

Phase 4 Report

1) Server performance and Utilization report

1.1) on performing the following command , `ab -n 1000 -c 500 https://130.63.95.38/index.html`, below is the output of the test:

```

root@rd10018hostname:~/Desktop# ab -n 1000 -c 100 http://130.63.95.38/index.html
This is ApacheBench, Version 2.3 <$Revision: 1843412 $>
Copyright 1996 Adam Twiss, Zeus Technology Ltd, http://www.zeustech.net/
Licensed to The Apache Software Foundation, http://www.apache.org/

Benchmarking 130.63.95.38 (be patient)
Completed 100 requests
Completed 200 requests
Completed 300 requests
Completed 400 requests
Completed 500 requests
Completed 600 requests
Completed 700 requests
Completed 800 requests
Completed 900 requests
Completed 1000 requests
Finished 1000 requests


Server Software:      Apache/2.4.29
Server Hostname:      130.63.95.38
Server Port:          80

Document Path:        /index.html
Document Length:      1793 bytes

Concurrency Level:    100
Time taken for tests:  0.844 seconds
Complete requests:    1000
Failed requests:       0
Total transferred:    2065000 bytes
HTML transferred:     1793000 bytes
Requests per second:  1184.81 [#/sec] (mean)
Time per request:     84.402 [ms] (mean)
Time per request:     0.844 [ms] (mean, across all concurrent requests)
Transfer rate:        2389.29 [Kbytes/sec] received

Connection Times (ms)
  min   mean[+/-sd] median   max
Connect:    4    9  5.7      7    56
Processing: 12   70 21.8     68   138
Waiting:    5   69 21.5     67   138
Total:      25   79 21.9     75   150

Percentage of the requests served within a certain time (ms)
 50%    75
 66%    80
 75%    82
 80%    85
 90%   126
 95%   137
 98%   142
 99%   142
100%   150 (longest request)

```

The output in terms of 100 concurrent requests is saved in the file `ab1.csv` and is attached as a separate file along with this report.

1.2) this part is wrong as the server won't accept concurrent requests being more than the total number of requests. This can be illustrated by testing it with the server as follows:

```
root@rd110018hostname:~/Desktop# ab -n 1000 -c 5000 http://130.63.95.38/index.html
ab: Cannot use concurrency level greater than total number of requests
Usage: ab [options] [http[s]://]hostname[:port]/path
Options are:
```

As stated by the command, the number of concurrent requests, which is 5000 can not be greater than the total number of requests, which is 1000. Therefore, this command won't work.

1.3) The output of the command:

ab -n 10000 -c 500 -e ab3.csv <http://130.63.95.38/index.html> is as follows:

```
root@rd110018hostname:~/Desktop# ab -n 10000 -c 500 -e ab3.csv http://130.63.95.38/index.html
This is ApacheBench, Version 2.3 <$Revision: 1843412 $>
Copyright 1996 Adam Twiss, Zeus Technology Ltd, http://www.zeustech.net/
Licensed to The Apache Software Foundation, http://www.apache.org/

Benchmarking 130.63.95.38 (be patient)
Completed 1000 requests
Completed 2000 requests
Completed 3000 requests
Completed 4000 requests
Completed 5000 requests
Completed 6000 requests
Completed 7000 requests
Completed 8000 requests
Completed 9000 requests
Completed 10000 requests
Finished 10000 requests

Server Software:      Apache/2.4.29
Server Hostname:      130.63.95.38
Server Port:          80

Document Path:        /index.html
Document Length:       1793 bytes

Concurrency Level:     500
Time taken for tests:   7.633 seconds
Complete requests:      10000
Failed requests:         0
Total transferred:      20650000 bytes
HTML transferred:       17930000 bytes
Requests per second:    1310.06 [#/sec] (mean)
Time per request:       381.661 [ms] (mean)
Time per request:       0.763 [ms] (mean, across all concurrent requests)
Transfer rate:          2641.87 [Kbytes/sec] received

Connection Times (ms)
  min   mean[+/-sd] median   max
Connect:    5    72 155.1    49   1127
Processing:  29   142 349.4    98   7553
Waiting:    5   120 329.8    76   7553
Total:      61   213 381.4   148   7587

Percentage of the requests served within a certain time (ms)
 50%    148
 66%    156
 75%    161
 80%    166
 90%    230
 95%    548
 98%   1160
 99%   1205
100%   7587 (longest request)
root@rd110018hostname:~/Desktop#
```

The output of this file in csv format is attached as ab3.csv file.

