Programming Lab 3

Practical No. 3

To study web browser and its Developer Tools option.

2019BTECS00058
Devang K Batch: T7

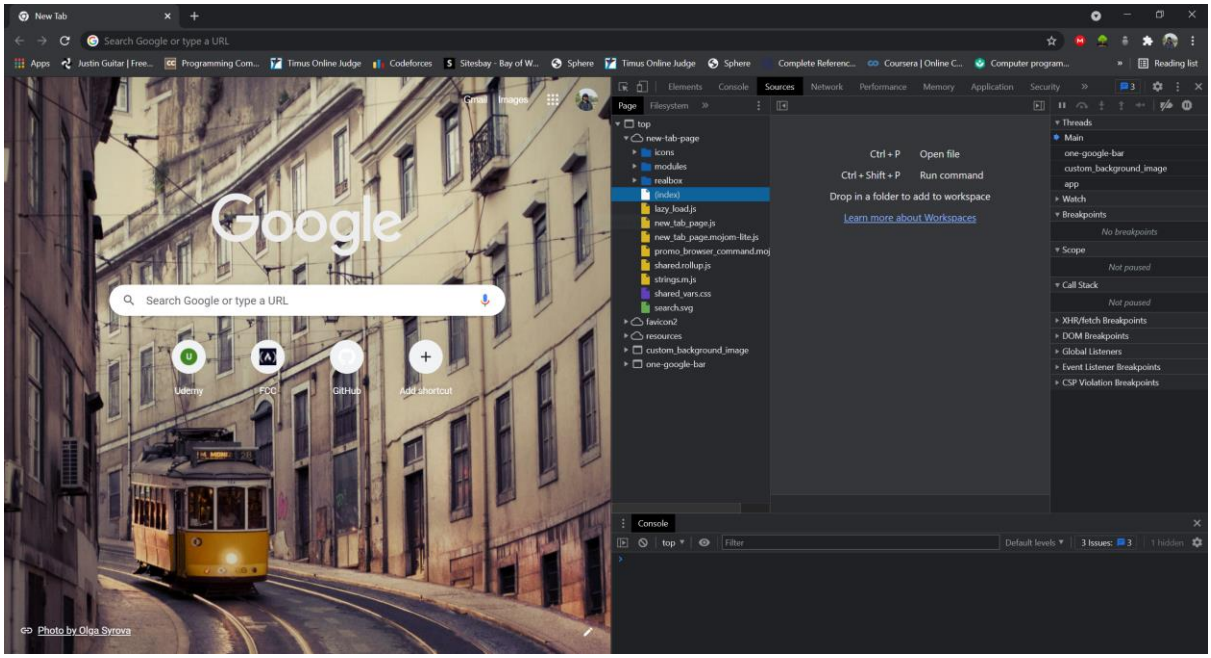
Problem Statement 1:

Install different web browsers on your machine. Go through the Developer Tools option of the browser.

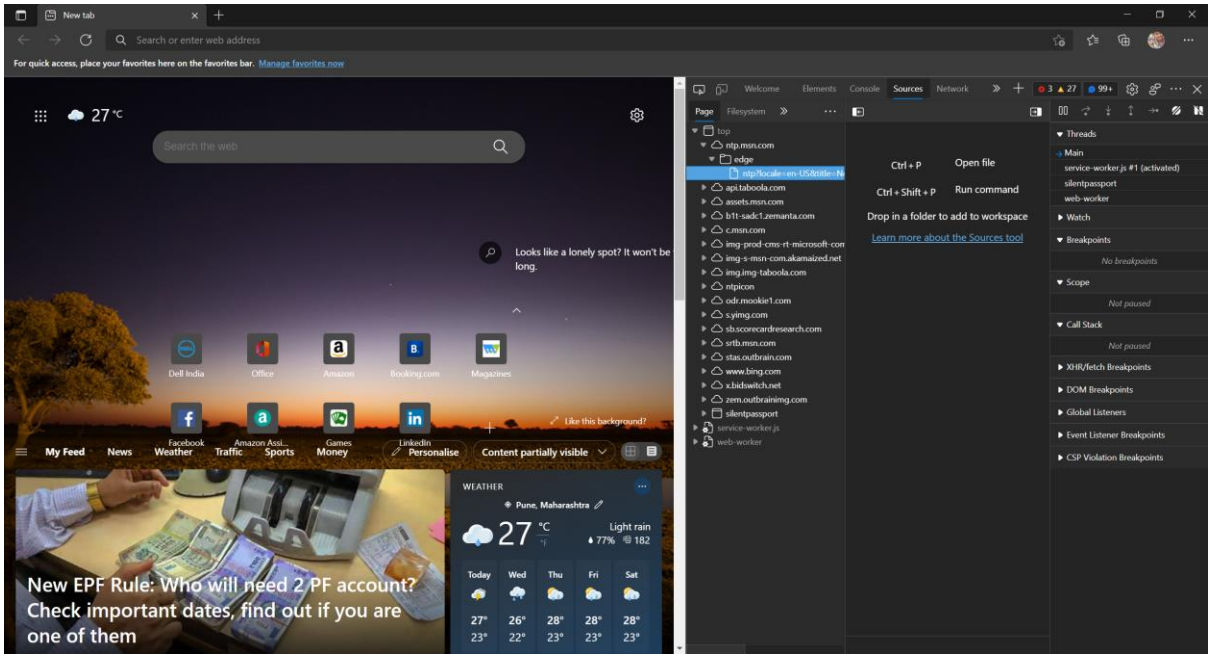
We shall use 2 browsers – Chrome and Edge.

