

Class: Third Year (Computer Science and Engineering)

Year: 2020-21 **Semester:** 1

Course: Programming Lab-3 (4CS354)

Practical No. 3

Team Members Exam Seat No:

1. 2018BTECS00050 – Rushikesh Shelke
2. 2018BTECS00063 – Aryan Mali
3. 2018BTECS00064 – Saurabh Hirugade

Practical 3 - Observations:

1. We chose 3 web browsers, viz. "Google Chrome", "Mozilla Firefox" and "Opera".
2. We timed request response cycles for all the three browsers on a same machine.
3. Identified Rendering & Javascript for all browsers.
4. Explored developer options such as
 - a. HTML DOM Breakdown & CSS Editor in the Elements Section
 - b. Used snipping tool to identify different html divisions
 - c. Studied CSS used for the element selected.
 - d. Noted time taken for a request to be completely fulfilled.
 - e. Noted the Data transferred during request response cycle.
 - f. Header breakdown of the request sent & response received.
 - g. Analyzed various status codes, IP addresses, urls, etc present in the headers.
 - h. Studied the use of debugger tools in the browser.

Chrome 1 - Request Response Time - 4.02

The screenshot shows a Chrome browser window with the Wikipedia page for "Computer science". The address bar shows the URL "en.wikipedia.org/wiki/Computer_science". The page content includes the Wikipedia logo, a "Wiki Loves Monuments" banner, and the article title "Computer science". The article text discusses the study of computation and information, mentioning theory of computation, algorithms, computational problems, hardware, software, and applications. It also mentions communication, control, perception, learning, and intelligence, especially in human-made computing systems and machines. The article is attributed to Peter Denning.

The Network tab in the developer tools is open, showing a list of requests. The first request is "external-link...", which is highlighted. The waterfall chart shows the timing of the requests, with the first request taking 4.02 seconds to complete.

At the bottom of the page, there is a text overlay: "meet.google.com is sharing your screen. Stop sharing Hide".


At the bottom center, there is a large, semi-transparent text overlay: "Chrome".

Chrome 2 - Header Breakdown

Computer science - Wikipedia

en.wikipedia.org/wiki/Computer_science

Practice | Geeksfor... Dashboard | Hacker... Codechef Hackerearth LinkedIn cognitive-ninja CLIST



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The Free Encyclopedia

[Main page](#)
[Contents](#)
[Current events](#)
[Random article](#)
[About Wikipedia](#)
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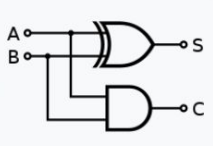
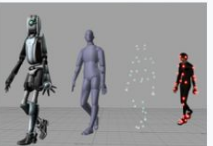
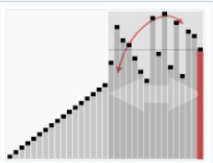
Wiki Loves Monuments: Photograph a monument, help Wikipedia and win!
[Learn more](#)

Computer science

From Wikipedia, the free encyclopedia

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Computer science is the study of computation and

$$\begin{aligned} 0 &:= \lambda f. \lambda x. x \\ 1 &:= \lambda f. \lambda x. f \ x \\ 2 &:= \lambda f. \lambda x. f \ (f \ x) \end{aligned}$$


Elements Console Sources Network Performance Memory Application

☐ Preserve log ☐ Disable cache Online

Filter ☐ Hide data URLs All XHR JS CSS Img Media Font Doc WS Manifest Other

☐ Has blocked cookies ☐ Blocked Requests

10000 ms 20000 ms 30000 ms 40000 ms 50000 ms 60000 ms 70000 ms 80000 ms 90000 ms

Name

Headers Preview Response Initiator Timing Cookies

General

Request URL: https://en.wikipedia.org/wiki/Computer_science
Request Method: GET
Status Code: 200
Remote Address: 103.102.166.224:443
Referrer Policy: no-referrer-when-downgrade

Response Headers

accept-ranges: bytes

age: 69544

cache-control: private, s-maxage=0, max-age=0, must-revalidate

content-encoding: gzip

content-language: en

content-length: 72102

content-type: text/html; charset=UTF-8

date: Tue, 08 Sep 2020 19:51:43 GMT

last-modified: Tue, 08 Sep 2020 18:14:59 GMT

p3p: CP="See <https://en.wikipedia.org/wiki/Special:CentralAutoLogin/P3P> for more info."