1.4) The output of the following command `ab -n 1000 -c 1000 -e ab4.gun-plot http://130.63.95.38/index.html` is presented as follows:

```

root@rd110018hostname:~/Desktop# ab -n 1000 -c 1000 -e ab4.gun-plot http://130.63.95.38/index.html
This is ApacheBench, Version 2.3 <$Revision: 1843412 $>
Copyright 1996 Adam Twiss, Zeus Technology Ltd, http://www.zeustech.net/
Licensed to The Apache Software Foundation, http://www.apache.org/

Benchmarking 130.63.95.38 (be patient)
Completed 100 requests
Completed 200 requests
Completed 300 requests
Completed 400 requests
Completed 500 requests
Completed 600 requests
Completed 700 requests
Completed 800 requests
Completed 900 requests
Completed 1000 requests
Finished 1000 requests

Server Software:      Apache/2.4.29
Server Hostname:      130.63.95.38
Server Port:          80

Document Path:        /index.html
Document Length:      1793 bytes

Concurrency Level:    1000
Time taken for tests:  8.782 seconds
Complete requests:    1000
Failed requests:       0
Total transferred:    2065000 bytes
HTML transferred:     1793000 bytes
Requests per second:  113.87 [#/sec] (mean)
Time per request:     8782.084 [ms] (mean)
Time per request:     8.782 [ms] (mean, across all concurrent requests)
Transfer rate:        229.63 [Kbytes/sec] received

Connection Times (ms)
      min   mean[+/-sd] median   max
Connect:    5     43  22.5      56     86
Processing: 25    478 1385.3     96   8663
Waiting:    5    475 1386.1     91   8662
Total:      60    521 1390.4    140   8722

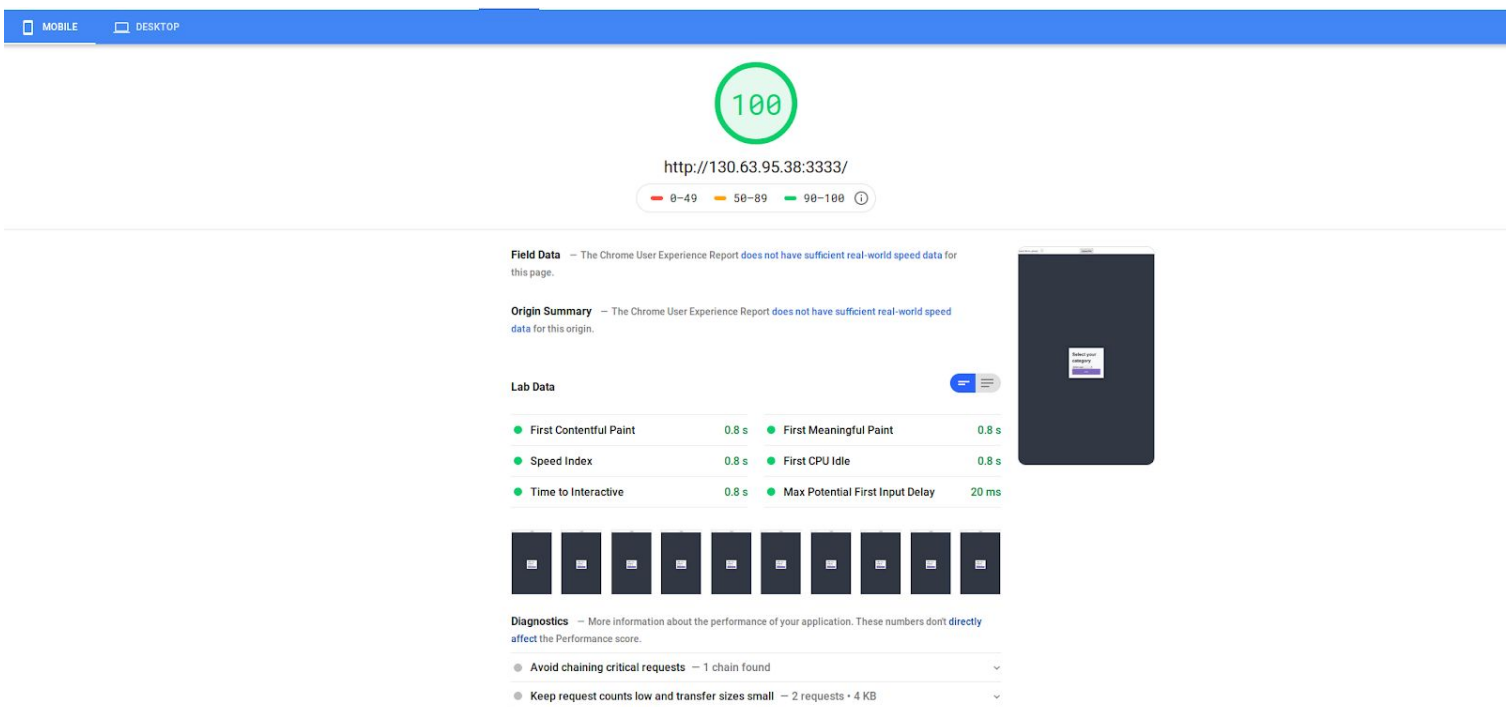
Percentage of the requests served within a certain time (ms)
 50%    140
 66%    390
 75%    534
 80%    559
 90%    634
 95%   1114
 98%   8710
 99%   8716
100%   8722 (longest request)