We access the Developer Tools using Ctrl + Shift + I

Google Chrome:



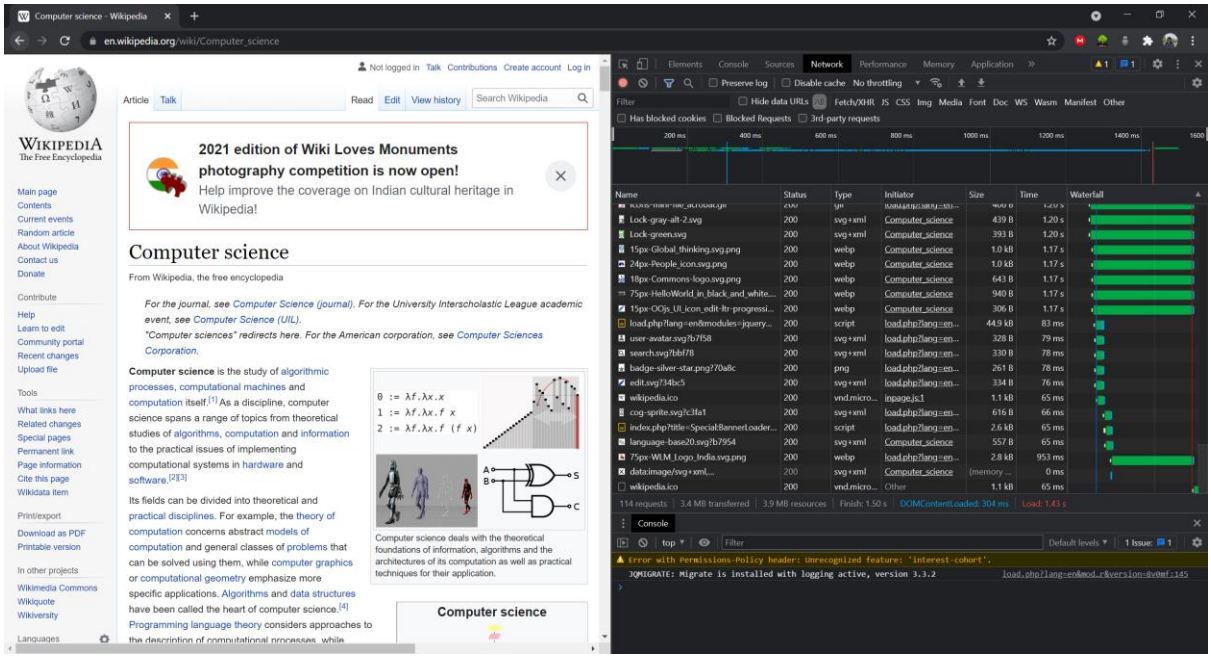
Microsoft Edge:



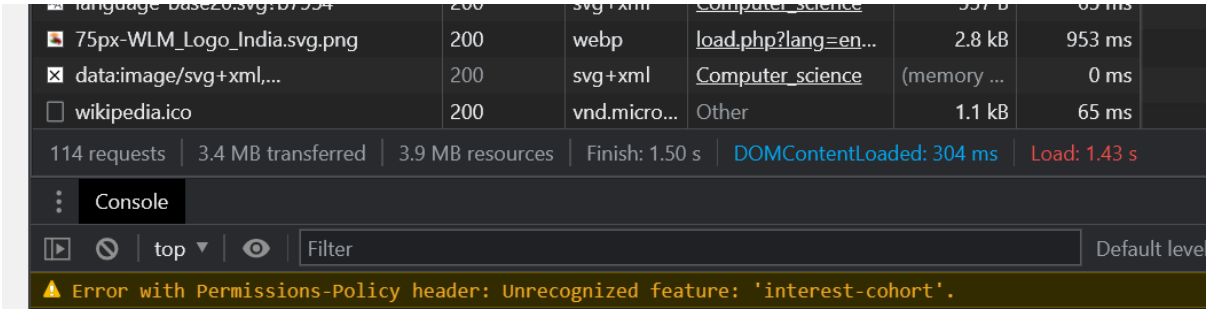
Problem Statement 2:

1. Visit https://en.wikipedia.org/wiki/Computer_science on various browsers.
2. Using browser's Developer Tools option find out how many requests-response cycles are needed to load the page fully on your machine?

On Chrome, we look into the networks tab.

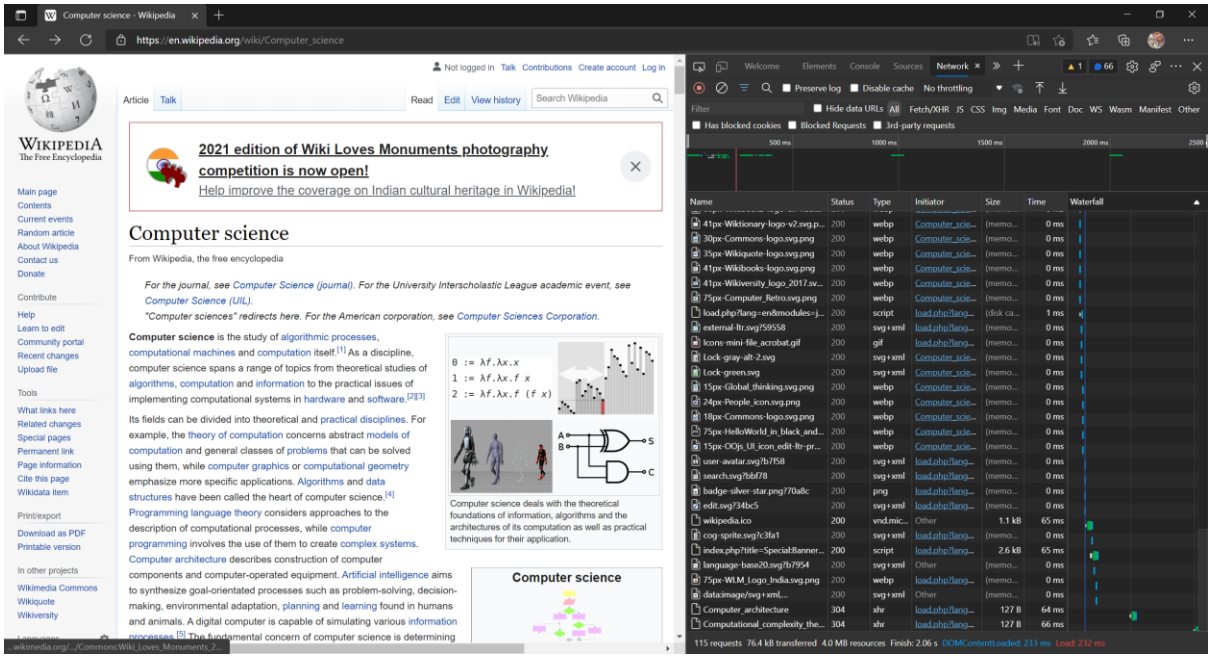


Looking closer, we find:

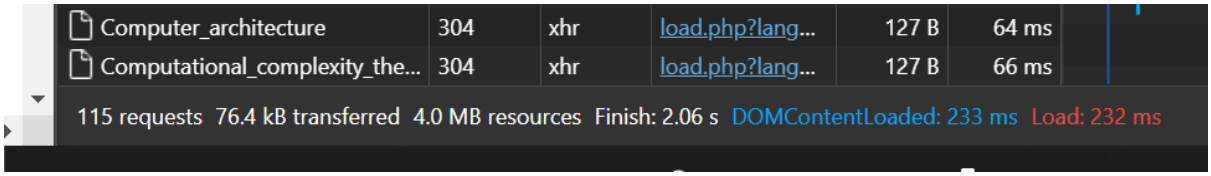


A total of 114 request-response cycles were needed to load the page fully.

