1. Is the fastest possible response time for a computer program always the best response time? What are the problems associated with too slow or too fast of a response time?

2. If a certain computer action takes a significant time to complete, (say more than 15 seconds), and can’t be sped up to complete any faster, what things can be done to improve the situation for the user?

3. Describe the properties of “good” error messages, in your own words.

4. One of the display-complexity metrics discussed in class is the local density, measured as the number of characters within a five-degree viewing angle around each character. Why is this an important measure?

5. What are the pros and cons of on-line manuals, as opposed to paper manuals?

6. What are some good reasons for developing user manuals very early in the development process, even before any code has been written yet?

7. Give an example of a web site that provides a front-end interface for users to search an on-line database, and critique its interface and ability to find useful information. Note: web-page search engines such as Google, Yahoo, and Netscape do not qualify. The data being searched for needs to be something other than web pages. Please attach a screen shot of the interface to your homework hardcopy, and include the URL in your written write-up.

8. Describe a treemap in your own words. Use the million-items visualization tool (http://www.cs.umd.edu/hcil/millionvis) to analyze the disk usage on your computer, and describe what you find. What are the biggest consumers of disk space on your system? Approximately what fraction of your disk space is used by your personal documents and files, as opposed to system files and applications? Did you discover any large consumers of disk space that you didn’t know were there? What else do you think about this tool?

Other Notes:

- This is an individual assignment, to be completed without the aid of your project group.
- All of your answers should be in your own words, NOT just spitting back quotes from the book or from lecture notes. Answers that are direct copies of sentences from the book will NOT receive full credit.
- This assignment is to be turned in in printed form (typed using a typewriter, text editor, or word processor) to the TA at the beginning of the class. Handwritten responses will not be accepted, with the exception of responses that require a diagram. Diagrams may be produced by hand and attached to the assignment, but they must be legible to receive credit. An electronic version of your document should also be turned in using “turning”, as follows:
  
  `turnin -v -c cs422 -p hw5 <file(s)>`

- Note that any time you run turning you replace any files previously submitted for the same assignment, so all file(s) must be turned in with a single command. Do not type in the angle brackets shown – They are there only to indicate your input.