

Report on maze solver

some functions to be clarified:-

copymaze:

it copies the file into an array to be able to use it.

FindS:

a function searches for start point and returns it

FindE:

a function searches for End point to make sure that its valid.

Mark:

afunction mark the given point as visited to not visit it again.

DFS maze solver :

Data structure used :- stack

concept :

frist it findts S using (FindS) , it starts searching in only one path in a clock wise path, it recordes each node it visites and mark it to not visit it again , if this path reaches a dead end we remove the wrong path from the array of points , and choose another path , till it findes E then it returns the array.

Sample Run:

```
5 5
.....
..##S
E#.#.
...#.
...#.|
```

the answer is

```
1 4
0 4
0 3
0 2
0 1
1 1
1 0
2 0
```

BFS maze solver :

Data structure used :- A queue
concept :

first it finds S using (FindS) , it starts searching in all the nodes around S by 1 step then this happens for each searched node, marking each node we visit to not visit it again and recording nodes parent in 2d array (back) till we find E then it enters a loop starts recording E and its parent and parents of parents till S then return array of record (visited).

Sample run:

<pre>5 5 ####S ...# .#.#. E....</pre>	the answer is	<pre>1 4 2 4 3 4 4 4 4 3 4 2 4 1 4 0</pre>
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