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CMSC 481
Homework 2

1. True or false?
    a. False. A request is sent for each object in the page.
    b. True. There is a timeout on the connection, but within that window, multiple objects can be sent.
    c. False. In non-persistent connections, each connection will close after a response is received by the client.
    d. False. It responds to the day and time at which the connection was created.
    e. False. HEAD methods return empty messages

2. Application layer protocols needed are DNS and HTTP. Transport layer protocols needed are UDP (for DNS) and TCP for HTTP.

3. Based off the captured GET message:
    a. http://gaia.cs.umass.edu/cs453/index.html: from the GET request, and the Host value.
    b. HTTP 1.1 from the GET request, after the path.
    c. Persistent, from the Connection: keep-alive declaration.
    d. This isn't listed in the request.
    e. Mozilla Firefox, from the User agent string. This is needed because the browser can send different versions of an object based off of the user agent.

4. Based off the response:
    a. The document was found, as shown by the 200 response code.
    b. Saturday, 10 December 2005, as shown in the Last-Modified declaration.
    c. 3874 from the Content-Length field.
    d. <!doc, and yes, for 100 ticks.

5. The time elapsed is RTT n + 1. Assuming no transmission time of the packet, it would still take one additional RTT to get the message back. Since the IP address is now known, it will only take one additional RTT as it doesn't have to trace all the way back.

6. In the network described, there are N nodes and N * M edges. Nodes correspond to the number of peers, and each node has M edges, corresponding to the number of routers that each peer goes through.