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CSE 2100

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Assignment 6 Document - Goats

Programming Design:

The overall design of this program is very complex and involved. The abstract ideas behind it are very comprehendible but the implementation of it is very difficult. In my program the following was done:

1. Create a separate class for the goats
    a. Inside this class would contain all features and characteristics we would need for the goats, and any method needed such as seeing if it needed to die or performing the crossing of bridges count.
    b. Make a constructor that will determine some of these traits
2. Create a separate class for the bridges/trolls
    a. This class would define characteristics for the bridge as well as methods that would perform some of the functions necessary to handle the crossing and priority.
    b. It would also include a constructor to define its characteristics
3. A main class that would combine the two previous classes and using heaps perform the overall computation.
    a. After getting the necessary output required, I would construct a graph that could display all information needed.

I decided to split up the classes to make everything seem distinct and separate to reduce confusion while making the "game" work. It wouldn't make sense to combine all of these classes together, although it is possible to do. One main thing I needed to keep in mind is how the bridges and goats should work together with encapsulation, getters, and setter methods.

Tradeoffs:

There were not many things I could trade off in this assignment. I had initially had the same idea throughout the assignment. Collaborating with other students on how to design it gave the same results with what I started with as it was the same concept. Keep classes separate and unique but make sure they could access variables and work together with no problem. Had I had a working program then I'm sure I could discuss more about the tradeoffs but due to lack of

knowledge, implementation and time to do the assignment, I could not use the heap as required – however I do know of other ways to complete the assignment without the use of a heap. I would think about using several arrays to store/add/delete the goats, although the complexity would be worse than a heap. I spoke to several other students and realized that none of us knew how to implement or use the heap, so in some way we didn't know what to do really with the heap but we knew the application and use of it was for the assignment.

Extensions

If I were to change this program I would actually create a visible display if you will, an actual game, and watch it turn out over time with a slider to see the progression of the game over time. This is to visually see the heap working as well as seeing the smart policy be put in action.

Test Cases:

Unfortunately, as stated previously, I do not have a fully functional and working program; therefore I do not have any test cases to show or explain. It is sad to say, but I feel like the class as a whole was not prepared for an assignment of this magnitude with its several complex requirements and list of things to do. It is a very involved assignment as well as a complex one at that. After speaking to a CS Grad about this assignment for help, he told me himself that this assignment is unfair and completely ludicrous difficulty wise given the time and prior knowledge of how to do this.