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CSE-310

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Assignment 2: Part-B

Experiment 1:

```
QUESTION SECTION:www.google.com. IN A
ANSWER SECTION: www.google.com. 300 IN A 172.217.10.100
Query time:380.0seconds
WHEN: '2019-03-11 18:15:48.580682'
MSG SIZE rcvd: 39
QUESTION SECTION:www.youtube.com. IN A
ANSWER SECTION: www.youtube.com. 86400 IN CNAME youtube-ui.l.google.com.
Query time:580.0seconds
WHEN: '2019-03-11 18:30:15.734427'
MSG SIZE rcvd: 56
QUESTION SECTION:www.facebook.com. IN A
ANSWER SECTION: www.facebook.com. 3600 IN CNAME star-mini.c10r.facebook.com.
Query time:420.0seconds
WHEN: '2019-03-11 18:30:25.158093'
MSG SIZE rcvd: 60
QUESTION SECTION:www.baidu.com. IN A
ANSWER SECTION: www.baidu.com. 1200 IN CNAME www.a.shifen.com.
Query time:770.0seconds
WHEN: '2019-03-11 18:30:41.738702'
MSG SIZE rcvd: 46
QUESTION SECTION:www.wikipedia.org. IN A
ANSWER SECTION: www.wikipedia.org. 600 IN A 208.80.154.224
Query time:420.0seconds
WHEN: '2019-03-11 18:30:53.202939'
MSG SIZE rcvd: 42
QUESTION SECTION:www.qq.com. IN A
ANSWER SECTION: www.qq.com. 300 IN CNAME news.qq.com.edgekey.net.
Query time:1070.0seconds
WHEN: '2019-03-11 18:31:04.672114'
MSG SIZE rcvd: 49
QUESTION SECTION:www.yahoo.com. IN A
ANSWER SECTION: www.yahoo.com. 1800 IN CNAME atsv2-fp-shed.wg1.b.yahoo.com.
Query time:600.0seconds
WHEN: '2019-03-11 18:32:18.716959'
MSG SIZE rcvd: 59
QUESTION SECTION:www.taotao.com. IN A
ANSWER SECTION: www.taotao.com. 600 IN A 14.17.32.188
Query time:1040.0seconds
WHEN: '2019-03-11 18:33:02.031880'
MSG SIZE rcvd: 37
QUESTION SECTION:www.tmall.com. IN A
ANSWER SECTION: www.tmall.com. 601 IN CNAME www.tmall.com.danuoyi.tbcache.com.
Query time:500.0seconds
WHEN: '2019-03-11 18:33:11.765357'
MSG SIZE rcvd: 62
QUESTION SECTION:www.sohu.com. IN A
ANSWER SECTION: www.sohu.com. 1800 IN CNAME gs.a.sohu.com.
Query time:780.0seconds
WHEN: '2019-03-11 18:34:04.190860'
MSG SIZE rcvd: 42
QUESTION SECTION:www.jd.com. IN A
ANSWER SECTION: www.jd.com. 120 IN CNAME www.jd.com.gslb.qianxun.com.
Query time:550.0seconds
WHEN: '2019-03-11 18:34:17.294901'
MSG SIZE rcvd: 53
QUESTION SECTION:www.live.com. IN A
ANSWER SECTION: www.live.com. 3600 IN CNAME outlook-fd-0010.live.com.
Query time:230.0seconds
WHEN: '2019-03-11 18:34:25.894894'
MSG SIZE rcvd: 53
QUESTION SECTION:www.vk.com. IN A
QUESTION SECTION:www.instagram.com. IN A
ANSWER SECTION: www.instagram.com. 3600 IN CNAME z-p42-instagram.c10r.facebook.com.
Query time:520.0seconds
WHEN: '2019-03-11 18:34:56.428457'
MSG SIZE rcvd: 67
QUESTION SECTION:www.sina.com.cn. IN A
QUESTION SECTION:www.weibo.com. IN A
ANSWER SECTION: www.weibo.com. 60 IN CNAME weibo.com.edgekey.net.
Query time:770.0seconds
```

```
WHEN: '2019-03-11 18:35:18.940193'
MSG SIZE rcvd: 49
QUESTION SECTION:www.yandex.ru. IN A
ANSWER SECTION: www.yandex.ru. 300 IN A 5.255.255.60
www.yandex.ru. 300 IN A 77.88.55.60
www.yandex.ru. 300 IN A 5.255.255.55
www.yandex.ru. 300 IN A 77.88.55.55
Query time:580.0seconds
WHEN: '2019-03-11 18:35:45.564335'
MSG SIZE rcvd: 145
QUESTION SECTION:www.reddit.com. IN A
ANSWER SECTION: www.reddit.com. 300 IN CNAME reddit.map.fastly.net.