On Edge:



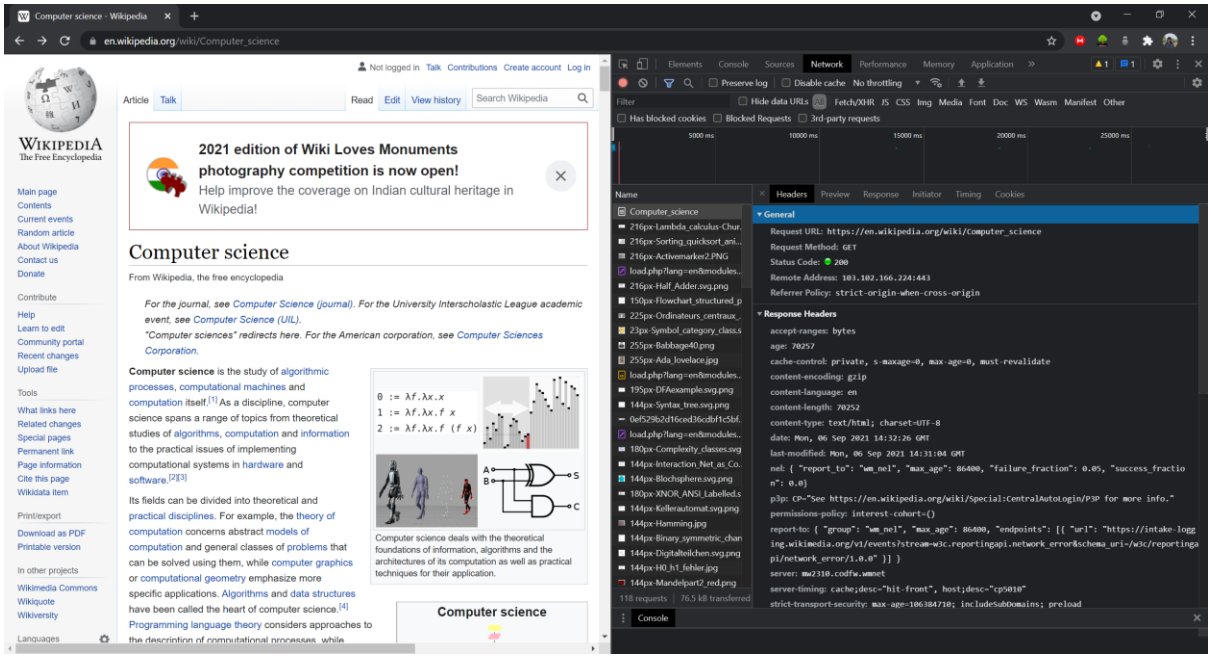
Looking closer, we find:

