Individual Project Report - Week 4

Basic Information

Project Title: Word Search Game
GitHub Repository URL: https://github.com/daniajaison13/WordSearch

URL to existing online game similar to WordSearch -
https://thewordsearch.com/puzzle/143/friends/

Does the existing online puzzle/game provide solutions to users -
It will verify your answer and give few hints. It does not provide the entire solution to the user.

Assume that your program is solving the same problem that are given to users.
What is your approach (algorithm)?
Word Placement Algorithm
This algorithm determines how words are placed on the grid initially. It should ensure that words do not intersect, overlap, or obstruct each other's placement. There are several approaches like random placement, backtracking algorithm or greedy approach.

I am planning on using a greedy algorithm. The greedy algorithm prioritizes longer words and attempts to maximize grid utilization.
Words are sorted based on the length. Longer words are going to be placed first then smaller words. Backtracking can be implemented to optimize the result.

Is your algorithm the optimal ? Why or Why not?
Word searching algorithm focuses on finding the fastest result. For larger grids it may not be able to find the optimal word placement that is aesthetically pleasing.

Give the proved or estimated time complexity of your algorithm.
The time complexity of the algorithm is O(n*m)
where, n - the number of words to be placed, and
m - the number of attempts needed to find a valid placement for each word.