Kara Schatz

Senior Project Log

Week 1:

* Progress:
  + began writing the game from scratch
  + got driver and keyboard inputs working
  + finished everything except function to move tiles
* Questions:
  + What would be a good design?
  + Should I mimic the source code’s design?
  + Should I use OOP?
* Goal for next week:
  + write function to move tiles
  + start looking as graphics packages to make GUI

Week 2:

* Progress:
  + Completed programming the game so it now works with full functionality
  + Wrote basic GUI that shows the board with tiles that update with the keyboard arrow key clicks
* Questions:
  + None
* Goal for next week:
  + Refactor/clean up game and GUI
  + Write driver for the heuristics, i.e. something that will work alongside the game, generate the four possible moves, and evaluate them on a dummy function (maybe random) that can later be replaced by the heuristics

Week 3:

* Progress:
  + Tried to refactor game and GUI so that game had an instance of GUI instead of vice versa, but not successful
  + Wrote basic bot that chooses the next move randomly and bot that choose next move based on points but that part I haven’t tested for correctness yet
  + Got GUI to show the bot playing the game
  + Added terminating condition and tile colors to the GUI
* Questions:
  + Want to discuss refactoring GUI to see if what I want to do is possible
* Goal for next week:
  + Test bot that chooses next move based on points
  + Start implementing a couple heuristics
  + Decide on all information I want to record when the bot play and write a script that will compile all this into a .txt file as the bot plays

Week 4:

* Progress:
  + Fixed error with game logic: not recognizing when game was over properly
  + Verified that choosing best score works
  + Wrote choosing move that makes most merges
  + Wrote choosing move that keeps highest tile in corner
  + Set up basic log file structure/data collection
* Questions:
  + None
* Goal for next week:
  + Write it such that if multiple moves are just as beneficial, it randomly chooses between them
  + Run experiments with the currently working heuristics
  + Write more heuristics
    - Higher weight to moves that have monotonic rows/columns
  + Write bot to look ahead n moves
  + Parameterize bot based on desired heuristic

Week 5:

* Progress:
  + Parameterized the bot based on heuristic
  + Changed bot to randomly choose between moves that are equally as good
  + Made progress in writing the bot to look ahead n moves
    - Implemented the tree building and searching for highest total score
    - Still need to debug/test to make sure it’s working
* Questions:
  + None
* Goal for next week:
  + Try to figure out a good way to handle the randomness when looking n moves ahead
  + Continue working on finishing the look ahead portion of the bot