Announcements

- Midterms and final exam
  - None in this course
  - We have weekly quizzes instead

Announcements

- How WebQs work
  - Go to clicker questions….

Announcements

- How are you graded on participation?
  - Online discussion board—GoPost
  - Lecture clicker questions
  - Lab participation

Announcements

- Weekly GoPosts
  - Posting "I agree" or "Okay" does not count.
  - Your contribution must have some value.
  - Write a rough draft and polish it before you post. You can also edit what you have already posted.
  - It is okay to write "I'm not sure about this [topic]." or "I still don't understand about [such and such]. Can someone explain?"

Terms of Endearment

Using the right word speeds learning and helps getting help

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Le Mot Juste

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

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

- *Helps learning* ... our brains anchor concepts to words & phrases
- *Helps us get help* ... asking "tech support" for help requires us to describe the problem precisely

Terms

Familiar terms?
- screen saver
- monitor
- pixel
- RGB
- motherboard
- [micro]processor
- [RAM] memory

Clickers…

Definitions

- Where can you find IT definitions?
  - Glossary in back of book
  - Online flash cards
  - Web-o-pedia
  - Computer User Dictionary
  - Smart Computing Dictionary

Sequential access is

- Good because _____
  - Forces user to view in sequence
    - Showing someone how to do a task
- Bad because _____
  - Forces user to view in sequence
    - For reviewing a particular step

Random access is

- Good because _____
  - User can start anywhere
    - For reviewing a particular step
- Bad because _____
  - User can start anywhere
    - Showing someone how to do a task

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)
  - Buying a computer…

Acronyms are Mnemonics

A *mnemonic* is any memory aid
- In IT we try to avoid remembering or memorizing, but sometimes we must … mnemonics can help

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

A mnemonic for periods and epochs in geology

Operationally Attuned

Noticing how devices operate simplifies their use

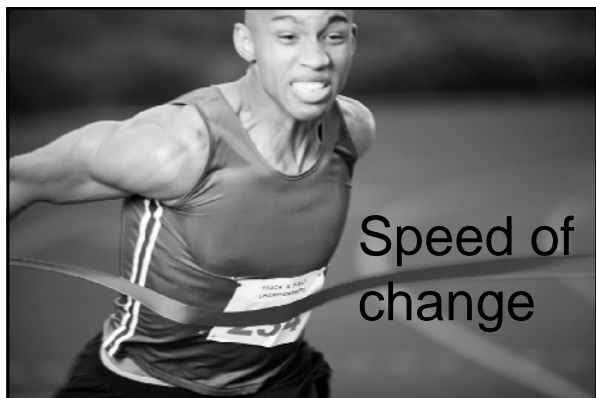Observation: Computers give feedback when they are working

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.

Speed of change

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
- In 45 years the mile run got 7% faster

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

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

UNIVAC vs. IBM

One More Factor

How fast do computers run?

- 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, especially 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 its significance.

Summary

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
- Read Ch 2 in *Fluency* for next lecture