

MISCELLANEOUS

What is rule # 34?
List 3 Anti-Virus programs.

BIAS, POLLS, AND SEARCHING

Who is the easiest person in the world to fool?
Explain the relationship between correlation and causality
What are confirmation and hindsight bias?
Also, provide a simple example of a hindsight bias.
What does pareidolia mean?
How can you trust your search results?
How does an individual know to trust a website?
For the most part, why are online polls unreliable?
How useful and accurate is an Internet poll?
Are Internet polls valid sources of information?
What does to "Pharyngulate a poll" mean?
Why isn't it a good idea to have a survey with one "yes" answer and two "no" answers?
What are some ways you know you can trust a website?
Name several search engines other than Google.
Name some examples of search techniques.

EMAIL

How private is e-mail as a form of communication?
Are emails more like letters or more like postcards? Why?
What does the term "phishing" mean?
What is a phishing scam?
How do you identify phishing?
How can you prevent yourself from falling for a scam email or phishing scam?
How do you know if an email or letter is a scam?
Will a reputable site directly ask for personal info?
What percentage of email sent today is spam?
What is a Nigerian scam letter?
Why is there so much spam in email?
Should your mom send your social security number via email? Why or why not?
Why is email-based phishing and spam so prevalent?
Where does term for email "spam" derive from?
Is spam mail costly to generate?
What types of email attachments can contain malware? What types are universally safe?
What are some ways an individual can tell if they have received a spam email?
What is a macro and what are the repercussions?
Back in the 1990s, what was a danger with macros and Email attachments?

THE INTERNET

What was the ARPANET?
What was the initial point behind connecting many computers in a network?
What year did the "Web" come about?
Who is the man credited with the invention of the Web?
Traditionally, what are the top 6 level domains?

BITS, BYTES, AND BASES

What is a bit?
What is a byte?
How many bits are in each byte?
How many unique patterns are there in each byte?
How many patterns are there for N bits, where N is an arbitrary integer?
What is the minimum byte value and what is this value equivalent to in base 10?
What is the maximum byte value, and what is its equivalent value in base 10?
How can you convert numbers between decimal, binary, hexadecimal, and octal?

NETWORKS AND ROUTING

What is "sneakernet"?
What is a serial-port network?
What is a "point-to-point" network?
What is the major flaw of a network connected via serial port?
What are the advantages and disadvantages of a fully connected point-to-point network?
What is the formula for the amount of links a fully-connected computer network uses?
What is a star network?
How does the star network work?
What are some of the constraints and disadvantages of the star network?
Describe a token ring network.
What is the benefit of having a token ring network?
How is a message sent through a token ring network?
What is the problem in token ring network types?
What is Ethernet?
Explain how Ethernet network works, and how it can fail.
What is one problem of Ethernet?
How many wires are in an Ethernet cable?
What is the RJ45 plug type?
What is the current category of Ethernet cable most in use today?
What is the down side to Ethernet?
What are packet collisions?
How do Ethernet systems deal with packet collisions?
What is an IP (Internet Protocol) Address?
In a general sense, what can we think of an IP address as?
What is the function of an IP Address?

COMPSCI 120 Review for Final Exam
Professor William T. Verts

What is the difference between IPv4 and IPv6?
How many slots of numbers are in an IPv4 address?
How many slots of numbers are in an IPv6 address?
How many bits are in an IPv4 address?
How many bits are in an IPv6 address?
How many unique addresses can exist on IPv4?
What numbers do UMass IP addresses begin with?
What manages multiple local IP addresses and moderates traffic?
What is the solution to the IPv4 exhaustion and how will it fix the problem?
Why people are not using IPv6 to replace IPv4 even though it has been out for a long time?
How did home routers help extend the life of IPv4?
What is the classful system and what are the 3 (main) classes within it?
Under classful addressing, what class is never used?
What is the binary format of each class?
What class in the classful addressing routing technique would UMASS use?
In an IPv4 address such as 147.129.234.102, what is the class, what are network & machine IDs?
What would be the most efficient classful addressing style to use for a large corporation?
What was the problem with the classful system?
How does Classless Inter-Domain Routing (CIDR) fix the problems of classful addressing?
In an IPv4 address such as 147.129.234.102/12, what are the network and machine IDs?
What is the difference between a hub, a switch, and a router?
What's the difference between a house with 9 computers connected to a hub versus 9 computers connected to a router?
Explain why a router can be better than a hub when connecting many computers to the Net.
What is the benefit of using a router?
What's the function of a router? How does it help with the lack of IP addresses problem?
What are the differences between the various 802.11 wireless specifications?
Are they all compatible with one another?
Can an 802.11g router talk to a computer running an 802.11b Ethernet card?
How many megabit/second does 802.11b capable of?
What are the printing options when setting up a home network?
What is DNS?
What does DNS stand for?
Explain DNS and what its main functions are.
What is a root server with respect to DNS?
What are the advantages and disadvantages of cache with respect to DNS?
What is a DNS cache?
What happens if a site becomes a victim of cache poisoning?
How can you avoid a cache poisoning situation?
What does the acronym TTL mean?
Why it is important for cached IPs to have TTL?

