In terms of the structure of the program, there are two classes, “User” and “Computer”, which extend the “Players” class because the roles they play in the program are similar. They all have some attributes such as “name”, “secretCode” and “guess”, and methods such as “checkInput()” and “checkAnswer()”. However, some methods in these two classes have different implementations. setSecretCode(), For example, “User” sets it’s secret code according to the input data, while “Computer” sets its secret code from a random number. In addition, at the beginning of the game, the program creates a reference from “Computer” class and implement it from one of its subclasses which is “EasyLevel”, “MediumLevel” or “HardLevel”. In those levels, there are different implementations for “guess()” method, which can make the game have different difficulties. Besides, there is another class called “Game” which have some general attributes, such as “level” and “winner”, and methods such as “printResult()” and “readFile()”.

Compared with the initial class diagram, the final version is more complete. The attributes and methods are more specific and placed in more appropriate classes. For instance, the “bulls” and “cows” variables are placed in “Game” class in the initial version. However, both “User” and “Computer” should have their own bulls and cows in each turn. Also, For the purpose of code reuse, in the final version, there are some methods created to make the code simpler and easier to read.