CAIS 117: Intro to Programming with Python

Fall 2023

Final Project

For your final project you will build a software application. Your application must be interactive (a user can use it to do something) but other than that can be anything of interest to you as long as you meet the requirements below.

Proposal – 10 points

For your project proposal you will identify your project group, your topic of interest, the major building blocks to your program, and potential roadblocks. Type up a document that answers the following questions. Your document should be 1 – 2 pages long and well formatted. Submit as a group on PLATO.

1. Group
   a. With whom do you plan to work? Groups must be 3 – 4 members.
   b. Talk about your schedules. How will you coordinate your work?
2. Topic
   a. What application do you plan to build?
   b. Broadly speaking, what will a user use the application to do?
3. Building Blocks
   a. What are the major building blocks of your application?
   b. Will your project pull from work you did for other assignments in this class? If so, which ones and what new features will you add?
   c. We have covered many core programming structures and techniques in this class. Your program must include at least two of the ones listed below. Which two structures/techniques will your code include?
      - Classes
      - Recursion
      - Animation / Interaction
4. Roadblocks
   a. What roadblocks do you anticipate as you develop your application?
   b. What is your plan for overcoming these roadblocks or pivoting around them?

Prototype I – 10 points

Your first prototype will consist of three components: persona, paper prototype, and architecture diagram. Put together a document that addresses the following. Your document should be 1 – 2 pages long and well formatted. Submit as a group on PLATO.

1. Persona
    a. Describe the hypothetical person for whom your application is being designed
    b. Discuss this person's relationship to technology and any other information pertaining to their specific needs
    c. Include this person's motivation - why do they want to interact with your application?
2. Paper Prototype
    a. Include a paper prototype or an electronic equivalent. You can take clear pictures, or physically hand in the prototype
    b. Describe the visual appearance of your application from the user's end
    c. Describe what actions can be taken by the user when interacting with your application
3. Architecture Diagram
    a. Draw a diagram that represents the architecture of your program - how will your code be set up to run your application?
    b. Describe the individual components of your program. What small problems have you broken your program into?
    c. Describe the interactions/connections between the individual components of your program. How will the individual components work together to make your application?
    d. Indicate which parts of your program are complete, in progress, and not yet started

Prototype II – 10 points

Your second prototype will include a working (but not necessarily complete) version of your code, and a README. Submit all .py files you have so far, and a README.txt as a group on PLATO.

1. Each file of code should:
    a. Include a header with group names, date, and file description
    b. Be well documented (docustrings for functions and comments)
    c. Use appropriate variable names and function names
    d. Be modular
    e. Include a main function called if __name__ == "__main__"
    f. Include citations for any sources referenced
2. The README.txt should include:
    a. A description of your application
    b. Instructions for running the code
    c. A list of known bugs
    d. A plan for fixing known bugs

Final – 20 points

Your final submission will include a working final version of your code, an updated README, an in-class demo, and an individual reflection. You will submit your README.TXT with a link to your repl on PLATO, as a group, and your individual reflection on PLATO individually.

1. Your final version of code (on repl) should:
    a. Include a header with group names, date, and file description
    b. Be well documented (docustrings for functions and comments)
    c. Use appropriate variable names and function names
    d. Be modular
    e. Include a main function called if __name__ == "__main__"
    f. Include citations for any sources referenced
    g. Run consistently with no errors
2. Your final README.txt should include:
    a. A link to your repl where code is housed
    b. A description of your application
    c. Instructions for running the code
    d. A list of known bugs (or a note: "No known bugs")
3. Your demo should include:
    a. A description of your application
    b. A description of who would use your application
    c. A description of the architecture of your code
    d. A demonstration of your application
    e. A description of one major challenge you had during implementation
    f. How you overcame that challenge
4. Your individual reflection should include:
    a. Your specific contributions to the project
    b. Your teammates contributions to the project
    c. Whether you navigated any conflict or discrepancy in workloads with your teammates
    d. How you navigated those conflicts or redistributed work

** Your final grade will be a combination of your grades for all parts of this project and may be adjusted based on individual reflection feedback.

Submission

All work will be submitted through PLATO as a group with the exception of your individual reflection.