Week 4: Group 1

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Weekly Tasks

Finished Majority of Refactoring

Began A* implementation

Implemented Modules

Movement Overlay

Began Flood Fill Implementation

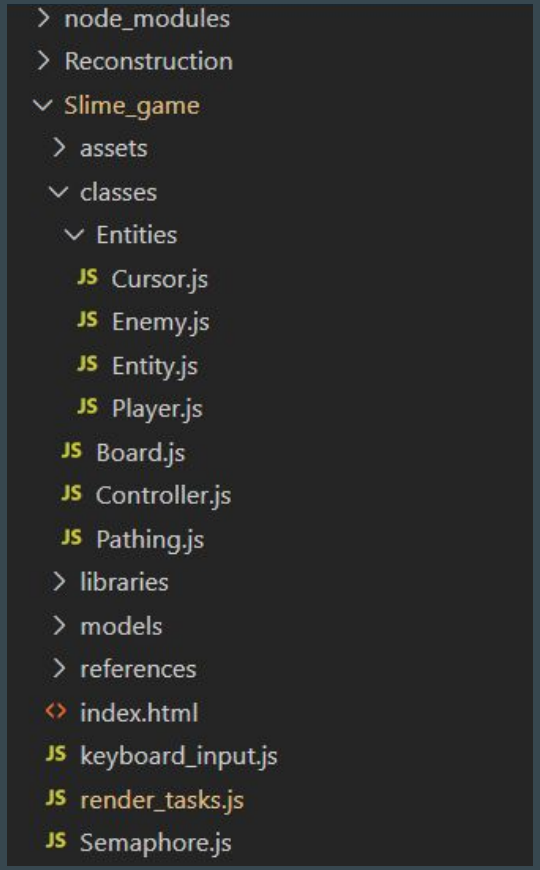
Work on Textures

Progress on Reconstructing our Game

Built 3d Test Map

Reimplemented Semaphores

Rebuilt Cursor



A* troubles

-Pathfinding.js is good, but by default it's not correct for our system.

    -Traversability handling is too simplistic.

-Attempted to implement A* ourselves, but Pathfinding.js is more optimal and mostly implemented already.

A* troubles continued

-Modification of Pathfinding.js is in order

-Currently, Pathfinding uses a grid of 0s and 1s

    -0 indicates traversable

    -1 indicates untraversable

-Doesn’t account for more than two terrain types

-Doesn’t account for height values

A* troubles continued

-Pathfinding.js has a function that gathers the neighbors of a point on the grid.

    -Needs to compare heights and types of adjacent tiles.