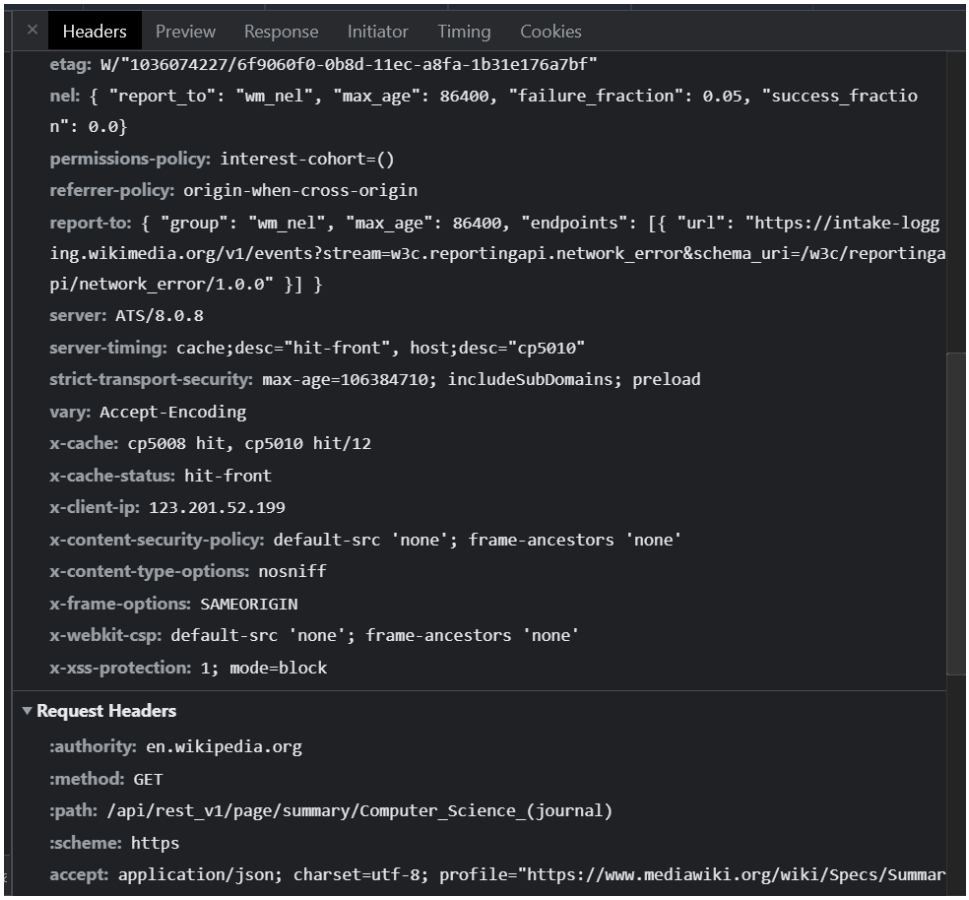


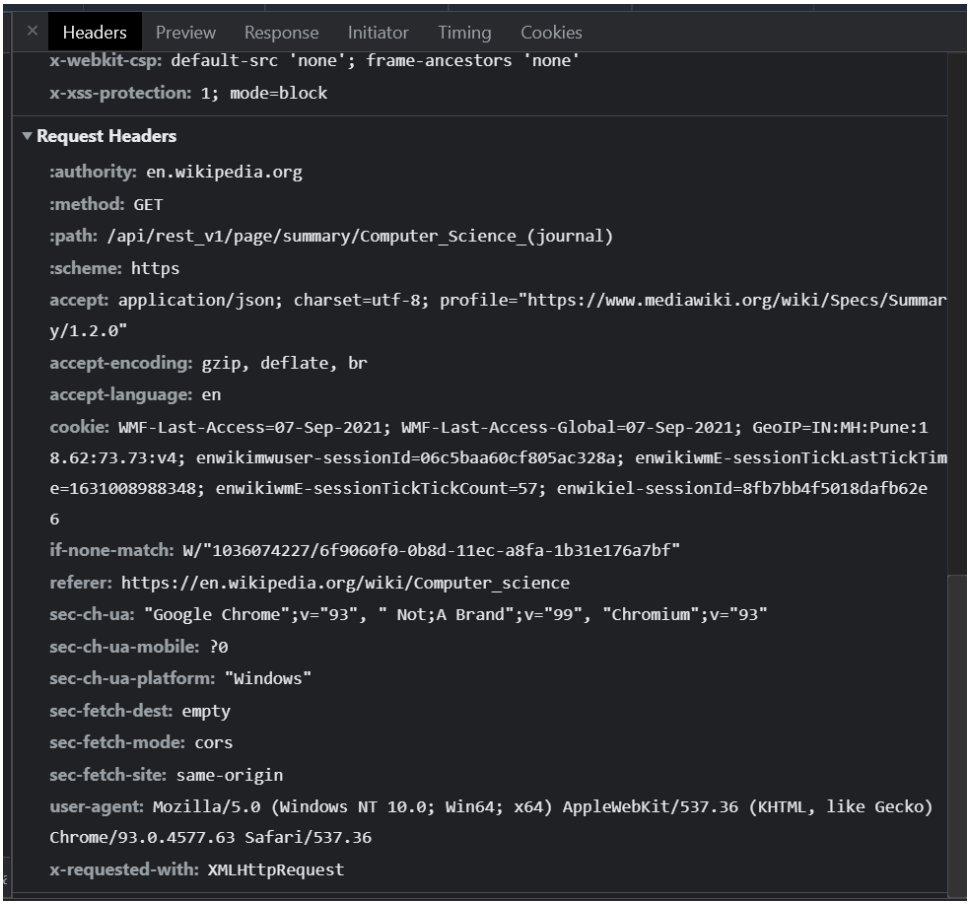
115 request-response cycles on Edge.

3. Using browser's Developer Tools option get the header information of the page.

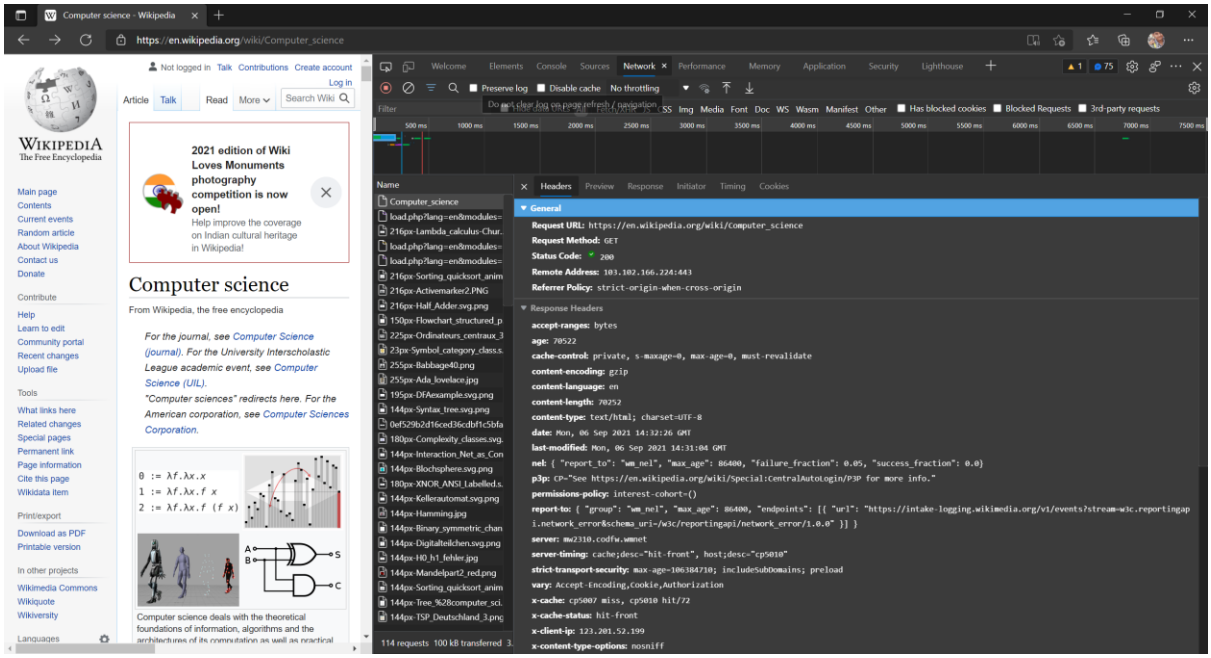
On chrome, we look in networks tab and select the main HTMl file that is received.


