Computer Science Principles

Class 8

Class 8 Topics

- Programming item o' the day
- Couple of Programming Items I found this week
- Pair Program Assignment / Issues
- Introduce Operating Systems and Interrupts
- Group Project

Interesting Articles

- http://www.stripes.com/news/questions-hover-over-army-drone-s-630-mile-odyssey-across-western-us-1.456505#.WLeOMhDjddp
- https://labs.ideo.com/2015/09/22/pivotal-experience/

Pair Programming Project

- Overall understanding of how to “use” functions is lacking
- Go over test criteria, understand it again
- Questions before we evaluate it?

Pair Progam Test

- Input = E, Ouput = ?
- Input = H, Output = ?
- Input = M, Output = ?
- Input = P, Output = ?
- Input = V, Output = ?

Pair Progam Test

- Input = E, Ouput = J
- Input = H, Output = J
- Input = M, Output = X
- Input = P, Output = R
- Input = V, Output = B

New Topic – Operating Systems

- An Operating System (OS) is an interface between a computer user and computer hardware. An operating system is a software which performs all the basic tasks like file management, memory management, process management, handling input and output, and controlling peripheral devices such as disk drives and printers.

Famous Operating Systems

- Windows
- Mac OS/X
- Linux
- Android
- iOS

OS Types

- Batch OS – old school card reader, single action at a time
- Time Sharing OS – multiple users, geared for response time
- Distrubuted OS – think supercomputers, many separate computers all working together
- Network OS – Your computer, router, etc. Allows sharing of devices.
- Real Time OS – often found in “gadgets”
- Hard Real Time OS – when things MUST happen at a specified time
- Soft Real Time OS – Things that need to happen now, do, but if things can wait, then they are allowed to wait

Interrupts

- What is an interruption in your words?
- It's the same for computer programs
- Interrupt code must be:
- Small, doesn't call long, undefined functions
- No inputs or outputs allowed
- Get in, Get out!

Interrupt, Good Example

- Timer executes every second, calls an interrupt function

- Void SecTimer (void)
- seconds += 1 #update the seconds variable
- end

Bad Interrupt

- Bad example:
- Int SecTimer (void)
- seconds += 1
- print “Hey, we just updated the clock”
- print “The time is now: {seconds}”
- return(seconds)
- end

Real Life Examples

- In first class, we tried to learn that “everything is programming”
- Let’s go over your assignment to write out your weekly activities
- How is your schedule like a program?
- What about interrupts?