Query time:470.0seconds
WHEN: '2019-03-11 18:35:53.881921'
MSG SIZE rcvd: 51
QUESTION SECTION:www.360.cn. IN A
QUESTION SECTION:www.blogspot.com. IN A
ANSWER SECTION: www.blogspot.com. 3600 IN CNAME blogger.l.google.com.
Query time:580.0seconds
WHEN: '2019-03-11 18:36:20.285186'
MSG SIZE rcvd: 53
QUESTION SECTION:www.logintmall.com. IN A
ANSWER SECTION: www.logintmall.com. 10800 IN A 199.59.242.151
Query time:490.0seconds
WHEN: '2019-03-11 18:36:30.324115'
MSG SIZE rcvd: 45
QUESTION SECTION:www.netflix.com. IN A
ANSWER SECTION: www.netflix.com. 1800 IN CNAME www.geo.netflix.com.
Query time:390.0seconds
WHEN: '2019-03-11 18:36:41.274731'
MSG SIZE rcvd: 51
QUESTION SECTION:www.aliexpress.com. IN A
ANSWER SECTION: www.aliexpress.com. 300 IN CNAME allregion.aliexpress.com.
Query time:480.0seconds
WHEN: '2019-03-11 18:37:40.463723'
MSG SIZE rcvd: 58
QUESTION SECTION:www.ebay.com. IN A
ANSWER SECTION: www.ebay.com. 300 IN CNAME slot9428.ebay.com.edgekey.net.
Query time:600.0seconds
WHEN: '2019-03-11 18:41:48.885051'
MSG SIZE rcvd: 57
QUESTION SECTION:www.stackoverflow.com. IN A
ANSWER SECTION: www.stackoverflow.com. 3600 IN CNAME stackoverflow.com.
Query time:280.0seconds
WHEN: '2019-03-11 18:42:06.620424'
MSG SIZE rcvd: 55
QUESTION SECTION:www.github.com. IN A
ANSWER SECTION: www.github.com. 3600 IN CNAME github.com.
Query time:600.0seconds
WHEN: '2019-03-11 18:42:19.200294'
MSG SIZE rcvd: 41
```

Here's the list 25 different time values for avg time, 25th percentile and 75th percentile for each website obtained by DNS resolver, respectively:

Avg time values:
{380,580,420,770,420,1070,600,1040,500,780,550,230,520,770,580,470,490,390,480,600,280,600,480,270,360}

25th Percentile values:
{210,350,250,650,312,887,350,800,297,523,336,180,301,530,376,189,209,302,321,262,231,333,120,230}

75th Percentile values:

{507,732,620,820,599,1110,843,1198,754,879,763,532,652,786,621,610,712,478,581,781,389,650,598,312,485}

(see the graph at the end)

Experiment 2: Local DNS server:

```
;; QUESTION SECTION:
;www.google.com.                          IN      A

;; ANSWER SECTION:
www.google.com.           239      IN      A       172.217.2.228

;; Query time: 11 msec
;; SERVER: 165.87.13.129#53(165.87.13.129)
;; WHEN: Mon Mar 11 23:25:23 2019
;; MSG SIZE  rcvd: 48

;; QUESTION SECTION:
;www.youtube.com.                 IN      A

;; ANSWER SECTION:
www.youtube.com.          72426    IN      CNAME   youtube-ui.l.google.com.
youtube-ui.l.google.com. 282      IN      A       216.58.194.78
youtube-ui.l.google.com. 282      IN      A       216.58.194.110
youtube-ui.l.google.com. 282      IN      A       172.217.12.78
youtube-ui.l.google.com. 282      IN      A       172.217.9.142
youtube-ui.l.google.com. 282      IN      A       216.58.193.142
youtube-ui.l.google.com. 282      IN      A       216.58.194.46
youtube-ui.l.google.com. 282      IN      A       172.217.12.46
youtube-ui.l.google.com. 282      IN      A       172.217.2.238
youtube-ui.l.google.com. 282      IN      A       172.217.9.14
youtube-ui.l.google.com. 282      IN      A       172.217.14.174
youtube-ui.l.google.com. 282      IN      A       172.217.1.238

;; Query time: 9 msec
;; SERVER: 165.87.13.129#53(165.87.13.129)
;; WHEN: Mon Mar 11 23:27:19 2019
;; MSG SIZE  rcvd: 243


;; QUESTION SECTION:
;www.facebook.com.                IN      A

;; ANSWER SECTION:
www.facebook.com.         489      IN      CNAME   star-mini.c10r.facebook.com.
star-mini.c10r.facebook.com. 15 IN        A       31.13.66.35

;; Query time: 9 msec
;; SERVER: 165.87.13.129#53(165.87.13.129)
;; WHEN: Mon Mar 11 23:29:02 2019
;; MSG SIZE  rcvd: 79
```

```
;; QUESTION SECTION:
;www.baidu.com.                  IN      A

;; ANSWER SECTION:
www.baidu.com.          534     IN      CNAME   www.a.shifen.com.