Modules

-Pathfinding.js uses modular structure

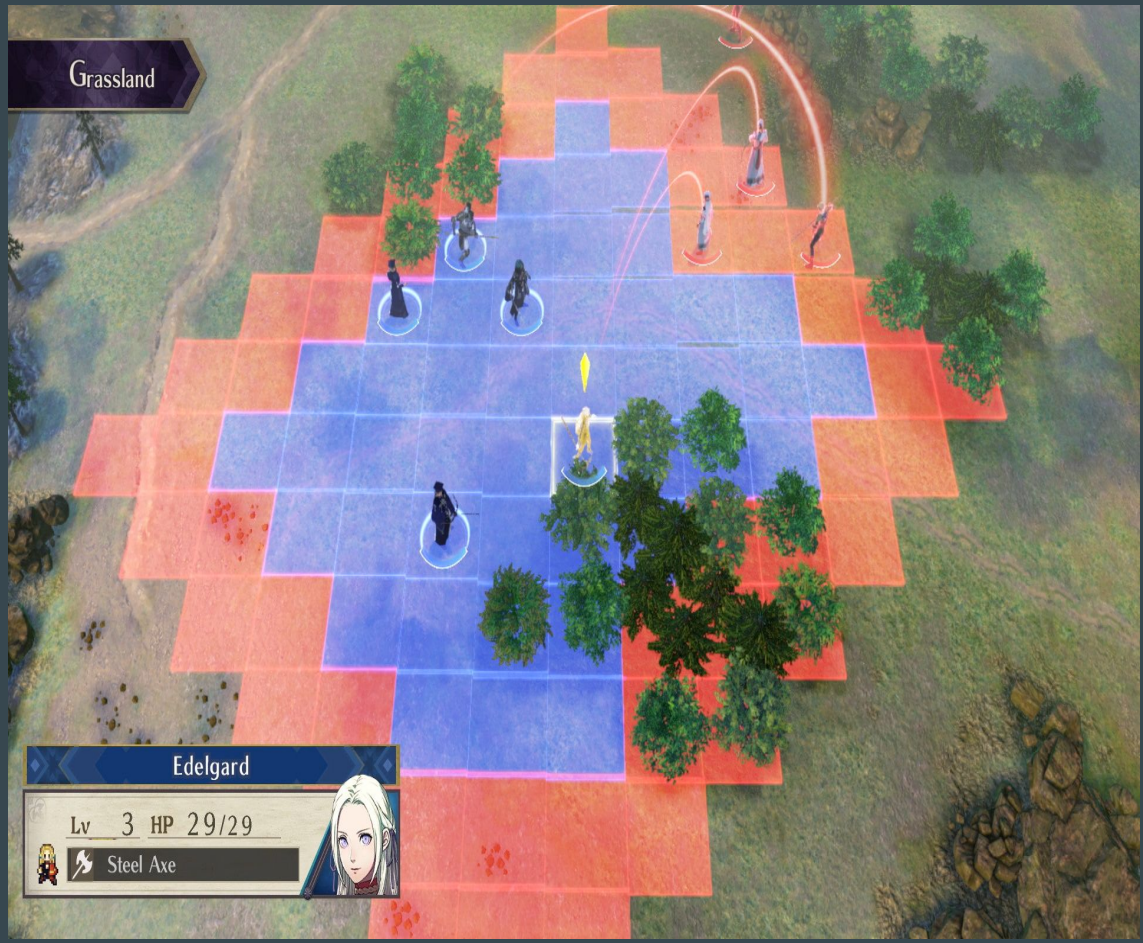
-Decided it was time to modularize our code

```
import {createTestLevel} from "../assets/LevelMaps/TestLevel.js";
import {updateRender} from "../render_tasks.js";
import {doKeyUp, doKeyDown} from "../keyboard_input.js";
```

-Before making the necessary changes to Pathfinding.js, we decided to focus on Grid Overlay

Movement Overlay

- Our idea was to implement a movement system similar to Fire Emblem
- What we did was research how Fire Emblem's movement system works and used similar algorithms



