Assignment 01 [Fall 2021]

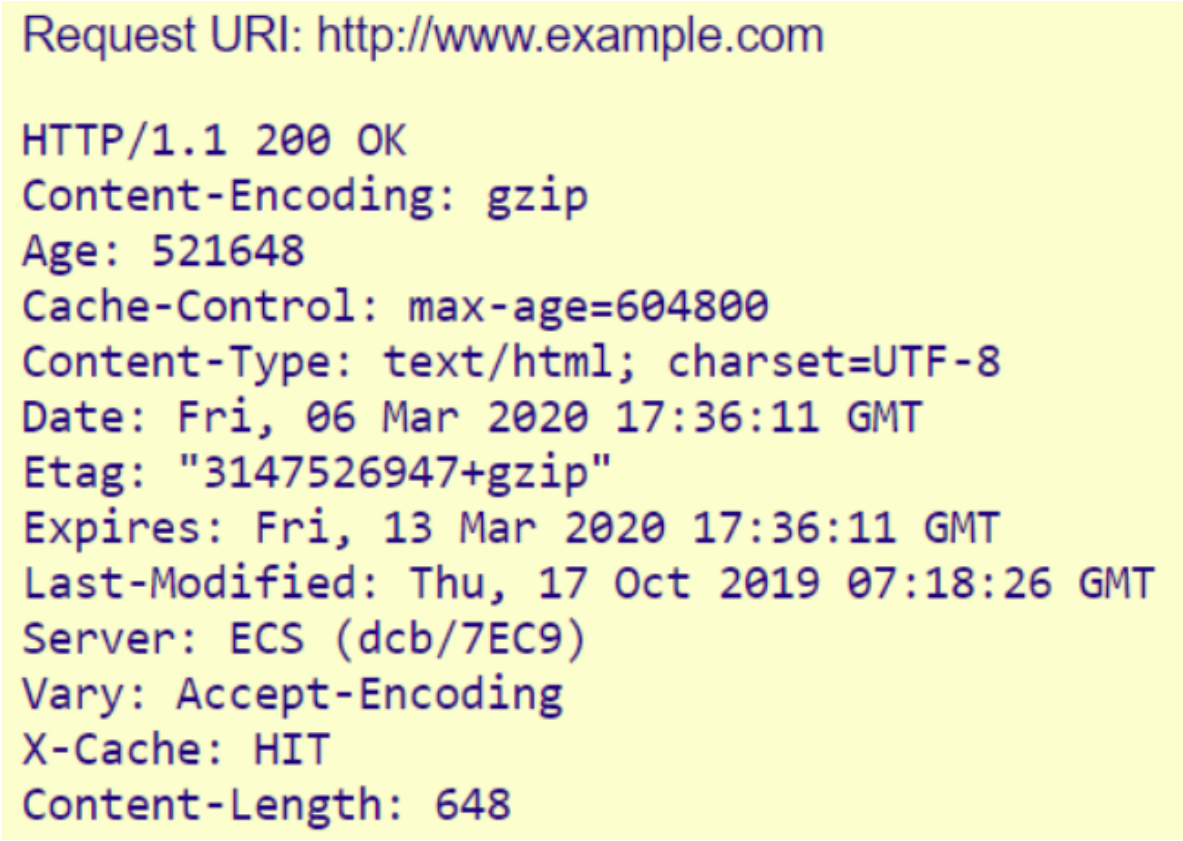
Total points 78/100

The respondent's email (**eftykhar.rahman@g.bracu.ac.bd**) was recorded on submission of this form.

✓ Which of the following are all application layer protocols? 5/5

- ○ HTTP, SMTP, IMAP, DHCP, DNS, TCP
- ○ HTTP, SMTP, UDP, IMAP, DHCP, DNS
- ◉ TFTP, DHCP, BOOTP ✓
- ○ None of the above is correct.

✗ A server can often tell the proxy server to store a data for a certain period of time. Given, you request the following website at Fri, 13 Mar 2020 17:37:12 GMT. Using the information in the following image, explain the flow of the request step by step between the Client, Proxy Server and Origin Server. 7/10



Proxy server checks whether a request is made or not. If the request is valid, it will send back to the client side. If it's invalid, it request the origin server for the data which is sent data back to proxy server that sent back to the client side. However, the proxy server validate the previous date of modification.

