ICS 32

Course Introduction

Introduction to Programming Series

ICS 31 -> ICS 32 -> ICS 33

What You Will Learn

- How to assemble code into a fully functional program for the command line and the graphical desktop
- Use a code editor to write code
- Organize your code into reusable modules
- Integrate code written by other people into your programs
- Use your code to communicate with programs written by other people
- Write tests to ensure your code functions properly
- Document your code so other people (and you!) know what it does and how to use it

A Little Bit About Me

- I really need to update my website (been saying this for a year and half now)
- I studied computer science for my undergrad!
- I then used what I learned to write software for many many many different companies over many many many years
- Then I studied how humans interact with computers and how to make systems easier for humans to use (“Informatics” or HCI)
- Now I make technology better for people with disabilities and try my best to teach all of you what I have learned

A Little Bit About your TAs

Sophie Van Genderen

Luis Hsu

Brian Ebrahimi

Aswini Vundavalli

“Sorry I have class right now”

Course Overview

Class Tools

- Canvas:
  - Submit grades, Yuja, Zoom links, and announcements
- Course Website:
  - https://ics32.markbaldw.in
  - Assignment overviews, weekly notes, lecture materials
- Zulip…

What the Heck is Zulip!?

- I know, I know. Why not Slack? Why not Discord?
- I prefer to support organizations that produce open source software.
- Zulip gives me full control of the tool AND the data. I don’t currently, but I could host Zulip myself…
- I like that….the full control thing.
- I export all public channels at the end of the quarter and will provide to students upon request.

How to use Zulip

- A portion of your participation grade is derived directly from your Zulip activity
- Asking public questions is a good way to get participation credit
- Answering public questions is a great way to get participation credit
- You can share shell output, but do not share your code
- Avoid screenshots of your code (when sharing with me or TAs) or output, they are not accessible!
- Use Zulip formatting whenever possible:

````
```python3

def myfunc():
  pass

```
````

- Write good descriptive topic titles and resolve your topic when your question has been answered
- If you need my eyes on a particular question, @ me.

Let’s Play with Zulip for a Minute

Questions so far?

Assignments

- Remember all that talk about internships during ICS welcome week?
- I want to give you something to show off when the class is done
- So rather than then build four or five small programs unrelated to each other, we are going to build one large program over the course of six assignments.

Assignment 0

- A simple program to get you started.
- Designed to help you familiarize yourself with IDLE, your code editor, and refresh your memory from what you learned in ICS 31 (or equiv)
- Short turn around on this assignment, so get started soon!

Assignment 1

- Your first step towards the ‘program’
- You will learn how to work with the computer file system, write a basic user interface, and handle code exceptions
- You will also learn how to follow program requirements and use the validity checker

Assignment 2

- Now that you understand basic file manipulation, you will turn that knowledge into a real program!
- You will integrate your own file format into your code from assignment 1 and create an interface that lets a user add, edit, and delete information stored in that file.

Assignment 3

- Now it’s time to reach beyond the confines of your computer
- You will build upon a2 by enabling your user to share what the information they add your files with the world
- https://ics32distributedsocial.com/
- Groups of 2 allowed

Assignment 4

- With a fully functional program in place, it’s time to extend the feature set!
- You will connect to Web APIs to gather interesting data from various sources to enhance the type of information your user can share

Assignment 5

- And finally…
- You will integrate all the features you have implemented so far into a graphical user interface AND encrypt your data to protect it from prying eyes!
- Groups of 2 allowed

Final Project

- We will discuss more at the midpoint of the quarter
- In short, you will (in groups of 2-3 if you choose) bring everything you have learned together to create a private messaging program

Late Submissions

- We do not regrade assignments. Once you have submitted your assignment, your work is final.
- We will grant extensions without grade penalty upon request
  - We accept that life gets in the way and sometimes you just need a break!
  - We don't need 'proof.' Just ask, that's it
  - If you miss a deadline by a few hours, it's fine
  - If you need the weekend, you don't have to ask for an extension
- However, this policy creates problems…so some non-point based penalties will be enforced:
  - You will not receive help from myself or the TAs after a submission deadline has passed
  - Your assignment may not be graded on time. TAs will download submissions after the deadline and grade those submissions first. Excessively late submissions will receive excessively late grades.
  - No assignments will be accepted after the last day of class. No exceptions. So if you fall too far behind, you may sacrifice the grade of an entire assignment.

Refactors

- We do not regrade assignments, but we do offer refactors!
- A refactor is your chance to use your rapidly growing programming skills to improve earlier assignments:
  - Not a bug fix
  - Not a new feature
- Optional
- Three complete refactors will bump your grade by one half grade letter.
- I am not receptive to requests for grade bumps, especially if you have not completed a refactor!
- Full details on the course website

Grading

- Assignments 0-5: 750 pts or 75% of your grade
- Final project: 150 pts or 15% of your grade
- Participation: 50 pts or 5% of your grade
  - A combination of Zulip, in-class activity, and socrative quizzes
- Labs: 50 pts or 5% of your grade
- Refactors: Varies, but roughly a half letter grade up to 96%
  - (in other words you can’t earn an A+ with refactors)
- Extra Credit (will be announced in week 8): A small bump, could help if you are very very close to next grade letter.

Questions so far?

How the Class will Work

- Monday, Wednesday, Friday remote labs:
  - Not recorded.
  - Must attend at least 8 (more on this on next slide)
  - Will switch to in-person (possibly one remote lab per week)
- Tuesday
  - Watch lectures (links on website)
  - Attendance optional
  - Reinforcement exercises, Q&A, discussion
  - Collaborative code writing
  - Build assignment tests together
- Thursday
  - Attendance required
  - We will meet live here and do stuff:
    - Socrative quiz
    - Impromptu discussion/lectures/Q&A
    - Assignment introductions

How the Class will Work

- Labs
  - There will be a total of 20 labs this quarter (excluding holidays, week 5, and week 10)
  - You must complete 8 labs to receive full credit (50 pts):
    - Each lab is worth 6 pts each
    - If you receive full credit for each lab you will have earned 48 pts
    - If you earn 6 pts for 8 labs you will receive a 2 pt bonus
  - Lab schedule:
    - I will post a lab schedule for the quarter later this week on the course website
    - Review and decide if a particular lab topic is interesting or valuable to you
  - When you arrive at lab, the TA will provide you with a link to the lab exercise. You must complete the lab exercise during the lab time.
    - When complete, you will submit to your assigned lab on Canvas
    - Late submissions (we will allow a 10-15 minute grace period) will not count
    - It is better to submit incomplete work than to submit late!

How the Class will Work

- Some lab tips:
  - Labs are for lab exercises only!
  - DO NOT ask lab tutors or your TA to help you with assignments
    - We have office hours (by appointment), Zulip, and Tue/Thur class time for assignment discussion
  - DO ask lab tutors and your TA for help with the lab exercise!
    - Lab exercises will cover concepts that you must understand to complete your assignments

Socrative Quizzes

- You receive credit for taking the quiz, not for answering correctly
- The goal is to check yourself. If you get a lot of wrong answers, then you will have a good sense of which concepts you need to work on
- So don’t look up the answers, just answer honestly
- When appropriate, we will pause the quiz and discuss the question
- You must attend 5 socrative quizzes to receive full credit. There will be at least 8 quizzes held throughout the quarter
- Make up quizzes will not be offered, so attend class
- First real quiz this Thursday!

Socrative...let’s test it out!!!

https://api.socrative.com/rc/tbWZQV

Any Additional Questions?