Flood Fill Algorithm

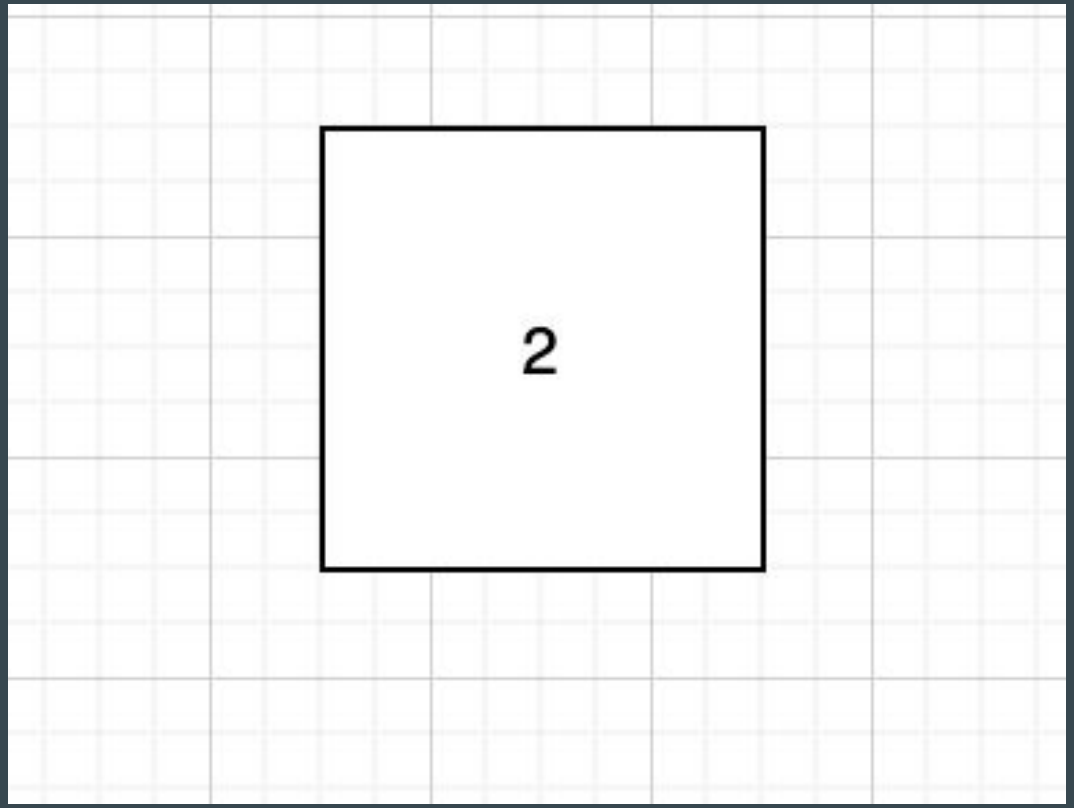
- An algorithm designed to fill in pixels on a plane.
- It is comparable to the bucket tool on Microsoft Paint.
- But, instead of filling in every space, we only want to add an overlay at every space within the range of our player (or other entities).

Flood Fill (cont.)

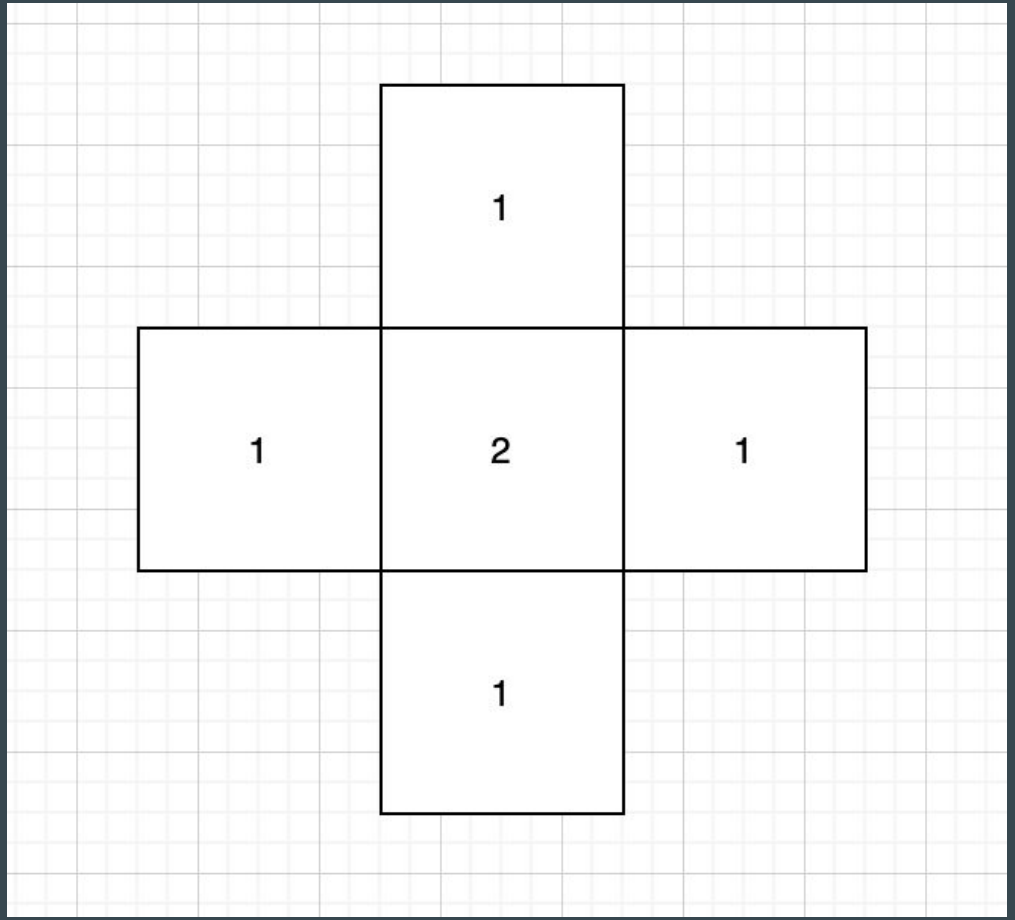
Two Major Types:

