Problem 1: How to get the directions from a map, which is originally a 2d list file?

I tried to use the notion of flood-fill but that seems not workable because what if there are multiple routes to the final base, but the result from flood-fill might not be the fastest route (the monsters should always want to go to the final base as fast as possible). So I combined some notions in word-search and gave some direction higher priority than others, so that the direction is the fastest.

Problem 2: I want the monsters to move pixel by pixel on the route, not block by block!

I then made classes for monsters, and they each have attributes x and y representing their actual place. Comparatively, the x and y attributes in Towers are the col and row, because they should be planted in grids.

Problem 3: How do I make the tower aim at the most important monster? There are two kinds with diff speed! I can’t just search by order from the monsterList!

The problem is actually that in each of the monsterList (there are two), the place of the monsters are identical to their place in the list. But how to compare between two lists? So I got back to “self.getDirection()”, and actually mapped each of the block to a number, from start to end, from small to big. And then I searched for each of the two monsterLists, and compared the number that the block the monster is at maps to, and finally got the result of which monster to aim at. After I got this, I also managed to let the tower rotate, and emit bullets that actually chase after the exact monster.

Problem 4: How to know if the self-edit level route is legal or not?

I needed to check if the route is consecutive or not! That took long. In the “self.editIsLegal()” part, I made another variable, delta. It was originally 0, and when I start to search for the block that is consecutive, delta += 1. When I got to the next block, delta -= 1. As long as delta == 2, I’ll know that the map is not consecutive!

Problem 5: How do I continue game!!!

I tried to use a dictionary to save all the monsters’ places, towers’ places, balance, time used, etc. But monsters and towers are classes, and when they are changed to str, everything is the same, and not readable! So I had to store their important attributes separately, such as position, grade (for tower), life-point (for monster), which was tedious and tricky but finally workable!

Why my UI is like that:

The highlights would make it cooler and easier to recognize. Different pages actually used same picture, but with diff effects, which show some discrepancy, but with consistency. The main game page is dark background, so that it has more of a gaming feel. Also those features in the main game page, such as showing the specs of a tower when the mouse is pointed at a tower, is for the player’s convenience.