Assignment 2 Reflection

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Abstract**—*****This is my reflection about the Bulls and Cows java game developed my Assignment 2 in COMPSCI718 paper.***

I. Introduction

This assignment was based on creating a Bulls and Cows game where the user sets a secret code which the computer then tries to guess. The user can choose from three difficulty modes with each making the AI harder. This assignment was very challenging, but I believe it helped to strengthen the foundation of learning and understanding of individual concepts learnt throughout the course thus far. Understanding the use of inheritance was very helpful and how that concept can be used in a more real-world application.

II. How The assignment went and useful lectures

The assignment went well. It started off quite difficult, being handed a blank canvas and trying to figure out where to start. The use of the UML diagrams helped develop an initial plan of how to approach the assignment. I knew the UML diagram might change at the end as the assignment developed and evolved with classes and methods I had not thought of as well as a change to inheritance to better suit the assignment requirements. There weren't any specific modules or labs as I ended up just looking through all material to get answer to specific problems. I also made use of reading through stackoverflow, geeksforgeeks and many other web articles that talk about specific problems or queries to gain a better understanding or topic explained in another way.

III. Design and implementation

Something I would improve is create a random number generator that creates a number length to the length of the defined value for the key legthOfSecretCode in the config file. This would mean that there is always a .txt file with random numbers the user can use to automatically guess for them. Yes, the final implementation changed. Instead of interfaces I opted to use inheritance for the difficulty levels. These classes inherit from the computer class and are adjusted accordingly to increase the difficulty of the AI.

IV. Testing

Program testing was done by running through every option in the program multiple times with different values and inputs to ensure that the program functions as intended. Every difficulty level is tested, different username inputs, testing the error messages, testing the loops for example by inputting too many or too few numbers, duplicate numbers etc.

V. Advanced configuration

For the advanced configuration I decided to create a config.properties file which contains two keys and each key having a value. The keys I decided to use, which the user can change, are number of attempts before game ends and length of the codes. I created a Config class where the properties file is loaded when called. In the respective places in the code, I created an object that calls the Config class so that I can access the method containing the property values. Once I did this, I modified the code so that the key values update in the code. At default there are 7 attempts with a code length of 4 digits.

If the user goes into the properties file and changes these numbers, when the game is recompiled then the code is updated without the user having to do anything extra. I wanted to find a way to keep the code dynamic without hardcoding anything in. I decided to use the properties file because as a gamer I know that a lot of game settings can be changed in a config.ini file. I wanted to use a similar concept to change the properties of my game so researched into property files and how to use them more effectively.

VI. HOW TO CONFIGURE THE GAME

1) Open config.properties file
2) Change the values to your desired numbers.
3) Run the program

**** Note ****

If you want to use automatic guesses, please update the Guesses.txt file with guesses of same length as your lengthOfSecretCode value. The following section explains how to configure the guesses file

VII. HOW TO CONFIGURE THE GUESSES FILE

https://commentpicker.com/random-number-generator.php

1) Set minimum value to 0
2) Set maximum value to 9
3) Set amount of numbers per sequence to same amount you made lengthOfSecretCode
4) Set amount of sequence to number of automatic guesses you want
5) Tick the box that says unique numbers in a sequence (no repeats)
6) Generate numbers
7) Copy the numbers and paste in the Guesses.txt file
8) Start game