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Final Reflection

ISAT 252

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I think my expectations coming into this class were a bit mixed. I knew coming in that for the most part, this was a “beginner” programming class. Knowing that, I expected this class to be fairly easy to me as I am a senior computer science major. However, once I got a bit deeper into the semester, I realized this class was not going to be as easy as I initially thought. This turned out to be the first class in my entire college career that challenged me to think outside the box and be creative as opposed to being told exactly what to do. Because of that, this class was more of a challenge than I had originally anticipated.

This semester, I wanted to get better at programming languages that weren’t Java or C, as these were really the only ones I had any real experience in through the CS Department. I decided to do almost all of the programming in this class in Python. It’s similar enough to C and Java that it wouldn’t be too difficult for me to learn the language. Also, Python is a widely used programming language.

I started the semester by creating a [Wordle clone](https://github.com/shulmanj/isat_252/tree/master/wordy). I didn’t follow any tutorial to complete this. At the start of the game, a random word is selected from a word list containing about 5,700 words. You then begin the guessing process. You have 6 attempts to guess the random 5 letter word. Each guess is checked against a list of about 12,000 valid 5 letter words. After each guess, the program outputs 5 blocks, one for each respective letter in the guess. A green block represents the corresponding letter is in the correct spot. A yellow block indicates the letter appears in the word, but not in that spot. Finally, a black block indicates the letter is not in the word at all. In my first iteration of the program, I had a pretty big issue with multiple letters. For example, if the word I was trying to guess was “hello”, a guess of “hhhhh” (this was before I started checking for valid words) would yield a green block followed by four yellow blocks. Obviously, this was not the intended output for that guess. I narrowed the problem down to the for loop in which I checked each letter of the guess. The reason it printed out yellow blocks when it wasn’t necessarily supposed to was because I was only checking them in three if statements. One of the statements would print a green block if the letter at position *i* was in the correct spot. The next if statement would print a yellow block if the letter at position *i* was in the answer at all. I realized that was the issue but couldn’t figure out how to fix it for a while. After tinkering around, I ended up storing the guess into a dictionary, where the key was the letter, and the value was the number of times that letter appeared in the answer. This allowed me to accurately print yellow blocks when a duplicate letter appears in the answer but not in the right spot. I briefly tried to convert my game into a full graphic game, but I decided I was satisfied with it being a command-line game. After I moved on from my Wordle clone, I followed this [tutorial](https://www.edureka.co/blog/snake-game-with-pygame/) and made a [snake game](https://github.com/shulmanj/isat_252/tree/master/snake). I found this tutorial very easy to follow, although it did have a few bugs that I was able to catch and fix. After I finished the tutorial, I added a high score that gets read from a text file at the beginning of each game and is updated at the end of each game. This turned out to not be very difficult for me after a little refresher on how to read and write to a file in Python. After I finished up with games, I wanted to learn more of the command line. I found a very helpful [tutorial](https://cmdchallenge.com) that gives you “real world problems” and asks you to solve them using the command line. Although I ended up looking up a lot of the answers and commands to solve the challenges, I do feel that I learned a lot more command line than I had previously known. I probably spent about 2-3 hours per week on average outside of class, whether that be actually programming, doing research, or looking for tutorials to follow.

Over the semester, my goals evolved in the aspect of programming language. I took two computer science classes this semester: one that was taught in Python and one in JavaScript. Because of this, I decided that given the choice between the two of them, I would rather program in Python. That is the reason why I didn’t really explore much JavaScript in this class and programmed my games in Python. About three-fourths through the semester I also realized that I wanted to put a little more effort into a skill that would be useful as long as I’m sitting behind a computer. For that reason, I dedicated the last 2 or so weeks to learning more command line.

I feel that I was successful in a couple ways this semester. Firstly, my Wordle clone was definitely a success. I felt that I was able to take a game that I play regularly and recreate it. I especially felt successful because I didn’t follow any tutorials to complete it. It felt good being able to debug the code and make improvements at each iteration. Although I did try to turn it into a graphical game and that didn’t really work out, overall, I am happy with how it ended up. I also felt successful with the snake game I made. I’ve followed along with YouTube videos and code snippets for other projects before, but I’ve never followed a complete tutorial to build a game. I felt especially successful when I was able to pick out flaws in the original code and fix them myself instead of sitting around thinking about what went wrong. Adding the high score mechanism was also a success as it did not take me very long to code and it works exactly as intended. I do feel that I was more successful and made more progress on projects in the first half of the semester. I think this was due to my senior mindset. However, over the last couple of weeks of the semester, although I didn’t start any new programming projects for this class, I felt successful in my continuing of learning the command line.

