TP0 Project Proposal

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1
Project Description:

This project is a 2.5d isometric view maze with two separated parts.

- The first part has strong design and aesthetic component with lots of interaction between the user and the map (move block, click, dialogue, climb, unusual route). The map is going to be based on CMU campus and the journey of 15-112. Currently, the plan is to make 1 instruction level map + 3 consecutive maps that involves rich story-telling. (This might be called My CMU Story)
- The second half of the map still takes on the 60-30 isometric view but is an auto-generated 3-D maze. The user would use climb up and down using ladders through the blocks of maze from the starting point all the way to the finish. The graphical and story component would be weakened and focus more on the maze. (This might be called Posner to Mellon Challenge)

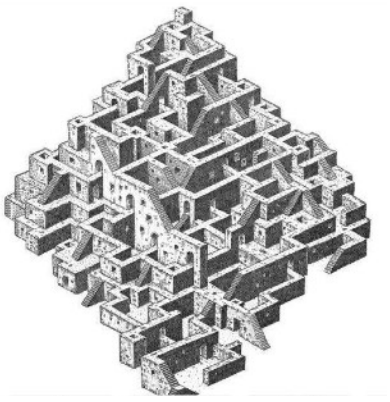
Project Name: Not Utopia

- Just kind of realistic kind of maze like name…

2
Similar Projects:

- Project Idea From: [LINK] 成土市的我
  - This game linked above is a game demo that is not yet available on the market. The main idea is to control the main character and solve the pre-designed maze using tricks like virtual deception. Very rich in graphics and interaction.
  - The first part of Not Utopia takes on the idea of this game, with similar isometric design and rich interaction and graphical component.
  - Main difference: Not Utopia would be 60-30 isometric instead of 45-45. Not Utopia is based on real world architecture (cmu campus) so it will have more detail. The interaction would be richer in forms that involve dialogue with character and 2D screen-ich component. (Shown in story board).

- No similar game project found for the second half of the game.
  - The second half takes on the same structure of the maze as first part, but with less interaction and is only a pure maze to solve. View is still 60-30, blocks, ladders to climb, and starting point to finishing point.
  - Some reference of artworks is found online that illustrates my ideas.



3
Structural Plan

- Main Page
  - Part 1 (My CMU Story)
    - Map File*4 (main story line)
      - Character File (moving character)
      - Separated Interaction Function File (specific function and play in the game)
  - Part 2 (Posner to Mellon Challenge)
    - Map Generator (module + code to transform 2d-3d)
      - 3d block cell constructing file (generating single 2.5 d isometric block cell)
      - Ladder adding to the map
      - Legal/illegal move check
      - Time Check

4
Algorithmic Plan

Most Difficult Part is part 2 which involves generating maze, drawing the maze, and moving in the maze. Part 1 is more difficult design wise.

- Main Leading to different Parts
  - Part 1. (Sequential files. Calls the next one sequentially when previous is succeeded)
    - Within each map:
      - Character Move algorithm (Legal or Illegal move)
      - Interaction algorithm and animation
      - Check if succeed and update back to route track
      - Successful finish each part. Ending animation and lead back to main page
  - Part 2. (Autogenerating + converting to 2.5D, drawing the maze, character moving)
    - Autogenerating
      - Module: generating a 2D maze
      - **Convert 2D into 2.5D by calculating block coordinate**
    - Drawing the 2.5 D maze
      - Block Cell Draw (draw polygon)
      - Calculation and draw the cell from coordinate
      - Color, design of the cell
    - Character Move
      - **Which routes are illegal, which are not**
      - Timing

