PART C :

I have taken 5 websites from https://www.similarweb.com/top-websites/ and resolved these websites using my DNS resolver,local dns resolver and google dns resolver.Below are the websites used for this experiment:

- twitter.com
- amazon.com
- netflix.com
- microsoft.com
- instagram.com

These websites have been resolved 10 times using each of mydig.py, local dns resolver and google DNS resolver and results were obtained.

When the resolution is done for the above websites in order using a local dns resolver(130.245.255.4),I have obtained below average time to resolve the dns.

avg time to resolve dns using local DNS resolver (msec) =
[16.2 , 14.3, 28.4, 17.9, 22.3]

When the resolution is done for the above websites in order using google dns resolver,I have obtained below average time to resolve the dns.

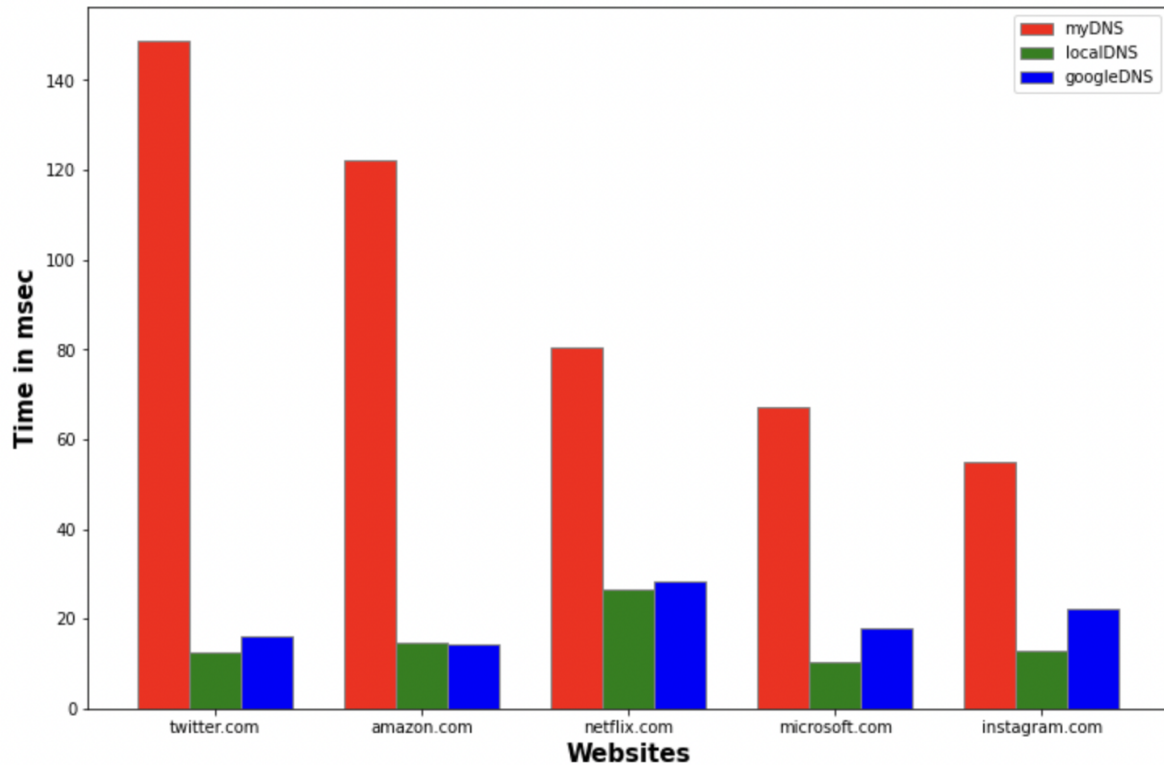**avg time to resolve dns using google DNS resolver (msec)=**
[12.5 ,14.6 , 26.6 , 10.5 , 12.9]

When the resolution is done for the above websites in order using mydig dns resolver,I have obtained below average time to resolve the dns.

avg time to resolve dns using mydig (msec) =
[148.877392578125 , 122.236572265625 , 80.3202880859375 , 66.9890625 , 55.0779541015625]

Below graph is obtained when avg time is plotted for the websites for each of the resolution method:

Seeing the plot,following observations have been made:

1. The local dns resolver took the least amount of time to resolve the domains as compared to mydig resolver and google DNS resolver. mydig resolver took a range of (55 - 150) msec to resolve the above websites whereas local dns resolver and google dns resolver took a range of (14-30) msec and (10-30) msec respectively.

2. Local dns resolver present in stonybrook.edu took less time amongst the three because it stores the cache copy of resolved domains and is located closer to us.Google dns resolver also maintains cache but it is farther from us that's why it is taking more time as compared to local dns resolver.mydig resolver is slowest among the three as it doesn't maintain cache.