# General Instructions:

Write a program to play a beginners-level crossword puzzle game.

The goal of the game is to guess each word. Words are placed either horizontally (left to right) or vertically (top to bottom). The program is “beginners-level” because it verifies each word you enter, making it impossible to commit a wrong entry to the board.

An example game, including use input, is shown below. Your program does not need to match the output below. However, it should have similar functionality.

# Specific Instructions:

The program will read a puzzle from a text file. This file has a specific format that must be followed, to ensure compatibility across all programs.

The first line of the file should contain the dimensions of the puzzle and the number of clues in the format:

* # of rows (integer)
* # of columns (integer)
* # of clues (integer)

Subsequent lines in the file should contain the word clues in the format:

* Orientation (H for horizonal or V for vertical)
* Row # (starting from 1)
* Column # (starting from 1)
* Solution word (spaces are not allowed as part of the solution word)
* The clue (which may contain multiple words.

Use a two-dimensional array of characters to store the current state of the puzzle. In the array, store the ‘▄’ character to denote non-game squares, the underscore ‘\_’ character for blank spaces, and A-Z characters for solved words. As the game is played, update this array based on user input.

**Other things to note:**

* You must create a user defined class called Clue. This class should have the following information ( at a minimum):
  + The word (i.e. answer)
  + The clue that describes the word
  + Starting row where this word can be found
  + Starting column where this word can be found
  + Whether the word is horizontal (‘H’) or vertical (‘V’)
  + Whether this word has been found (true) or not found (false)
* You must use methods. The actual division of the program into methods/functions is up to you.
* You game logic should be case insensitive when comparing the user entry to the correct word. The String method equalsIgnoreCase() may be helpful here.
* All source files must be commented, including a header similar to the one below.

# Requirements:

As part of your submission, you should create a test that demonstrates a user can play the game using keyboard input as well as file driven input.

**i.e.**

1. A sample *crossword puzzle file* with dimensions of at least 15x15 and at least 10 words to solve.
2. A sample *human input file* that contains test values that a human would enter on the keyboard.

*(See the link below “Other puzzles” for additional puzzles you can use to test your program)*

# Sample Input file:

5 5 6  
H 1 1 BAA Sheep sound  
H 3 1 SOLID Neither liquid nor gas  
H 5 3 WIT Humor  
V 1 1 BUS Road passenger transport  
V 1 3 ALLOW To permit  
V 3 5 DOT Point

# Sample Human input file

**crossword\_puzzle\_5\_5\_human.txt**

1

BAA

2

SOLID

3

WRONG

3

WIT

4

BUS

5

ALLOW

6

DOT

# Other puzzles:

<http://www.printactivities.com/Crosswords/9x9CrosswordPuzzles.html>

# Expectations:

1. **Your work should be properly documented.**
2. **Your work should be your own.**
3. **Personalize your program.**

# Header

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

\* A program that evaluates mathematical expressions using a \*

\* Stack ADT. \*

\* \*

\* Author: Subrina Thompson \*

\* Date: November 5, 2017 \*

\* Program 2: Calculator \*

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# Sample Run:

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

\* A simple game Crossword Puzzle game that a user can play. \*

\* \*

\* \*

\* Author: Subrina Thompson \*

\* Date: November 17, 2017 \*

\* Final Project: Crossword Puzzle \*

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Current Puzzle:

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

1 2 3 4 5

---------------

1| \_ \_ \_ ▄ ▄

2| \_ ▄ \_ ▄ ▄

3| \_ \_ \_ \_ \_

4| ▄ ▄ \_ ▄ \_

5| ▄ ▄ \_ \_ \_

Unsolved Clues:

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

# Direction Row/Col Clue

. ......... ....... ....

