Health Information Management Systems

Why bother?
- Why should you, as a manager, care about information technology?
- http://www.healthcareitnews.com/video/himss-ceo-hal-wolf-healthcare-has-innovate-faster-ever
- Survey & Close response
  - https://pinformatics.org/phpm631/participate/Basics of Computing...

Do you know the language?

Technological Reality
- Dynamic: fast pace changes
- Costly Decisions: IT is expensive, and wrong decisions cost
- Need for quick decision making: if you take too long thinking, all your information is outdated
- Need to know the fundamentals, so you can read about new things, understand, and decide quickly.

Today's Objectives
- Understand computers that are shaping business today
- Acquire tools that will help you assess technological trends long after you have left school
  - Important to learn how to understand and think about technology, so that you can keep up
- Open up the blackbox
  - Under the hood

What is a computer?
- What does it do?
- Fundamentals of Computing
  - Hardware
  - Operating System
  - Software
  - Data
The ‘Real’ Computer

What is a CPU?
- Brains of the computer
- Executes instructions
- Clocks

What is RAM?
- Temporary, fast memory
- Scratch space for work
- Main memory
- ROM?
- hard drive?
- cloud storage?

Hardware Summary:
A modern PC (2005)
- Processor (CPU): Pentium (500 MHz)
- Main Memory (RAM): 64 MB - 4GB
- Floppy Drive: 1.44 MB (3.5-inch disks)
- Hard Drive: 10 - 500 GB
- Graphics: 640 x 480 - 2048 x 1536, 256 to 16 million colors
- Video Memory: 32 - 256 MB

Hardware Summary:
A modern PC (2015)
- Processor: i5, i7 (1.8 GHz, 2.4GHz)
- Main Memory: 4 GB - 32GB
- External Storage
  - Removable storage: Thumb drive
  - Cloud storage: dropbox, google drive, MS onedrive
- Internal Storage: 500 GB - 4 TB
  - Solid state disk (SSD)
- Graphics: full HD - 4K display (4096 x 2160), 256 to 16 million colors
  - A single graphics card support: 1-6 display
  - Video Memory: 32MB - 4/6 GB
  - dual graphics card

Operating systems
- Examples
  - DOS
  - Windows (95, 98, NT, 2000, XP, windows 7, windows 8, windows 10, server OS)
  - Mac OS X
  - Unix/Linux
    - Ubuntu, CentOS, Redhat
  - Android OS, iOS
Operating system

- Allocates and assigns:
  - Memory
    - e.g. file system, virtual memory
  - Processor time
    - e.g. multitasking (threading), multiprocessing
  - I/O devices
    - e.g. printer, keyboard, etc.
- May also provide other capabilities useful to many users or programs
  - Graphical User Interface (GUI) capabilities
  - Fonts, network protocols, ...
  - Web browser

Operating System as Magician: The four illusions

- Multitasking (threading)
  - Many separate computers, one for each process
- Virtual memory
  - Large memory
- File Systems
  - Disks and other secondary storage are organized as collections of files
  - These days cloud storage (dropbox) too
- Graphical User Interface (GUI)
  - Windows and menus

My computer?

- System Software
  - Operating systems
  - Programming languages
  - Database systems
- Application Software
  - General office tasks (word processing, etc.)
  - Accounting
  - Design
  - Factory automation

Types of software (EHR ?)

- Data
  - Examples
    - word, excel, ppt files
    - Pictures
    - Music
    - Databases
  - Need software to manipulate it

Data Representation

- Numbers: Binary
- Characters: ASCII, UTF-8 encoding
- Documents: Content + layout
- Pictures (images): pixels
  - RGB
  - HSL/HSV
- Video: Frames per second, codec
- Audio: ADC & DAC
Computers...

Every few years,
- computers will be able to support (or automate) more of the activities that go on in business.
- Therefore, some of the most important technology opportunities won't involve making new technologies,
- But in figuring out new ways to use technologies.
- Finding (and exploiting) the most promising of these new opportunities can give you significant advantages

Computer Systems can be
- FAST, CHEAP, or RELIABLE
- Choose any two

Group Presentation (10%)

- Email (kum@tamu.edu) due by next week
  - Form groups of 3
  - Pick a week to present
  - Topic
- Peer Review and me
- During break
  - Download group presentation handout from website
  - Try to form groups for group presentation

Class Discussion

- https://pininformatics.org/phpm631/participate/Class Discussion ...
- Discussion Points (answer in gdocs)
  - What is the issue for healthcare providers? What is the main question that is being answered in the article?
  - What are the relevant facts?
  - What more do you need to learn about? What key terms did you not know?
  - What is the take away for healthcare providers?

Reminder: 4 things due next week

- Assignment 1
  - submit on E-campus before class
- Email desired group presentation topic, members, & date before class
- Readings: Chapter 1-2
- Quiz 1 (E-campus)
  - Practice: students will receive full credit by answering all questions

Assignment 1: read during break. Ask questions when we start.

- Research some computer specifications
- Think & answer a few questions
- Write it up
- Submit on E-Campus