CS571 - ARTIFICIAL INTELLIGENCE LAB
ASSIGNMENT-1: DFS, BFS

(Read all the instructions carefully & adhere to them.)

Date: 11th January2023,

Total Credit: 10 (Implementation: 5; Documentation & Explanation: 5)

Instructions:
- Markings will be based on the correctness and soundness of the outputs.
- Marks will be deducted in case of plagiarism.
- Proper indentation and appropriate comments are mandatory.
- Comment/explanations/intuitions should be provided in a separate text/word etc. document and not the code file.
- You should zip all the required files and name the zip file as: roll_no_of_all_group_members .zip, e.g., 1501cs11_1201cs03_1621cs05.zip.
- Upload your assignment as a ZIP file to the following Dropbox link: https://www.dropbox.com/request/Td3riDlLkqSAkHNfdXqD

For any queries regarding this assignment, you can contact:
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Problem Definition:
- The task is to check if we can reach from any random start grid to the mentioned target grid by moving the Blank space ('B').
- In one step, the Blank space can move either top or down or left or right.

Input:
Generate a random grid of 3×3 shape containing numbers from 1 to 8 and a blank space. The target grid is fixed. For example,

Initial State (Sample)				Target state (Fixed)		
3	2	1		1	2	3
4	5	6		4	5	6
8	7	B		7	8	B

Questions:

1. Compare Breadth First Search(BFS) and Depth First Search(DFS) with respect to the number of steps required to reach the solution, if they are reachable.

2. Comment on which algorithm will be faster and when, by mentioning proper intuition and examples