GSoC-2022 JdeRobot

C++ Challenge

You will need to accomplish this challenge as part of your GSoC application.

Labyrinth

Let's imagine you are outside a labyrinth described as walls (#) and holes (.) where you can not pass through the walls and you can only move to adjacent holes. Possible movements: vertical, horizontal, diagonal.

Your applications should find the largest pathway from the top part to the exit at the bottom, moving only between holes, reading the labyrinth schema from a txt file, using only standard libraries of c++11. All the lines in the input file will have the same number of elements. Your application should save the schema of the largest detected pathway, overwriting the holes (.) with the order in which the hole has been visited. If no path to the end is found, -1 will be returned and the labyrinth without modification will be returned.

Example 1:

input:

```
##.##.#
#..##.#
#.###.#
#..##.#
##.##.#
```

output:

```
7
##0##.#
#21##.#
#3###.#
#45##.#
##6##.#
```

Example 2:

input:

```
###.####.#
###.###..#
##.####..#
#.###...##
.###..####
```

output:

```
10
###.####0#
###.###21#
##.####34#
#.###765##
.###98####
```

Example 3:

input:

```
##.##.#
##.#..#
####..#
##....#
#######
```

output:

```
-1
##.##.#
##.#..#
####..#
##....#
#######
```

Requirements:

- Your application should compile with the gcc compiler > 4.8

Results:

- Make or CMakeLists to compile the application.
- The source code of the application.