```

The file containing the output of concurrent requests is named `ab4.gun-plot`, which is attached as a separate file.

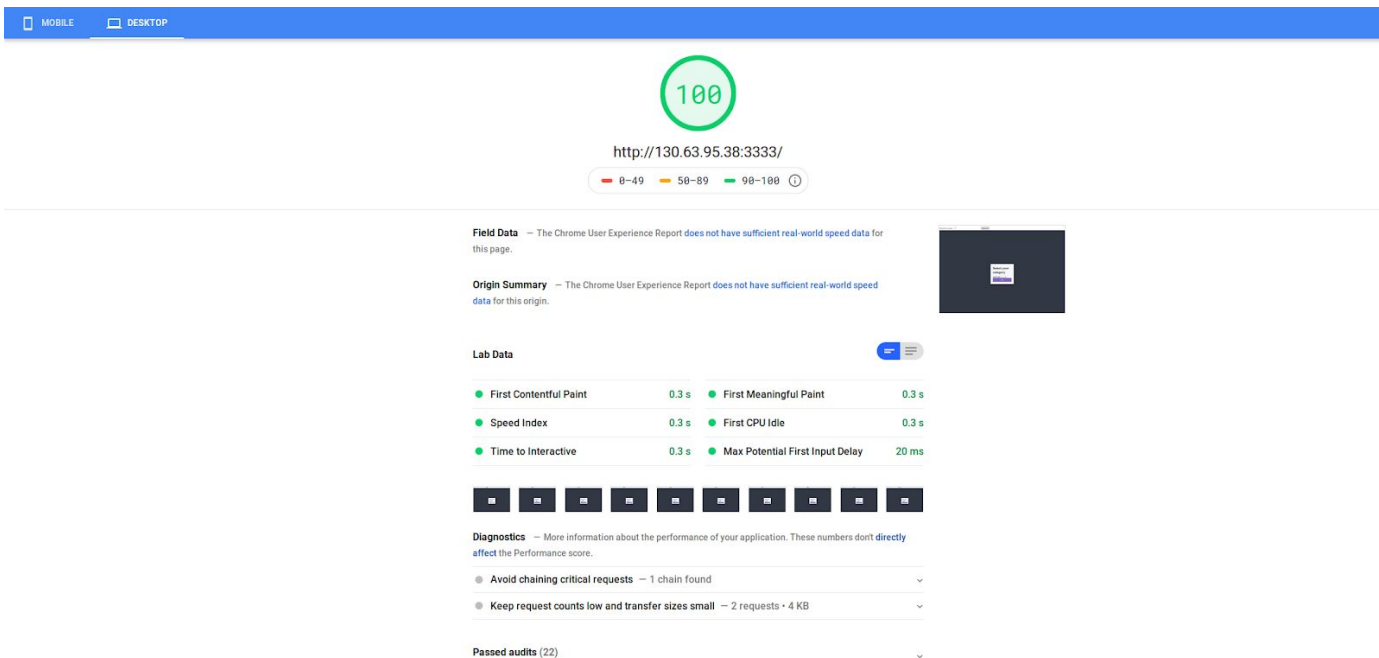
2) Running Google pagespeed insights test on:

a) My homepage of URL : <http://130.63.95.38:3333> for mobile :



