Adam Kowalchyk
CPSC 224
Homework #3 Write up

Summary of purpose and goal of project:

The overall goal of this project was to allow a player to play a full game of Yahtzee. The player should have a simple user interface that is easily interpreted throughout the game. This includes being able to show the players scorecard after every turn, adjust to the players new rules created, display the correct scoring options for each turn, etc. My main goal was to both allow my program to accomplish these tasks, as well as structure my code so that it works best to demonstrate the OOP nature of the project. This includes designing my Scorecard class in a manner that allows the code to be reusable in future assignments and give way for new incoming features to the Scorecard class or other classes.

Overall Design:

How I went about the overall design of this project was to implement all the new dynamics I would need into my Scorecard class in order to accomplish my goals. The new Scorecard class contains several ArrayLists which contain the upper scores, lower scores, upper labels, lower labels, and valid scoring option. The ArrayLists are updated inside the Scorecard class as the current game goes on. When a new Scorecard class is instantiated, the Scorecard constructor calls functions like setUpperLabels(), setLowerLabels(), setLowerScores(), and setUpperScores(). These functions create an initial scorecard that stores all of the players scores, which are initially set to null. After each turn, the user is given scoring options for their hand, the scorecard is then filled with the user's choice of score with the function fillScoreCard(). Once the scorecard is filled, the scoring option the user choses is removed from the list of valid scoring options, and their next turn begins. Once the user runs out of all possible scoring options, the function endgame() is called to calculate final scores and print the final scorecard. In order to better implement the new full game style, the YahtzeeGame class was updated to contain two functions; playTurn() which plays one turn of Yahtzee, and playGame() which plays a game of Yahtzee. Overall, I feel the new Scorecard class implements a full game of Yahtzee quite well, as everything a scorecard would need to do or contain in a real game of Yahtzee, is all nested inside of the class.

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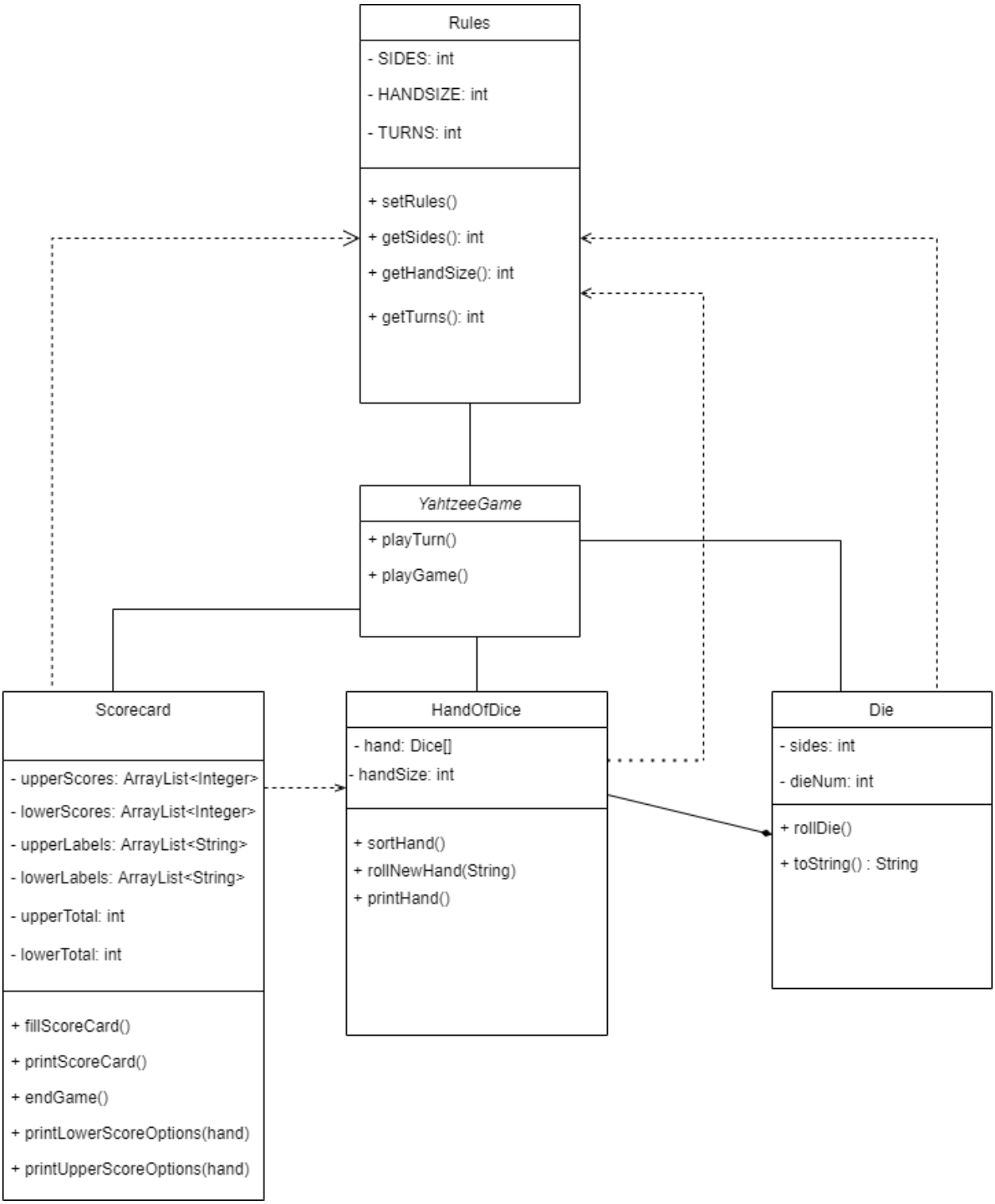

