Write a blog on difference between http 1.1 and http 2.

What is the HTTP?

**HTTP** (Hyper Text Transfer Protocol) is the underlying protocol of the World Wide Web. Developed by Tim Berners-Lee and his team between 1989 -1991, HTTP has gone through many changes that have helped maintain its simplicity while shaping its flexibility.

**HTTP is based on** the Client/Server model. Client/Server model can be explained as two computers, Client (receiver of service) and Server (provider of service) that are communicating via requests and responses.

HTTP 1.1:

 The first standardized version of HTTP, HTTP/1.1, was published in early 1997, only a few months after HTTP/1.0.

The extensibility of HTTP made it easy to create new headers and methods. Even though the HTTP/1.1 protocol was refined over two revisions, [RFC 2616](https://datatracker.ietf.org/doc/html/rfc2616) published in June 1999 and [RFC 7230](https://datatracker.ietf.org/doc/html/rfc7230)-[RFC 7235](https://datatracker.ietf.org/doc/html/rfc7235) published in June 2014 before the release of HTTP/2, it was extremely stable for more than 15 years**.**

HTTP 2:

In 2015, Internet Engineering Task Force (IETF) release HTTP/2, the second major version of the most useful internet protocol, HTTP. It was derived from the earlier experimental SPDY protocol.

Difference in HTTP1.1 and HTTP2:

HTTP/2 solves several problems that the creators of HTTP/1.1 did not anticipate. In particular, HTTP/2 is much faster and more efficient than HTTP/1.1.

* It's a binary protocol rather than a text protocol. It can't be read and created manually. Despite this hurdle, it allows for the implementation of improved optimization techniques.
* It's a multiplexed protocol. Parallel requests can be made over the same connection, removing the constraints of the HTTP/1.x protocol.
* It compresses headers. As these are often similar among a set of requests, this removes the duplication and overhead of data transmitted.
* It allows a server to populate data in a client cache through a mechanism called the server push.

**Multiplexing**: HTTP/1.1 loads resources one after the other, so if one resource cannot be loaded, it blocks all the other resources behind it. In contrast, HTTP/2 is able to use a single TCP connection to send multiple streams of data at once so that no one resource blocks any other resource. HTTP/2 does this by splitting data into binary-code messages and numbering these messages so that the client knows which stream each binary message belongs to.

**Server push**: Typically, a server only serves content to a client device if the client asks for it. However, this approach is not always practical for modern WebPages, which often involve several dozen separate resources that the client must request. HTTP/2 solves this problem by allowing a server to "push" content to a client before the client asks for it. The server also sends a message letting the client know what pushed content to expect – like if Bob had sent Alice a Table of Contents of his novel before sending the whole thing.

**Header compression**: Small files load more quickly than large ones. To speed up web performance, both HTTP/1.1 and HTTP/2 compress HTTP messages to make them smaller. However, HTTP/2 uses a more advanced compression method called HPACK that eliminates redundant information in HTTP header packets. This eliminates a few bites from every HTTP packet. Given the volume of HTTP packets involved in loading even a single webpage, those bytes add up quickly, resulting in faster loading.

**Prioritization:** Prioritization refers to the order in which pieces of content are loaded. Prioritization affects a webpage's load time. For example, certain resources, like large JavaScript files, may block the rest of the page from loading if they have to load first. More of the page can load at once if these render-blocking resources load last. In HTTP/2, developers have hands-on, detailed control over prioritization. This allows them to maximize perceived and actual page load speed to a degree that was not possible in HTTP/1.1. HTTP/2 offers a feature called weighted prioritization. This allows developers to decide which page resources will load first, every time.