server: mw2355.codfw.wmnet

server-timing: cache;desc="hit-front"

status: 200

strict-transport-security: max-age=106384710; includeSubDomains; preload

vary: Accept-Encoding, Cookie, Authorization

x-cache: cp5007 miss, cp5009 hit/104

Console What's New Issues

meet.google.com is sharing your screen. Stop sharing Hide Computer science deals with the theoretical

Chrome 3 - HTML DOM breakdown

The screenshot displays a Chrome browser window with the Wikipedia page for "Computer science". The browser's address bar shows the URL "en.wikipedia.org/wiki/Computer_science". The page content includes the Wikipedia logo, a search bar, and the main heading "Computer science". A tooltip is visible over the heading, showing its bounding box (423.32 x 38.12), color (#000000), font (28.8px "Linux Libertine", Georgia, Times, ...), and margin (0px 0px 7.2px). The right sidebar shows the "Elements" and "Styles" panels. The "Elements" panel shows the HTML structure, including the <h1> tag for the heading. The "Styles" panel shows the default user agent styles for the h1 element, such as display: block, margin: 0px, and font-size: 100%.

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A diagram showing a sequence of points forming a curve, and a logic circuit diagram with inputs A and B, and outputs S and C.

meet.google.com is sharing your screen. Stop sharing Hide

computer science deals with the theoretical

Chrome Browser Engines:


1. Rendering Engine : Blink
2. Javascript Engine : V8

Opera 1 - Request Response Time = 4.11 s

Computer science - Wikipedi

en.wikipedia.org/wiki/Computer_science

Amazon.com eBay Booking.com: Chea... TripAdvisor Facebook



WIKIPEDIA
The Free Encyclopedia

Main page
Contents
Current events
Random article
About Wikipedia
Contact us
Donate

Contribute
Help
Community portal
Recent changes
Upload file

Tools
What links here
Related changes
Special pages
Permanent link
Page information
Cite this page
Wikidata item


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In other projects


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Article Talk

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Wiki Loves Monuments: Photograph a monument, help Wikipedia and win!
Learn more



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From Wikipedia, the free encyclopedia

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Computer science is the study of [computation](#) and [information](#).^{[1][2]} Computer science deals with [theory of computation](#), [algorithms](#), [computational problems](#) and the design of [computer systems](#) [hardware](#), [software](#) and applications.^{[3][4]} Computer science addresses both human-made and natural information processes, such as [communication](#), [control](#), [perception](#), [learning](#) and [intelligence](#) especially in human-made computing systems and machines.^{[5][6][7]} According to [Peter Denning](#), the fundamental question underlying computer science is, *What can be automated?*^{[8][5]}

Its fields can be divided into theoretical and [practical disciplines](#). For example [computational complexity theory](#) describes the amount of resources required to solve [computational problems](#), while [computer graphics](#) and [computational geometry](#) emphasizes more specific applications. [Algorithms](#) have been called the heart of computer science.^[9] [Programming language theory](#) describes the use of [programming languages](#) for [computer architecture](#) and [computer engineering](#).

Computer science

History
Outline
Glossary
Category

external-link-ltr-ic... 200 svg... load.ph... (me... 0 ms

icons-mini-file_ac... 200 gif load.ph... (me... 0 ms

lock-gray-alt-2.svg 200 svg... Comput... (me... 0 ms

lock-green.svg 200 svg... Comput... (me... 0 ms

23px-Symbol_bo... 200 webp Comput... (me... 1 ms

15px-Global_thin... 200 webp Comput... (me... 0 ms

24px-People_ico... 200 webp Comput... (me... 0 ms

18px-Commons-l... 200 webp Comput... (me... 0 ms

75px-HelloWorld... 200 webp Comput... (me... 0 ms

15px-OOjs_UI_ico... 200 webp Comput... (me... 0 ms

load.php?lang=e... 200 script load.ph... 97... 385...

user-avatar.svg?b... 200 svg... load.ph... (me... 0 ms

search.svg?4d50a... 200 svg... load.ph... (me... 0 ms

badge-silver-star... 200 png load.ph... (me... 0 ms

wikimedia-button... 200 png Comput... 4.2 ... 161...

poweredby_medi... 200 png Comput... 2.5 ... 197...

data:image/svg+x... 200 svg... load.ph... (me... 0 ms

wikipedia.ico 200 vnd... Other 1.2 ... 154...

