

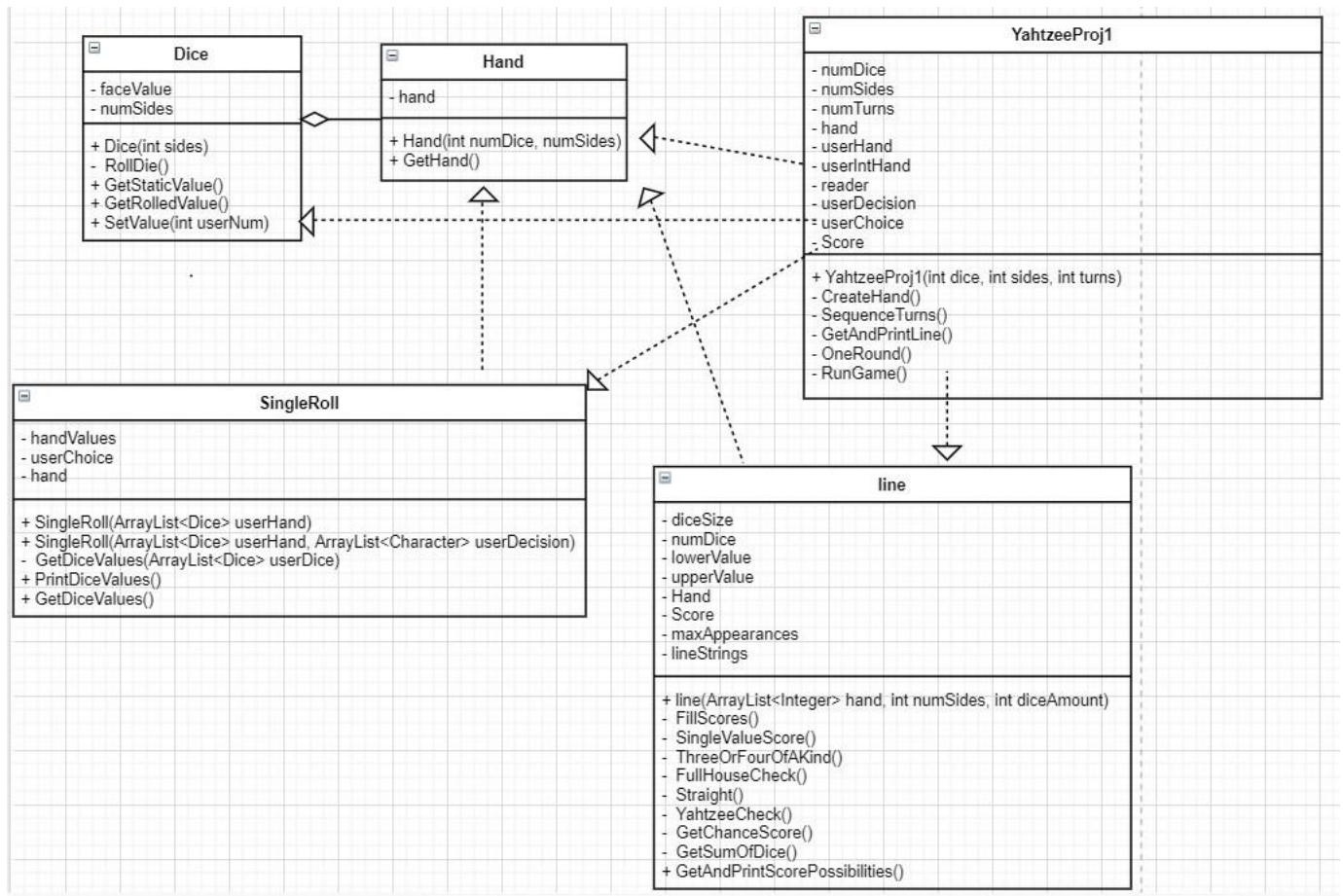
Programming Assignment #1

Goal: The purpose of this program is to simulate a single player turn of the classic dice game Yahtzee. That is, the user will get a hand of five dice and will try to get the best possible hand over a maximum of three rolls. The program will give the user an option to keep or reroll each die after the first two rolls. After the third roll (or after the user decides that they don't need anymore rolls), the program will assess the user's hand and return all possible scores and print them to the screen. Lastly, the user will be prompted to see if they want to play again.

Design: My design includes 6 files; 5 classes and 1 main file (Project1.java) that runs the program. The first class, Dice, creates a dice object that emulates a real die. When called, dice must be initialized with a specific number of sides. Dice can be rolled and their value can be accessed. The second class, Hand, stores an ArrayList of Dice. This hand can be publicly accessed using the GetHand() function. The third class, SingleRoll, acts as each individual rolling of the hand in a turn. It has 2 constructors; one that just takes the user's hand and one that takes the hand and an ArrayList of strings that identify which dice the user wants to have rolled. The values of the dice can be accessed and printed publicly.

The fourth class, line, takes the user's hand and calculates and stores their scores for every Yahtzee scoring category in an ArrayList. These scores can be printed to the screen using a public function. The final class, YahtzeeProj1, which organizes functions from the previously mentioned classes in order to run the version of Yahtzee meant for project 1. When creating an object of this class, one must input a number of dice, the number of sides on each dice, and the number of turns. Methods included in this object create a hand, run each round of the game, and ask the user if they want to play again after each round.

UML Diagram



Major Issues: I started this project fairly early, so I was able to work through any issues I faced without any of them becoming a real problem. Any of the issues that I faced never exceeded the norm of any program. Aside from having to learn Java in order to do this project, I had no major issues.

Retrospective: Now knowing what I know about designing classes and packages, I'm sure that I would be able to clean up my code significantly if I was able to restart on it. Additionally, when I began I didn't think about how future dice could have more than six sides, and though I reworked the dice class to implement this, I think my design would have been better if I had done some more planning and thinking before writing my code. Lastly, I wish I would have read the coding standards and documentation standards before beginning; that would have saved me a lot of time.