

E - Commerce : Project Proposal

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Our objective is to build a spectacles (including different type of glasses) selling e-commerce website similar to existing website such as “lenskart.com”. We chose this website after thorough analysis of lenskart.com. Due to some unknown reasons, we were unable to find existing site’s web stack.

Analysis :

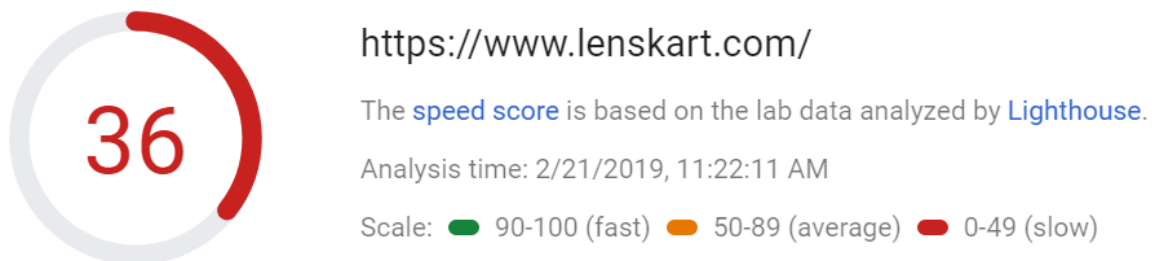
We tried to observe lenskart’s performance with the help of :

<https://developers.google.com/speed/pagespeed/insights/>

<https://tools.pingdom.com/>

<https://www.similarweb.com/website/lenskart.com>








Following diagram shows how well lenskart.com performed on the standard speed score test.



This score is for desktop site. Mobile version had even worse result with score of only 25.

Lenskart.com has many interactive features and images. Following table shows how much data is occupied by respective categories.

Content size by content type

CONTENT TYPE	PERCENT	SIZE
 Image	68.58%	4.6 MB
 Script	17.87%	1.2 MB
 Font	6.36%	424.6 KB
 HTML	4.03%	269.4 KB
 XHR	1.72%	115.0 KB
 CSS	1.12%	74.6 KB
 Redirect	0.32%	21.1 KB
Total	100.00%	6.7 MB

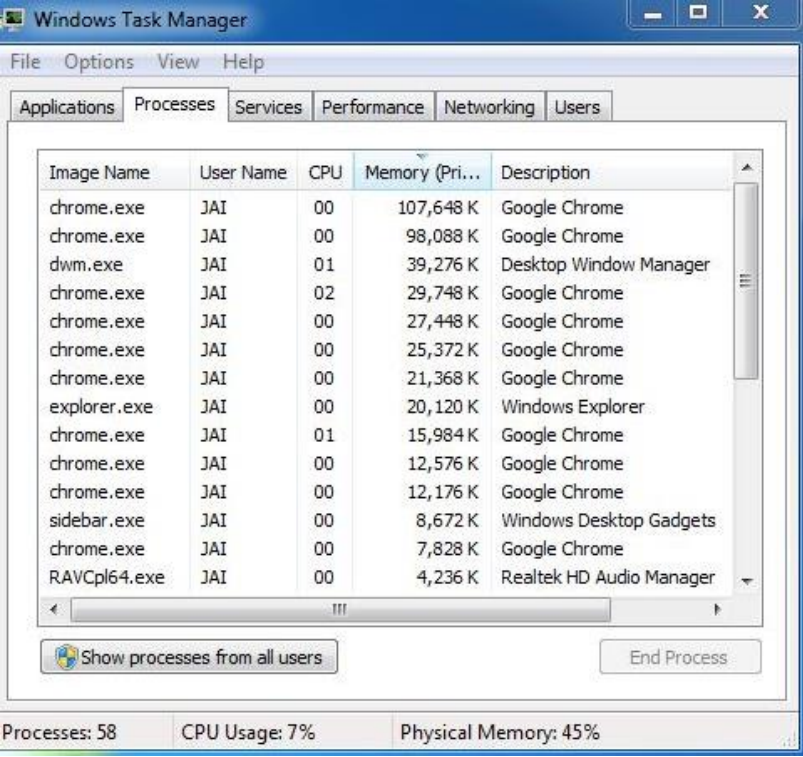
This site also seems to have longer loading time. Following diagram shows the time taken by different parts of site to load.

[Lighthouse](#) analysis of the current page on an emulated mobile network. Values are estimated and may vary.

First Contentful Paint	1.0 s ⓘ	First Meaningful Paint	1.4 s ⓘ
Speed Index	4.3 s ⚠	First CPU Idle	5.1 s ⚠
Time to Interactive	6.5 s ⚠	Estimated Input Latency	130 ms ⚠

This data is for desktop version of site which we are more focused on.

