

CO222-2018- Project–Crossword Puzzle Solver

Marks:

20% of the final grade (zero marks for submissions that have compilation errors)

Deadline:

Strictly on or before **June 15th 2018 @ 11.55 pm**. Late submissions will be accepted with 25% penalty per day they are late.

Plagiarism policy:

Copied submissions (including those from the Internet) will receive zero marks. Your program must be ENTIRELY your own works. DO NOT COPY FROM OTHERS and DO NOT ALLOW ANYONE ELSE TO SEE YOUR CODE.

Task:

For this project, you will be writing a C program to solve a crossword puzzle. Your program should read, from standard input, a puzzle grid and a set of words, and should print the solved puzzle to standard output.

Specification:

A partially filled puzzle grid will be given in the input with stars, hashes and letters. Stars indicate blocked cells. Hashes indicate vacant cells needed to be filled with letters. The inputs will also include the words to be used, one per line, in a random order. If your program finds out that the filling of the crossword puzzle is impossible with the given words, you should print IMPOSSIBLE.

Input:

The grid followed by an empty line followed by the list of words, one per line (to finish giving words, an empty line is given).

Output:

The completed puzzle or the message “IMPOSSIBLE”.

For example,

```
./puzzle
*#**
####
*#**
****
FLY
GLUE
*F**
GLUE
*Y**
****
```

Remember that your program is going to be **automatically** marked for functional correctness. Therefore, be careful to produce EXACTLY the desired output. Most testing will be on legal input; however, your program may be tested on invalid input.

Test cases:

Here are some test cases. This is NOT the complete set of test cases used to evaluate your submission. Therefore, you are advised to formulate your test cases (in addition to what is given here) and test your program.

Testcase 01:

Input :

```
*##*  
####  
*##*  
****
```

CRICKET

Expected Output:

IMPOSSIBLE

Testcase 02:

Input :

```
****  
####  
****  
*###
```

FIRE

CAT

Expected Output:

```
****  
FIRE  
****  
*CAT
```

Testcase 03:

Input :

```
*#**
```

```
####
```

```
*#**
```

```
****
```

```
FLY
```

```
GLUE
```

Expected Output:

```
*F**
```

```
GLUE
```

```
*Y**
```

```
****
```

Submission:

You SHOULD submit a single C file with the following filename: **puzzle.c** before the deadline. Files with any other filename will NOT be considered for marking.

Note that, marks will also be awarded for legible and readable code and proper comments.

GOOD LUCK and ENJOY CODING.