

# INTRODUCTION to ARTIFICIAL INTELLIGENCE

## 2014-2015 FAL SEMESTER

### LABORATORY MANUAL

#### Experiment 1

##### Introduction problem solving with AI

Write a program to implement 8-puzzle problem.

**The problem:** The [8-puzzle problem](#) is a puzzle invented and popularized by Noyes Palmer Chapman in the 1870s. It is played on a 3-by-3 grid with 8 square blocks labeled 1 through 8 and a blank square. Your goal is to rearrange the blocks so that they are in order. You are permitted to slide blocks horizontally or vertically into the blank square. The following shows a sequence of legal moves from an initial board position (left) to the goal position (right).

1	3		=>	1		3	=>	1	2	3	=>	1	2	3	=>	1	2	3
4	2	5		4	2	5		4		5		4	5			4	5	6
7	8	6		7	8	6		7	8	6		7	8	6		7	8	
initial										goal								

The program is to change the initial configuration into the goal configuration. A solution to the problem is an appropriate sequence of moves.