5
Timeline Plan

4.10 Part 1 Basic Map Design, Tech Demo

4.12 Map Drawing Done

4.15 Part1 Coding Done

4.17 Part2 Map Generation Algorithm Done + UI design Done

4.19 Part1 Character Design Done

4.21 Part 2 Coding Finish

4.22 Main Page UI Done

4.24 All UI, Algorithm, Bugs, Finished

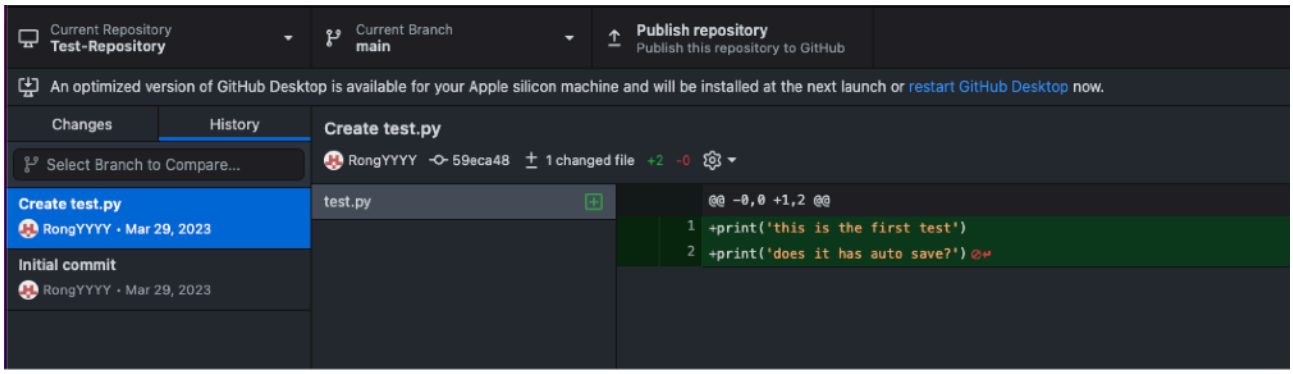
4.25 Video

4.26 Final Final

6
Version Control Plan

I am planning to use GitHub Desktop as version control and backup my plan. [LINK]

- Create repository
- Commit, Pull, Push (upload to cloud to back up).



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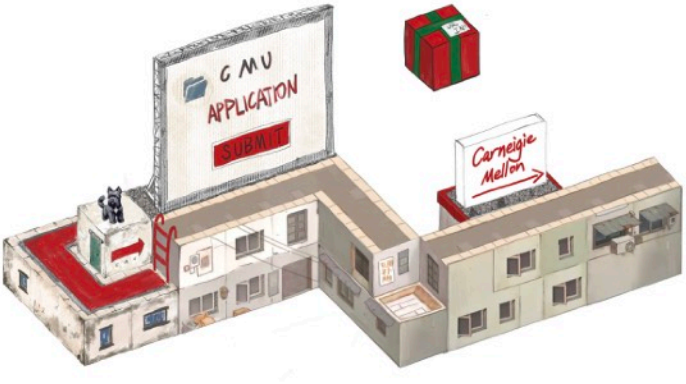
Module List

PYAMAZE (2d maze generator) (will use a 2d based maze to create a 2.5d maze)

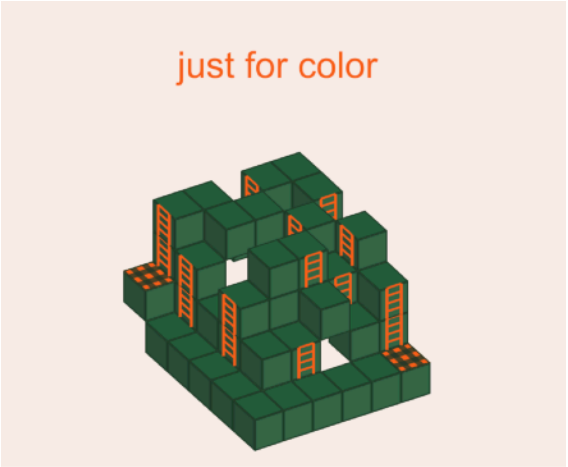
TP1 Update

1
Not Utopia Game Flow



The game is shortened by a lot. The first part (story telling, rich graphic) is taken away since I figured out there is not that much time to finish the drawing (which are obviously less important in 15112).

- Game Opening: the user open the game and see the “intro” part of the game. By interacting with the application board, a gift box would drop into the place so the user can continue the journey heading to CMU.
- Main page: After the opening, the gift box would open and the game title made of cubes would be shown. There would also be difficulty selecting/theme selecting in the main page.
- Game page: The user then enter the 2.5 d maze. Which they would need to imagine some of the ladders and find a way to get out of the 2.5d maze. (From top left corner to bottom right corner).



2
Work Done

1. Game Opening scene done
2. Main Game

    Maze Generation Done (From 2d to 3d, including cubes and ladders)

        Algorithm: from 2d maze map to blocks height using backtracking, add in the ladders according to where is allowed to go.

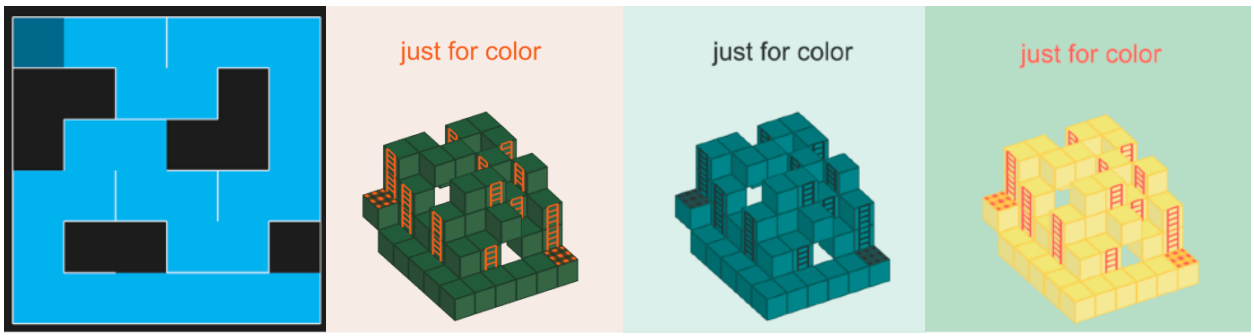
    Maze Draw Out algorithm (blocks, ladders, three color theme)