www.a.shifen.com.       260     IN      CNAME   www.wshifen.com.
www.wshifen.com.        58      IN      A       104.193.88.123
www.wshifen.com.        58      IN      A       104.193.88.77

;; Query time: 8 msec
;; SERVER: 165.87.13.129#53(165.87.13.129)
;; WHEN: Mon Mar 11 23:29:53 2019
;; MSG SIZE  rcvd: 116


;; QUESTION SECTION:
;wikipedia.org.                  IN      A

;; ANSWER SECTION:
wikipedia.org.          480     IN      A       208.80.154.224

;; Query time: 8 msec
;; SERVER: 165.87.13.129#53(165.87.13.129)
;; WHEN: Mon Mar 11 23:30:43 2019
;; MSG SIZE  rcvd: 47

;; QUESTION SECTION:
;qq.com.                         IN      A

;; ANSWER SECTION:
qq.com.                 113     IN      A       111.161.64.48
qq.com.                 113     IN      A       111.161.64.40

;; Query time: 8 msec
;; SERVER: 165.87.13.129#53(165.87.13.129)
;; WHEN: Mon Mar 11 23:31:47 2019
;; MSG SIZE  rcvd: 56

;; QUESTION SECTION:
;yahoo.com.                      IN      A

;; ANSWER SECTION:
yahoo.com.              378     IN      A       98.137.246.8
yahoo.com.              378     IN      A       98.137.246.7
yahoo.com.              378     IN      A       98.138.219.231
yahoo.com.              378     IN      A       72.30.35.9
yahoo.com.              378     IN      A       72.30.35.10
yahoo.com.              378     IN      A       98.138.219.232

;; Query time: 8 msec
;; SERVER: 165.87.13.129#53(165.87.13.129)
;; WHEN: Mon Mar 11 23:32:25 2019
;; MSG SIZE  rcvd: 123
```

```
;; QUESTION SECTION:
;taobao.com.                    IN      A

;; ANSWER SECTION:
taobao.com.             160     IN      A       140.205.94.189
taobao.com.             160     IN      A       140.205.220.96

;; Query time: 9 msec
;; SERVER: 165.87.13.129#53(165.87.13.129)
;; WHEN: Mon Mar 11 23:33:12 2019
;; MSG SIZE  rcvd: 60


;; QUESTION SECTION:
;tmall.com.                     IN      A

;; ANSWER SECTION:
tmall.com.              297     IN      A       140.205.94.193
tmall.com.              297     IN      A       140.205.130.99

;; Query time: 9 msec
;; SERVER: 165.87.13.129#53(165.87.13.129)
;; WHEN: Mon Mar 11 23:33:47 2019
;; MSG SIZE  rcvd: 59


;; QUESTION SECTION:
;amazon.com.                    IN      A

;; ANSWER SECTION:
amazon.com.             36      IN      A       205.251.242.103
amazon.com.             36      IN      A       176.32.98.166
amazon.com.             36      IN      A       176.32.103.205

;; Query time: 8 msec
;; SERVER: 165.87.13.129#53(165.87.13.129)
;; WHEN: Mon Mar 11 23:34:25 2019
;; MSG SIZE  rcvd: 76


;; QUESTION SECTION:
;twitter.com.                   IN      A

;; ANSWER SECTION:
twitter.com.            453     IN      A       104.244.42.129
twitter.com.            453     IN      A       104.244.42.193

;; Query time: 8 msec
;; SERVER: 165.87.13.129#53(165.87.13.129)
;; WHEN: Mon Mar 11 23:34:57 2019
;; MSG SIZE  rcvd: 61
```

```
;; QUESTION SECTION:
;sohu.com.                      IN      A

;; ANSWER SECTION:
sohu.com.              200     IN      A       221.179.177.36
sohu.com.              200     IN      A       123.125.116.28
sohu.com.              200     IN      A       220.181.90.52

;; Query time: 8 msec
;; SERVER: 165.87.13.129#53(165.87.13.129)
;; WHEN: Mon Mar 11 23:35:34 2019
;; MSG SIZE  rcvd: 74


;; QUESTION SECTION:
;jd.com.                        IN      A

;; ANSWER SECTION:
jd.com.                118     IN      A       120.52.148.118

;; Query time: 8 msec
;; SERVER: 165.87.13.129#53(165.87.13.129)
;; WHEN: Mon Mar 11 23:36:06 2019
;; MSG SIZE  rcvd: 40


;; QUESTION SECTION:
;live.com.                      IN      A

;; ANSWER SECTION:
