ASSIGNMENT 3 RADAGEST’S GAME.

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In this homework, there is a map which contains the height of earth in every location. We were supposed to stimulate a money rain to the terrain. So first thing I did is make my code read the file and determine the map as 2D matrix and prints it. Then code makes a coloumn List and determines row. Then starts to take moves as ınputs from user. If it is a recent move adds one to the coordinate in original table. Else gives a warn and takes the move again untill user writes 10 decent move. In every move, program prints recent table

Then I made a water map myself. Water map is two unit bigger than the table on every side. But it is match one unit/size with the original table. Every element of water table is the complement to the maxHeight of the map. Then I made a sum matrix. Sum matrix(x,y) equals water(x,y) + land(x-1,y-1). The side ones 0 again which I will tell the reason.

I check for leaks by using sum matrix. If a neighboor’s sum is lower than current one, current should be decrease. If currents land is also higher than sum of neighboor, all water leaks. Else leaks till be equal to the short one. So table’s sides directly leaks because I arranged sum of sides 0 from the very beggining. By this way, I determined how much water left on overy point.

Then I had to use recursion to determine the neighboor lakes. First I created a boolean list whose all elements false. Then I check for all coordinates, Let’s say I’m on (x,y). Firstly checks there is land there and checks if its out of the borders and it is marked. If so, does nothing. Else, it means there is unmarked water means new lake. Marks it with a letter and checks for neighboors. When all neighboors are marked and there is no other water by distanced 1, mark becomes the next letter and it continues to check till the end

Then it checks for every coordinate, if they are marked, groups them according to the marks . Then sums the square roots of their volumes of every group and Score will be determined. Then prints it.