# Difference between HTTP/1.1 and HTTP/2

* **HTTP** stands for **hypertext transfer protocol** is a set of rules that runs on top of the TCP/IP suite of protocols and defines how files are to be transferred between clients and servers on the world wide web.
* HTTP is used in client-server communication. By using HTTP user sends the request to the server & the server sends the response to the user.
* There are several stages of development of HTTP but we will focus mainly on HTTP/1.1 which was created in 1997 & the new one is HTTP/2 which was created in 2015.

### **Key Features of HTTP/1.1:**

1. The Upgrade header was used to indicate a preference from the client that made it possible to switch to a more preferred protocol if found appropriate by the server.
2. HTTP/1.1 provided support for chunk transfers that allowed streaming of content dynamically as chunks and for additional headers to be sent after the message body.

# Key Features of HTTP/2:

1. Introduces the concept of multiplexing that interleaves the requests and responses without head-of-line blocking and does so over a single TCP connection.
2. It is a binary protocol i.e. only binary commands in the form of 0s and 1s are transmitted over the wire. The binary framing layer divides the message into frames that are segregated based on their type – Data or Header.

# Comparison between Http 1.1 and Http 2

#### **Web traffic**

**Http 1.1 –**It provides faster delivery of web pages and reduces web traffic if you compare it to Http 1.0. However, there is an increased risk of network congestion.

**Http 2 –**The Http 2 version utilizes multiplexing and server pushes to effectively reduce the page load time by a greater margin along with being sensitive to network delays.

#### **Status code**

**Http 1.1 –**This protocol introduces a warning header field to carry additional information about the status of a message. It can define 24 status codes, error reporting is quicker and more efficient.

**Http 2 –**It brings the fundamental semantics of HTTP like headers, and status code remains the same.

#### **Authentication mechanism**

**Http 1.1 –**Protocol Http 1.1 is much secured than Http 1.0 because it uses digest authentication and NTLM authentication.

**Http 2.2 –**The security concern in Http 2 version is also good and almost same as Http 1.1. Rather Http 2 is better equipped to deal with security threats because of the new features it brings.

#### **Security**

**Http 1.1 –**In this version, SSL or secure sockets layer is not required but recommended. Digest authentication is an improvement over Http 1.0 which is now being used in Http 1.1.

**Http 2 –**In Http 2 protocol, security is not at all recommended. It is because the security is encrypted since all almost all clients demand traffic to be encrypted. It also has minimum standards and minimum key size for encryption.