Team BoneAppleTeeth APCS1 pd1

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Final Project Proposal

Oregon Trail

Our project proposal is to re-create the Oregon Trail game. It will consist of a superclass called Character. It's subclasses will include Player (the character that the user will be interacting with that possesses several methods like rest( ) and buy( ) etc...) and Member (the other members of the wagon party). There will also be subclasses that extend Player, which will determine the Player's occupation. The game will run with a driver java file.

When the game runs, the user will be prompted to make decisions like difficulty, giving names for 1 Player and 4 Members, choosing an occupation (which will affect certain instance variables of the Player like money) for the Player, choosing when to begin the journey, and choosing what to buy before starting the journey.

The Player and Members will progress with the driver's method playTurn( ), which, depending on the selected pace, will deplete the Player's inventory of food, and increase the counter for the number of days and miles traveled. The console will print out a new string to display the information that has changed. There is also a chance that a random event will happen each time playTurn( ) is called. The random events can range from a change of weather, to a member getting an illness, such as dysentery. At a certain number of miles traveled, the wagon members arrive at checkpoints like rivers, towns, etc… Along the trail the Player can rest, check supplies, change rations, change pace, look at the map, hunt for food, or keep going. At towns, the Player can additionally buy and sell supplies. At a river, the Player

can choose to ford the river, float the wagon across, or wait for the river to become more shallow.

The health of each Character will determine whether they're alive or not. The health of each Character will be affected by amount of food, clothing, and amount of rest. Certain random natural events, such as earthquakes or snakebites, may also affect the health of each Character. When the health of a Character reaches 0, he or she will die. If the Player dies, the game is over. However, all of the Members must die before the player dies (just game design, to improve the chances of winning).

The ultimate goal of this game is to safely complete the trail, ideally with all of the members that the player started with. The success of the player is determined upon the number of the wagon members that reached the destination with the player, the healths and conditions of the player and its wagon members, and the amount of supplies and money left over.

The first and the most general concept that our group has to utilize is the Object class in Java. We plan on creating different Objects of Characters throughout this game that will constitute the player and the members of the family of the player. We plan on utilizing arrays, both 1D and 2D, for the inventory and mostly for storage purposes of the game and we plan on sorting these arrays by alphabetizing the items inside. To further this, we plan on having different items and materials implement the interface Comparable so we can compare between the different items and sort them accordingly. We plan on throwing exceptions and using try and catch blocks for situations where the user types in an unexpected or unacceptable input (for example, when the expected input is an integer but the user types in a string instead). We want to implement interfaces and abstract classes for certain methods and we aim to have a superclass with multiple sub classes each with their own subclasses for further and better detailed division of characters based on different roles the characters can have during the

game, such as, immigrant, carpenter, farmer, or banker. We also would like to use a driver class that will put together and run the entire game. We plan on using the Math.random() method to generate the probability of certain events happening, for example, to generate the probability of certain natural events occurring, such as a member getting a fever or dysentery, during the game.

Our minimal viable product will be to have one player travel from one town to another, certainly facing some kind of challenge on the road, such as a natural disaster, and being able to use the store at one of the towns to buy or sell food and oxen, which are held in an inventory array. The player will be able to adjust the pace and the portion of the food being eaten.

Our final product will be to have one player with its family member(s) travel further distances, passing multiple towns or checkpoints, as well as passing multiple rivers. Starting and ending points may be selectable by the player. The player will face numerous random events on the trail. The player will be able to use the store to make purchases or sell items. In this version, the store will contain more types of items and materials, such as medicine, and the pricing and availability of these items will vary depending on location. The player's inventory will also remain sorted. During the trip, the player will be able to adjust certain factors, such as the pace, or the portion of the food being eaten. Additionally, the player will have the ability to hunt for food playing some kind of mini-game that will stimulate the shooting implemented in the version of Oregon Trail with graphics. The final product will be more embellished than the MVP with more details, a longer game length and will contain more choices that the user can make.