Computer Networks - CS3530
Assignment 1

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Question 4:
H) End-end time taken at H1 to finish GET requests

Key	Req1 (first time)	Req2 (second time)	Req3 (third time)	Average Time
Key1	0.003063	0.00288	0.00304	**0.002994333333**
Key2	0.002619	0.00248	0.001576	**0.002225**
Key3	0.000998	0.001529	0.008585	**0.003704**
Key4	0.000826	0.001015	0.007274	**0.003038333333**
Key5	0.004657	0.003988263	0.001693	**0.003446087667**
Key6	0.005646291	0.004387978	0.00290916	**0.004314476333**

The average time taken for all the keys would be almost similar and also the time taken for the consecutive requests would also be nearly similar.

Question 5:
E) End-End time taken at H1 to finish GET Requests through Cache

Key	Req1 (first time)	Req2 (second time)	Req3 (third time)
Key1	0.015802736	0.002333924	0.002495194
Key2	0.011125359	0.003138534	0.00361369
Key3	0.008609855	0.002385982	0.003214211
Key4	0.014551649	0.002238259	0.002214367
Key5	0.00792329	0.002419024	0.002846207
Key6	0.010897166	0.002144878	0.001865395
Average Time	**0.01148500917**	**0.0024434335**	**0.002708177333**

In the above table Req1 time corresponds to the time taken when the key value pair is not present in the cache. And for Req2 and Req3 the keys are present in the cache.

Question 6:

1) The above table gives the time taken from when the request is made till the response is received(and acknowledged). Based on the above table we can observe that the time taken for Req1 is significantly higher than the time taken for the consequent requests. Whereas the time taken for Req2 and Req3 are almost similar. Along a column we can observe that all the keys take almost similar time (initially all 6 keys are present in the server).
2) The reason for above observations is

   Upon first request the time taken is higher(for any key) because at that time the client makes a GET request to the cache and the cache doesn't have the values corresponding to the keys. Hence it makes a request to the server to get the value.After it gets the value from server, it caches the key value pair in its storage and sends response to the client. And this takes more time as there are two connections and two requests involved.

   From the second request onwards as the key value pairs are already present in the cache, the cache directly responds to the client's request without forwarding it to the server.Because of this the time taken is significantly when compared to the time taken for Request 1.

   The time taken for second and third requests are almost identical because both of the times the key value pairs are present in the Cache.(The slight difference observed above could be because of the state of the system, process running on it etc).

   The time taken across the columns (i.e for different keys) are almost similar because they are identical to each other with respect to the client,cache,server.

PLAGIARISM STATEMENT

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