        Single block generation

        single ladder generation

        block height list to sorted list where the order of drawing is fixed and correct

Total Code: (470 working lines + module)



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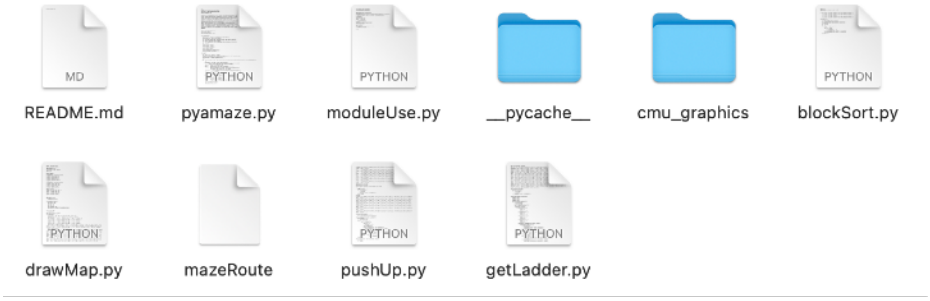
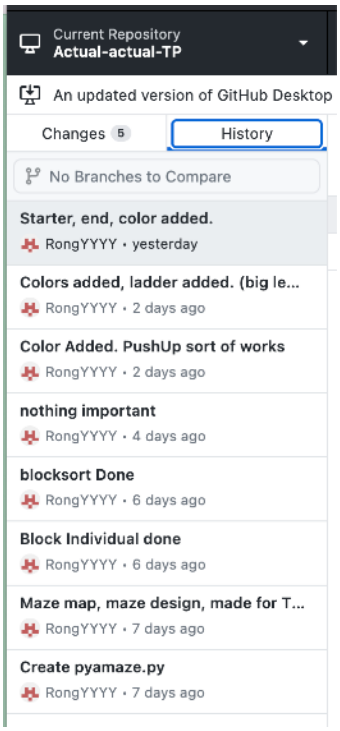
Work TO DO

1. Character Design
2. Game opening code
3. Main page code
4. Character moving algorithm

   in the maze, draw out, level
5. Get the code organized!!!

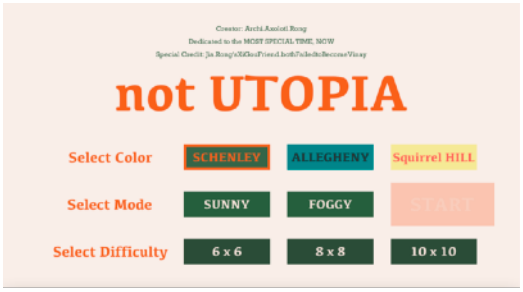




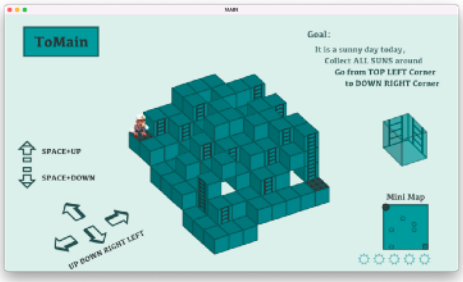
TP2 Update

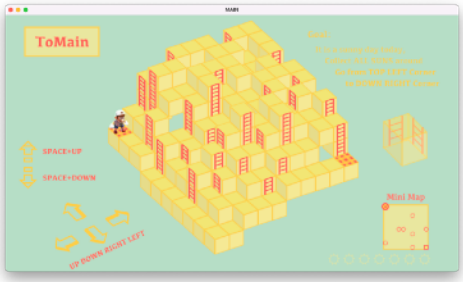
NO CHANGE

TP3 Update



Game Starting Interface: Choose color theme, mode, difficultly.
Color theme: Scheneley, Allegheny, Squirrel Hill
Mode: Sunny mode, Foggy mode
Scale: 6*6, 8*8, 10*10





Description: The game not Utopia is a 3-d auto-generated maze. The user needs to go from the starting point to finish point.
In sunny mode, player needs to collect enough sunshine in order to pass the maze.
In foggy mode, the view is limited, all the player needs to do is to go to the finish.

Code Structure:
Animation Defaults + (Animation Defaults Helper Group): Connects User to the Game
The ACTIVE Part: Enable the moving of the character
MAZE GENERATION ALGORITHM: Takes in 2d maze, returns 3d Maze, with lifting, ladder, blocks sorted
DRAWING the DELIVERABLE: Puts Everything Together

Not UTOPIA Video DEMO Link:
https://youtu.be/_no0ByDP3pw