Computer science - Wikipedia
en.wikipedia.org/wiki/Computer_science
Computer science
Headers
Preview
Response
Initiator
Timing
Cookies
General
Request URL: https://en.wikipedia.org/api/rest_v1/page/summary/Computer_Science_(journal)
Request Method: GET
Status Code: 304
Remote Address: 103.102.166.224:443
Referrer Policy: origin-when-cross-origin
Response Headers
accept-ranges: bytes
access-control-allow-headers: accept, content-type, content-length, cache-control, accept-language, api-user-agent, if-match, if-modified-since, if-none-match, dnt, accept-encoding
access-control-allow-methods: GET,HEAD
access-control-allow-origin: *
access-control-expose-headers: etag
age: 64638
cache-control: s-maxage=1209600, max-age=300
content-encoding: gzip
content-language: en
content-length: 718
content-location: https://en.wikipedia.org/api/rest_v1/page/summary/Computer_Science_(journal)
content-security-policy: default-src 'none'; frame-ancestors 'none'
content-type: application/json; charset=utf-8; profile="https://www.mediawiki.org/wiki/Specs/Summary/1.5.0"
date: Mon, 06 Sep 2021 16:06:31 GMT
etag: W/"1036074227/6f9060f0-0b8d-11ec-a8fa-1b31e176a7bf"
nel: { "report to": "wm nel", "max age": 86400, "failure fraction": 0.05, "success fractio

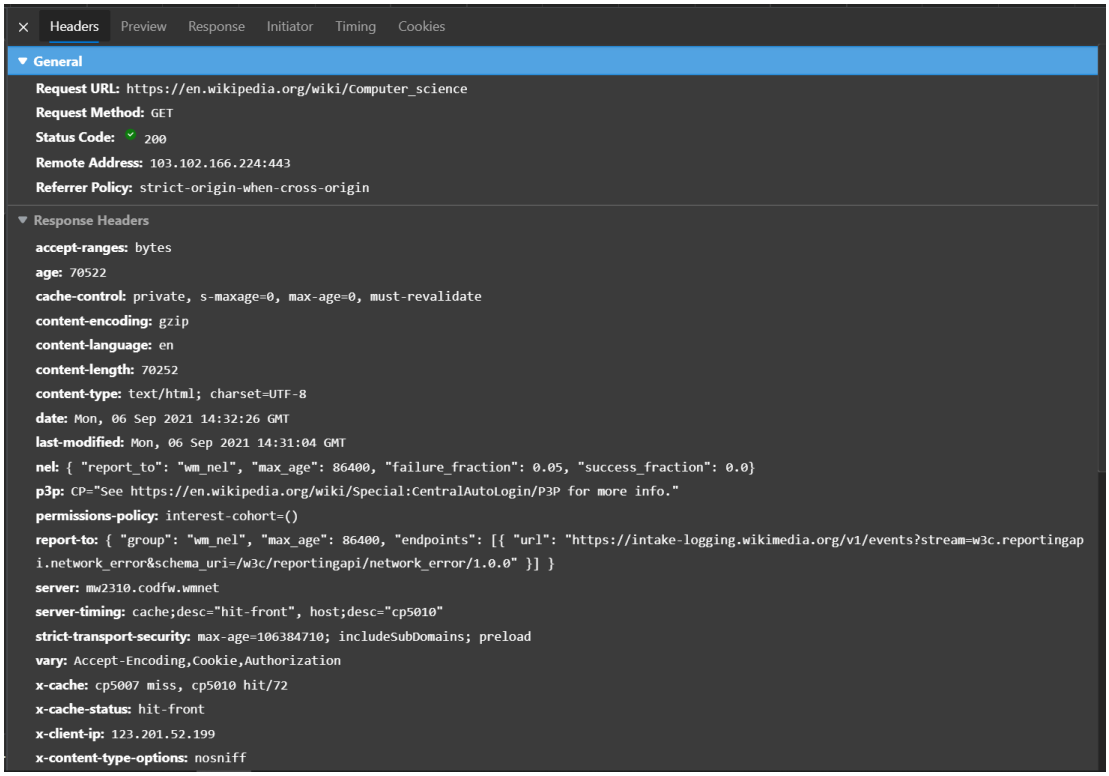

Headers
Preview
Response
Initiator
Timing
Cookies
etag: W/"1036074227/6f9060f0-0b8d-11ec-a8fa-1b31e176a7bf"
nel: { "report_to": "wm_nel", "max_age": 86400, "failure_fraction": 0.05, "success_fraction": 0.0}
permissions-policy: interest-cohort=()
referrer-policy: origin-when-cross-origin
report-to: { "group": "wm_nel", "max_age": 86400, "endpoints": [{ "url": "https://intake-logging.wikimedia.org/v1/events?stream=w3c.reportingapi.network_error&schema_uri=/w3c/reportingapi/network_error/1.0.0" }] }
server: ATS/8.0.8
server-timing: cache;desc="hit-front", host;desc="cp5010"
strict-transport-security: max-age=106384710; includeSubDomains; preload
vary: Accept-Encoding
x-cache: cp5008 hit, cp5010 hit/12
x-cache-status: hit-front
x-client-ip: 123.201.52.199
x-content-security-policy: default-src 'none'; frame-ancestors 'none'
x-content-type-options: nosniff
x-frame-options: SAMEORIGIN
x-webkit-csp: default-src 'none'; frame-ancestors 'none'
x-xss-protection: 1; mode=block
Request Headers
:authority: en.wikipedia.org
:method: GET
:path: /api/rest_v1/page/summary/Computer_Science_(journal)
:scheme: https
accept: application/json; charset=utf-8; profile="https://www.mediawiki.org/wiki/Specs/Summar

