

5. [14 pts] Recall the Model-View-Controller (MVC) design pattern. For each of the following, explain what part of the MVC model it belongs to, or otherwise explain how it relates to the MVC model.
- a. an event handler
 - b. a repaint method
 - c. for Goldmine, the permanent record of everyone's grades
 - d. the code that makes the cursor move whenever the mouse moves
 - e. tooltips (also known as balloon text or hover text)
 - f. the code templates in Visual Basic
 - g. middleware
6. [2 pts] The self-service kiosk for collecting biometric data at entry to the United States informs users with video loops that show the user what to do, instead of by telling them what to do. Although this approach to explanation is not always suitable, it was in this case. Why?
7. [2 pts] Consider a user who pushes the left mouse button, moves the mouse, and then releases the button. How many events are received by the application under the mouse at the time? Be explicit about all assumptions you make.
8. [2 pts] Rank the following interaction styles in terms of suitability for frequent users (1=best, 4=worst):
- ___ Direct Manipulation, ___ Command Language, ___ Menu Selection, ___ Form Fill-in

9. [20 pts] If a CS staff member wants to call one another staff member, he typically opens the CS home page, clicks on Faculty or Staff, scrolls down to find the person's listing, sees 4-digit extension number and remembers it, and then dials that number into the telephone. This takes at least 6-8 seconds.

Since UTEP now has VoIP telephones, it should be possible to initiate telephone calls from the computer. Sketch out a design for a GUI that lets a CS staff member initiate a telephone call to any of the 20 faculty and staff in the department, plus to any of the 4 most recent numbers called, plus to any 4 numbers he wishes to include.

Briefly note the key design decisions you made, and justify each.

10. [30pts]

Define or explain

(a) avatar

(b) stakeholder

(c) direct manipulation

(d) persona, in interface design

(e) ergonomics

(f) heuristic evaluation

(g) http

(h) WIMP interface

(i) information architecture

(j) widget

(k) alertbox

(l) Fitts' Law

(m) reference card

(n) task analysis

(o) intranet

11. [8 pts]

Imagine that your employer has made you manager of a new software development workteam split physically between Bangalore, in India; Vera Cruz, in Mexico; and El Paso. List 4 kinds of groupware that your team should have.

12. [8 pts] Here is the Gimp's notorious wall of icons.

To make this less intimidating to new users, we could modify the Gimp to: A. watch the timing of the user's keystrokes to determine if they are a novice, and if so, pop up a help screen, B. use whitespace to visually group the icons, C. have a tutorial that automatically plays when the GIMP is loaded for the first time, D. group the actions into 4 categories, so that the user first selects a category and only then sees the icons for that category.

[2] Which of ideas A-D do you think is likely to be the best solution? Why?

[6] Describe how you would determine which one is really best.

13. [2 pts] What are some advantages of involving users in design (participatory design)?

14. [6 pts] Supposed you were asked to design a voice-based interface for the UTEP Financial Aid Office.
- Name one result of our Financial Aid web design exercise that you could reuse for this.
 - State two ways in which the inherent limitations of voice would affect your design.
15. [2 pts] Once upon a time there was a company president who called in his web site designer and said “Our web site loads too slowly. It’s fine over broadband, but unacceptable for customers using it over modems or over weak wireless links. What can you do to fix this?” The designer replied, “we need to buy a faster server.” The president fired him on the spot. Why?
16. [1 pt] Groupware to support collaborative development of documents by two people working simultaneously at different location requires many things, including a shared workspace (the document) and a shared cursor (so each person can see what the other is talking about). Other desirable features include an audio link (like a telephone) and a video link (so the participants can see each others’ faces and gestures). Which is more important, the audio link or the video link?
17. [2 pt] Fill in the blank. “In Java, to listen for an event, you must register your interest with an event source. An event source is the thing (button, checkbox, etc.) that ‘fires’ an event based on _____.”
18. [4 pts] Two common ways to prototype are with paper and with VisualBasic. Give two advantages for each.
19. [4 pts] Some early GUI toolkits provided buttons which were just a word surrounded by a rectangle, something like this: `cancel`. Describe how the appearance of buttons in modern toolkits is different, and say why you think buttons have evolved in this way.

20. [8 pts] Every six or seven years someone invents electronic books with great fanfare, but they fail in the marketplace. Suppose you have been hired to advise on a new electronic book project still in the early concept stage. You have been asked to determine how and when users might prefer an electronic book to a paper book, and have been given one month to find out. Briefly describe your plan of action.

21. [17 pts] Here is a web site top page.

a. [4] List 4 good things about it

b. [10] Make 5 suggestions for improvement. Include some that go beyond superficial layout improvements.

b. [3] If you could ask only one question of the person responsible for the site, what would it be?

22. [5 pts]

Show approximately how the following html would be rendered in a browser,

```
<html>
<head>
<link rel=stylesheet href="cs-std.css" type=text/css>

<title>Why UTEP?</title>
<body>

<h1>Why Join CS at UTEP?</h1>

<h3>Reason 1: Research Reputation</h3>

<p>CS at UTEP has a national reputation built on ... ..
&nbsp; &nbsp; &nbsp; <a href="research/">Research Overview</a>

<p> Guiding themes include ...
```

where the relevant parts of the file cs-std.css are as follows:

```
LI {  font-family: Verdana, Univers, sans-serif;}
P {
    color: #00000;
    font-family: Verdana, Univers, sans-serif;
    text-align: justify;
    margin-right: .5cm;
    margin-left: 5mm}

/* for generic links */
A:active {color: red}
A:link {color: blue; text-decoration: none}
A:visited {color: purple; text-decoration: none}

HR {margin-left:5mm;
    margin-right: 10mm}

H1 {font-family: Verdana, Ariel, sans-serif;
    /* set margin to align with left edge of the banner */
    margin-left: 5mm
}
H2 {
    margin-left: 5mm;
    text-decoration: underline
}
```