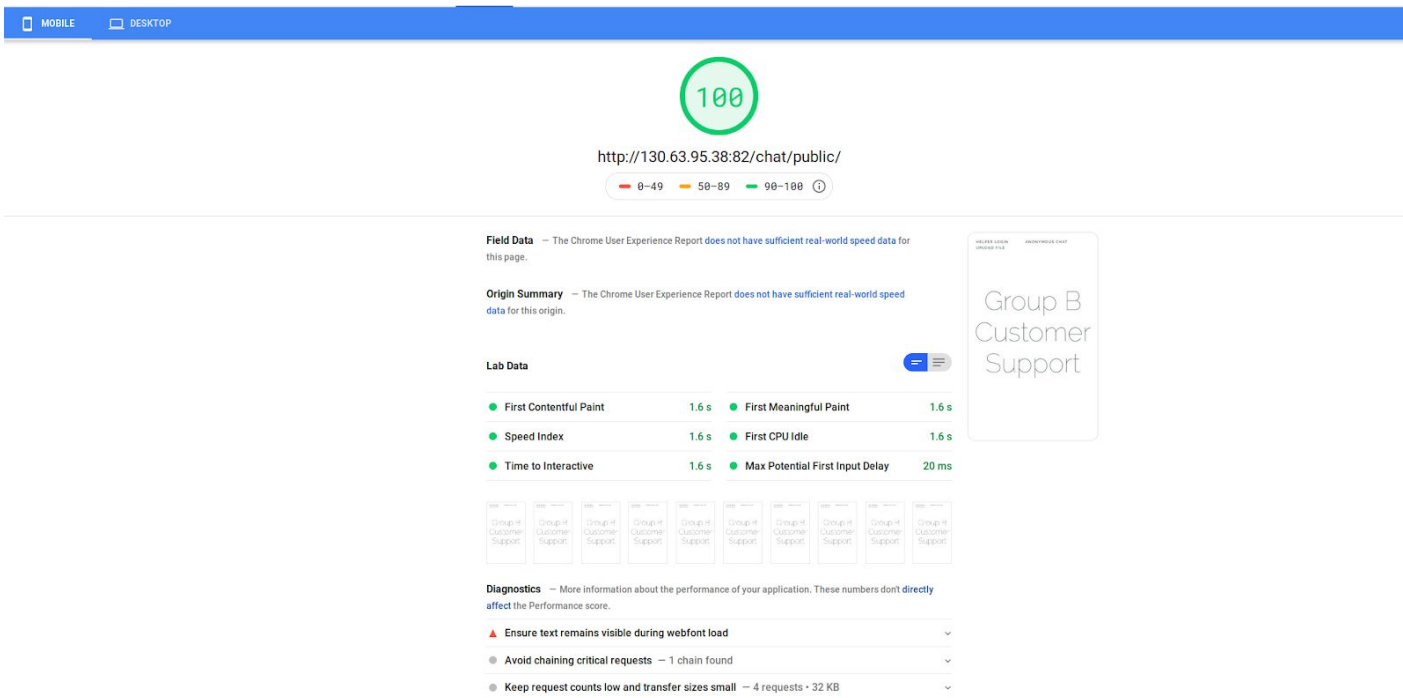
The output is attached in the form of a pdf file called [mobile_homepage.pdf](#) file.