index.php?title=S... 200 script load.ph... 4.3 ... 186...

cog-sprite.svg?c3... 200 svg... load.ph... (dis... 5 ms

compact-links-tri... 200 svg... Comput... (dis... 7 ms

70px-Wiki_Loves_... 200 webp load.ph... (dis... 4 ms

data:image/svg+x... 200 svg... Comput... (me... 0 ms

70px-Flag_of_Indi... 200 webp load.ph... (dis... 4 ms

86 requests 188 kB transferred 1.6 MB resources Finish: 4.11 s DOMContentLoaded: 2.51 s

Opera 2 - HTML DOM Breakdown

[illegible]

Opera 3 - Header Breakdown

The screenshot displays the Opera browser interface with the Wikipedia page for "Computer science" open. The browser's address bar shows the URL `en.wikipedia.org/wiki/Computer_science`. The page content includes the Wikipedia logo, a "Wiki Loves Monuments" banner, and the article title "Computer science". Below the title, it states "From Wikipedia, the free encyclopedia" and provides a redirect for "Computer sciences". The article text begins with a lambda calculus definition: $\begin{aligned} 0 &:= \lambda f. \lambda x. x \\ 1 &:= \lambda f. \lambda x. f \ x \\ 2 &:= \lambda f. \lambda x. f \ (f \ x) \end{aligned}$. To the right of the text is a diagram of a neural network. Below the text, there is an image of three figures and a logic gate diagram. The Network DevTools panel is open, showing the "General" tab for the request `https://en.wikipedia.org/wiki/Computer_science`. The status code is 200. The response headers include `accept-ranges: bytes`, `age: 69747`, `cache-control: private, s-maxage=0, max-age=0, must-revalidate`, `content-encoding: gzip`, `content-language: en`, `content-length: 72102`, `content-type: text/html; charset=UTF-8`, `date: Tue, 08 Sep 2020 19:51:43 GMT`, `last-modified: Tue, 08 Sep 2020 18:14:59 GMT`, `p3p: CP="See https://en.wikipedia.org/wiki/Special:CentralAutoLogin/P3P for more info."`, `server: mw2355.codfw.wmnet`, `server-timing: cache;desc="hit-front"`, `status: 200`, `strict-transport-security: max-age=106384710; includeSubDomains; preload`, `vary: Accept-Encoding, Cookie, Authorization`, `x-cache: cp5007 miss, cp5009 hit/105`, `x-cache-status: hit-front`, and `x-client-ip: 106.76.78.163`.

Computer science

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$$\begin{aligned} 0 &:= \lambda f. \lambda x. x \\ 1 &:= \lambda f. \lambda x. f \ x \\ 2 &:= \lambda f. \lambda x. f \ (f \ x) \end{aligned}$$

Computer science deals with the theoretical foundations of information, its computation and practical techniques for their application.

Computer science

Opera Browser Engines:

1. Rendering Engine : Blink
2. Javascript Engine : V8

Mozilla Firefox 1 - HTML DOM Breakdown

The screenshot displays the Mozilla Firefox 1 browser window with the Wikipedia page for "Computer science". The browser's address bar shows the URL `https://en.wikipedia.org/wiki/Computer_science`. The page layout includes a sidebar with navigation links, a main content area with a "Wiki Loves Monuments" banner, and a right-hand pane showing the DOM Inspector.

Wikipedia Page Content:

- Header:** "Computer science - Wikipedia" with navigation links (Article, Talk, Read, Edit, View history) and a search bar.
- Banner:** "Wiki Loves Monuments: Photograph a monument, help Wikipedia and win!" with a "Learn more" link.
- Section Header:** "Computer science" with a subtitle "From Wikipedia, the free encyclopedia".
- Text:** "Computer sciences" redirects here. For the American corporation, see *Computer Sciences Corporation*.
- Text:** "Computer science is the study of computation and information. [1][2] Computer science deals with theory of computation, algorithms, computational problems and the design of computer systems hardware, software and applications. [3][4] Computer science addresses both human-made and natural information processes, such as communication, control, perception, learning and intelligence especially in human-made computing systems and machines. [5][6][7] According to Peter Denning, the fundamental question underlying computer science is, *What can be automated?* [8][5]"
- Text:** "Its fields can be divided into theoretical and practical disciplines. For example computational complexity theory describes the amount of resources required to solve computational problems, while computer graphics and computational geometry emphasizes more specific applications. Algorithms have been called the heart of computer science. [9] Programming language theory considers approaches to the description of computational processes, while a theory of programming involves the use of programming languages"
- Text:** "Computer science deals with the theoretical foundations of information, its computation and practical techniques for their application."
- Section Header:** "Computer science" with sub-sections: History, Outline, Glossary, Category.

