**DATA STRUCTURES PROJECT**

**ISE 2**

**AIM: Creating Boggle the word game using graph(DFS Traversing) and hashing.**

Procedure:

* We have created a graph that contains character as a vertex of the graph and for graph we have used matrix representation of graph
* According to users choice the board(Graph) of characters will create game board (3x3 or 4x4x or 5x5).
* The class play\_game contains method which will traverse the graph and it will find the first character of the string enter by the player and then DFS will be applied on that character.
* There is five path to initiate the traversing horizontal vertical up down and diagonally and it will try to make meaningful word and it will search for that word in hashMap.
* In hashMap all possible words(from dictionary) are stored,this will reduced time taken.
* If the word is present in hashMap then it will display the message that word is possible else not possible.
* For boggle solver we have created another class which will take entire graph to find all possible words and the words which are present in dictionary.
* Boggle solver will pass all vertex of graph one by one and it will apply DFS on character and find all possible words starting from that character.
* It will display the all possible words.

**How to play :**

1 .Find words by "chaining" letters .

2 .Words cannot be formed by linking letter with any other random letter present in grid.

3. Words should be created by using adjoining letters – the letters must touch each other – and must be able to connect to each other in the proper sequence to spell the word correctly.

4. The letters may join in any direction – horizontally, vertically, or diagonally.

5.This means that the letters can be above or below, side by side, or touching corners. Words can be spelled in any direction, including backwards.

6 .Words must be at least two letters long.

7 .Count each word only once.

8 .Any word found in an dictionary is allowed.

9 .Plural forms of words count as separate words.

e.g. age and ages are consider as two seperate words.

10 .Words-within-words are allowed.

e.g.:spare, spa, par, are, spar, pare

**OUTPUT:**





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