Project Documentation

Beka Bekeri -
Álvaro Guerrero del Pozo
Fernando Vallejo Banegas
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1-Description:

We have to develop a program to distribute sand in a given terrain, represented as an array. The responsibility for doing so is for a truck, whose position will be represented as a tuple (X,Y), inside the field. The objective is to reach an amount of sand in every cell. The constraints are:

-The truck moves sand from the cell it is.
-The truck can only move sand to the adjacent cells (N, S, E, W)
-There is a maximum of sand in every cell.
-The truck must not move sand if the sand of the current cell is less than the objective.

At the end of the execution, the program generates a List of possible actions, and uses one of them randomly to generate a new state.

2 - Decisions taken

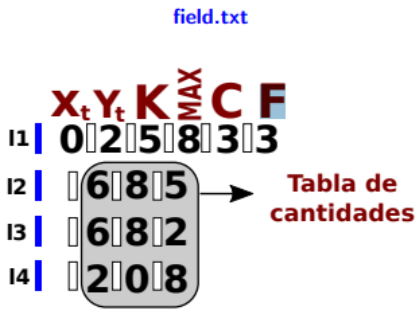
-We have used java because our understanding of the language is greater than in the case of other languages(like python, c, c++...)
-We have used a List because it bring us the required tools for the problem, without increasing our difficulty.
-We have used an iterative approach, to improve performance. Recursion complexity is greater, and therefore, its performance decays.

3 - Problems and Future

- Our “Action” class does not permit a proper toString() (As shown in the slides). It has been left to be developed in next Milestones.
-Due to that, the actions need an initial state to be printed. As the state only changes one at the end of the program, it’s not a problema
-Improve the performance.
-Use a graphical interface.
-At the end, the actions are written even when anything of sand is moved to that position. Also when the position is out of the bounds.

4 - User manual

Our system admits 2 ways of trying the algorithm:
1.- To select a .txt file in which the specifications of the initial state are written in a given format



By selecting the input as a .txt file just let the program show you the output

2.- This is the option to finish the execution of the program.*

*This option will be a random generator option in future versions

5 - Code

Uploaded to: https://github.com/BekaBekeri/Inteligentes