THE WEB

Who first proposed the framework for the World Wide Web and when was this done?

What was the first graphical browser and when was it created?

What do http and HTML stand for?

What does URL stand for?

Describe the components of a URL.

In a URL the "http://" represents what?

How does "http://" differ from "https://"?

Are there other protocols besides "http://"?

How does a search engine such as Google find websites?

What is the purpose of a Web crawler or Web spider?

Can a Web crawler find all pages on the Web? Why or why not?

Will an IP address work in place of a host address in a URL?

List several protocols that can be used in a URL.

BROWSERS

What are cookies?

Why do websites use cookies?

What are the advantages and disadvantages of cookies?

What are the three security options that the computer will allow you to use with cookies?

Can cookies be malicious?

Can you get a virus from a cookie?

How often does Dr. Bill clean up his cookies?

What is an example of a website that uses cookie and what does it use them for?

What is a browser cache? (Distinct from a DNS cache.)

UNIX

- What do the 9 permission letters represent (`rwXrwxrwx`)?
- How do you know if you have the permission or not?
- What is the command used to see which folder you are currently in? What does this stand for?
- What is the permissions code for user and group to have full access but others have none?
- What does the `ls -al` command do?
- What is the text editor we use for creating/modifying code?
- Does UNIX typically show you the results of the commands you type in?
- What do the permissions `rw-r--r--` mean?
- What do the permissions `rwXr-Xr-X` mean?
- What does `chmod 755 filename` do to the permissions on the file?
- What does `chmod a+rx filename` do to the permissions on the file?
- In UNIX, how do you set permissions for all the files in the current folder?
- When you open a telnet connection to the `elrv3` server, is the UNIX you are talking to running on your PC/Mac?
- What is the `cd ..` command used for?
- What does `cd foldername` do in UNIX?
- What does `pwd` stand for and what does it mean?
- What folder on the server contains Web files?
- Explain what happens when you type `mkdir public_html`
- What is considered the "wildcard" symbol in UNIX?
- What is `emacs`?
- What do you type at the command prompt to bring you up one level?

TELNET

- What is telnet?
- What is the difference between telnet and ftp?
- What was one of the problems with traditional telnet and ftp as they were first built?
- With a telnet session what will the server do if you have 3-4 failed log-ons in a row?
- What makes PuTTY or ssh different from traditional telnet?

FTP

How do we move files from one place to another?

What does FTP stand for?

Which FTP program is used on a Mac and which is used on a PC?

In WinSCP what kind of things do you use the Text or Binary transfer settings?

When copying files from your local machine to the server, what transfer method should you use for a file saved in Windows Notepad or Mac TextEdit? What about for a graphic file?

Why can FTP be embedded in other software? Give an example.

What is the main difference between UNIX ftp and a Windows/Mac based ftp program?

In WinSCP/Fugu, which side contains the files on your computer and which side contains the files on the UNIX machine?

GRAPHICS

Describe the aspects of both lossy and lossless compression.

Define lossless and lossy compression. What image types utilize which compressions? Which would you choose for a photographed image? A cartoon image?

On graphics on the computer, where would the pixel <0,0> be located?

What file format was considered controversial during the 1980s-1990s because of patent issues?

What are the differences between .bmp, .jpg, .gif, .png, and .svg files?

What are the pros and cons of each graphics file type?

How many colors does each format support?

What image type(s) support transparency?

Where is anti-aliasing used?

What type of image would be best for representing a cartoon? Explain your reasoning.

How do you figure out what the coordinates are in a pixel-based (bitmapped) image?

How do you build a 3D sculptured button?

HTML

Should you ever assume that you typed in all your coding correctly the first time around?

What is the basic structure of any Web page?

What is the difference between the `
` tag, the `<HR>` tag, and the `<P> . . . </P>` tag pair?

