**Project 1**

ENPM 661

26th February, 2019

Rohan Singh

UID: 116166331

The code is written in C++. The used headers are as follows:

* stdio.h
* vector
* iostream
* fstream
* algorithm
* string.h
* set
* cmath

**How to run the code:**

In the directory, run the “8puzzle.exe” file from the terminal. You can do this in 3 ways.

1. ./8puzzle.exe

This will run with default start state - “047128356” and goal state - “147258360”.

1. ./8puzzle.exe 3 <start state>

This will run with given start state and default goal state - “147258360”. This will also check if the goal can be reached from the given state or not.

1. ./8puzzle.exe 4 <start state> <goal state>

This will run with given start and goal states.

**NOTE:**

The puzzle states are represented as vector of length 9, with tiles arranged column-wise in the vector. While inputting state write it without spaces.

In case of incorrect output the program will display error and you would have to run it as described above once again.

After executing the code will generate 3 text files with names “nodePath.txt”, “Nodes.txt” and “NodesInfo.txt” with the appropriate information.

In the submitted zip folder 3 text files for the default start and goal states (case 1 above) have already been included.

In case of any error while running the .exe file, you may try compiling the code again from the terminal as : g++ 8puzzle.cpp -o 8puzzle.exe

This would require the g++ compiler which is mostly present in Ubuntu.