1 Horizontal 1 / 1 Sheep sound

2 Horizontal 3 / 1 Neither liquid nor gas

3 Horizontal 5 / 3 Humor

4 Vertical 1 / 1 Road passenger transport

5 Vertical 1 / 3 To permit

6 Vertical 3 / 5 Point

Enter clue to solve, or -1 to exit: ***1***

Enter your solution: ***baa***

Current Puzzle:

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

1 2 3 4 5

---------------

1| B A A ▄ ▄

2| \_ ▄ \_ ▄ ▄

3| \_ \_ \_ \_ \_

4| ▄ ▄ \_ ▄ \_

5| ▄ ▄ \_ \_ \_

Unsolved Clues:

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

# Direction Row/Col Clue

. ......... ....... ....

2 Horizontal 3 / 1 Neither liquid nor gas

3 Horizontal 5 / 3 Humor

4 Vertical 1 / 1 Road passenger transport

5 Vertical 1 / 3 To permit

6 Vertical 3 / 5 Point

Enter clue to solve, or -1 to exit: ***4***

Enter your solution: ***bus***

Current Puzzle:

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

1 2 3 4 5

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1| B A A ▄ ▄

2| U ▄ \_ ▄ ▄

3| S \_ \_ \_ \_

4| ▄ ▄ \_ ▄ \_

5| ▄ ▄ \_ \_ \_

Unsolved Clues:

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

# Direction Row/Col Clue

. ......... ....... ....

2 Horizontal 3 / 1 Neither liquid nor gas

3 Horizontal 5 / 3 Humor

5 Vertical 1 / 3 To permit

6 Vertical 3 / 5 Point

Enter clue to solve, or -1 to exit: ***5***

Enter your solution: ***allow***

Current Puzzle:

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

1 2 3 4 5

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1| B A A ▄ ▄

2| U ▄ L ▄ ▄

3| S \_ L \_ \_

4| ▄ ▄ O ▄ \_

5| ▄ ▄ W \_ \_

Unsolved Clues:

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

# Direction Row/Col Clue

. ......... ....... ....

2 Horizontal 3 / 1 Neither liquid nor gas

3 Horizontal 5 / 3 Humor

6 Vertical 3 / 5 Point

Enter clue to solve, or -1 to exit: ***2***

Enter your solution: ***solid***

Current Puzzle:

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

1 2 3 4 5

---------------

1| B A A ▄ ▄

2| U ▄ L ▄ ▄

3| S O L I D

4| ▄ ▄ O ▄ \_

5| ▄ ▄ W \_ \_

Unsolved Clues:

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

# Direction Row/Col Clue

. ......... ....... ....

3 Horizontal 5 / 3 Humor

6 Vertical 3 / 5 Point

Enter clue to solve, or -1 to exit: ***3***

Enter your solution: ***pun***

**Wrong answer**

Current Puzzle:

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

1 2 3 4 5

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1| B A A ▄ ▄

2| U ▄ L ▄ ▄

3| S O L I D

4| ▄ ▄ O ▄ \_

5| ▄ ▄ W \_ \_

Unsolved Clues:

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

# Direction Row/Col Clue

. ......... ....... ....

3 Horizontal 5 / 3 Humor

6 Vertical 3 / 5 Point

Enter clue to solve, or -1 to exit: ***3***

Enter your solution: ***wit***

Current Puzzle:

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

1 2 3 4 5

---------------

1| B A A ▄ ▄

2| U ▄ L ▄ ▄

3| S O L I D

4| ▄ ▄ O ▄ \_

5| ▄ ▄ W I T

Unsolved Clues:

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

# Direction Row/Col Clue

. ......... ....... ....

6 Vertical 3 / 5 Point

Enter clue to solve, or -1 to exit: ***6***

Enter your solution: ***dot***

Current Puzzle:

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

1 2 3 4 5

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1| B A A ▄ ▄

2| U ▄ L ▄ ▄

3| S O L I D

4| ▄ ▄ O ▄ O

5| ▄ ▄ W I T

**Game over, you win!**

# Reference:

<http://ecs-network.serv.pacific.edu/past-courses/spring-2017-ecpe-170/labs/lab-c-programming-project>