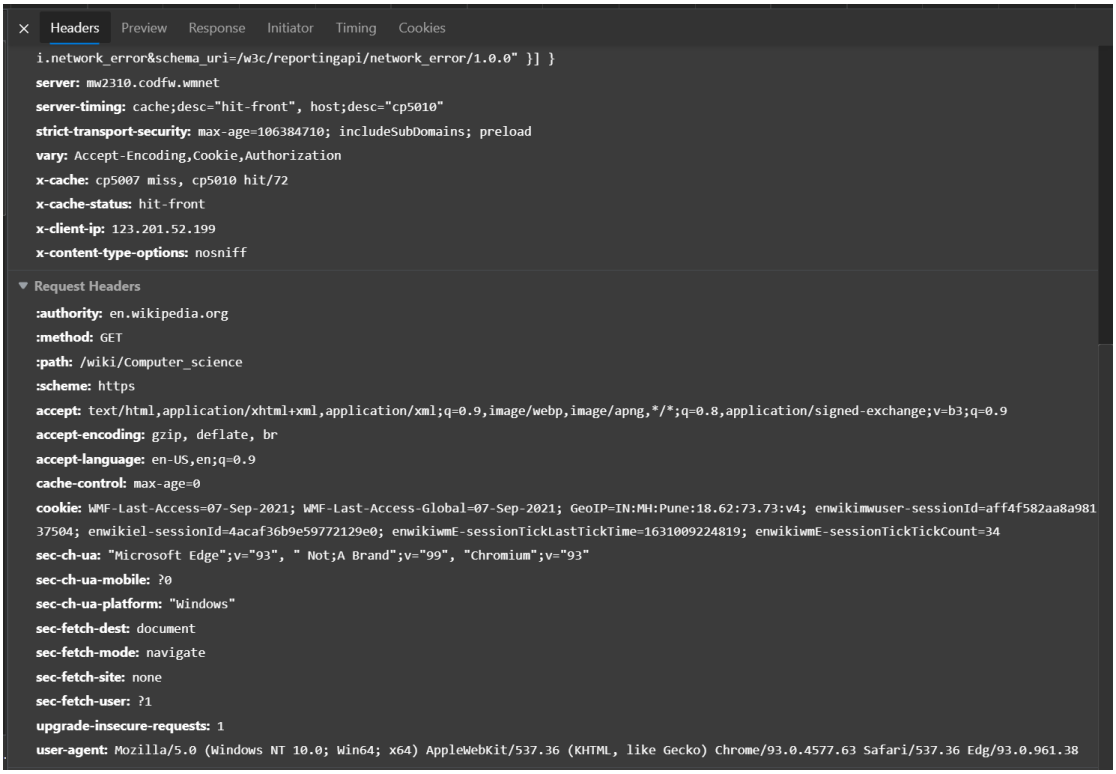

Headers
Preview
Response
Initiator
Timing
Cookies
x-webkit-csp: default-src 'none'; frame-ancestors 'none'
x-xss-protection: 1; mode=block
Request Headers
:authority: en.wikipedia.org
:method: GET
:path: /api/rest_v1/page/summary/Computer_Science_(journal)
:scheme: https
accept: application/json; charset=utf-8; profile="https://www.mediawiki.org/wiki/Specs/Summary/1.2.0"
accept-encoding: gzip, deflate, br
accept-language: en
cookie: WMF-Last-Access=07-Sep-2021; WMF-Last-Access-Global=07-Sep-2021; GeoIP=IN:MH:Pune:18.62:73.73:v4; enwikimwuser-sessionId=06c5baa60cf805ac328a; enwikiwmE-sessionTickLastTickTime=1631008988348; enwikiwmE-sessionTickTickCount=57; enwikiel-sessionId=8fb7bb4f5018dafb62e6
if-none-match: W/"1036074227/6f9060f0-0b8d-11ec-a8fa-1b31e176a7bf"
referer: https://en.wikipedia.org/wiki/Computer_science
sec-ch-ua: "Google Chrome";v="93", " Not;A Brand";v="99", "Chromium";v="93"
sec-ch-ua-mobile: ?0
sec-ch-ua-platform: "Windows"
sec-fetch-dest: empty
sec-fetch-mode: cors
sec-fetch-site: same-origin
user-agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/93.0.4577.63 Safari/537.36
x-requested-with: XMLHttpRequest

On Edge:



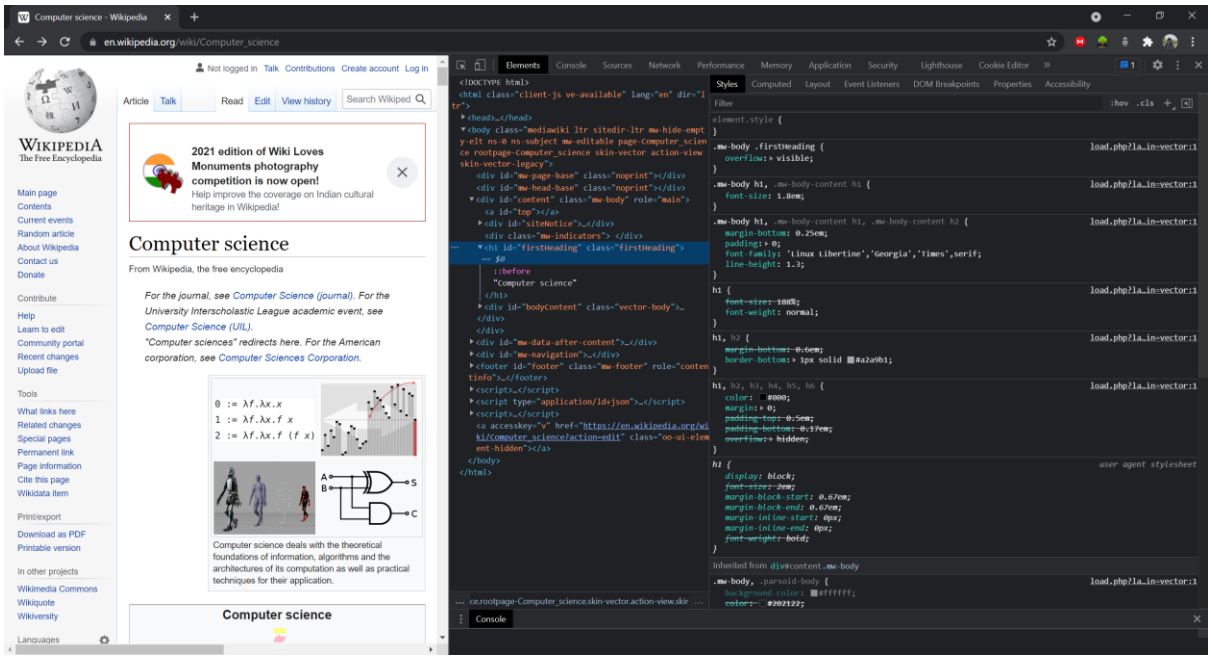
We focus on the request and response headers.