How do you add an image into a webpage?

If you have a very long page and you want a link at the top of the page which then jumps to the bottom of the page, what are the two things you need?

How would you create a link, in HTML, that would open a new message to a specified email address in the default email server?

How can you make an image contain several links to separate websites?

What is a "Client Side Image Map"?

What values are used when specifying circles in an image map?

What shapes can you make in an image map?

In this client side image map code, what is the radius of the circle?

```
<AREA SHAPE="CIRCLE" COORDS="50,45,42" HREF=" . . . ">
```

When making a picture link map and you use the code:

```
<AREA SHAPE="DEFAULT" HREF=" . . . ">
```

Should this appear as the first line in a map or the last line?

Is it necessary to duplicate the first point of a polygon as the ending point?

Write the code for a client side image map for a rectangle with corner coordinates located at `<180,150>...<350,400>` with a link to `http://www.facebook.com/`

What function does the `TARGET="_blank"` part of the code below serve?

```
<A HREF="http://www.cnn.com/" TARGET="_blank">cnn.com</A>
```

How many sets of coordinates are needed to put a rectangle into an image map, and what position are the coordinates in relation to the object itself?

When you have numerous overlapping shapes linking to other web pages in your client side image map what happens when you click on the overlap region?

How do you create a link that opens the user's default mail program with an email address already filled into the "to" field?

How can we create an internal text link?

What does the tag `<TABLE BORDER>` do?

How do you make the table border line thicker?

What elements are used to create rows and cells in a table?

What is the tag for a row when making a table in HTML code?

What are deprecated HTML tags? What tags are considered deprecated? Why?

How do you change the text color in HTML? (Both deprecated and CSS)

How do you change the background color in HTML? (Both deprecated and CSS)

What country code is indicated by: `http://www.xyz.ru`

What does it mean when a URL in `.jp`?

How many colors are possible using the hex triplet color system? What about short hex?

What is a browser safe color?

What's the hex code for RebeccaPurple?

COMPSCI 120 Review for Final Exam
Professor William T. Verts

What do you use an anchor tag for?

What are the two types of lists we have learned in Web and what is the HTML code for them?

What is the difference between an ordered list and an unordered list?

What are the appropriate tags for an unordered list?

How do you change the symbol on an unordered list from bullets into a disc?

What does `<UL TYPE="square">` do?

What we can do to form an ordered list with Arabic numbers?

Write the HTML tags to turn the color of a section of text blue.

What do the `<DIV>...</DIV>` and `...` tags do?

What do the tags `<!-- ... -->` stand for?

What tag is used to close an HTML document?

What is the difference between the tags `` and ``?

What is a `<FORM>...</FORM>`?

What does `<SELECT NAME="List1">` do?

What does `<INPUT TYPE="checkbox" ...>` do?

How should this code be altered to make the checkbox checked by default?

```
<INPUT TYPE="checkbox" NAME="Checkbox1">My Checkbox 1
```

Please write the code to make a list similar to the following:

1. Monday
 - a. Class
 - b. Work
 - c. Class
2. Tuesday
 - a. Class
 - b. Work

CSS

What does CSS stand for?

Should you ever assume that you typed in all your coding correctly the first time around?

What is the code that must be typed in every single HTML document in order to use CSS styles?

What is the purpose of using style sheets in HTML?

Give two examples of issues that are solved by using cascading style sheets.

In CSS, if a width is not specified we assume it is measured in what units?

What is one issue with not using a style sheet?

What is the code to link an external text file style sheet to the HTML document?

How do you create a font style in CSS?

If you have a style sheet linked to your web page, but want to override only the H2 heading colors to yellow for example, what are some of your options to do so?

How would you insert a horizontal line with a width of 50% into an HTML document?

True or False: CSS declarations should be capitalized?

Where do the tags `<STYLE> ... </STYLE>` appear?

What is the difference between the `<STYLE>` block and the `STYLE="..."` attribute?

What is an anonymous style?

What is the “Cascade”?

SVG

What is the difference between an SVG file and any other graphics file type?

How is an SVG file similar to and different from an HTML file?

What is the difference between a stroke and a fill attribute?

How are styles (regular or anonymous) used in SVG?

PROGRAMMING

Do programs that build web pages work correctly all the time?

What is the dynamic range and precision of a double precision floating point number?

What are some of the similarities and differences between JavaScript and Python?

What is a class library?

Why is it important to have class libraries available to programmers?

