Project Description

The Nonogram Puzzle app will have three main features. There will be a few hard coded puzzles that the player can solve, an option to randomly generate a puzzle to be played, and an option to create and play their own puzzle.

A nonogram is a puzzle in which an empty grid must be filled in based on numbers in the top and side of the puzzle. These numbers represent the numbers of pixels that are side by side with no spaces in each row or column.

Similar Projects

There are a lot of nonogram puzzle apps in the app store. I plan to make my app very similar with some of the features, but also combine the various options that are often in separate apps all into one (premade puzzles, randomly generated, and creating your own).

Structural Plan

I will use a variable to keep track of which state of the game I am in to use the CMU graphics built in mouse and keypress functions accordingly. I will also create my own functions to calculate the numbers for the rows and columns, check if a row or column is completed, and check which buttons in the game are being pressed.

I plan to use a player class that will keep track of which puzzles a player has completed or created. If a different player decides to play, they can play a puzzle that the first one created but they cannot edit it.

Algorithmic Plan

I plan to have a hint function that shows a square that can be filled in for certain through logic. This function will go through all unsolved rows and columns, and using the numbers, create all possible solutions to fill the row or column correctly. It will then compare all of the solutions to see if there is a filled tile at the same place in every single solution. If there is, the function will return that tile, otherwise it will continue to go through the rows and columns.

Timeline Plan

TP1 - Have a skeleton with the functions, working selection buttons and change of state, board
11/29 - puzzle creation working
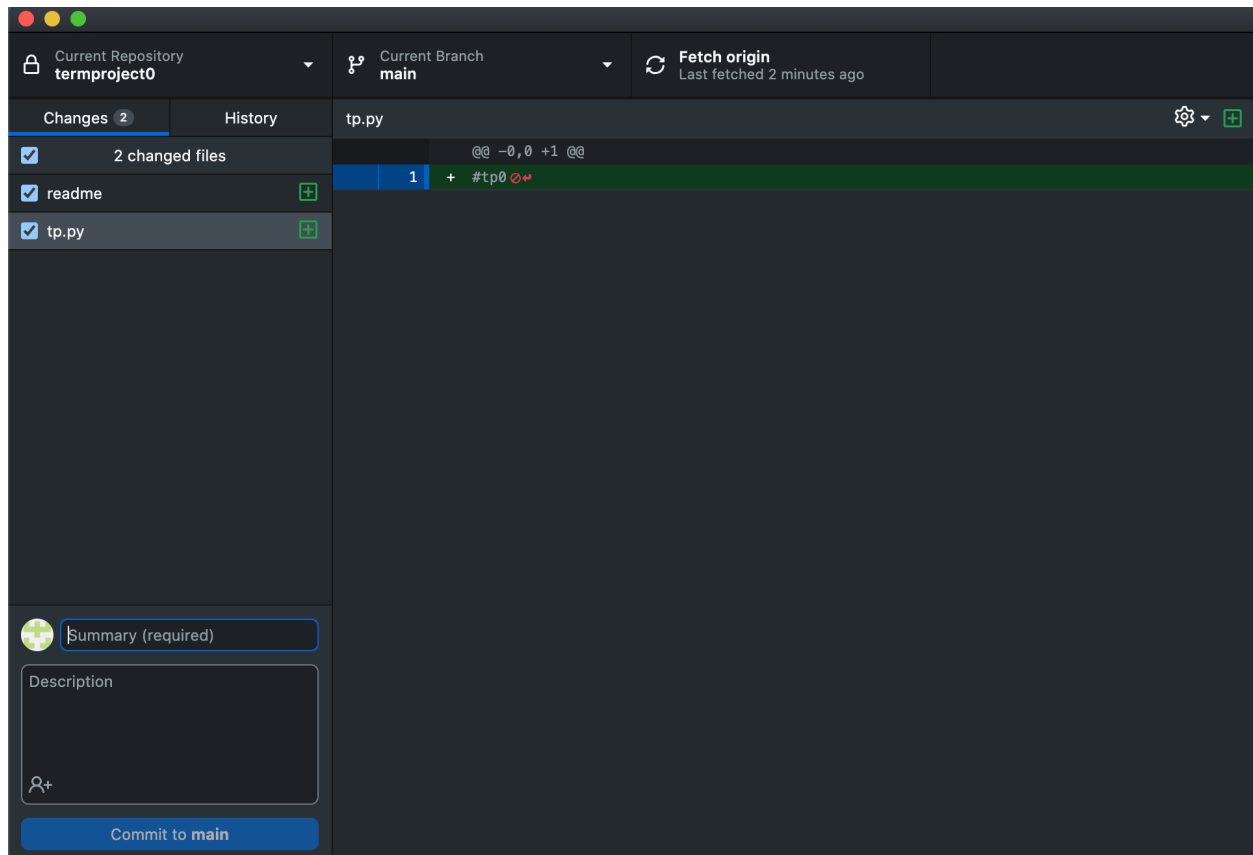11/30 - hint function working
12/1 - solution features working
TP2 - MVP
12/6 - Extra features working

Version Control Plan

I plan to use the github repository to store my code versions.

Module List

I do not plan to use or demo any external modules.

TP 1 Update

No design changes made.

TP 2 Update

No design changes made.

TP 3 Update

No design changes made.