Feedback

As the first sentence hints: "A server can often tell the proxy server to store data for a certain period of time" .. This directs to the "Expires" field in the header. Next, the request is made AFTER the time expires. Hence, you will need to show all the steps of fetching data from the origin server

✗ Bob and Charles both visit a website at Fri, 14 Mar 2020 17:36:12 GMT. Both of them have a connection speed of 5Mbps and are using pipelined HTTP connection of size 5. What could be two possible reasons for Bob's webpage to load slower than Charles'? 5/10

Bob might be visiting the website for the first time which usually take more time to load. Moreover, he might not have any proxy server where Charles website might have enable cookie to load faster.

Feedback

1. Proxy server; 2. Persistent/Non-persistent connection

✓ A web page consisting of ____ objects in total will take 1080 ms to load in a non-persistent connection. Given, one way transmission time = 9ms; Object Transmission Time = 2*RTT). 5/5

15 ✓

Feedback

*First: Instead of the RTT, the one-way-transmission time is given. Hence, RTT = 2 * oneWayTransmissionTime*
Second: It's a NP connection,
*totalFileTransferTime = (2 * roundTripTime + objectTransferTime) * numberOfObject*

✓ What would be the answer if the above calculation was done for a persistent connection (take the ceiling value)? 5/5

20 ✓

Feedback

*totalTime = RTT + (RTT+OTT)*numberOfObjects*

✓ Comment on the two answers you got in the above two questions in terms of why their value is higher/lower. 5/5

Non-persistent connection needs TCP connection every time where persistent connection doesn't need it.

✓ Does the above calculation include all the delays that we need to consider? Give a short justification. 5/5

Here, the transmission time missing which is basically the time server need to send back the data

✗ How would the answers differ if you added pipelining? 0/5

- ○ The values would stay the same
- ◉ The values would reduce ✗
- ○ The values would increase

Correct answer

- ◉ The values would increase

✓ Suppose Brac university's internal bandwidth is 200 Mbps, and the access link to the BracNet is 20 Mbps. On an average 40 requests of the size 1 Mbits are sent per second. Now what is the LAN delay and the Access delay? 5/5

- 0.25s and 2s
- 0.20s and 1s
- 0.10s and 1s
- 0.02s and 2s
- (●) None ✓

✓ You are a registered Daraz.com user. Which method should you use when registering in the website? 5/5

- GET
- PUT
- (●) POST ✓
- HEAD
- DELETE

✓ What's the RTT if it took the server 49ms to send the acknowledgement of the TCP request of the client? i.e. the acknowledgement packet took 49ms to go from the server to the client 5/5

98 ✓

Feedback

*RTT = 2 * oneWayTransmission*

✓ Using the answer found above, what's the total RTT in a generic recursive DNS lookup having two layers of TLD servers? 5/5

490 ✓

Feedback

*A recursive lookup has 4 RTTs in general. Having two layers of TLD means that it adds ONE extra look up for the secondary TLD server. Hence, 5 * RTT.*

✓ Would the above delay be added to the total file transfer time of a HTTP Request that you make? 5/5

- (●) Yes ✓
- ( ) No

✗ You have visited a website on Jan 1st 2021. You again visit the website on the very next day. Comment on the file transmission time of the two visited days. Assume there's no proxy server, but, a Local DNS server is present. 3/10

In the first time visit, the load time might be slow as cookie is not enabled and content of the webpage is not saved as cache where second day might be faster as cache and cookies will be enabled.

Feedback

DNS is a requirement on the first visit. Upon visiting the first time, your machine/Local DNS Server stores the IP address and hence, a visit to the full chain of DNS server is not required.

✗ Mention the two record types used to differentiate between web and email requests. 3/5

record for domain and email address

Feedback

The different type of DNS record types....explain the proper ones.

✓ Differentiate between the cookies and proxy servers. 10/10

Cookies are stored to trace the user preferences. Moreover, Cookies content are stored in both browser and server. However, cookies expired automatically, and it takes less space in terms of capacity. Besides, proxy server acts as an intermediary between a client request and the server providing the resource.