

I116E Fundamentals of Programming FY2023 Project

Simple Game: Number Slider

In this project, you are expected to create a game by generating a puzzle. For a given integer n , the code should design a random $n \times n$ grid with numbers from 1 to $n \times n - 1$ and one empty cell. The aim is to move/slide the cells until the numbers are in ascending or descending order, going left to right or top to bottom.

Please enter the size of the grid

> 4

Your randomly generated grid:

Please use (L)->Left, (U)->Up, (R)->Right, and (B)->Bottom (B -> not possible now)

6	15		3
2	4	11	8
12	7	1	13
10	14	9	5

> u

6	15	11	3
2	4		8
12	7	1	13
10	14	9	5

Please use (L)->Left, (U)->Up, (R)->Right, and (B)->Bottom

> u

6	15	11	3
2	4	1	8
12	7		13
10	14	9	5

.....

1	5	9	13
2	6	10	14
3	7	11	15
4	8	12	

Congratulations, you have sorted column-wise in ascending order with XYZ moves

The minimum number of moves to solve was 27 in row-wise descending order. A list of moves and the grid after each move is extracted on a log file named 'minimumNBR.txt'.

Do you want to play again? (Y/N)

Your code should also allow users to create/enter their own puzzles. The output in the red sentence above is considered a second part of the project. You are expected to deliver a report, your source codes for the project, and a presentation video file. You can see some examples of report structure and format below:

<https://thehackpost.com/a-brief-guide-how-to-write-a-computer-science-lab-report.html>

<https://www.bu.edu/eng/departments/me/general-resources-students/current-undergraduatestudents/lab-report-format/>