

# COMPUTER SCIENCE E-1

*Understanding Computers & the Internet*

## PROBLEM SET 7

**Due Monday, April 15 at 5:30pm**

**11 questions, out of 40 points**

### **Academic Honesty**

All work that you do toward fulfillment of this course's expectations must be your own unless collaboration is explicitly allowed by the staff. Viewing, requesting, or copying another individual's work or lifting material from a book, magazine, website, or other source—even in part—and presenting it as your own constitutes academic dishonesty, as does showing or giving your work, even in part, to another student.

Similarly is dual submission academic dishonesty: you may not submit the same or similar work to this course that you have submitted or will submit to another. Nor may you provide or make available solutions to homework or exams to individuals who take or may take this course in the future. Moreover, submission of any work that you intend to use outside of the course (e.g., for a job) must be approved by the staff.

If in doubt as to the appropriateness of some act, contact the staff. All forms of academic dishonesty are dealt with harshly.

### **Submission Instructions**

To submit this problem set, head to E-1 Submit (<http://cse1.net/submit>), where you can upload a PDF, Word Document, or text file. PDF files are preferred.

## Security Breach

1. (2 points) Compare and contrast viruses and worms.
2. (3 points) Why is it important to choose a strong password when signing up for a website?
3. (3 points) In a succinct but technically detailed paragraph, what happens when you delete a file from your hard drive?

## Saving Private Ryan

4. (3 points) What's the difference between authentication and authorization?
5. (4 points) In a short paragraph, explain why a site like example.com is able to display advertisements based on my browsing history on other websites. List some pros and cons of this form of targeted advertising.
6. (3 points) What is a user agent string? Why might your web browser want to send one along in an HTTP request? How might the user agent be used by a server?
7. (3 points) Let's say you'd like to visit a web page, but you don't want your IP address recorded in any logs. What can you do? Explain why your solution will protect the privacy of your IP address.
8. (2 points) You just downloaded a song from your favorite music service, but when you tried to play it on another computer, you got an error saying something about "DRM." What is DRM? Can you remove DRM from the song?

## Design Time

9. (7 points) In two or more paragraphs, tell us about some website or software application that you think isn't well-designed. This might be a website you use every day (despite its poor design!), or it might be an app that you promptly deleted. What are the interface's flaws? What design principles or usability heuristics does it violate? Suggest at least two improvements to improve its design, and justify your suggestions.
10. (7 points) Good news! The local pet store, "Pawsitive Thinking," just hired you to design their new website! Now, it's up to you to figure out not only what the site looks like, but also to decide what features you want to include and how. Submit designs for at least three different pages of the website. You can draw these designs or use the image editing skills you learned back in Problem Set 5. In a short paragraph, identify places where your website takes into account design principles and usability heuristics.

11. **(3 points)** For the course's final project, you'll be tasked with making your very own website that anyone on the Internet can browse! List three ideas for a website you might want to make as a final project. Don't worry, you're free to change your mind later, and we won't hold you to the ideas you propose now! For inspiration, past years' projects can be found at <http://blog.computerscience1.net/>.