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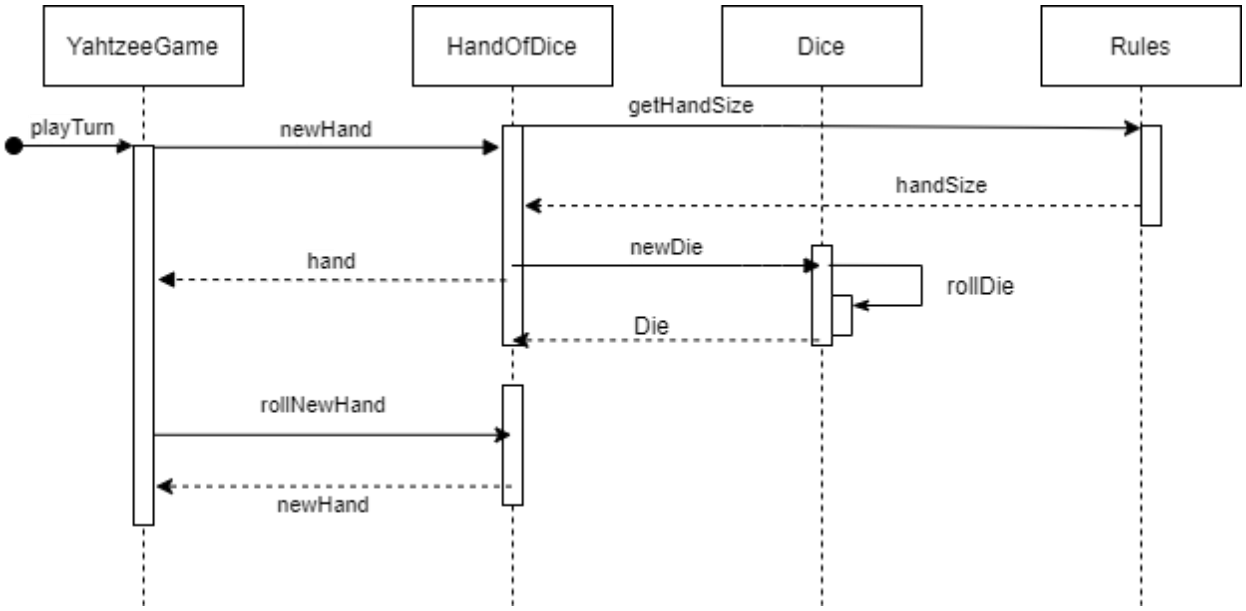

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Design issues:

This biggest design issue for this project was setting up the initial Scorecard. I first struggled with deciding how I would store the current scores on the scorecard. Initially I decided to make the current scorecard a 2d array that stores all of the labels and scores for both the upper and scorecard. I then realized this was probably not the best idea and switched to creating 4 separate array list that stores the upper scores, upper labels, lower scores, and lower labels. This allowed for easier manipulation between the lower scorecard and upper scorecard. Allowing these lists to be able to easily fill with new scores and labels was tough as the indexing was off a lot. Once I was able to figure out the indexing based on the number of sides on the dice and where each label should be in correspondence with each score, the rest of the project flowed relatively easily.

What I could've done differently with more time:

Overall, because of the amount of time I spent in the last assignment on getting the code to be more reusable for future assignments, the only part of the program that I had to update was the Scorecard class and a little bit of the Yahtzee Game class. If I had more time, and a better understanding of future implementations for the program, I maybe could've better implemented the Scorecard class so it can handle things like other players and AI's. Although, saying something like player1.setScorecard() in the future would not be too hard to implement, as the Scorecard class implements everything a player would need to do with their Scorecard. My scorecard class is also quite large, handling both the upper and lower scorecard. One thing I may want to change is splitting my Scorecard class into two separate scorecards, lower scorecard, and upper scorecard. Although for now, I don't see any large issues with my program that would cause for a total restructuring of my classes.