live.com.              2642    IN      A       204.79.197.212

;; Query time: 8 msec
;; SERVER: 165.87.13.129#53(165.87.13.129)
;; WHEN: Mon Mar 11 23:36:37 2019
;; MSG SIZE  rcvd: 42

;; QUESTION SECTION:
;vk.com.                        IN      A

;; ANSWER SECTION:
vk.com.                412     IN      A       87.240.129.71
vk.com.                412     IN      A       87.240.129.133
vk.com.                412     IN      A       87.240.182.224
vk.com.                412     IN      A       87.240.129.72
vk.com.                412     IN      A       87.240.190.67

;; Query time: 8 msec
;; SERVER: 165.87.13.129#53(165.87.13.129)
;; WHEN: Mon Mar 11 23:37:07 2019
;; MSG SIZE  rcvd: 104
```

```
;; QUESTION SECTION:
;instagram.com.                    IN      A

;; ANSWER SECTION:
instagram.com.          1        IN      A       52.86.37.203
instagram.com.          1        IN      A       52.7.19.234
instagram.com.          1        IN      A       52.72.109.197
instagram.com.          1        IN      A       52.6.67.82
instagram.com.          1        IN      A       52.86.223.31
instagram.com.          1        IN      A       52.54.232.80
instagram.com.          1        IN      A       54.210.144.50
instagram.com.          1        IN      A       52.5.5.38

;; Query time: 8 msec
;; SERVER: 165.87.13.129#53(165.87.13.129)
;; WHEN: Mon Mar 11 23:37:34 2019
;; MSG SIZE  rcvd: 159

;; QUESTION SECTION:
;sina.com.cn.                      IN      A

;; ANSWER SECTION:
sina.com.cn.            58       IN      A       202.108.33.60
sina.com.cn.            58       IN      A       202.108.33.107

;; Query time: 9 msec
;; SERVER: 165.87.13.129#53(165.87.13.129)
;; WHEN: Mon Mar 11 23:38:10 2019
;; MSG SIZE  rcvd: 61



;; QUESTION SECTION:
;weibo.com.                        IN      A

;; ANSWER SECTION:
weibo.com.              15       IN      A       114.134.80.162

;; Query time: 8 msec
;; SERVER: 165.87.13.129#53(165.87.13.129)
;; WHEN: Mon Mar 11 23:38:45 2019
;; MSG SIZE  rcvd: 43
```

```
;; QUESTION SECTION:
;yandex.ru.                    IN      A

;; ANSWER SECTION:
yandex.ru.            300      IN      A       77.88.55.55
yandex.ru.            300      IN      A       5.255.255.55
yandex.ru.            300      IN      A       77.88.55.60
yandex.ru.            300      IN      A       5.255.255.60

;; Query time: 129 msec
;; SERVER: 165.87.13.129#53(165.87.13.129)
;; WHEN: Mon Mar 11 23:39:18 2019
;; MSG SIZE  rcvd: 91


;; QUESTION SECTION:
;reddit.com.                   IN      A

;; ANSWER SECTION:
reddit.com.           295      IN      A       151.101.65.140
reddit.com.           295      IN      A       151.101.1.140
reddit.com.           295      IN      A       151.101.193.140
reddit.com.           295      IN      A       151.101.129.140

;; Query time: 8 msec
;; SERVER: 165.87.13.129#53(165.87.13.129)
;; WHEN: Mon Mar 11 23:39:47 2019
;; MSG SIZE  rcvd: 92


;; QUESTION SECTION:
;360.cn.                            IN      A

;; ANSWER SECTION:
360.cn.               300      IN      A       101.198.193.22

;; Query time: 64 msec
;; SERVER: 165.87.13.129#53(165.87.13.129)
;; WHEN: Mon Mar 11 23:40:15 2019
;; MSG SIZE  rcvd: 40


;; QUESTION SECTION:
;blogspot.com.                 IN      A

;; ANSWER SECTION:
blogspot.com.         297      IN      A       172.217.9.137

;; Query time: 9 msec
;; SERVER: 165.87.13.129#53(165.87.13.129)
;; WHEN: Mon Mar 11 23:41:08 2019
;; MSG SIZE  rcvd: 46
```

```
;; QUESTION SECTION:
;login.tmall.com.                      IN      A

;; ANSWER SECTION:
login.tmall.com.              599       IN       CNAME     login.tmall.com.danuoyi.tbcache.com.
