Lab 2

Goals-
Identify requirements for a program
Document the requirements using a simplified class hierarchy
Develop a simple initial test plan

You will do the analysis for a program. The purpose of this lab is to develop the habit of understanding the situation before you write code. You will then develop a class hierarchy to document the requirements you identify.

You realize that your dice-rolling program (from lab 1) may be more complicated than needed. There is similarity between Die and LoadedDie. It would be better to use inheritance. You will create a class hierarchy to show the inheritance of LoadedDie from Die.

For this assignment you will also need a Game class. The Game class will not be part of an is-a relation, but a has-a relation. The Game class will need to keep track of the type of dice for each of the 2 players, the number of rounds to play, and some way to maintain the score.

You will design a program to play a simplified version of war, using dice instead of cards. There will be only one user, but 2 "players" for the game. You should give the user the option of setting the number of sides on the dice used, if one player or both are using regular or loaded dice, and the number of rounds to play. Your program will use the game class to determine which player won. Your program should print out which player won to the user. To play a game, for each round you roll a die of the appropriate type for each player. The higher result wins. If they are equal it is a draw. The winner of the game is the player who won the most rounds.

Do NOT write any code. This is only design.

You will also create a draft test plan. Thinking about testing while doing your design can help spot problems. For the test plan: what options are available to the user? What results would you expect for each option or combination of options?

What do I expect? You should list your requirements. You should describe any actions required. You should clearly indicate which nouns are classes, which nouns are data members for which classes, and which activities are members of which classes. You should include an outline of the design for you main program indicating how it will use the Game and Die classes.

Include a class hierarchy diagram displaying the organization and/or relationship of the different classes. You should have 3 classes for this lab. The box for each class should separate name, data, and function members. An example is included at the end of this file. If you do not want to struggle with a drawing program please draw it neatly by hand and scan it. Notice that it is not detailed. That is the next part when you design the code. The goal is to better understand the problem.

Modular Grading

We are using modular grading. Each lab will be divided into specific modules. Each module will be graded pass/fail. It either works properly or it does not. 10% of every lab or assignment grade is