# CS561 - Executive-Assignment-1

## Topic: DFS, BFS

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

**Date:** August 12, 2023 **Deadline:** August 19, 2023

**Total Credit:** 30 (Implementation: 20; Documentation & Explanation: 10)

**Instructions:**

1. The assignment should be completed and uploaded by 19th August 2023, 11:59 PM IST.
2. Markings will be based on the correctness and soundness of the outputs.
3. Marks will be deducted in case of plagiarism.
4. Proper indentation and appropriate comments are mandatory.
5. Create a group of maximum 3 and share your names and roll nos with TAs.
6. You should zip all the required files and name the zip file as: **roll_no_of_all_group_members .zip**, eg. **1501cs11_1201cs03_1621cs05.zip.**
7. Upload your assignment as a ZIP file to the following dropbox link:

https://www.dropbox.com/request/zL1jLRO4WKF9SbfjRRA7

**For any queries regarding this assignment, you can contact:**
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**# Question:**

- 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 3x3 shape containing numbers from 1 to 8 and a blank space.

  A sample grid is as follows:-
  3 2 1
  4 5 6
  8 7 B

The target grid is fixed.
1 2 3
4 5 6
7 8 B

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.