# Coding Problem

**Submission Deadline - 11:55PM, 16th August, 2017**

1. Implement A\* and IDA\* search to solve the 8-puzzle problem. One of the heuristics you need to implement is taking the approximation function ha(n) = 0 which leads to a breadth first search. You need to think of three more heuristics and code them. Take a random set of inputs and also compare the performance of the heuristics. Performance measures will be number of nodes expanded and the time taken for complete execution of each of the heuristics.

Deliverables :-

**Submit a zip or tar file containing the following.The names of zip/tar submitted should be <Roll No>\_assignment1.<ext>. All the files inside the zip/tar should also follow the same naming. For eg:- 13CS30031\_assignment1.tar.gz, 13CS30031\_assignment1.cpp.**

1. Code (C++, Java or Python).
2. Report in .pdf mentioning the heuristics used and performance comparisons.

c. A **.txt** file containing 50 random instances and whether a solution was

found or not. If the solution exists, you also need to print out the number of nodes expanded and time taken for execution for each of the 4 heuristics.