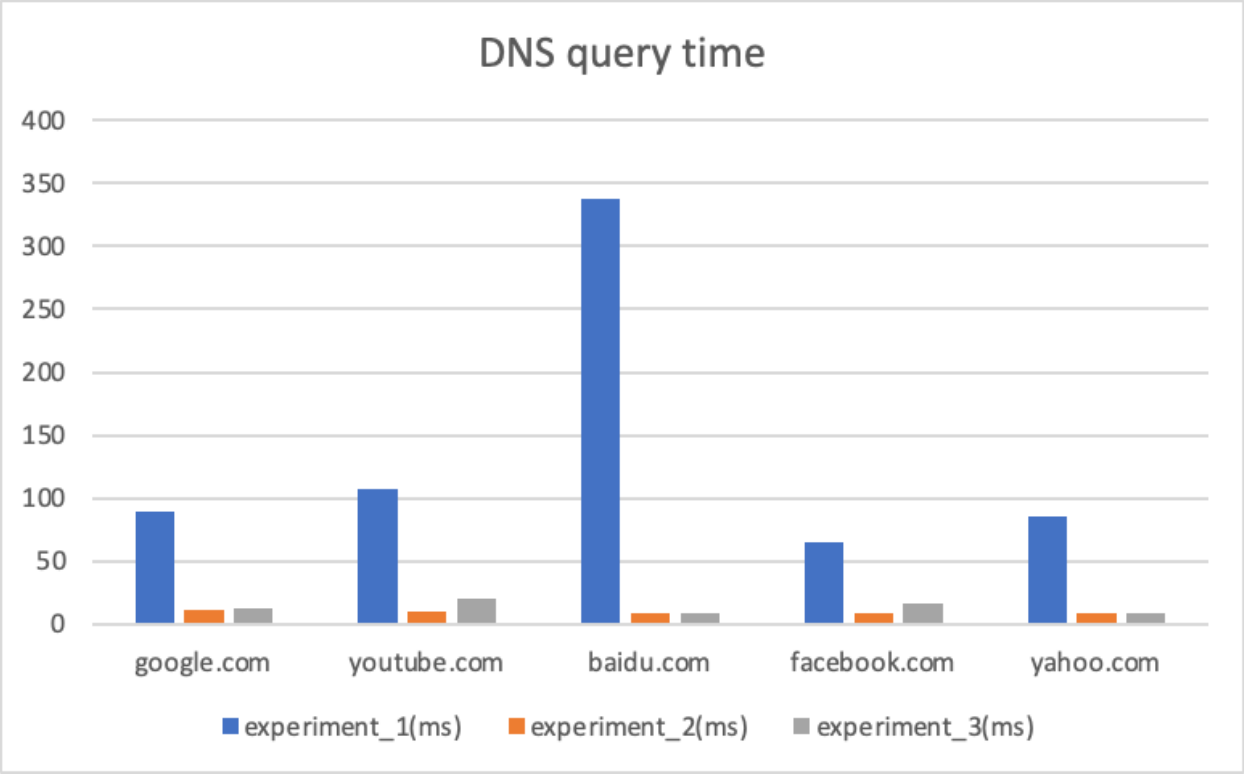
Experimental results

Presented below are the average DNS query response times after running each of the 3 experiments in part c of the assignment.

Domain	experiment_1(ms)	experiment_2(ms)	experiment_3(ms)
google.com	89.4	11.9	13.2
youtube.com	107.4	10	19.8
baidu.com	338.1	9.25	8.8
facebook.com	64.8	9	17
yahoo.com	85	8.89	9



Analysis

Comparing experiment 1 with the others

Experiment 1 was done by resolving DNS requests using the mydig implementation from part A of the assignment. Overall, we can see that the response times are significantly larger than what we get when resolving DNS requests using either the local or the public Google DNS service.

- In the mydig implementation, we are not doing any caching. This means that the resolver has to iteratively contact each nameserver one after the other, leading to more RTTs(Round Trip Time) compared to the local DNS resolver. This is especially evident for the resolution of ‘baidu.com’ which is a website not based in the North America region, where we see a DNS resolution time that is greater than 300 ms.
- The code for the mydig tool was written with simplicity and readability in mind. There might be other optimisations that will make the DNS query time faster.

Comparing experiment 2 and experiment 3

Experiment 2 was done by using the local DNS resolver of the Stony Brook campus network(130.245.255.4). Experiment 3 was done using Google’s public DNS resolver(8.8.8.8).

We can see that overall, the DNS resolution times were quite similar in both experiments. On average, the local DNS resolver performed marginally better than Google’s public DNS. This can be explained by the fact that Google’s public DNS servers would be further away than the local DNS servers, leading to a slight increase in RTT.