My homepage of URL : <http://130.63.95.38:3333> for desktop:



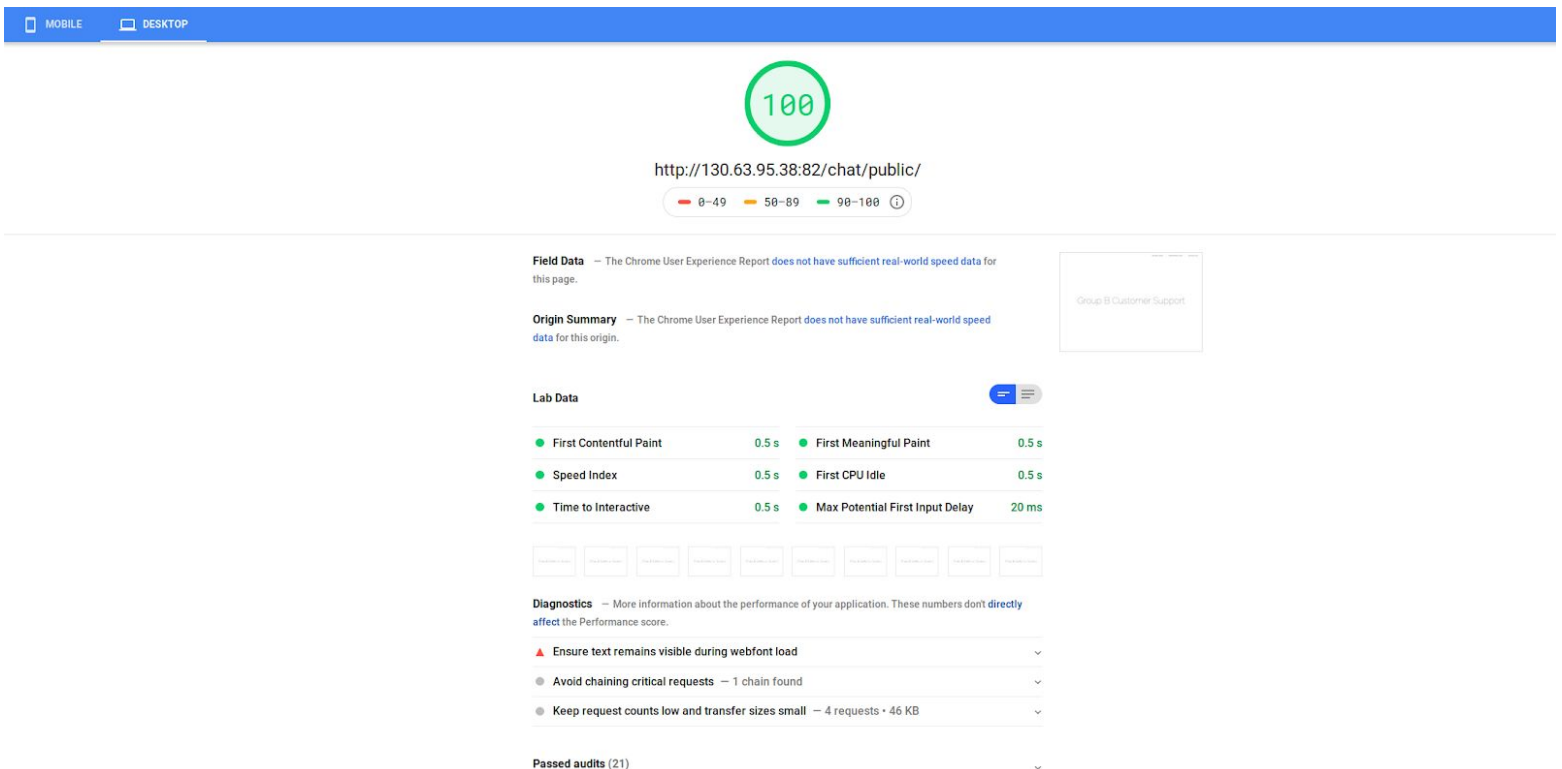
The output is attached in the form of a pdf file called [desktop_homepage.pdf](#) file.

b) Choosing Group B Project's homepage as the second page for testing.
The URL <http://130.63.95.38:82/chat/public/> for mobile :



The output is attached in the form of a pdf file called [mobile_groupB.pdf](#) file.