Now here are some test results for primary memory consumption when using lenskart.com

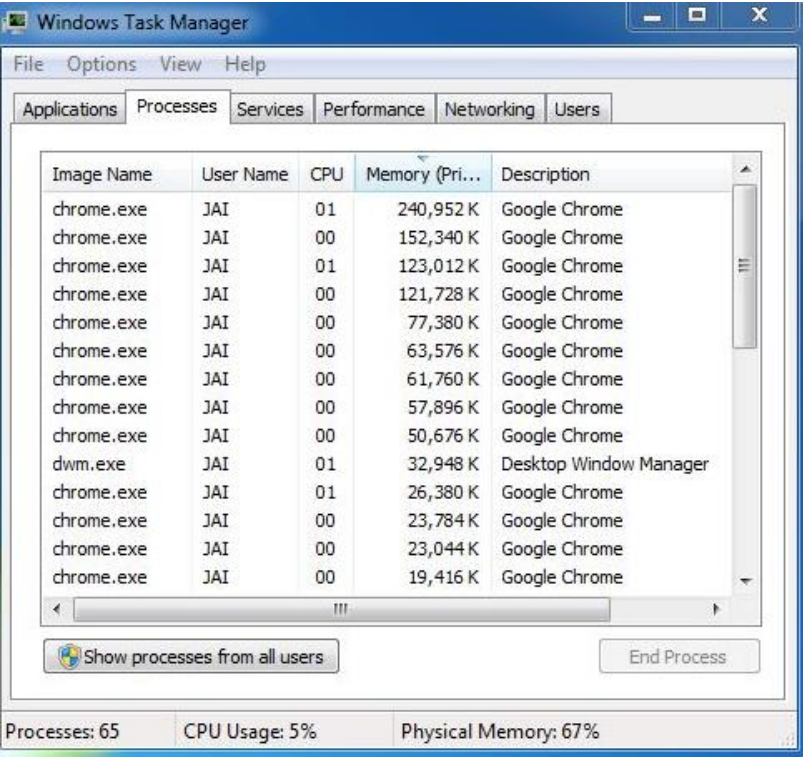


The screenshot shows the Windows Task Manager window with the 'Processes' tab selected. The table lists various processes running on the system, including multiple instances of Google Chrome, Desktop Window Manager, Windows Explorer, and Realtek HD Audio Manager. The status bar at the bottom indicates 58 processes, 7% CPU usage, and 45% physical memory usage.

Image Name	User Name	CPU	Memory (Pri...)	Description
chrome.exe	JAI	00	107,648 K	Google Chrome
chrome.exe	JAI	00	98,088 K	Google Chrome
dwm.exe	JAI	01	39,276 K	Desktop Window Manager
chrome.exe	JAI	02	29,748 K	Google Chrome
chrome.exe	JAI	00	27,448 K	Google Chrome
chrome.exe	JAI	00	25,372 K	Google Chrome
chrome.exe	JAI	00	21,368 K	Google Chrome
explorer.exe	JAI	00	20,120 K	Windows Explorer
chrome.exe	JAI	01	15,984 K	Google Chrome
chrome.exe	JAI	00	12,576 K	Google Chrome
chrome.exe	JAI	00	12,176 K	Google Chrome
sidebar.exe	JAI	00	8,672 K	Windows Desktop Gadgets
chrome.exe	JAI	00	7,828 K	Google Chrome
RAVCpl64.exe	JAI	00	4,236 K	Realtek HD Audio Manager

Processes: 58 CPU Usage: 7% Physical Memory: 45%

Before using lenskart.com in Chrome



The screenshot shows the Windows Task Manager window with the 'Processes' tab selected. The table lists various processes running on the system, including multiple instances of Google Chrome, Desktop Window Manager, and Realtek HD Audio Manager. The status bar at the bottom indicates 65 processes, 5% CPU usage, and 67% physical memory usage.








Image Name	User Name	CPU	Memory (Pri...)	Description
chrome.exe	JAI	01	240,952 K	Google Chrome
chrome.exe	JAI	00	152,340 K	Google Chrome
chrome.exe	JAI	01	123,012 K	Google Chrome
chrome.exe	JAI	00	121,728 K	Google Chrome
chrome.exe	JAI	00	77,380 K	Google Chrome
chrome.exe	JAI	00	63,576 K	Google Chrome
chrome.exe	JAI	00	61,760 K	Google Chrome
chrome.exe	JAI	00	57,896 K	Google Chrome
chrome.exe	JAI	00	50,676 K	Google Chrome
dwm.exe	JAI	01	32,948 K	Desktop Window Manager
chrome.exe	JAI	01	26,380 K	Google Chrome
chrome.exe	JAI	00	23,784 K	Google Chrome
chrome.exe	JAI	00	23,044 K	Google Chrome
chrome.exe	JAI	00	19,416 K	Google Chrome

Processes: 65 CPU Usage: 5% Physical Memory: 67%

After opening 2 tabs of lenskart.com in Chrome

Changes proposed :

Based on above observations, we propose to have different optimization techniques to improve performance of lenskart.com that we will be building under this project.

Opportunity		Estimated Savings	
1	Properly size images		1.75 s ▾
2	Use video formats for animated content		1.71 s ▾
3	Reduce server response times (TTFB)		1.32 s ▾
4	Enable text compression		0.75 s ▾
5	Serve images in next-gen formats		0.58 s ▾
6	Eliminate render-blocking resources		0.43 s ▾
7	Defer offscreen images		0.43 s ▾

These all changes are proposed on the basis of what has been observed through different tests.

Our goal is to optimize this result as much as possible.

Frameworks and Technologies

- MongoDB : For maintaining database as it is schema-less database, easily scalable, support of sharding and it is good for maintaining e-commerce product catalog. Since, it is a NOSQL database, then it is obviously secure because no sql injection can be made.
- Django Framework : Helps in developing web application faster, scalable. Support for features like user authentication, content administration, site maps and many more. It security features helps in preventing common secure mistakes like SQL injection, cross-site request forgery, clickjacking and cross-site scripting.