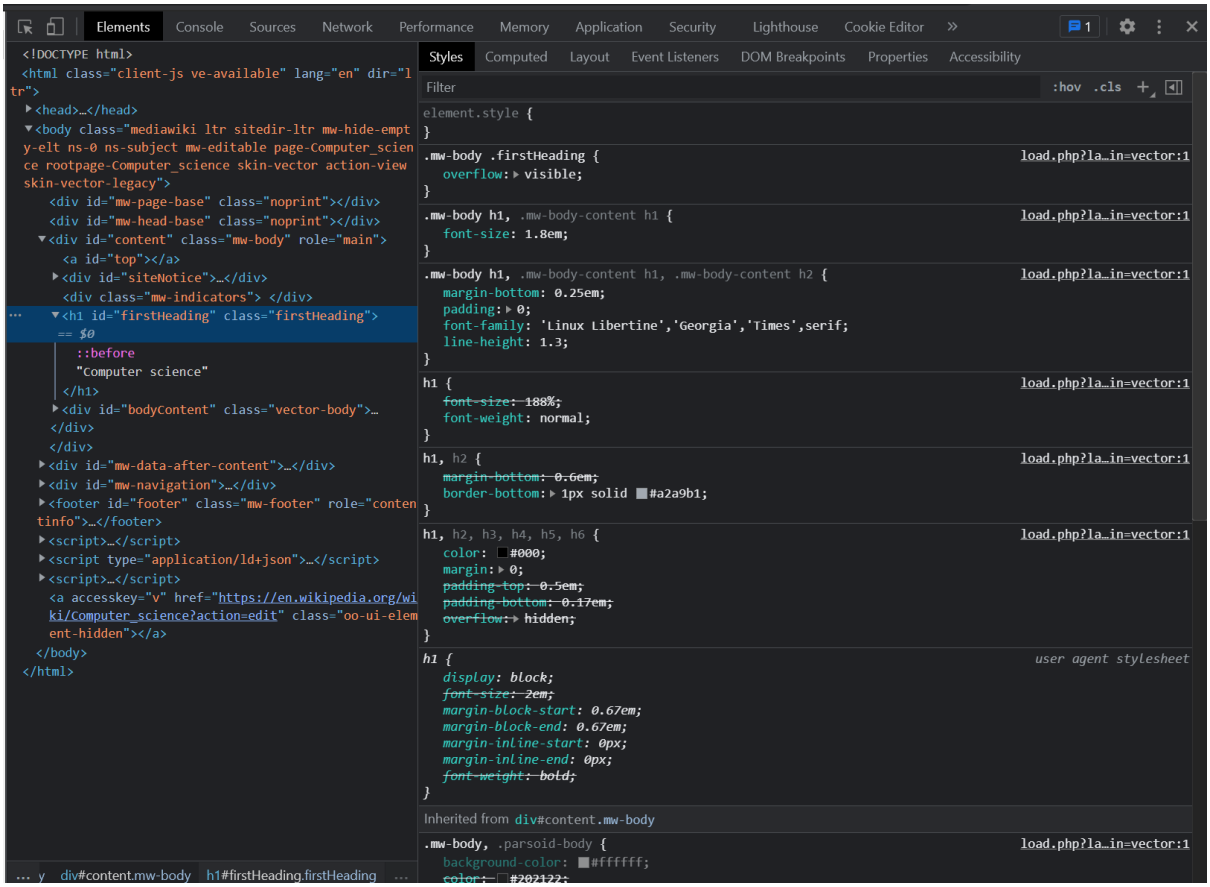


4. Using browser's Developer Tools option go through the DOM, CSS editor and JavaScript debugger options.

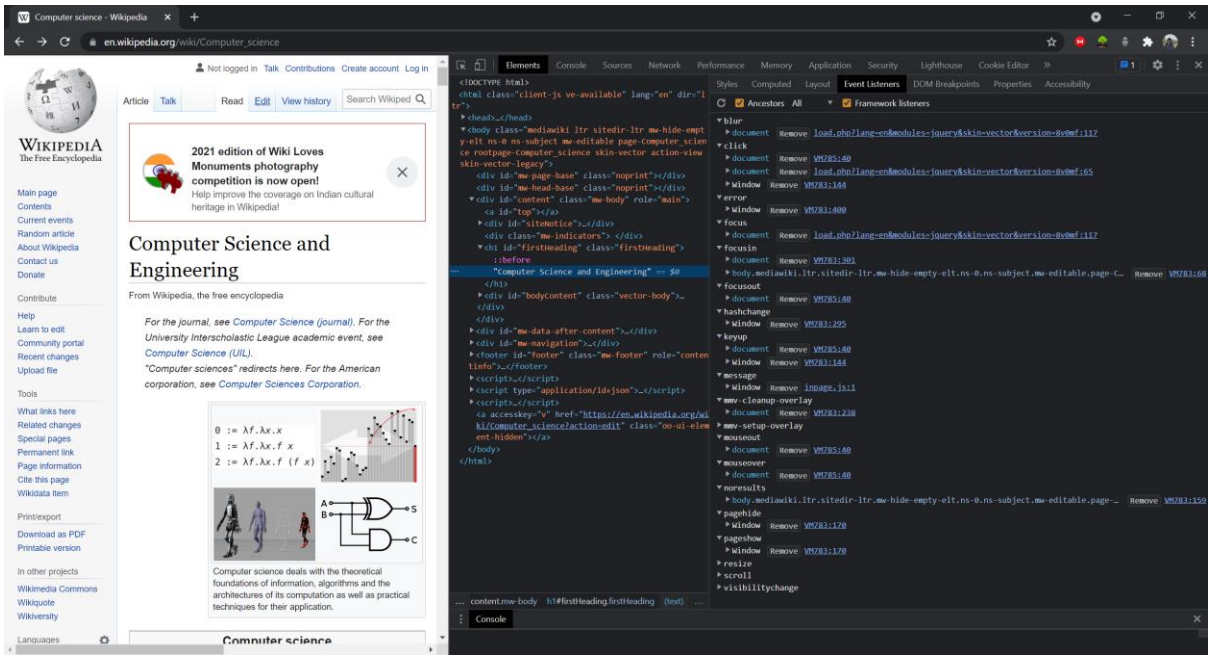
On Chrome, we right-click and inspect.