login.tmall.com.danuoyi.tbcache.com. 59 IN A     47.246.17.235
login.tmall.com.danuoyi.tbcache.com. 59 IN A     66.198.24.253

;; Query time: 9 msec
;; SERVER: 165.87.13.129#53(165.87.13.129)
;; WHEN: Mon Mar 11 23:41:36 2019
;; MSG SIZE  rcvd: 111


;; QUESTION SECTION:
;netflix.com.                      IN      A

;; ANSWER SECTION:
netflix.com.               5        IN       A        52.20.168.249
netflix.com.               5        IN       A        54.173.169.115
netflix.com.               5        IN       A        54.80.77.89
netflix.com.               5        IN       A        52.22.163.117
netflix.com.               5        IN       A        52.201.200.150
netflix.com.               5        IN       A        34.234.59.120
netflix.com.               5        IN       A        34.232.235.235
netflix.com.               5        IN       A        54.208.168.102

;; Query time: 9 msec
;; SERVER: 165.87.13.129#53(165.87.13.129)
;; WHEN: Mon Mar 11 23:42:11 2019
;; MSG SIZE  rcvd: 157


;; QUESTION SECTION:
;linkedin.com.                      IN      A

;; ANSWER SECTION:
linkedin.com.              1141      IN       A        108.174.10.10

;; Query time: 9 msec
;; SERVER: 165.87.13.129#53(165.87.13.129)
;; WHEN: Mon Mar 11 23:42:41 2019
;; MSG SIZE  rcvd: 46
```

Experiment 3: Google Public DNS

Here's the screenshot of the average time obtained by 10 runs on each website provided in the link:

```
; QUESTION SECTION:
www.google.com.                          IN      A

; ANSWER SECTION:
www.google.com.          299     IN     A        172.217.7.4

; Query time: 82 msec
; SERVER: 127.0.1.1#53(127.0.1.1)
; WHEN: Mon Mar 11 15:46:39 EDT 2019
; MSG SIZE  rcvd: 59
```

```
;; QUESTION SECTION:
;www.youtube.com.                IN      A

;; ANSWER SECTION:
www.youtube.com.          21599   IN      CNAME    youtube-ui.l.google.com.
youtube-ui.l.google.com. 299     IN      A        172.217.12.174
youtube-ui.l.google.com. 299     IN      A        172.217.12.206
youtube-ui.l.google.com. 299     IN      A        172.217.9.238
youtube-ui.l.google.com. 299     IN      A        172.217.10.14
youtube-ui.l.google.com. 299     IN      A        172.217.10.46
youtube-ui.l.google.com. 299     IN      A        172.217.10.142
youtube-ui.l.google.com. 299     IN      A        172.217.3.110
youtube-ui.l.google.com. 299     IN      A        172.217.12.142
youtube-ui.l.google.com. 299     IN      A        172.217.6.206
youtube-ui.l.google.com. 299     IN      A        172.217.7.14
youtube-ui.l.google.com. 299     IN      A        172.217.11.14
youtube-ui.l.google.com. 299     IN      A        172.217.11.46

;; Query time: 79 msec
;; SERVER: 127.0.1.1#53(127.0.1.1)
;; WHEN: Mon Mar 11 15:53:14 EDT 2019
;; MSG SIZE  rcvd: 270
```

```
; QUESTION SECTION:
www.facebook.com.                IN      A

; ANSWER SECTION:
www.facebook.com.         3255    IN      CNAME    star-mini.c10r.facebook.com.
star-mini.c10r.facebook.com. 59 IN       A        31.13.71.36

; Query time: 87 msec
; SERVER: 127.0.1.1#53(127.0.1.1)
; WHEN: Mon Mar 11 15:54:03 EDT 2019
; MSG SIZE  rcvd: 90
```

```
;; QUESTION SECTION:
;www.baidu.com.                          IN       A

;; ANSWER SECTION:
www.baidu.com.              232      IN       CNAME    www.a.shifen.com.
www.a.shifen.com.           284      IN       CNAME    www.wshifen.com.
www.wshifen.com.            284      IN       A        103.235.46.39

;; Query time: 3 msec
;; SERVER: 127.0.1.1#53(127.0.1.1)
;; WHEN: Mon Mar 11 15:54:38 EDT 2019
;; MSG SIZE   rcvd: 111

;; QUESTION SECTION:
;www.yahoo.com.                          IN       A

;; ANSWER SECTION:
www.yahoo.com.              207      IN       CNAME    atsv2-fp-shed.wg1.b.yahoo.com.
atsv2-fp-shed.wg1.b.yahoo.com. 14 IN    A        87.248.98.7
atsv2-fp-shed.wg1.b.yahoo.com. 14 IN    A        87.248.98.8

;; Query time: 3 msec
;; SERVER: 127.0.1.1#53(127.0.1.1)
;; WHEN: Mon Mar 11 15:56:09 EDT 2019
;; MSG SIZE   rcvd: 108

;www.qq.com.                             IN       A

;; ANSWER SECTION:
www.qq.com.                 299      IN       CNAME    news.qq.com.edgekey.net.
news.qq.com.edgekey.net.    21405    IN       CNAME    e6156.dscf.akamaiedge.net.
