

Problem Set 3: The Internet

due Wednesday, 25 October 2006, by 5:30 P.M. ET

This problem set requires Internet access.
You must submit this problem set via upload to the dropbox on the course's website.

Short Answers. (5 points each.)

1. Suppose that you've just returned from a moose-watching trip to Goobies, Newfoundland, with your friend, Dudley. You download your digital photos from the trip to your home computer. You decide to upload them to your FAS account since the account allows you 50 MB of storage space on the server for your use. You open up an SFTP program on your home computer.

The program asks you for the "host address." What should you type?

You're then prompted to submit your "username" and "password." You do so, but the program doesn't connect to the Harvard server but instead reports: "Error. Connection failed." Hypothesize what might have gone wrong; do not limit your answer to one hypothesis. (Needless to say, several reasonable hypotheses exist.)

2. Suppose that you've decided to do your senior thesis on tasty snack foods. Upon hearing of your decision, your friend Horton tells you about a site that might help you with your research. The URL is `www.twinkies project.com`. He tells you to be sure to put a space in between "twinkies" and "project" when you type the URL into your web browser, but you know better. That trickster!

Hypothesize what will happen if you try to visit the site and leave the space in between the two words. Also hypothesize why such will happen.

3. Suppose that you're chatting with your grandmother online one day (screen name: `h07gr4nnyk1ns`), and you mention that you found an interesting article online about her hometown of Sopchoppy, Florida, when you were surfing the Internet the other day. After a sigh, she quickly replies with "No, Egbert, you were surfing the Web!"

"Hmmm, same thing," you think. "Why is Granny exasperated with me?"

Are the World Wide Web and the Internet the same thing? Why or why not?

4. Unbeknownst to you, whenever you visit a site on the Web, your browser sends a message like the below to the web server.

```
Trying 64.236.16.20...  
Connected to cnn.com.  
GET /index.html HTTP/1.0
```

What URL does the above message suggest that we tried to visit? How do you know?

Even Shorter Answers. (2 points each.)

Surf on over to

<https://www.fas.harvard.edu/computing/utilities/activate-pin/>

and sign up for an FAS email account. (You may need to request a PIN first, per that page's instructions.) Then, tackle the questions below.

5. What is your FAS (Faculty of Arts and Sciences) email address?
6. What is the TLD of your FAS email address?
7. What is the sub-domain of your FAS email address?
8. What is the username of your FAS email address?
9. What is the domain of your FAS email address?

Extreme Treasure Hunt. (10 points each.)

The following questions require the use of a computer with an Internet connection and a browser. Please answer three of the following four questions by utilizing search engines and/or indices. (If you attempt to answer all four, we will only grade the first three.) Note that these questions may strike you as completely random. They are. It wouldn't be a treasure hunt (read: challenging Web-searching activity) otherwise!

10. What is the world's highest recorded wave height? Where did it occur? How could you travel to that area today? Name a specific company that will take you the area.
11. What was the world's highest wind speed ever recorded? What weather is that place currently experiencing? Obtain driving directions to the location. Where could you buy clothes online that would protect you in that location during the winter? Find a bank in the area that offers online bill payment. What is the name of the bank and how much does the online banking cost per month?

12. What is the southernmost active volcano in the world? What airline offers flights to the continent that the volcano is located on and what's the phone number of the airline? Does anyone live near the volcano? If so, name a specific person and state their job title.
13. What is a hoodoo? What famous US national park contains hoodoos? Find a place to stay overnight within 10 miles of the park. What is the name of the lodging place? Find a book about the national park's hoodoos. What is the name of the book and how much does it cost?

The Journey. (15 points.)

14. Suppose that you've moved to Chicken, Alaska. Your mom is heartbroken, of course, and to ease her pain, she's quickly turned your old room into a home office for herself. You promised to stay in touch, though, so, each day, you sit down and visit mom.com to peruse your mom's blog and see how she spent her day (without you).

Describe in a few paragraphs what happens from the time you hit "Enter" after inputting mom.com into your browser to the moment at which her blog appears on your screen. Be sure to incorporate (intelligently), at least, each the following terms into your answer: client, DHCP, DNS, domain, IP address, Internet, ISP, modem, NIC, packets, port, router, server, switch, and TCP/IP. Please underline the first instance of each of these terms in your response.

Reading the Fine Print (like a Computer Person). (25 points.)

15. Even with just a few lectures (from your favorite Extension class) under your belt, you should be amazed by how many more articles and reports in the media now make sense. In fact, surf on over to

http://www.businessweek.com/print/magazine/content/06_40/b4003001.htm

and read the recent article from *Business Week* entitled "Click Fraud." Then, in a paragraph or more, tackle the following questions.

According to this article, how does online advertising work? What is click fraud and how, technically speaking, is it committed? Do you think that Google's AdSense really makes "sense" or just contributes to click fraud?

Extra Credit. (5 points.)

16. The word "bit" derives from the shortening of which two words? Give the answer in decimal as a sequence of ASCII codes.