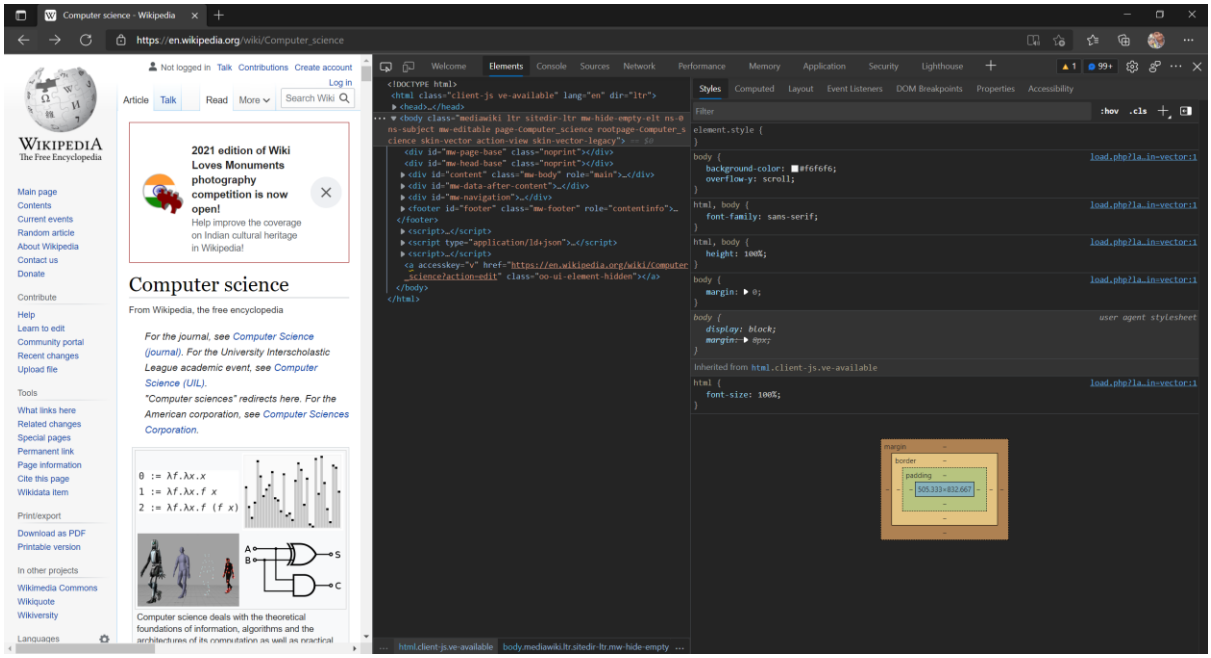
Looking closer,

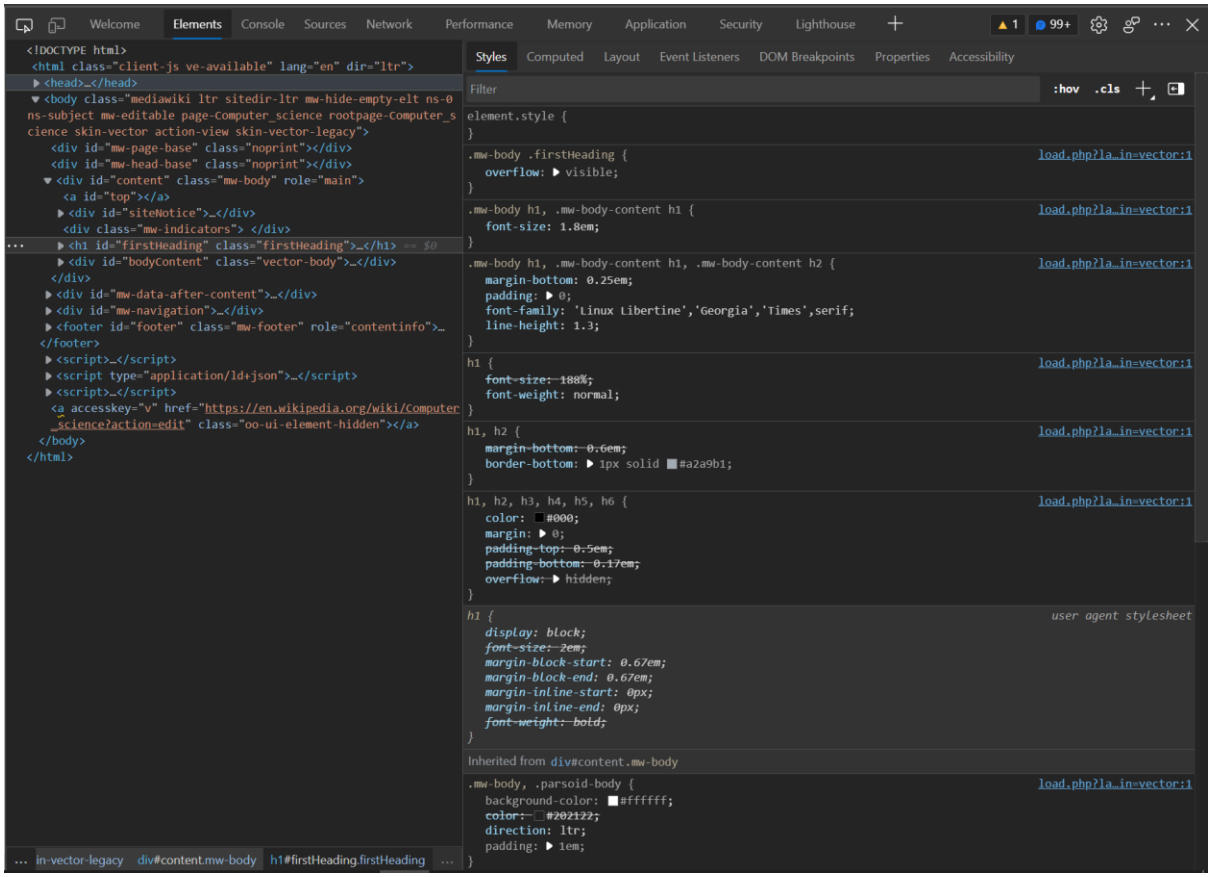


Manipulating some DOM we can experiment on the browser.



On Edge, we find similar UI





We can manipulate some DOM and CSS for testing and debugging