Adam Kowalchyk
CPSC 224
Homework #1 Write up

Summary of purpose and goal of project:

The overall goal of this project was essentially to create a program that is able to play one round of Yahtzee, output score possibilities for the round, and ask the user if they would like to play again. Fortunately, we were given a C++ program that was able to execute this code, although much work was still needed to be done. Aside from converting the C++ code into Java code, because Java is an object-oriented programming language, the biggest task and purpose of this first project was to transform the one file of C++ code into OOP format. Yahtzee is a game made of objects: Dice, scorecard, hand of dice, person, etc. If we are able to incorporate these objects into a software design that incorporates all of these objects, then our project as a whole will be more efficient and reusable. Understanding the growth of this project into what it may become in the future was also an important thought while designing the code. Creating classes that can be easily manipulated and used in other classes will help for debugging in future parts of the Yahtzee game.

Overall Design:

How I went about the overall design of this project was to basically think about what objects are needed in order to play a round of Yahtzee and create subsequent classes for those objects. Hence, I created four different classes: Dice, HandOfDice, Scorecard, and Yahtzee Game. These four classes all work together in order to output one round of Yahtzee. The YahtzeeGame Class is the driver of the project. In this class I created a playRound method that essentially incorporates all of the classes together into playing one round of Yahtzee. The Scorecard Class acts as a scorecard object, just as it would in a normal Yahtzee game. Once the user has either used all of their turns or has decided to keep their dice, a new scorecard is created in the YahtzeeGame class and the scoring options are printed for that hand. Therefore, in order for the Scorecard Class to really use any of its methods, the HandOfDice Class must be implemented. The HandOfDice class acts as the five dice you roll in a game of Yahtzee. It incorporates methods like printHand, initialHand (which creates the initial hand of dice), and rollNewHand. The HandOfDice class is composed of an ArrayList of Dice attribute, which is what stores all of the dice in the hand. This is where the Dice class comes in, which acts as a normal dice in a Yahtzee game. When a new Dice is created for the HandOfDice, the die is rolled and assigned a number, which for right now is a number between 1-6. Overall, the initial design for this project works very well for the time being, and hopefully many of these classes will be essential and stable for future additions to the project.

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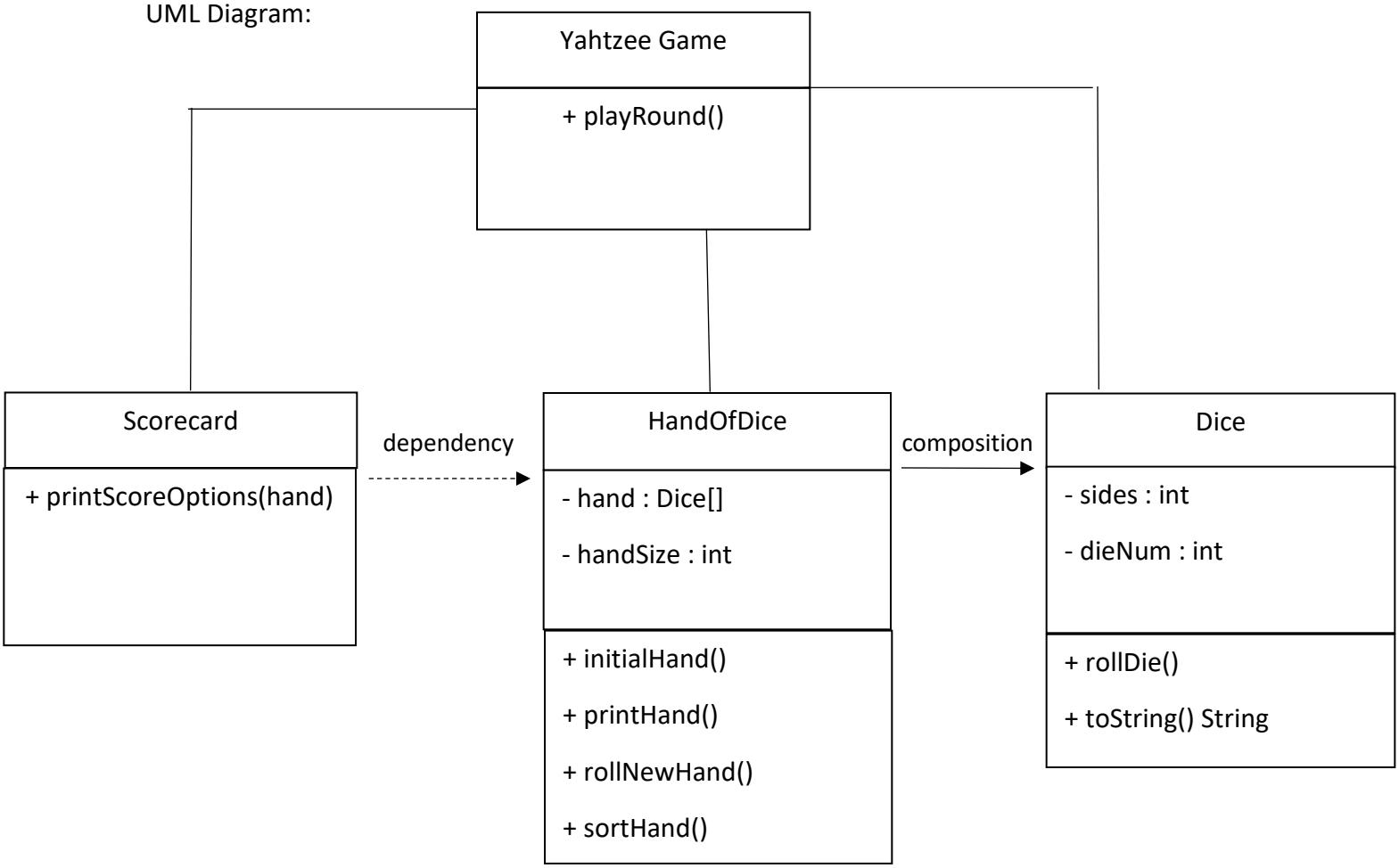
UML Diagram:



Design issues:

This biggest design issues for this project were deciding how I would implement each class, and what attributes/methods I needed for each class. All of the code was given to me in C++ code, although deciding how I would implement that code was the trickiest part. I spent a lot of time just thinking in my head how I would implement a part of code in a class, and then I would try it out. For example, I initially had the HandOfDice Class store an array of integers that would act as dice, although were just an integer, they weren't an actual dice. I had a Dice Class although the dice class would basically just generate a number and the actual Dice object wasn't used. I then realized that I should create an array of dice objects which worked well. Then looking at the hint in the assignment and I realized that it was recommended to use ArrayLists for the hand of dice, so I changed the HandOfDice attribute to an ArrayList of Dice

objects. Overall, most of the issues I had were similar to the above example; writing code, then figuring out how I could implement the code to better serve the OOP nature of the project.

What I could've done differently with more time:

Overall, time wasn't really an issue for this program. I feel content with how the overall project ended up, and more specifically how the project was put together with the various classes all being connected in some shape or form. As this is just an intro to our Yahtzee project, much more time will be spent on the same program that has been built for this assignment, which is where I assume more time will be needed for fixing bugs. Without knowing exactly what else we are going to implement into out Yah "Homework 1 Summary.pdf tzee project, it's hard to see where exactly in the program more time is needed.