I do feel that I failed to achieve my goals in some cases. There were a couple of times this semester that I had planned to do something in the week between group meetings, but life got in the way. There were times that this class wasn’t necessarily my top priority and in turn, I treated it as such. Due to this fact, there were some weeks that I did not achieve my goals. Some weeks, I failed to accomplish anything for this class. In those weeks, I did feel like I failed. I think I only had one or two of those weeks and I made sure to make it up in the next week. When I was making my Wordle clone, I had planned to make it a complete graphic game. By the time I got around to coding that, I had lost interest and decided against doing that and being content with the command-line version. I’m not sure if this is exactly failing, but it was a goal that I did not achieve.

One of the biggest takeaways I’ve learned from my failures is that if I’m not very interested in something, I will not have the motivation to do it. Obviously, I’ve known that from previous experiences. However, I further realized that this semester. With my Wordle clone, once I got into the graphical development, I lost interest. This made it pretty difficult to move forward with that project especially because I was already content with the command-line version. This was different than in other classes I’ve taken before because in those classes, I had to do the projects whether I wanted to do them or not (if I wanted to pass the class). In this class however, it was completely up to me what I wanted to do. I was granted the freedom and ability to work on whatever I wanted as opposed to being given a project to do with no real choice. I do realize that in the real-world and in whatever job I may have down the line I may have to do some work that doesn’t necessarily interest me. I just hope that I don’t have to search for very long to find what I’m truly interested in and stick with that. As of right now, software development does interest me and I’m very excited to start my job as one. I just hope that 5-10 years from now that either still does interest me, or I’ve found something else that does.

Another takeaway I’ve learned from this class is time management. This has always been a bit of an issue for me and that was the case this semester as well. Like I said earlier, this class was not always at the top of my priority list. Granted, when I start working, I’m going to have one job as opposed to being in five classes at the same time so that will probably be a breath of fresh air. However, I will need to stay on top of my tasks within my job and prioritize effectively and efficiently.

I do think that I am more educated now than I was before I took this class. I feel that I learned more about myself than I learned about coding, though. Yes, I learned more about Python and the command line, but I feel that I learned more about what I want to do with my degree. I may not necessarily want to be a video game developer (especially after taking a graphics class), but I do like writing code that I can get immediate feedback on (like my snake game). I also learned that I may not be the smartest person in the world, but I am smart enough to take a concept that I use every day and program an algorithm that does almost exactly the same thing (Wordle clone). I feel that those two things alone have made me more educated.

In the same sense, I do feel that I am more enlightened. Through not only myself, but my group, I have seen a bunch of different applications of different languages and technologies. Yes, I have known that they exist, but I may not have necessarily seen them in action. It was nice to meet with a group every week and see what they were working on and sometimes get ideas for what I wanted to do next.

I realized that I probably should have read this bullet point before writing my response to the last one. Anyway, as I said above, I feel that all of my activities and projects in this class have contributed to me knowing myself better and having a better grasp on what I want to do in the future. I know that my job is a software developer, however I am not entirely sure of exactly what it is I’ll be doing. My learnings this semester have given me insight on what I want and do not want to do in my career, and I am very thankful for that.

I would like for you to report a grade of “A” to the registrar. I do feel that I have earned it. Throughout the semester I’ve stepped outside of what I have done my entire college career and tried new things. I’ve grown as a programmer and as a person. I’ve learned more of what I like to do and more of what I dislike doing. I’ve learned to think outside the box and be a bit more creative when I can. I’ve learned that just because you don’t achieve a goal does not mean you fail. I’ve learned that sometimes your mental and physical health is more important than schoolwork. I truly feel that this class has made me an overall more well-rounded person. Aside from that, I do feel that I chose projects and made significant progress on them. I adapted them to my wants and for the most part, I completed them to the best of my ability. For those reasons, I feel that I deserve an “A” for this class.