e6156.dscf.akamaiedge.net.  19       IN       A        23.33.103.110

;; Query time: 398 msec
;; SERVER: 127.0.1.1#53(127.0.1.1)
;; WHEN: Mon Mar 11 15:56:45 EDT 2019
;; MSG SIZE   rcvd: 128

;; QUESTION SECTION:
;www.taobao.com.                             IN       A

;; ANSWER SECTION:
www.taobao.com.             599      IN       CNAME    www.taobao.com.danuoyi.tbcache.c
om.
www.taobao.com.danuoyi.tbcache.com. 59 IN A      47.89.69.253
www.taobao.com.danuoyi.tbcache.com. 59 IN A      47.89.69.254

;; Query time: 636 msec
;; SERVER: 127.0.1.1#53(127.0.1.1)
;; WHEN: Mon Mar 11 15:57:37 EDT 2019
;; MSG SIZE   rcvd: 120
```

```
;; QUESTION SECTION:
;www.amazon.com.                              IN      A

;; ANSWER SECTION:
www.amazon.com.            86      IN      CNAME   www.cdn.amazon.com.
www.cdn.amazon.com.        7       IN      CNAME   d3ag4hukkh62yn.cloudfront.net.
d3ag4hukkh62yn.cloudfront.net. 22 IN     A       54.192.200.226

;; Query time: 3 msec
;; SERVER: 127.0.1.1#53(127.0.1.1)
;; WHEN: Mon Mar 11 15:58:16 EDT 2019
;; MSG SIZE  rcvd: 124
```

```
;; QUESTION SECTION:
;www.twitter.com.                     IN      A

;; ANSWER SECTION:
www.twitter.com.        195     IN      CNAME   twitter.com.
twitter.com.            983     IN      A       104.244.42.129
twitter.com.            983     IN      A       104.244.42.65

;; Query time: 3 msec
;; SERVER: 127.0.1.1#53(127.0.1.1)
;; WHEN: Mon Mar 11 15:58:42 EDT 2019
;; MSG SIZE  rcvd: 90
```

```
; QUESTION SECTION:
;www.sohu.com.                        IN      A

; ANSWER SECTION:
www.sohu.com.           1799    IN      CNAME   gs.a.sohu.com.
gs.a.sohu.com.          599     IN      CNAME   fusa.a.sohu.com.
fusa.a.sohu.com.        119     IN      A       104.254.66.16

; Query time: 607 msec
; SERVER: 127.0.1.1#53(127.0.1.1)
; WHEN: Mon Mar 11 15:59:38 EDT 2019
; MSG SIZE  rcvd: 95
```

```
;; QUESTION SECTION:
;www.jd.com.                          IN      A

;; ANSWER SECTION:
www.jd.com.             119     IN      CNAME   www.jd.com.gslb.qianxun.com.
www.jd.com.gslb.qianxun.com. 59 IN      CNAME   jd-abroad.cdn20.com.
jd-abroad.cdn20.com.    59      IN      A       157.185.144.122

;; Query time: 417 msec
;; SERVER: 127.0.1.1#53(127.0.1.1)
;; WHEN: Mon Mar 11 16:00:47 EDT 2019
;; MSG SIZE  rcvd: 123
```

```
;; QUESTION SECTION:
;www.live.com.                        IN      A

;; ANSWER SECTION:
www.live.com.              3575    IN      CNAME    outlook-fd-0010.live.com.
outlook-fd-0010.live.com. 3575    IN      CNAME    a-0010.a-msedge.net.
a-0010.a-msedge.net.       215     IN      A        204.79.197.212

;; Query time: 81 msec
;; SERVER: 127.0.1.1#53(127.0.1.1)
;; WHEN: Mon Mar 11 16:01:09 EDT 2019
;; MSG SIZE   rcvd: 120
```

```
;; QUESTION SECTION:
;www.instagram.com.                   IN      A

;; ANSWER SECTION:
www.instagram.com.         3599    IN      CNAME    z-p42-instagram.c10r.facebook.co
m.
z-p42-instagram.c10r.facebook.com. 59 IN A          31.13.71.174

;; Query time: 97 msec
;; SERVER: 127.0.1.1#53(127.0.1.1)
;; WHEN: Mon Mar 11 16:01:58 EDT 2019
;; MSG SIZE   rcvd: 106
```

```
;; QUESTION SECTION:
;www.vk.com.                          IN      A

;; ANSWER SECTION:
www.vk.com.                315     IN      A        87.240.129.133
www.vk.com.                315     IN      A        87.240.182.224
www.vk.com.                315     IN      A        87.240.190.67
www.vk.com.                315     IN      A        87.240.129.71
www.vk.com.                315     IN      A        87.240.129.72

;; Query time: 4 msec
;; SERVER: 127.0.1.1#53(127.0.1.1)
;; WHEN: Mon Mar 11 16:01:41 EDT 2019
;; MSG SIZE   rcvd: 119
```

```
; QUESTION SECTION:
;www.sina.com.                        IN      A

; ANSWER SECTION:
www.sina.com.              59      IN      CNAME    us.sina.com.cn.
