

CSE/INFO 100 Fluency with Information Technology
Winter 2006
Midterm 1 Review Questions ANSWER SHEET

Answers are given in *italics*.

Chapters 1, 2 & 3 (user interfaces, networking, file structure, and other basics)

- 1) Give three examples of "consistent interfaces" in GUIs and illustrate them.

Any of the following

- a) Standard functionality under File and Edit menus, like Print and Save*
- b) Standard metaphors such as clicking a button*
- c) Standard icons, like the printer icon.*
- d) Standard behavior, sliders always mean to choose a position on a variable range.*
- e) Standard short cut symbols for standard operations, such as Ctrl V for paste*

...

- 2) Given the letter sequence (or string): catggtacagtaatgtttatgtttattaaacac
Give the placeholder rules for eliminating the "t" letters except if they are in a sequence of three, i.e. keep "ttt".

```
ttt <- #  
t <- epsilon  
# <- ttt
```

- 3) Le mot juste. Why is it important to learn the right computer terms, and to be able to use them correctly? If you can't use a term or don't know a term, what can you do?

Important (a) so you can talk to other people about computers, such as asking tech support for help, (b) to help you conceptualize and understand what you are doing. How to learn terms? Look them up in a glossary.

- 4) How are abstraction and generalization important in IT? Define the terms and explain the connection. Give examples of abstraction & generalization.

They are essential for different reasons. The technical world often models the real world, we have windows, icons, etc. An abstraction means extracting only the essential information, in our case essential to represent a real world object or action in our computer word. Generalization means inferring a rule form one specific case to all cases of that type. There are many generalizations in IT and this allows users to notice a behavior or characteristic and draw a conclusion about other parts of IT.

abstraction: commands used to control internet explorer are under the "file" menu

consistency: most programs are designed in a consistent way

generalization: "exit" menu option should be under file menu everywhere

- 5) Starting point is a folder containing folders F1 and F2
Folder F1 contains folders F1A and F1B
Folder F1A contains image1.jpg, project1.html and document1.doc
Folder F1B contains image2.gif, image3.jpg, project2.html and folder F1Ba
Folder F1Ba contains image4.gif.
You are editing project1.html and want to have image4.gif in that document. What tag should you use?

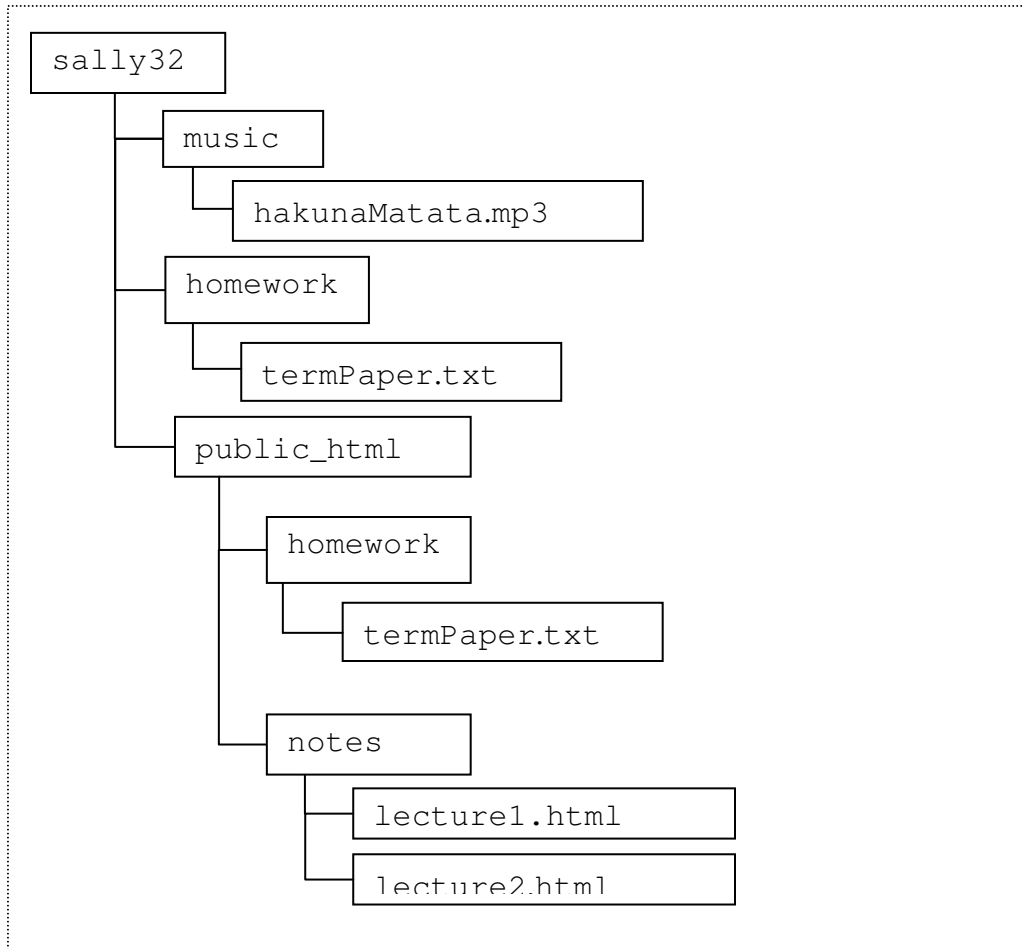
```

```

- 6) I just started using a new application called ExampleApplication. I can't figure out how to create new documents, how to print, how to do anything. I'm very frustrated. What should I do?

