Question 1: Write a blog on Difference between HTTP1.1 vs HTTP2.

The HTTP **(Hypertext Transfer Protocol)** is used to communicate on the World Wide Web (WWW). The evolution or the versions of HTTP are as below:

HTTP1 🡪 HTTP1.1🡪HTTP2🡪HTTP3

The key difference between HTTP1.1 & HTTP2 are:

**Multiplexing:**

**HTTP1.1:** It uses a single request-response channel at a time, which means it loads resources one after other, so if one resource cannot be loaded, it blocks all the other following resources.

**HTTP2:** It uses multiplexing, which means it is able to use a single TCP connection to send multiple stream of data at once so that no resource blocks any other resources. HTTP2 does this by splitting data into binary code messages so that the client knows which stream each binary message belongs to. This enables more efficient use of network resources and can lead to faster page loading times.

**Header Compression:**

**HTTP1.1:** Headers are compressed by itself.

**HTTP2:** It uses advanced header compression method called HPACK that eliminates redundant information in HTTP header packets. Headers are compressed & representation of the headers is maintained until the connection is active.

**Prioritization:**

**HTTP1.1:** Does not have built-in support for request prioritization, which could lead to the situation where less critical resources blocking the more important ones.

**HTTP2:** Supports stream prioritization, enables the client to prioritize requests allowing more critical resources to be fetched and rendered first.

**Binary Protocol:**

**HTTP1.1:** It uses a text-based protocol, which works on textual format.

**HTTP2:** It uses a binary protocol, which is more efficient for both machines to parse and for networks to transmit. The binary format is not in humans readable however, it is optimized for performance.

**Server Push:**

**HTTP1.1:** It relies on the browser to explicitly requests all the resources inlining for use.

**HTTP2:** Introduces server push, it uses PUSH frame allowing the server to push or collect all the resources to the client's cache without waiting for a request. This can lead to improved performance by anticipating the client's needs.

**Connection Handling:**

**HTTP1.1:** Requires multiple connections to achieve parallelism.

**HTTP2:** Enables full multiplexing over a single connection.

**Summary:** HTTP2 was developed to address some of the limitations and performance bottlenecks of HTTP1.1 by introducing features like multiplexing, header compression, and server push to enhance web performance.