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Cs 172-1

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Final Project Proposal

The problem/project we’d like to address is to re-create the game of Catan with C++ code. There will be many problems to address that reside in the overall project. We would have to create a working game board with the limited use of ASCII characters to resemble the hexagonal nature the game is based on. A grid system needs to be created in order to allow players to place objects on the board. We will have to make it so that every game is unique and different which would call for many random variable assignments to determine the layout of the board. Classes will have to be made to keep track of player data and data on the board with the two passing multiple variables to each other. A card system also needs to be created through classes to keep track of player resources and wild cards that players can buy. As well, there needs to be a randomizer for two sets of dice that will link to both board and player classes to determine how many of each resource is given to a player. The problems in the project are multi-tiered and will challenge our organization and object-oriented program skills as well as creativity and ingenuity to maintain a complex web of moves each play can make.

One of the biggest challenges in the project would be creating the board to be flexible enough to randomize and be manipulate through the entirety of the game. To do this, we play to use back-slashes, forward-slashes, and underscores to create the hexagonal pattern that mimics the actual game’s board. We would do this using cout statements with variables in between that we will use to characterize towns, houses, and roads. These variables would be char so we can either at / or \ for roads and H or T for houses or towns. We will also make these color based for each player. To keep track of objects, we plan on making a two dimensional array to keep track of coordinates on the board. As well, each hexagon piece needs a randomized variables for resources and dice-roll values. These properties we plan to incorporate inside classes to be able to easily manage and check. This class would also keep track of which players reside in the hexagon to be able to check who gets resources and who doesn’t. All in all, the board will be the main structure or the program and the classes being the backbone of the game. These elements are crucial to be planned in UML and organized well in the program in order to complete the project in an efficient manner.

Next would be an input system that all plays will receive every turn. This system will allow players to play wild cards, build roads, houses, or towns, and possibly trade cards with other players. This would also be implemented in a class for all players and will probably be using other classes in its methods to update and manage the changes of the board, players, or point totals. Functions will also need to be created in order to check the validity of moves such as if you have enough resources to buy x, y, or z and to check if you have the necessary requirements to build there. The board classes again would be used here to recall where everyone’s roads are. Lastly, we would have to watch out for redefinition of classes and use a lot of inclusion guards when passing classes to other classes.

The project will pose many challenges for us and make use code in creative ways to manage and incorporate the game’s system. However, if we plan accordingly and program in an object oriented manner to split to project up into smaller and smaller pieces, we would learn a lot on how real programs are managed and how to work together as a team.