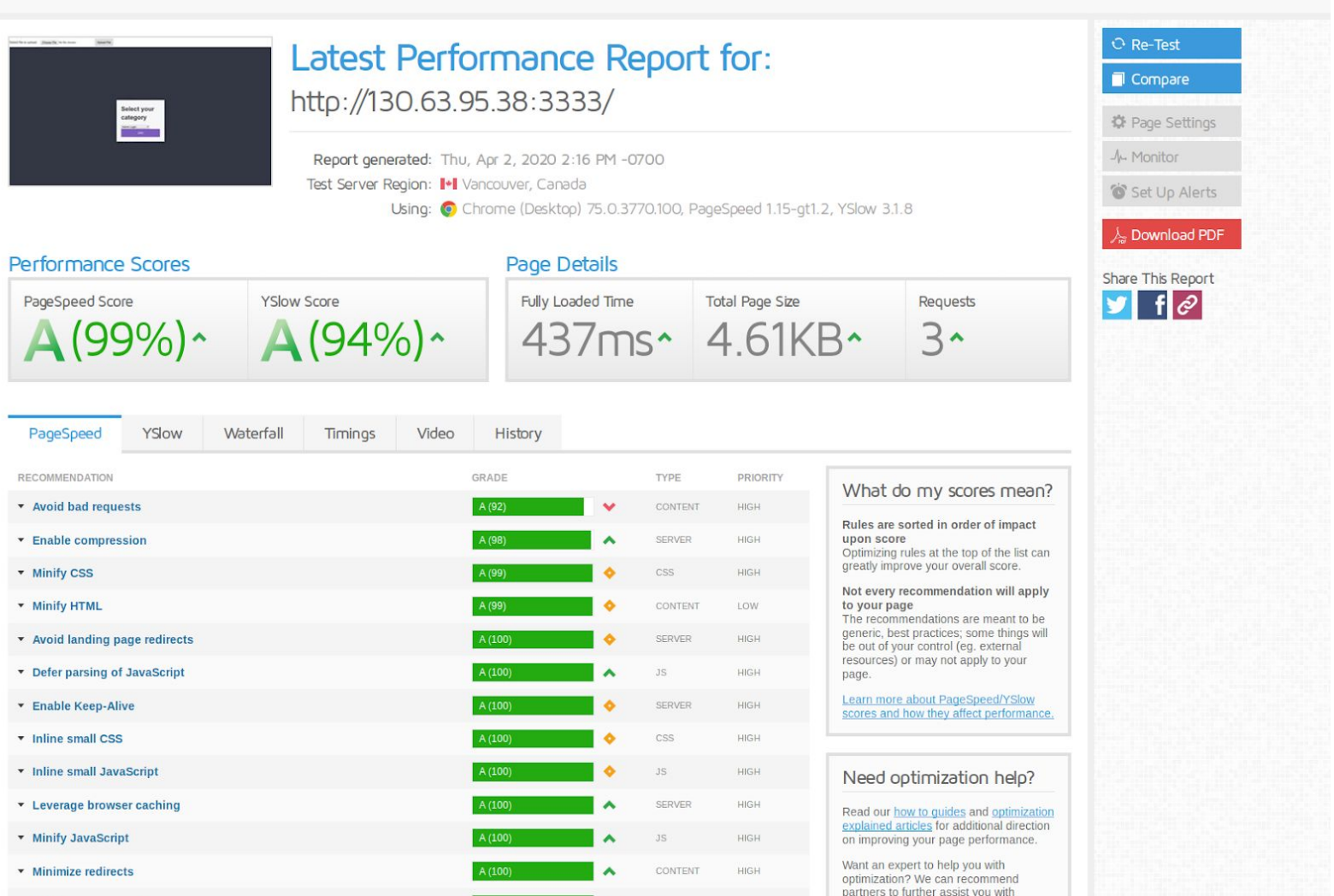
The URL <http://130.63.95.38:82/chat/public/> for desktop :



The output is attached in the form of a pdf file called [desktop_groupB.pdf](#) file.

3) Site performance Testing:

The output from the gtmetrix report for my website homepage is as follows:



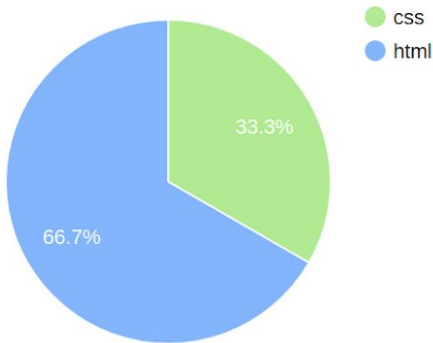
The output shows 99% success rate. The full report is attached separately with the name **GTmetrix-report0130.63.95.38-full.pdf**.