What symbols indicate comments in Python and JavaScript?

What is CGI?

What does it do?

Does the `.cgi` extension indicate a particular programming language?

What do Python and JavaScript have in common when it comes to defining and using variables?

How do we print out the square root of 2 in both JavaScript and Python?

JAVASCRIPT

How do you insert JavaScript code directly into HTML?

If you want to link an external JavaScript file, how would you do it with HTML?

What does `.js` mean?

Where does JavaScript run, client or server?

What data types does JavaScript support?

Can a string use single quotes or double quotes or both?

What type of numbers does JavaScript use?

What is the dynamic range and the number of significant figures for those numbers?

What is the maximum normal double precision floating point number value?

Does indentation matter in JavaScript? What are symbols `{`, `}`, and `;` used for?

What is the difference between `=` and `==`?

How would you write a while-loop in JavaScript?

How would you write an if-then-else in JavaScript?

How can you have a JavaScript program emit HTML code directly into the document?

How can JavaScript react to button clicks in a form?

How can JavaScript get information out of and put information into a form?

Do all Web browsers support JavaScript?

Should you ever assume that you typed in all your coding correctly the first time around?

Are Java and JavaScript the same thing?

How do you link a Web form to a JavaScript function?

What are the four types of flowchart styles presented in class?

What is a variable?

What is the difference between static and dynamic typing? Which does JavaScript use?

What is the code to ignore JavaScript?

How do you write a line in JavaScript to insert a `
` tag into the current HTML document?

What symbol do you put at the end of every statement in JavaScript?

What does adding `var` in front of a variable do?

What does keeping variables local to a function prevent?

What does the `parseFloat` function do?

What does the `String` function do?

What does `document.writeln` do in JavaScript?

What is the difference between selection and looping?

What is looping? What is an infinite loop?

What is a syntax error in JavaScript? What other types of errors are possible in JavaScript?

Where can the tags `<SCRIPT>...</SCRIPT>` appear?

What is the main purpose of functions?

What is the point of including `<!--` and `//-->` in HTML documents that include JavaScript?

What does `<SCRIPT TYPE="text/javascript">` do? How are `<SCRIPT>` or `<SCRIPT LANGUAGE="JavaScript">` different?

Create a JavaScript function that returns its single numeric argument divided by 3.

What's wrong with this line of code? `document.writeln(i, Math.sqrt(i),
)`

PYTHON

What is Python?

Who is the creator of Python?

What is Python named after?

What is the first line of a Python program on UNIX?

What is the function of: `#!/usr/bin/python`

What is `smtplib`?

How do you write in a comment statement in python?

In Python, what data type do you get when multiplying two numbers with decimal points?

What kind of language is Python and why do we need to set the permission to a certain setting?

Does indentation matter in Python? What is the equivalent in JavaScript?

Does Python use double precision floating point like JavaScript?

In Python, can you continue a long statement onto the next line of the script?

In Python what does the backslash mean (`\`)?

What makes Python so popular with major computing companies like NASA?

What must you type in Python to get into interactive mode?

What is the result if the statement `N=1.5` was followed by the statement `N*N+N`?

In Python, how do you access the square root function from the math library?

In Python, how do you access all functions from the math library?

Is Python is a free-form style of language?

Python is capable of handling arbitrary length integers. What is an arbitrary length integer?

When using the Python language, does `1.4 * 6.8` equal `9.52` like it would in JavaScript?

How would you write a while-loop in Python?

How would you write an if-then-else in Python?

In Python, is `Frog` the same variable as `frog`?

In Python, what will be the answer for `42/5`? Why?

In Python, what will be the answer for `42.0/5`? Why?

What is the command to run a Python script in UNIX?

Create a Python function that multiplies a number by 3

ENCRYPTION

What is encryption?

What is the difference between single-key and double-key encryption?

What are the problems with each?

What is another name for double key?

Give a reason why single key encryption is insecure.

Explain RSA encryption.

Is RSA encryption a form of single key encryption or public key encryption?

When you encrypt a message, is it often sent over a secure or insecure network?

Is it better to have strong or weak encryption?

Why is encryption safe (for now)?

What type of encryption uses the same key to encrypt and decrypt a message?

What are the two parts of a double key encryption?

In double-encryption, what is the public key and the private key?

How can double-key encryption be used to digitally sign a message?

Does the grade reporting system use single key or double key encryption?

If you are ordering something online, what should you look for on the website to be sure the site is secure?

Describe the process of establishing secure communication between a browser and a server.