Senior Design Seminar

Intro Lecture

First things First

- Syllabus

- Reverse roll call.

- Admin:
    - We are hiring and we want your input. A talk will be given by each applicant who has reached the on campus interview stage
    - 6 candidates in all

New Course

- Welcome to the third run of a relatively new course here at BSU
    - This course replaced AI as a required course
    - Will serve as a "Capstone" course which other universities have

Where did it come from

- Continuous improvement
  - ABET is big on continuous improvement
    - Counter example to be avoided
  - ABET visiting team 2012 found holes in our program
  - So did the outside advisory board

Hole Number 1

- Not enough group work
  - Group work is tricky
  - But real software dev work is done in groups – exclusively
  - Not always fun at first for all students

Hole Number 2

- Not enough work on large projects
  - Nowhere in our required courses were students given a large code base, some documentation, and a pointer to a problem and told "fix it"
  - This is a glaring hole
  - Partly because of responsiveness to former students at lower level – then got dropped from higher levels.

Hole Number 3

- Not enough appreciation for social/ethical concerns issues:
  - Anecdote from surveys a couple of years ago
  - What will be the side effects of our tech drive
  - Quick examples
    - WA state from 1990s: all public records are online
    - Anonymous social media leads to suicide of preteen girl one the one hand and Arab Spring on the other
    - And the rush to computerize cars?
    - http://money.cnn.com/2014/08/01/technology/security/most-hackable-cars/
    -

Issue #4

- ABET requires 11 learning outcomes A-K
    - See website
    - More than half of them were covered in only a single course: software engineering
    - So we broke some of those out of software and put them here.

A final major goal

- Lifetime learning
  - One of the major goals of a college education
    - Teach you how to learn on your own.
  - When you begin (comp151-152) want lots of hand holding
  - By this course we want to take off the training wheels
    - I've heard from some colleagues that some reluctance
    - But as some of you who were in Dr. Jung's web programming class last year know
    - you'll get "go look at this" in industry – and you have to go learn it and see if it will work.

So to the biggest goal

- You sit down in front of a big project and
    - Realize its no big deal, nothing that 20-40 hours won't be enough to get your head around.
    - You just start using documentation and testing to learn the new system.

A few thoughts on Software

- Soft Skills
  - I wanted a book on developing software in real like
  - I've tried books, this semester I'm going to try some podcasts
  - Cowboy coding bad!
  - Take care of yourself
    - Google campus vs recent Taiwanese gambler
  - People with both coding and people skills will go far.
    - People with only one will need to work on the other

People Skills

- This will be a recurring theme

- Coding skills are important,
  - But so are people skills, you can't be effective in your career if you don't hone your people skills
  - https://www.nytimes.com/2016/02/28/magazine/what-google-learned-from-its-quest-to-build-the-perfect-team.html
  - Google spent 5 year studying what made a productive team
    - They had some that chatted a lot, socialized a lot
    - They had some that were all business
    - They tracked who the people on each team had lunch with (all very 1984) some always sat with same people, some switched it up each day
    - None of it mattered – what did?

Google and people skills

- So what did Google discover after 5 years by some great minds and lots of data analysis?
    - That teams where everyone speaks about the same amount are far more effective.
        - No one dominates the conversation
        - Everyone respects the others in the group – and the group
    - Sonmez, currently working in softskills for developers summarizes from <u>How To Win Friends And Influence People</u> By Dale Carnegie (first published in 1936) what Google just spent 5 years proving.
    - Assignment listen to him

Hacking the Interview

- Another soft skill:the interview
    - It is better to make the interview a formality
    - Be known in the community
    - Find out who works where you want to work
        - Go to stuff where they go
        - Go to hackathons
        - Go to meetups
    - All that people work
    - And for technical demo – if you don't have production code or an internship – have a public github profile – and make sure your projects are solid

Assignment

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- Create a GitHub account

  - You can use the free version of the account for this class

  - Send me email to let me know what your github Id is. The email is due by 11:59pm Mon Jan 23rd and will count as a quiz grade

  - Listen to this podcast

    - http://www.programmingthrowdown.com/2017/07/episode-68-soft-skills-with.html
    - Programming throwdown interviewing Somnez

  - And do quiz 0