Since the score is 99 percent, there is no need of further troubleshooting.

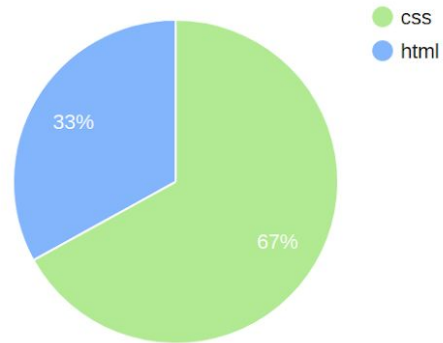
4) Using the website <https://www.webpagetest.com> on my website homepage, here are the results:

- a) Total number of requests on the page = 3. Out of which , 2 are HTML and 1 is CSS. This is illustrated below in the image.

Requests



Bytes



MIME Type	Requests ▼
html	2
css	1
flash	0
font	0
image	0
js	0
other	0
video	0

MIME Type	Bytes ▼	Uncompressed
css	2,519	2,519
html	1,243	1,243
flash	0	0
font	0	0
image	0	0
js	0	0
other	0	0
video	0	0

4.2) the duration in seconds in which the webpage was visually complete is 0.400 Seconds. This can be illustrated in the image below, the Visually complete Column of the table .

Web Page Performance Test for

130.63.95.38:3333

From: Dulles, VA - Chrome - Cable

4/2/2020, 5:25:02 PM

[Need help improving?](#)

A	A	F	N/A	N/A	X
First Byte Time	Keep-alive Enabled	Compress Transfer	Compress Images	Cache static content	Effective use of CDN

[Summary](#) [Details](#) [Performance Review](#) [Content Breakdown](#) [Domains](#) [Screenshot](#) [Image Analysis](#) [Request Map](#)

Tester: VM04-03-172.16.20.193

[Export HTTP Archive \(.har\)](#)

First View only

[Custom Metrics](#)

Test runs: 3

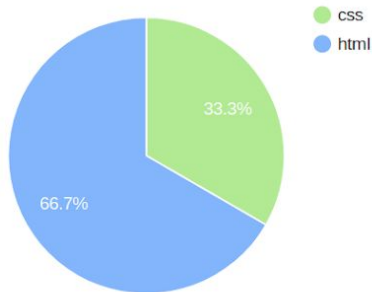
	Load Time	First Byte	Start Render	<u>First Contentful Paint</u>	Visually Complete	<u>Speed Index</u>	<u>Last Painted Hero</u>	<u>First CPU Idle</u>	Result (error code)	Document Complete			Fully Loaded		
										Time	Requests	Bytes In	Time	Requests	Bytes In
First View (Run 1)	0.232s	0.129s	0.300s	0.288s	0.400s	0.302s	0.300s	> 0.300s	99999	0.232s	2	4 KB	0.396s	3	4 KB

Images	Colordepth	<u>domInteractive</u>	<u>domContentLoaded</u>	<u>loadEvent</u>
1	24	0.167s	0.167s - 0.167s (0.000s)	0.232s - 0.232s (0.000s)

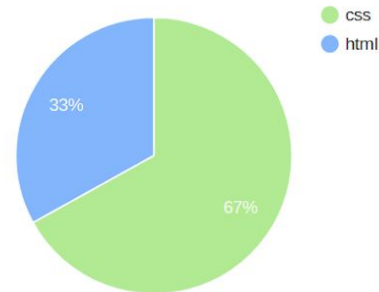
4.3) the contents breakdown details are as follows:

Content breakdown by MIME type (First View)

Requests



Bytes



MIME Type	Requests ▾
html	2
css	1
flash	0
font	0
image	0
js	0
other	0
video	0

MIME Type	Bytes ▾	Uncompressed
css	2,519	2,519
html	1,243	1,243
flash	0	0
font	0	0
image	0	0
js	0	0
other	0	0
video	0	0

The above image illustrates the content breakdown in terms of number of requests of html = 2 and css = 1. Also in terms of bytes size, the numbers are provided as for css and html. From this we can conclude the total number of requests being 3 as well as the size in bytes and uncompressed associated with each of css and html.