DOM Inspector Content:

- HTML Structure:** The DOM tree shows the document structure, including the `<h1>` tag for "Computer science" and the `<div>` tags for the banner and main content.
- Styles:** The "Layout" pane shows the CSS styles applied to the selected element, including `margin: 0;`, `font-family: sans-serif;`, `background-color: #f0f0f0;`, `overflow-y: scroll;`, and `height: 100%;`.
- Box Model:** The "Box Model" pane shows the dimensions of the selected element, including `margin: 0;`, `border: 0;`, `padding: 0;`, and `width: 923.2x789.6`.

Mozilla Firefox 2 - Header Breakdown

Computer science - Wikipedia

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🔒 https://en.wikipedia.org/wiki/Computer_science

🔍 Search

📖 📄 🖨 🌐 🌐 🌐

Not logged in


Talk Contributions Create account Log in

Article

Talk

Read Edit View history

Search Wikipedia



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[Main page](#)
[Contents](#)
[Current events](#)
[Random article](#)
[About Wikipedia](#)
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[Community portal](#)
[Recent changes](#)
[Upload file](#)

[Tools](#)
[What links here](#)
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Wiki Loves Monuments: Photograph a monument, help Wikipedia and win!



Learn more

Computer science

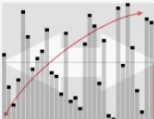
From Wikipedia, the free encyclopedia

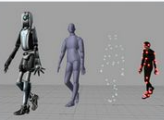
"Computer sciences" redirects here. For the American corporation, see [Computer Sciences Corporation](#).

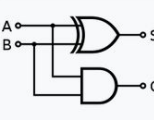
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Computer science deals with the theoretical foundations of information, its computation and practical techniques for their application.

Computer science

[History](#)
[Outline](#)
[Glossary](#)
[Category](#)

Inspector Console Debugger Network Style Editor

Filter URLs

Disable Cache No Throttling

All HTML CSS JS XHR Fonts Images Media WS Other

Status	Met...	Domain	File	Initiator	Type	Transferred	Size
304	GET	upload.wi...	144px-English.png	imageset	png	cached	10.1...
304	GET	upload.wi...	96px-HONDA_ASIMO.jpg	imageset	jpeg	cached	4.20...
304	GET	upload.wi...	60px-Wikibooks-logo-en-noslogan.svg	imageset	webp	cached	2.75...
304	GET	upload.wi...	41px-Wiktionary-logo-v2.svg.png	imageset	webp	cached	1.25...
304	GET	upload.wi...	30px-Commons-logo.svg.png	imageset	webp	cached	862 B
304	GET	upload.wi...	35px-Wikiquote-logo.svg.png	imageset	webp	cached	1.22...
304	GET	upload.wi...	41px-Wikibooks-logo.svg.png	imageset	webp	cached	1.75...
304	GET	upload.wi...	41px-Wikiversity-logo-en.svg.png	imageset	webp	cached	1.50...
304	GET	upload.wi...	75px-Computer_Retro.svg.png	imageset	webp	cached	4.70...
304	GET	upload.wi...	23px-Symbol_book_class2.svg.png	imageset	webp	cached	782 B
304	GET	upload.wi...	15px-Global_thinking.svg.png	imageset	webp	cached	922 B
304	GET	upload.wi...	24px-People_icon.svg.png	imageset	webp	cached	934 B
304	GET	upload.wi...	18px-Commons-logo.svg.png	imageset	webp	cached	532 B
304	GET	upload.wi...	75px-HelloWorld.svg.png	imageset	webp	cached	806 B
304	GET	upload.wi...	15px-OOjs_UI_icon-edit-ltr-progressive	imageset	webp	cached	200 B
304	GET	upload.wi...	Lock-gray-alt-2.svg	img	svg	cached	516 B
304	GET	upload.wi...	Lock-green.svg	img	svg	cached	432 B
304	GET	en.wikipe...	load.php?lang=en&modules=ext.gadg...	load.ph...	js	cached	25.0...
304	GET	en.wikipe...	load.php?lang=en&modules=ext.visual	load.ph...	js	cached	55.2...
304	GET	en.wikipe...	load.php?lang=en&modules=ext.centra	load.ph...	js	cached	931...
200	GET	en.wikipe...	wikipedia.png	Favicon...	png	cached	1.28...
200	GET	en.wikipe...	wikipedia.ico	Favicon...	vnd...	cached	2.67...
200	GET	meta.wiki...	index.php?title=Special:BannerLoader&	load.ph...	js	4.64 KB	21.7...
200	GET	en.wikipe...	compact-links-trigger.svg?ebbbe	img	svg	cached	514 B
304	GET	upload.wi...	70px-Wiki_Loves_Monuments_Logo_no	load.ph...	webp	cached	2.04...
304	GET	upload.wi...	70px-Flag_of_India.svg.png	load.ph...	webp	cached	368 B
200	GET	en.wikipe...	load.php?lang=en&modules=ext.popu...	load.ph...	js	cached	67.8...