us.sina.com.cn.            59      IN      CNAME    wwwus.sina.com.
wwwus.sina.com.            59      IN      A        66.102.251.33

; Query time: 387 msec
; SERVER: 127.0.1.1#53(127.0.1.1)
; WHEN: Mon Mar 11 16:03:24 EDT 2019
; MSG SIZE   rcvd: 105
```

```
;; QUESTION SECTION:
;www.weibo.com.                       IN      A

;; ANSWER SECTION:
www.weibo.com.            59      IN      CNAME   weibo.com.edgekey.net.
weibo.com.edgekey.net.    18423   IN      CNAME   e4141.dscb.akamaiedge.net.
e4141.dscb.akamaiedge.net. 19     IN      A       23.194.140.226

;; Query time: 395 msec
;; SERVER: 127.0.1.1#53(127.0.1.1)
;; WHEN: Mon Mar 11 16:03:59 EDT 2019
;; MSG SIZE   rcvd: 129
```

```
;; QUESTION SECTION:
;www.login.tmall.com.            IN      A

;; AUTHORITY SECTION:
tmall.com.                1199    IN      SOA     ns4.taobao.com. hostmaster.aliba
badns.com. 2018011109 3600 1200 3600 360

;; Query time: 378 msec
;; SERVER: 127.0.1.1#53(127.0.1.1)
;; WHEN: Mon Mar 11 16:11:00 EDT 2019
;; MSG SIZE   rcvd: 117
```

```
; QUESTION SECTION:
www.tmall.com.                   IN      A

; ANSWER SECTION:
www.tmall.com.            600     IN      CNAME   www.tmall.com.danuoyi.tbcache.c
n.
www.tmall.com.danuoyi.tbcache.com. 59 IN A       66.198.178.50
www.tmall.com.danuoyi.tbcache.com. 59 IN A       47.246.22.236
www.tmall.com.danuoyi.tbcache.com. 59 IN A       47.246.22.235
www.tmall.com.danuoyi.tbcache.com. 59 IN A       66.198.178.124

; Query time: 503 msec
; SERVER: 127.0.1.1#53(127.0.1.1)
; WHEN: Mon Mar 11 16:20:59 EDT 2019
; MSG SIZE   rcvd: 150
```

```
;; QUESTION SECTION:
;www.blogspot.com.                    IN      A

;; ANSWER SECTION:
www.blogspot.com.          3599      IN      CNAME     blogger.l.google.com.
blogger.l.google.com.      299       IN      A         172.217.12.137

;; Query time: 90 msec
;; SERVER: 127.0.1.1#53(127.0.1.1)
;; WHEN: Mon Mar 11 16:10:20 EDT 2019
;; MSG SIZE   rcvd: 92
```

```
;; QUESTION SECTION:
;www.36.cn.                           IN      A

;; ANSWER SECTION:
www.36.cn.                 599       IN      A         120.76.208.136

;; Query time: 694 msec
;; SERVER: 127.0.1.1#53(127.0.1.1)
;; WHEN: Mon Mar 11 16:12:00 EDT 2019
;; MSG SIZE   rcvd: 54
```

```
;; QUESTION SECTION:
;www.linkedin.com.                    IN      A

;; ANSWER SECTION:
www.linkedin.com.          195       IN      CNAME     2-01-2c3e-003c.cdx.cedexis.net.
2-01-2c3e-003c.cdx.cedexis.net. 195 IN   CNAME     any-na.www.linkedin.com.
any-na.www.linkedin.com. 13039   IN      A         108.174.10.10

;; Query time: 3 msec
;; SERVER: 127.0.1.1#53(127.0.1.1)
;; WHEN: Mon Mar 11 16:17:54 EDT 2019
;; MSG SIZE   rcvd: 126
```

```
;; QUESTION SECTION:
;www.reddit.com.                         IN      A

;; ANSWER SECTION:
www.reddit.com.          137     IN      CNAME   reddit.map.fastly.net.
reddit.map.fastly.net.   29      IN      A       151.101.1.140
reddit.map.fastly.net.   29      IN      A       151.101.65.140
reddit.map.fastly.net.   29      IN      A       151.101.129.140
reddit.map.fastly.net.   29      IN      A       151.101.193.140

;; Query time: 84 msec
;; SERVER: 127.0.1.1#53(127.0.1.1)
;; WHEN: Mon Mar 11 16:11:30 EDT 2019
;; MSG SIZE  rcvd: 142
```

```
;; QUESTION SECTION:
;www.wikipedia.org.                      IN      A

;; ANSWER SECTION:
www.wikipedia.org.       50      IN      A       91.198.174.192

;; Query time: 5 msec
;; SERVER: 127.0.1.1#53(127.0.1.1)
;; WHEN: Mon Mar 11 16:22:44 EDT 2019
;; MSG SIZE  rcvd: 62
```

```
;; QUESTION SECTION:
;www.netflix.com.                        IN      A

;; ANSWER SECTION:
www.netflix.com.         933     IN      CNAME   www.geo.netflix.com.