- 4-Point
- 8-Point

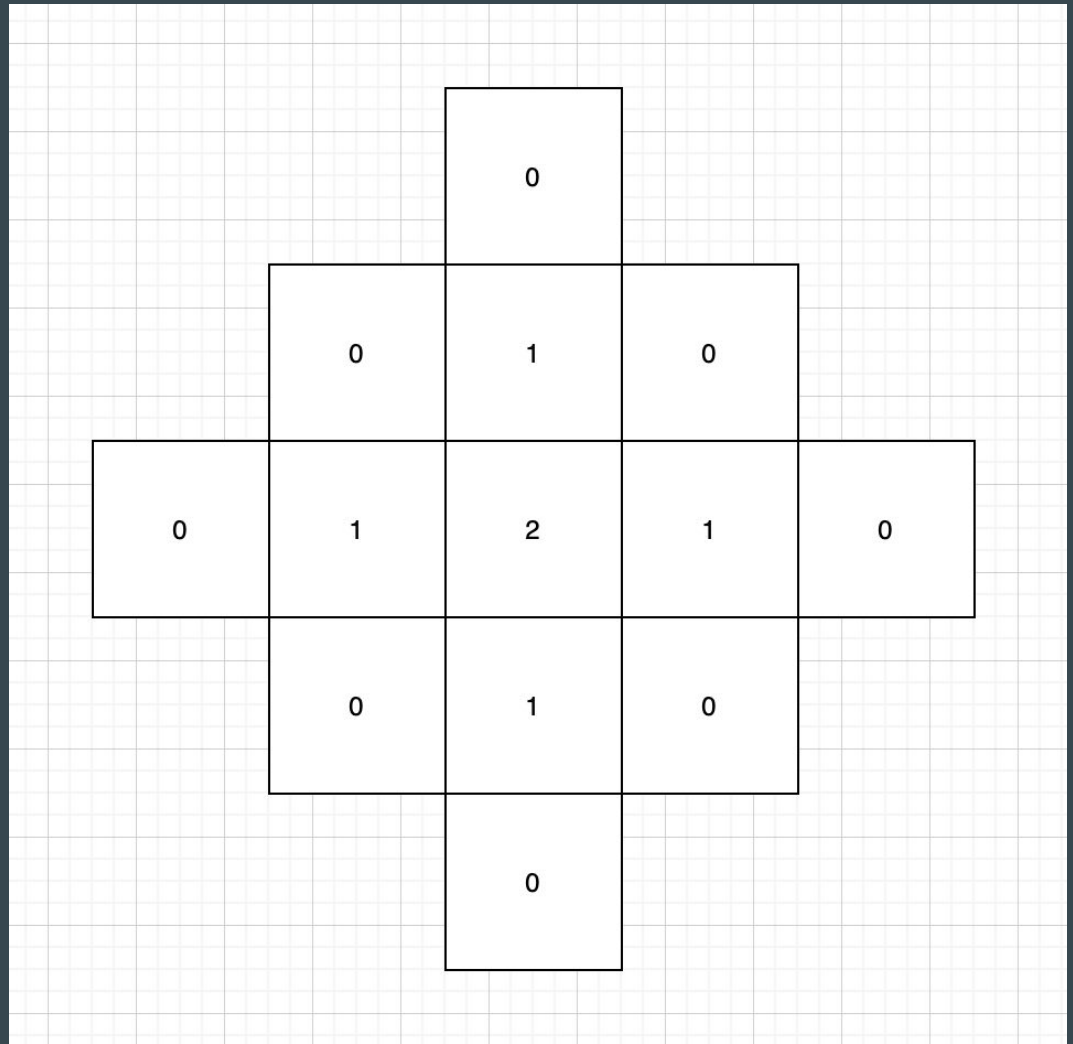
We are using 4-Point



Flood Fill(cont.)

