Project 7
Card Memorization Game
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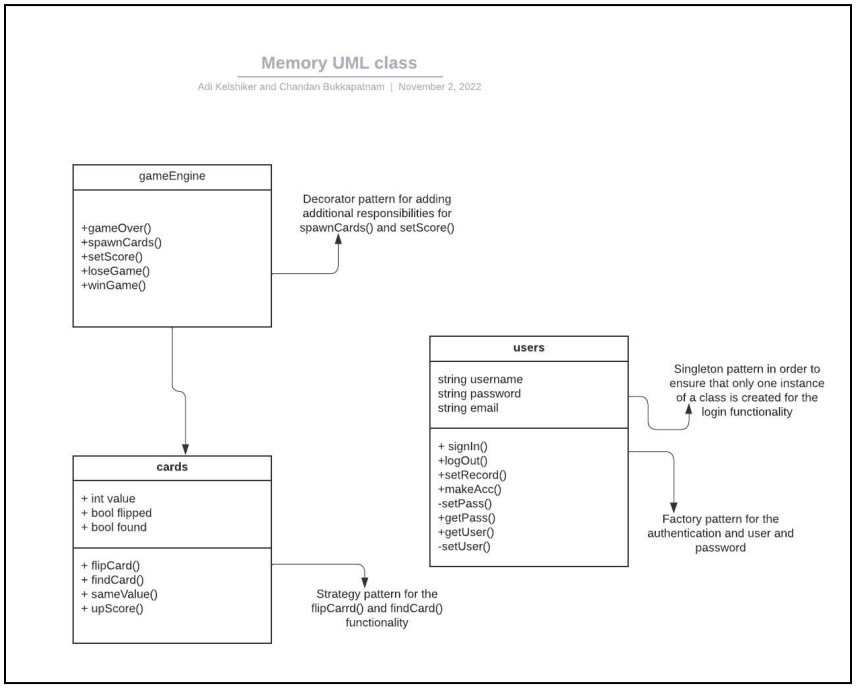
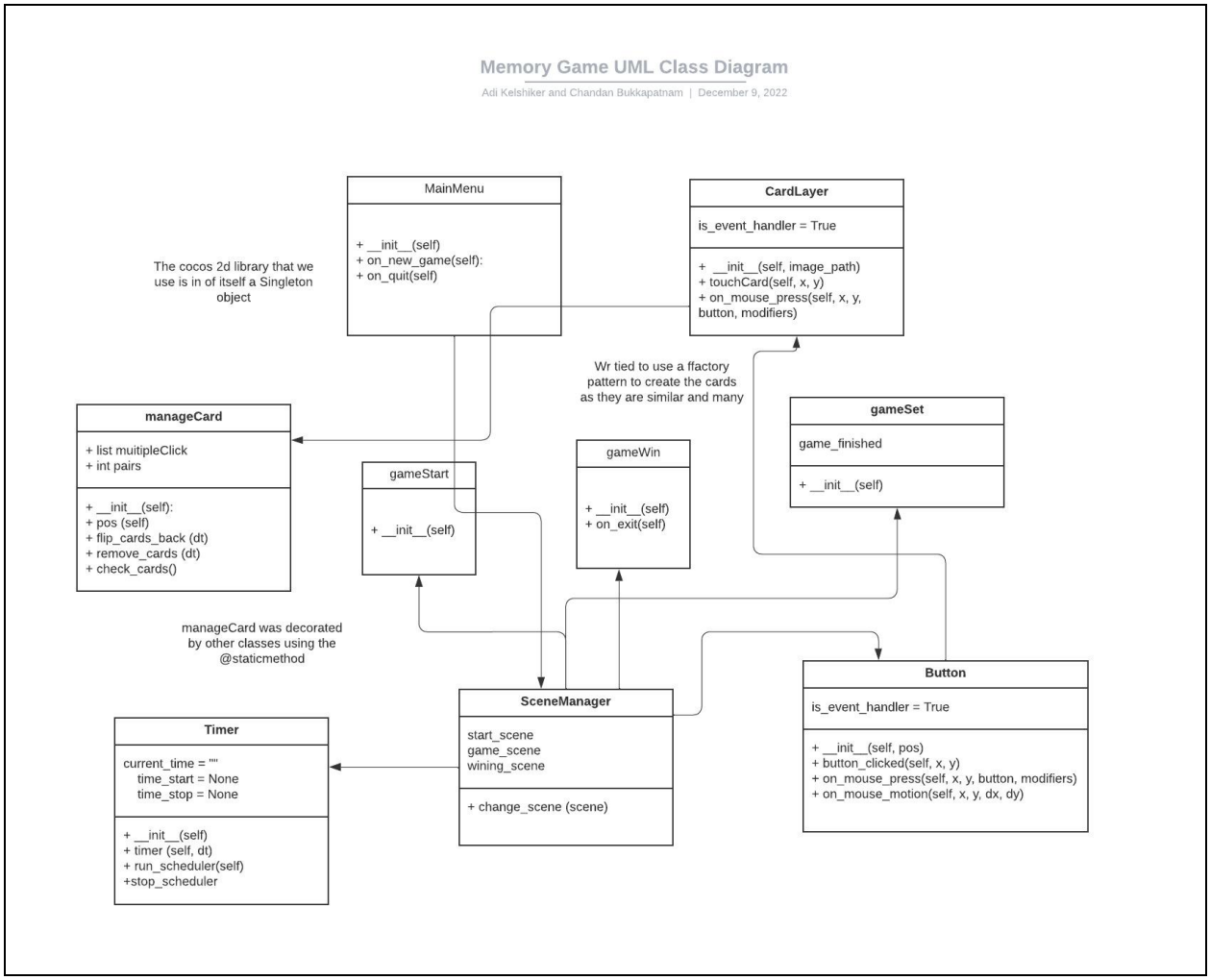
Semester Project - Final Submission