www.geo.netflix.com.     282     IN      CNAME   www.us-west-2.prodaa.netflix.com
.
www.us-west-2.prodaa.netflix.com. 19 IN A        52.11.24.193
www.us-west-2.prodaa.netflix.com. 19 IN A        34.209.185.102
www.us-west-2.prodaa.netflix.com. 19 IN A        35.160.180.148
www.us-west-2.prodaa.netflix.com. 19 IN A        35.166.68.183
www.us-west-2.prodaa.netflix.com. 19 IN A        54.71.111.34
www.us-west-2.prodaa.netflix.com. 19 IN A        52.42.228.237
www.us-west-2.prodaa.netflix.com. 19 IN A        34.208.21.204
www.us-west-2.prodaa.netflix.com. 19 IN A        54.71.93.100

;; Query time: 5 msec
;; SERVER: 127.0.1.1#53(127.0.1.1)
;; WHEN: Mon Mar 11 16:09:24 EDT 2019
;; MSG SIZE  rcvd: 229
```
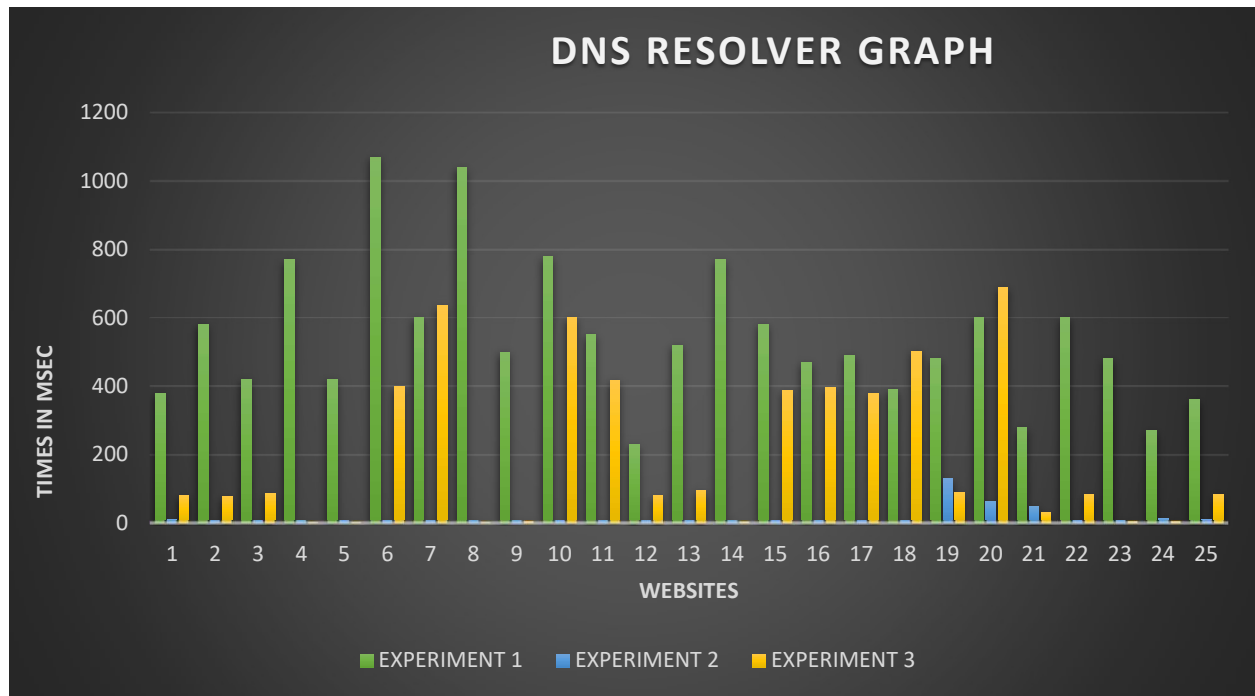
```
;; QUESTION SECTION:
;www.twitch.tv.                          IN      A

;; ANSWER SECTION:
www.twitch.tv.           12      IN      CNAME   twitch.map.fastly.net.
twitch.map.fastly.net.   29      IN      A       151.101.122.167

;; Query time: 84 msec
;; SERVER: 127.0.1.1#53(127.0.1.1)
;; WHEN: Mon Mar 11 16:24:24 EDT 2019
;; MSG SIZE  rcvd: 93
```

The required graph is below:

DNS RESOLVER GRAPH

This shows that the DNS resolver created by us takes a lot time as compared to the Google's public DNS server and Local DNS server (dig web tool interface). The preexisting DNS resolvers takes way lesser time to dig a web address and provide the A record as compared to our own designed.