Use your knowledge of other applications and see if there are similarities, for instance, is there a menu bar at the top, with File, Edit, etc.? Even if not, just click around, blaze away, etc. Just get out there and try things! Observe others using the application, talk to tech support.

- 7) Let's say Sally, whose UWNetID is sally32, logged onto dante.u.washington.edu. This is the directory hierarchy she sees on the remote computer:



What is the URL to display the lecture2.html file?

<http://students.washington.edu/sally32/notes/lecture2.html>

- 8) (Refer to above diagram) When you visit <http://students.washington.edu/sally32/homework/termPaper.txt>, which file are you accessing? Why?

The file inside public_html, because <http://students.washington.edu/sally32> automatically redirects to Sally's public_html folder. All web-accessible files are placed in public_html. If something's not in public_html, it won't be viewable on the web.

- 9) (Refer to above diagram) Say you wanted a copy of Sally's "Hakuna Matata" song file. How could you access it?

You can't get it through the web, because it's not in public_html. The only way to get it would be if you had Sally's password, but she's not giving it to you because she knows the importance of keeping her passwords secret from everyone. She doesn't tell her mom, dad,

boyfriend, dog, etc., and neither should you. Also, don't steal music.

- 10) Dissect this URL. What does each piece mean?

`http://students.washington.edu/skane/fit100/hw2/test.html`

http:// - the protocol through which the file will be transmitted (HyperText Transport Protocol)

students.washington.edu - the internet domain name, which consists of:

students - the name of the web server (or an alias)

.washington - the domain that this web server belongs to (U of Washington)

.edu - the Top Level Domain (TLD) representing educational organizations in the US,

skane - user directory

fit100 & hw2 - subfolders

test.html - file name (it's an html file, the .html is the extension)

- 11) How are the terms "Internet" and "World Wide Web" different? What does it mean to be a WWW (web) server? What else could a server be doing, if they aren't a web server?

The Internet refers to the specific large network of wires and routers connecting named computers around the world. The WWW is a subset of this. Web servers are computers that are on the Internet and send files to be displayed on web browsers. These are usually webpages, such as HTML webpages, but they can also be images, sound files, and other files, usually to support the webpages. You can also have FTP servers that just serve files not to be displayed on the web (which is why the files that are NOT in your public_html don't appear on your webpage), you can have servers that handle your email, etc.

- 12) Name some important differences between the Mac and PC operating systems. How many can you come up with?

They are two different operating systems that run on different hardware. The most apparent differences are with the GUI (graphical user interface). For example, on a Mac, the menu bar is attached to each application, rather than to each window, whereas on a PC, the menu bar is attached to each window.

- 13) What is the meaning of the term "server"? How is a server different from your desktop computer?

Servers fulfill requests sent by client computers over a network. So for instance, your desktop computer, the client, could request a webpage from a web server (www.students.washington.edu), and the web server will send the page back to the client to be displayed on your web browser.

Chapter 4 & 5 (HTML & Web Search)

- 14) You need to find information on Sir Isaac Newton. What would you do?
- try www.newton.com or www.issacnewton.com
 - go to a search engine and type "Sir Isaac Newton"
 - go to a search engine and type Sir Isaac Newton
 - all of the above
 - none of the above

Answer is d. They could do any a, b, or see in order to find information.

15) Search term fun:

- Write a query to find pages about Samuel Adams

"Samuel Adams"

- Write a (better) query to find pages about Samuel Adams beer

"Samuel Adams" AND NOT beer

"Samuel Adams" -beer (if using Google)

- Write a query to find pages about the historical Samuel Adams, but not about beer

Many possible queries, for example:

"Samuel Adams" AND history AND NOT beer

"Samuel Adams" history -beer

16) Explain how the PageRank algorithm works.

The more websites that link to a page, the higher the rank of that page. Then, in turn, if a highly ranked page links to another page, that other page is more highly ranked than if only lower-ranked pages linked to it.

17) Supposed we wrote the following HTML line in our web page:

```
Meta<b>data <i>is</i></b> &quot;data about data&quot;;.
```

What would be displayed in the browser upon opening the web page, assuming all other tags in the document are syntactically correct?

Answer:

Metadata is "data about data".

("data is" is in bold, "is" is italics)

18) What are the following HTML tags used for:

head
body
title
a
ul

Answers on page 102 of book. A is used for an unordered list.

19) The HTML code on the next (last page for the ANSWERS version) page is for a webpage called `cat.html`. Located in the same folder as `cat.html` are two other files: `Cat.jpg` and `Molly.jpg`. The line numbers on the right hand side are not part of the HTML page, they're just for reference. What errors can you find in this page?

