

HOMework 5

GAMEPLAY

1. The game I decided to develop is a classic memory game with a few modifications for powerups. The game starts with a set of cards facing down on the board organized in rows and columns and at each player's turn they flip two cards, so they are now facing up. If the flipped cards match, they player gets to keep the cards (meaning now they are facing up permanently), if they are different the player flips the cards back down in the same place. The trick to win the game is to memorize where which card is on the board. The objective of the game is to collect as many pairs of cards as possible and the winner is the one with most pairs.
2. The playing field for this memory game will be a background image and the cards will be displayed on top. The game has basically two main states. All cards down and a pair of cards facing up.
3. Since memory game is a game designed primarily for children, I decided the theme of the game should be something that related to that. So the theme is Animals in a farm. This means the kids memory game's cards will be different animals and the background will be a farm.
4. The three different type of resources in the memory game will be in a class for the type of the card. Since it's a fairly simple game, I am planning on having 9 different cards giving me a total of 18 cards to be displayed in a 3x6 grid.
5. Players will acquire all items in 4 by clicking on them. It is possible to click at one item at a time and either zero, one or two cards will be facing up at a turn.
6. The game is going to have a power up and a trap. The power up is a special card that if flipped allows the player to flip 3 cards in addition to the power up card during his turn. After the power up is used by one player it can't be used again. The trap is a special cards that if flipped the user forfeits his turn. These will be implemented as different instances of the same class.
7. One to three players will be allowed to play the game.
8. Begin state is when the player hit the start button making the clock star running from 0, the turn count is equal to 0 and all the cards are facing down and it's player 1's turn. End state of the game is when either the time ran out or all the cards are facing up.

9. Additional features that will be added if time permits will be the single player can choose to play against the clock or the number of turn. One feature that might also be incorporated is the difficulty level, based on the time to complete the game or the number of cards that are going to be in play.

DESIGN

The design patterns to be implemented in this game are singleton and flyweight. The leaderboard class will have the singleton pattern, so it is loaded one time and the scores are kept from one game to the other (only one instance of the leaderboard is created). Flyweight will be used to populate the board with the cards for the game. Instead of creating different cards of the same type, a pointer will be used to use the same type in the spaces in the grid.

Classes that will inherit from another one are Cards and SpecialCards. Cards being the base class with the regular classes and SpecialCards the derived class with the power-ups and traps.

CHECKPOINT 1

For checkpoint one, I plan to have completed:

1. Low-fidelity prototype capable of demonstrating the following tasks in the game:
 - a. Take a turn
 - i. Select cards
 - b. Consequence of a turn
 - i. Cards match and cards don't match
 - c. Consequences of power up
2. Detailed feedback from family member on the game so far
 - a. Strengths
 - b. Weaknesses
 - c. Suggestions/Changes
3. Basic code and structure for the game. Set up all the classes/structs/elements of the game
 - a. Have the board and the cards being displayed correctly in the view.
 - b. Have a card display an image when clicked
 - c. Basic layout of the game with all the buttons and labels in place
4. Comparison of my plan to what I have actually accomplished.