NOTE : there are 3 pdf files named [summary_webpagetest.pdf](#) , [details_webpagetest.pdf](#) as well as [contentBreakdown_webpage.pdf](#), which contain all of the details about the test performed on my website [Homepage](#).

5) using websiteoptimization.com, i get the following report:

Web Page Speed Report

URL:	http://130.63.95.38:3333/
Title:	Chat App
Date:	Report run on Thu Apr 2 17:43:25EDT2020

Diagnosis

Global Statistics

Total HTTP Requests:	1
Total Size:	1081 bytes

Object Size Totals

Object type	Size (bytes)	Download @ 56K (seconds)	Download @ T1 (seconds)
HTML:	1081	0.42	0.21
HTML Images:	0	0.00	0.00
CSS Images:	0	0.00	0.00
Total Images:	0	0	0
Javascript:	0	0.00	0.00
CSS:	0	0.00	0.00
Multimedia:	0	0.00	0.00
Other:	0	0.00	0.00

External Objects

External Object	QTY
Total HTML:	1
Total HTML Images:	0
Total CSS Images:	0
Total Images:	0
Total Scripts:	0
Total CSS imports:	0
Total Frames:	0
Total Iframes:	0

Download Times*

Connection Rate	Download Time
14.4K	1.04 seconds
28.8K	0.62 seconds
33.6K	0.56 seconds
56K	0.42 seconds
ISDN 128K	0.27 seconds
T1 1.44Mbps	0.21 seconds

*Note that these download times are based on the full connection rate for ISDN and T1 connections. Modem connections (56Kbps or less) are corrected by a packet loss factor of 0.7. All download times also that this download time calculation does not take into account delays due to XHTML parsing and rendering.

Page Objects

QTY	SIZE#	TYPE	URL	COMMENTS
1	1081	HTML	http://130.63.95.38:3333/	Header size = 294 bytes Up to 599 bytes could have been saved through compression. View a formatted version of this HTML file
1 ^	1081*		Total (*unique objects)	

This site is not using HTTP compression, otherwise called content encoding using gzip. Consider compressing your textual content (XHTML, JavaScript, etc.) with mod_gzip or similar products.

* CSS alternate stylesheets may be referenced in the HTML but are not actually downloaded until they are needed and are therefore not included in the total page size.

As per the analysis and recommendations , they are as follows:

Analysis and Recommendations

- **TOTAL_HTML** - Congratulations, the total number of HTML files on this page (including the main HTML file) is 1 which most browsers can multithread. Minimizing HTTP requests is key for web site optimization. Y
- **TOTAL_OBJECTS** - Congratulations, the total objects on this page (including the HTML) is 1 which most browsers can multithread in a reasonable amount of time. Minimizing HTTP requests is key to minimizing object overhead (see Figure II-3: [Relative distribution of latency components showing that object overhead dominates web page latency](#) in [Website Optimization Secrets](#) for more details on how object overhead dominates web page latency).
- **TOTAL_SIZE** - Congratulations, the total size of this page is 1081 bytes. This page should load in 0.42 seconds on a 56Kbps modem. Based on current [average web page](#) size and composition trends you want your page to load in less than 20 seconds on a 56Kbps connection, with progressive feedback. Ideally you want your page to load in 3 to 4 seconds on a broadband connection, and 8 to 12 seconds for the HTML on a dialup connection. Of course, there's always room for improvement.
- **HTML_SIZE** - Congratulations, the total size of this HTML file is 1081 bytes, which less than 50K. Assuming that you specify the HEIGHT and WIDTH of your images, this size allows your HTML to display content in under 10 seconds, the average time users are willing to wait for a page to display without feedback.
- **MULTIM_SIZE** - Congratulations, the total size of all your external multimedia files is 0 bytes, which is less than 10K.

- 1) TOTAL_HTML = 1 file on homepage (which is good)
- 2) TOTAL_OBJECTS = 1 on homepage (good for browsers)
- 3) TOTAL_SIZE = 1081 bytes (good as page can load in 0.42 seconds at speed 56kbps)
- 4) HTML_SIZE = 1081 bytes (which is much less than 50K)
- 5) MULTIM_SIZE = 0 bytes (in contrast to maximum size of 10K).

Based on the above recommendations, the website is in good condition.

NOTE : the complete report for the above test is attached separately with the name websiteoptimizationreport.pdf