Errors:

- a. *Line 1: htm misspelling*
- b. *No beginning <head> tag*
- c. *Misplaced beginning body tag on line 10. Should be immediately after the </head> on line 3.*
- d. *Typo on end <h1> tag in line 5. Should be </h1>*
- e. *No end </p> tag at end of line 8.*
- f. *Image molly.jpg on line 11 will not show up because the file is actually named Molly.jpg*
- g. *No ending body tag, </body>, should be on line 36.*
- h. *List items should all end with *
- i. *No or surrounding the list of liked items.*
- j. *Ordered list, begun on line 28, is not ended after line 32. Also, the for the eating item should be AFTER the ordered list is ended, e.g. after the *

Chapter 7 (Debugging)

- 20) While working on a term paper late one night, Brian is appalled when he tries to indent his opening paragraph by hitting the tab key and the computer doesn't do anything! He decides that he should attempt to debug the problem (as all good FIT users should!). His first course of action will be to:
- a. Bang the keyboard repeatedly, beating the computer into submission to do his will.
 - b. Attempt to duplicate the error and verify it indeed is a problem
 - c. Isolate the working parts of the computer from the broken parts
 - d. Go straight to the conclusion that the monitor must be faulty and not displaying the indent

Answer: B. What else might you do after you do B?(six guidelines on pg 199 of book)

1. Verify that you can reproduce the error
2. Determine exactly what the problem is.
3. Eliminate "obvious" causes
4. Divide the process, separating out the parts that work from the part that doesn't.
5. When you reach a dead end, reassess your information, asking where you may be making wrong assumptions or conclusions; then step through the process again.
6. As you work through the process from start to finish, make predictions about what should happen and verify that your predictions are fulfilled.

- 21) Brian created an awesome web page about guitars and he wants to put it up on his website. He saved the file as coolguitars.txt in TextPad and uploaded it to his website. He tried to load up his webpage by typing in the URL (<http://students.washington.edu/briango/fit100/coolguitars.txt>) but all of his neatly formatted code showed up instead! What part of his URL was incorrect (name the proper name of the incorrect segment!) and what should he do to fix it?

Answer: The EXTENSION of his file is incorrect. To fix it he should rename the .txt part to .html or .htm! This is because browsers that see .htm or .html at the end of the filename will automatically interpret the contents as HTML code and display Brian's cool guitars!

- 22) When coding his cool guitar website, should Brian code all of it at once and then try to load up his website to see if it works? Or should he code piece by piece and check the website in a browser in incremental steps? Name a reason why your choice is preferred and a reason why the other method shouldn't be chosen.

Incremental steps should be taken. This is to spot errors early. If an error occurs, and it didn't occur in the previous step, then something you have done in the last step was incorrect. Thus, we can isolate the error. If everyone was done at once, we'd have to debug the entire website! On big websites this would be a real pain!

Chapter 8 & 11 (Representing Information)

- 23) What decimal number does this binary 100011 convert to?

$$\begin{aligned} 100011 &= 1x2^5 + 0x2^4 + 0x2^3 + 0x2^2 + 1x2^1 + 1x2^0 \\ &= 2^5 + 2^1 + 2^0 \\ &= 32 + 2 + 1 \\ &= 35 \end{aligned}$$

- 24) Illustrate adding 1 to 100011.

$$\begin{array}{r}
 100011 \\
 1 \\
 \hline
 100100
 \end{array}$$

25) Explain what a "lossless compression technique" is.

It is way to change the encoding of data so that it uses fewer bits, but in such a way that the original data can be reconstructed.

- 26) Bytes are groups of bits. Which of the following choices represent a typical binary encoding of 4 bytes?
- a) 0101 1110 0100 1101
 - b) 486F 6D65 206F 6620
 - c) 10 01 10 00
 - d) 10011110 01111000 00010110 11101011

Answer: D

27) What is ASCII? (what does it represent not simply what the acronym stands for)

*ASCII = American standard Code for Information Interchange.
It is a mapping of 8 bits (1byte) to a single symbol/letter/number.*


```
1) <htm>
2)     <title>My Webpage</title>
3) </head>
4)
5)     <h1>Welcome to My Webpage</h1>
6)     <hr>
7)
8)     <p>Hello, my name is Molly. I am a very cute cat.
9)
10)    <body>
11)        <p></p>
12)
13)        <table border="1">
14)            <tr>
15)                <th>Weight</th>
16)                <th>Hair Color</th>
17)                <th>Eye Color</th>
18)            </tr>
19)            <tr>
20)                <td>12 lbs</td>
21)                <td>Black</td>
22)                <td>Green</td>
23)            </tr>
24)        </table>
25)
26)        <h2>Things I like</h2>
27)        <li>eating, in this order:
28)            <ol>
29)                <li>tuna
30)                <li>kitty treats
31)                <li>canned cat food
32)                <li>dry cat food
33)            <li>napping on the sofa
34)            <li>hiding under the bed
35)            <li>playing with my catnip mouse
36)
37)    </html>
```