-side. |
| Javascript is capable enough to add HTML and play with the DOM. | Nodejs does not have capability to add HTML tags. |
| It is the upgraded version of ECMA script that uses Chrome’s V8 engine written in C++. | Nodejs is written in C, C++ and Javascript. |
| JavaScript running any engine like Spider monkey (FireFox), JavaScript Core (Safari), V8 (Google Chrome). | Node JS only run in a V8 engine which mainly used by google chrome. And javascript program which will be written under this Node JS will be always run in V8 Engine. |

**4. What happens when an url is typed in the address bar in the browser?**

URL stands for Uniform Resource Locator. URL is the address of the website which you can find in the address bar of your web browser. It is a reference to a resource on the internet, be it images, hypertext pages, audio/video files, etc.

1. Whenever a URL is requested, there will be a response. When the response is inspected from the browser, there are numerous files available such as HTML, JS, Images, CSS under sources.
2. Typically, there will be 3 files as HTML, JS and CSS
3. Once these files reach the browser as response, HTML parser will process all the HTML files and convert them into DOM tree i.e., Document Object Model tree.
4. JS Engine will process all the JS files and convert them into 0s and 1s.
5. CSS parser will process all the CSS files and convert them into CSSOM tree.
6. All these processed files would form a webpage altogether.