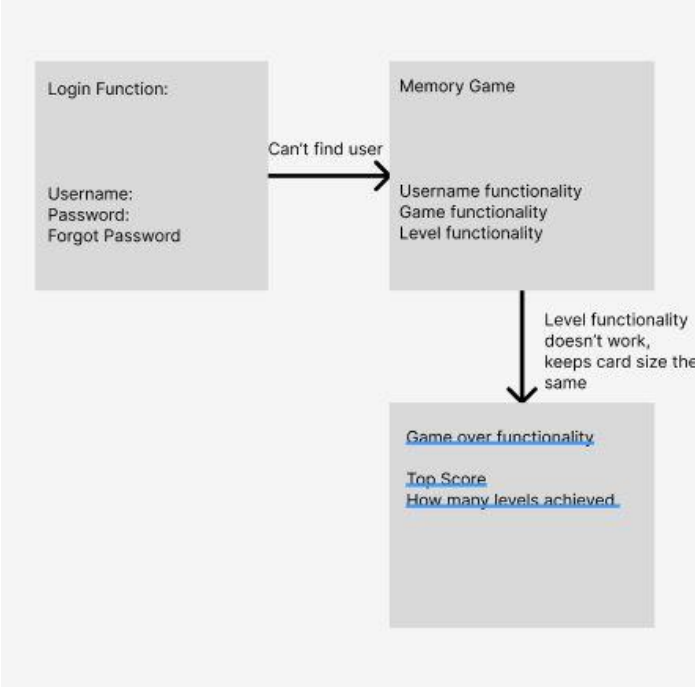
1) We wrote our Card Memorization game in Python and used libraries of Cocos2D and Pyglet. In total, we implemented a few features including a new game, best score, and quit functions, levels, login functions as well as the database. Our checkpoint included a new game, best score, quit, and certain level functionalities, but nothing more. However, now we have the rest of the required features done as well as a change in the level functionality which allows the user to progress through the levels. The entire process for us changed from Project 5 as we changed our thought process as well as the basic UI of the game. From Project 6, we simply added to the features and added the necessary pattern requirements.
2) UML Diagram:



When updated became →



Project 5 UML:



The complexity of the entire design completely changed from the first UML diagram to now. In terms of the functions used we thought we only needed 3 classes to make the card game function, however, it needed much more than that after we started to write the code. We needed to use strategy, decorator, singleton, and factory patterns. In the UML diagram from project 5, we didn't have any of the patterns as we didn't know which ones would be of use to us. Key changes include patterns, function names, classes, etc.

3) Third-Party code vs. Original Code Statement:
    a) We used approximately 20% of third-party code within our project, mainly for the login page, menu functions, and timer functionality. Links are below for some of the resources we used:
        i) https://stackoverflow.com/questions/15025930/keyboards-event-on-coco2d-python-and-pyglet
        ii) https://github.com/los-cocos/cocos/blob/master/cocos/director.py
        iii) https://www.youtube.com/watch?v=_9N1nx5xcIw&ab_channel=AtiByte
        iv) https://www.youtube.com/watch?v=ri9a3KyoVHc&ab_channel=AtiByte
        v) http://python.cocos2d.org/doc/api/cocos.menu.html
        vi) https://stackabuse.com/pythons-classmethod-and-staticmethod-explained/
        vii)
4) Statement on OOAD process for overall Semester Project:
    a) We had certain issues with ideating possible solutions and ideas as we wanted to first do the project as a command line game, which would make it a very bad experience for the user but made the most sense at the time. As we progressed

with our project we found the Cocos2d library and decided to use that for the game as it provides a good UI. We also ran into some issues within the code-writing process in terms of sharing code and how to work on the project at the same time, however, VSCode lives share came into good use at this point. We did a good job testing and troubleshooting as well as improving on the final project as we were able to separate the work out well and schedule it properly enough to also allow for others to play the game to troubleshoot issues.