University of the Punjab,
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Artificial Intelligence
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Lab 4
Uninformed Searching Techniques

Purpose of this lab:
1. Introduce you with programming based on Artificial Intelligence concepts.
2. Practice of problem solving.
3. Revision of uninformed searching techniques
4. How uninformed searching techniques are memory intensive

Instructions
1. Do not consult your ideas and code with your peers during lab in case of any problem consult with your respective TA in your lab.
2. Expected time for this task is **2 hours and 30 minutes** and be precise and try to complete it in time.
3. No Evaluation after the lab. Complete your lab during lab time.
4. Understand the problem first and then write code.

Problem Statement
A software artifact is required which can solve N puzzle problems using BFS. The software MUST take input from a file which has been described below. Reading file is mandatory, you must redirect input file on standard input stream.

Input file comprises header, dimension of puzzle and initial state of puzzle. First line of the file is the header; it is an integer N. N represents the number of puzzles your software is required to solve. It is followed by N lines; each line has the initial state of the puzzle. The line is a space separated list of integers, integers are row major order representation of the puzzle. 0 represents the blank space.

The program must print results on standard output. There must be a T number of lines in output, each line must represent the output of the corresponding test case. An output must be an arrow (->) separated list of actions.

Sample Input File

3
0 3 1 2
4 8 7 5 0 3 2 1 6
3 14 13 7 4 5 6 1 11 12 8 0 15 9 2 10

☺ **Don't stop when you are tired, stop when you are done** ☺