Announcements

- If you just registered,
  - It takes overnight for your UW NetID to be added to class lists
  - Tell your TA before the quiz so he or she can add you

Announements

- All assignments are due Mondays at 12 noon!
- Turn in to Catalyst Collect-It

Announcements

- Course Web site:
- http://www.cs.washington.edu/education/courses/100

Announcements

- Today's drop-in lab from 10:30 to 12:30 was canceled
- It will resume next week for the rest of the quarter

Announcements

1. How are we graded on participation?
   - bulletin board use
   - in lecture
   - In lab

Announcement

2. The CSE box comes up on MyUW. However, when I click on the CSE 100-spring 2008 link at the top, I get a blank page. Is this supposed to link to our class website?
   * Yes! I put in a request this morning for tech support to fix it.

Announcements

3. The paper syllabus and the online calendar have some differences in due dates. Will you inform us of new changes you make as we go?
   * NOTE: The online calendar always takes precedence over this paper one
   * I made some last-minute changes

Announcements

3. The paper syllabus and the online calendar have some differences in due dates.
   * I moved all due dates to Mondays at noon
   * From now on, when due dates change, I will
     - Highlight them in red,
     - Announce them at the start of lecture, and
     - Send an email to the class listserv

Terms of Endearment

Using the right word speeds learning and helps getting help

Le Mot Juste

mot juste/mō zoost/ (Fr.) most appropriate word, expression

Learning *le mot juste*, the right word for something, aids us in two ways:

- *Help Learning* ... our brains seem to anchor concepts to words & phrases
- *Getting Help* ... asking "tech support" for help or using online **HELP** requires us to describe the problem precisely

Terms

Probably familiar terms ...

* screen saver
* monitor
* pixel
* RGB
* motherboard
* [micro]processor
* [RAM]memory

Software/Hardware

- Hardware refers to physical devices
- Software refers to programs, the instructions directing a computer
  - The main difference is:
    - Hardware cannot be changed
    - Software can be modified
  - The same hardware (computer) runs different software (applications)

Key Terms

Memory types:

1. RAM
2. ROM
3. Hard Drive

- In pairs, define each term
- Write down your definitions
  - You have 2 minutes
  - I'll call on three groups for definitions

•You have 2 min.
•I'll call on groups for definitions

A *mnemonic* is any memory aid

* In IT we try to avoid remembering or memorizing, but sometimes we must … mnemonics can help

A mnemonic for periods and epochs in geology

Mnemonic

Camels	Cambrian
often	Ordovician
sit	Silurian
down	Devonian
carefully.	Carboniferous
Possibly	Permian
their	Triassic
joints	Jurassic
creak.	Cretaceous
Perhaps,	Paleocene
early	Eocene
oiling	Oligocene
might	Miocene
prevent	Pliocene
premature	Pleistocene
rusting.	Recent

Terms

Definitions for “tangible” parts of IT -- RGB, pixel,... -- are found in glossaries

- A glossary is in the back of *FIT*
- Online glossaries are handy ... locate one
- A useful study aid is to start a document where you store the definitions of the new words you encounter—at the end of the quarter you will lean how to set up a DB for them

... the “intangible” words of IT are even more important

To Abstract

abstract = **extract or remove something**

- In FIT100 abstracting will usually involve removing the core idea or process from a specific situation -- fables
  - The "thing removed" is an *abstraction*
- Humans abstract core ideas, principles, rules, themes, etc. naturally

Imagine a Story ...

"In Kim's chem class the professor assigned challenge problems worth extra credit, but each week Kim couldn't do them and asked for help. The teacher said, 'Don't give up, attempt the problem again each day.' Kim followed the advice and was eventually able to solve the problems."

Abstracting from the situation: A good problem-solving technique is to return later to a problem.

- Some aspects are relevant
- Some aspects are irrelevant

To Generalize

generalize *v*. infer a rule

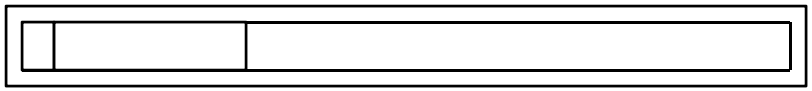
* suppose you notice that faucets
  - turn to the left to turn the water on, and
  - turn to the right to turn the water off
* to infer that all faucets do so is to generalize

Are there other examples?

* Other knobs, screws, nuts/bolts, ...

Operationally Attuned

- Noticing how devices operate simplifies their use
  - Observation: Computers give feedback when they are working



So, if you think you're waiting for the computer but there is no feedback, it's waiting for you

One of the most effective habits new users can adopt is to be operationally attuned.

Key Terms

1. Abstract
2. Generalize
3. Mnemonic

•You have 2 min.
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- In pairs, define each term
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The Speed of Change

Consider running a mile ...

* How fast can anyone run a mile?
  - In 1999 Hakim El Guerrouj ran it in 3:43.13
* Compare with Roger Bannister
  - In 1954 Bannister ran a mile in 3.59.4
* Express speed as a rate:

Bannister's rate = 15.04 mph
El Guerrouj's rate = 16.27 mph

- In 45 years the mile run got 7% faster

A Speed Comparison

- Compared to normal people ...
  - How fast can *you* run a mile?
    - Healthy people in their twenties ... ~7:30
  - That is, El Guerrouj is twice as fast as us
  - As a rate, 7:30 is 8 mph
- El Guerrouj is about a factor-of-2 faster than normal people ...

A ***factor-of-2*** is a good rule for human strength

One More Factor

How fast do computers run? Measure +

- Univac I ran 100,000 *adds*/sec in 1954
- My IBM runs about 500,000,000 *adds*
  - A factor-of-5,000 improvement
- ASCI Red ran 2,100,000,000,000 *adds* in 1999
  - A factor-of-21 Million improvement

Can we comprehend such speeds or ***factors of improvement***???

Factors Precisely

A factor of improvement is different than a percent improvement ...

- factor = new_rate/old_rate
- percent = 100 x (new_rate-old_rate)/old_rate

- Expressing an improvement by its factor is easier, esp. for large changes
  - El Guerrouj's 7% improvement over Bannister is a 1.07 factor of improvement

Indy 500: 1911 Harroun 74.59mph; 2002 Castroneves 166.5mph

Analytical Approach

One reason to notice the factors of improvement is to recognize scale

- The time for the mile run has improved
- Maximum adds per second has improved

* But the difference in scale is dramatic
  - A factor-of-1.07 for the mile run
  - A factor-of-21,000,000 for additions

Getting information is easy with IT, but we need analysis to understand the significance

Key Terms

1. Random access
2. Sequential access

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Summarizing

It is essential to learn the vocabulary of a new field

* Words of tangible aspects of IT have definitions in glossaries
* Words for the intangible are key
  - Abstract
  - Generalize
  - Operationally Attuned
* Being analytical is key to understanding