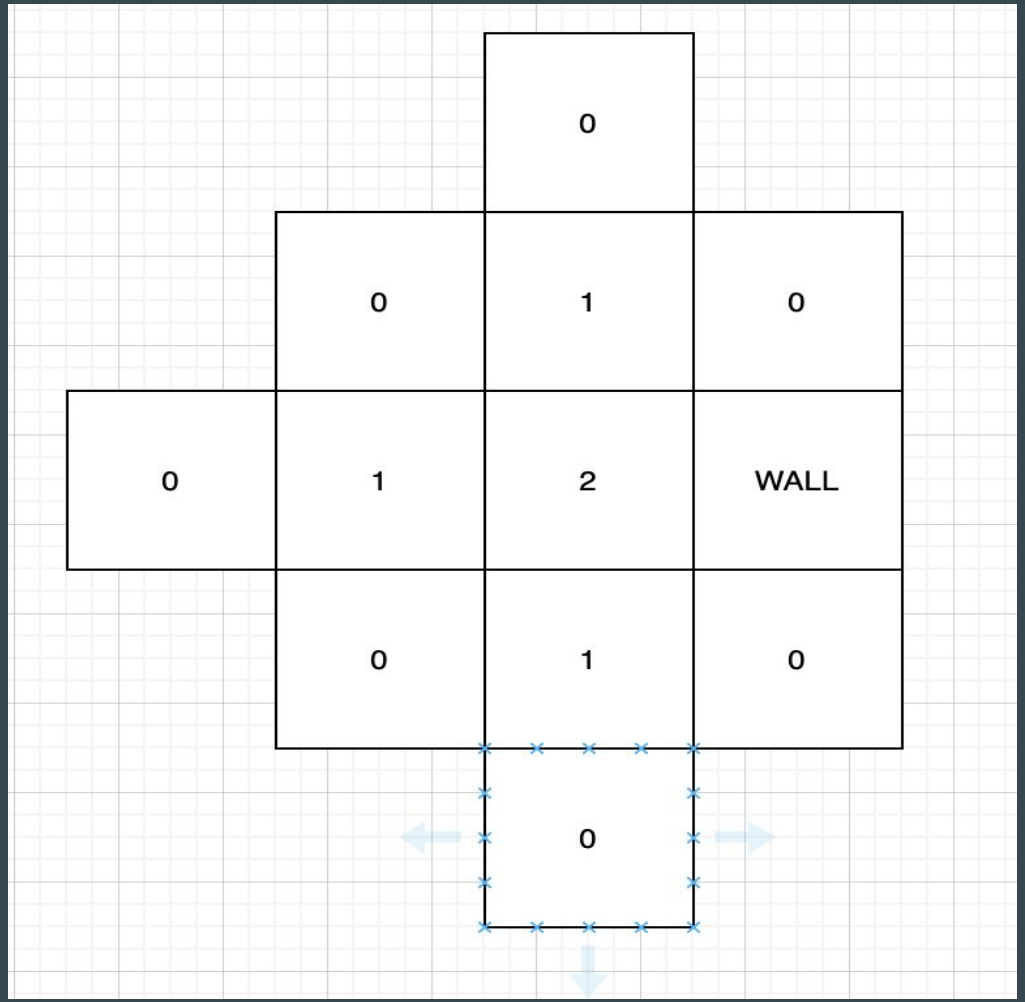


Flood Fill(cont.)



Flood Fill(cont.)

- Adding a wall



Future Development

Immediate:

- Complete Flood Fill
- Complete modification of Pathfinding.js
- Implement enemy absorbtion

Bonus

- Tooltips