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| CIT 260 Team Project Proposal |  |
| Project Name | Billy Bob’s Farm |
| Team Members | Dan Crosby, Leanne Kendrick |
| Description | This project will include a game in which a player is given a farm plot, and at each round they can purchase plants which have a certain cost, a certain number of rounds for plants to mature, a certain amount of profit that might be earned, and certain disasters that might occur in the course of playing the game. Players of this game will learn to strategically select which plants to grow. |
| Plants that can grow on the farm and default properties: | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | |  | Carrots | Tomatoes | Potatoes | Corn | Watermelons | | Rounds to maturity | 1 | 2 | 2 | 3 | 3 | | Square footage required | .2 | 1 | .5 | .5 | 5 | | Single Harvest | Yes | No | No | No | Yes | | Seed cost | .02 | .15 | .20 | .10 | .05 | | Average sale price | .20 | 1.50 | 1.00 | .75 | 7.50 | |
| User Interface | A simple text-based interface.  At the beginning of the game, the user will be presented with options to start a game, or view the high scores, which would be retrieved from disk, or to exit.  After starting a game and at the start of each round, a player will be presented with their current cash level, the round number, an inventory of their farm/garden plot, and a description of the available UI controls to purchase plants and/or to complete the round.  At the completion of the game, a text file showing the players ending garden inventory and cash levels will be logged to the file system. The high scores list will also be updated. There will be an option to display the high scores from the main menu. |
| Classes | We are planning 7 classes as indicated in the accompanying UML diagram.   * The farm class is the main class that will contain the inventory of plants / vegetables that have been purchased. * The plant class is an abstract class that will be implemented by the different vegetable types. This class will contain some based fields and methods that are common to all types of vegetables, including routines to determine if a disaster has occurred that might affect all crops. * Plant/vegetable specific classes for the 5 types of vegetables selected for this game. Each of these classes will inherit from the plant class and implement or override the methods as appropriate. Custom logic for calculating whether a plant is mature and whether or not a plant specific disaster has occurred will be implemented at this level. |
| Technical Notes | This project will implement Inheritance where in the individual vegetables will inherit features from the “plant” class.  This project will implement polymorphism when the Farm class loops through the plant objects and performs functions that are specific to the individual class types rather than the parent class type. |
| Main Class | A main class will be responsible for instantiating the farm class for the player after capturing the player name, and then coordinating the UI elements and calling the other classes as appropriate.  While the class structure supports a multi-player environment (by implementing multiple instances of Farm), our day 1 implementation plans would make this a single player game. |
| Game completion | The game by default will complete after 10 rounds. Players who have earned more than $10 will be congratulated, players earning less than this will be advised that they have failed and should play again to ensure that they do not starve. |