**[content negotiation]**

When there are multiple information available, the user can opt to choose which form they might prefer. Content negotiation is a feature that allows this, and there are two types of negotiation.

**Server-driven Negotiation** is when the server decides for the user what is best/most appropriate, based on the contents of the request (usually by specifying Content-Type, Language, Encoding, etc). Agent-driven Negotiation has the user select from what is available instead. This often means requiring a second request.

Users can give their choice using **Accept**, in the order of preference. For example, adding **Accept: text/html, application/xml, \*/\*** to a request tells the server send the information first as a html. If not available, then as xml, and if that is not available either, then whatever it can send.

Additionally, Accept-Charset, Accept-Encoding, and Accept-Language may also be used.

A 406 Not Acceptable status code will be returned if the user’s request cannot be fulfilled.

* https://www.w3.org/Protocols/rfc2616/rfc2616-sec12.html
* http://restlet.com/company/blog/2015/12/10/understanding-http-content-negotiation/

**[range request]**

Also called a *partial request*, this allows the user/browser to request information (limited through *ranges*) from a server. This can help reduce interrupted data transfers, and allows users to download a part of the information first, then retrieve the rest later, or download in parts using only a single request.

A range request is only supported by servers if **Accept-Ranges** (a header field) is present in HTTP responses. It is usually expressed in bytes, and users can specify the range of bytes of the information to be sent, and can be either single part or multipart.

The **Range** header field of a request is what triggers the server to modify the information sent back. **If-Range** can also be used by specifying preconditions, usually in the form of either fulfilling the request if the the information is unchanged or sending the whole thing instead.

Single part: **Range: bytes=0-499** would indicate a request for the first 500 bytes of a resource.

Multipart: **Range: bytes=0-499, 600-650** requests the first 500 bytes, then bytes 600 to 650.

There are 3 responses that a range request can receive:

1. 206 Partial Content (Successful request)
   1. Must come with **Content-Range** and a payload consisting of the range (except when in a multiple part response, to which it will be sent per part instead).
2. 416 Requested Range Not Satisfiable (Unsuccessful request)
3. 200 OK (No request was made/Unsupported)

* https://developer.mozilla.org/en-US/docs/Web/HTTP/Range\_requests
* https://tools.ietf.org/html/rfc7233
* https://benramsey.com/blog/2008/05/206-partial-content-and-range-requests/