76 requests 2.09 MB / 87.83 KB transferred Finish: 5.74 s DOMContentLoaded: 1.60 s load: 3.91 s

Mozilla Firefox 3 - Request Response Time = 5.74 s

Computer science - Wikipedia

← → ↺ 🏠

🔒 https://en.wikipedia.org/wiki/Computer_science

🔍 Search

🌐

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The Free Encyclopedia

Main page

Contents

Current events

Random article

About Wikipedia

Contact us

Donate

Contribute

Help

Community portal

Recent changes

Upload file

Tools

What links here

Related changes

Special pages

Permanent link

Page information

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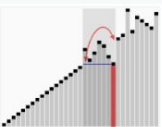
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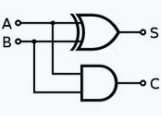
0 := λf.λx.x

1 := λf.λx.f x

2 := λf.λx.f (f x)







Computer science deals with the theoretical foundations of information, its computation and practical techniques for their application.

Computer science

History

Outline

Glossary

Category

Inspector | Console | Debugger | Network | Style Editor

Filter URLs

Disable Cache | No Throttling

HTML | CSS | JS | XHR | Fonts | Images | Media | WS | Other

Status	Met...	Domain	File	Initiator	Type	Transferred	Size
200	GET	en.wikipedia...	Computer_science	browsin...	html	71.17 KB	348...
304	GET	en.wikipedia...	load.php?lang=en&modules=startup&...	script	js	cached	65.4...
200	GET	wikimedia...	0ef529b2d16ced36cdeb1c5bfa9155f63	img	svg	3.82 KB	5.19...
200	GET	wikimedia...	2719cf0eba98c4f8aee01aabf01d43c8di	img	svg	5.10 KB	8.23...

76 requests | 2.09 MB / 87.83 KB transferred | Finish: 5.74 s | DOMContentLoaded: 1.60 s | load: 3.91 s

Headers | Cookies | Request | Response | Timings | Stack Trace | Security

Filter Headers | Block | Resend

GET https://en.wikipedia.org/wiki/Computer_science

Status: 200 OK

Version: HTTP/2

Transferred: 71.17 KB (348.37 KB size)

Response Headers (779 B) | Raw

accept-ranges: bytes

age: 69905

cache-control: private, s-maxage=0, max-age=0, must-revalidate

content-encoding: gzip

content-language: en

content-length: 72102

content-type: text/html; charset=UTF-8

date: Tue, 08 Sep 2020 19:51:43 GMT

last-modified: Tue, 08 Sep 2020 18:14:59 GMT

p3p: CP="See https://en.wikipedia.org/wiki/Special:CentralAutoLogin/P3P for more info."

server: mw2355.codfw.wmnet

server-timing: cache;desc="hit-front"

strict-transport-security: max-age=106384710; includeSubDomains; preload

vary: Accept-Encoding, Cookie, Authorization

x-cache: cp5007 miss, cp5009 hit/107

x-cache-status: hit-front

x-client-ip: 106.76.78.163

x-content-type-options: nosniff

X-Firefox-Spdy: h2

Mozilla Firefox Browser Engines:

1. Rendering Engine : Gecko
2. Javascript Engine : SpiderMonkey

Contribution of team:

Actions performed:

- 1. Study of the web browsers and inspection of website using developer tools.**

All of the above actions were performed together by the team using online meeting platform.