**Assignment 8:**

**Installation**

1. Open a command prompt in the folder, and type ‘pip install –r requirements.txt’ to make sure that all the dependencies are installed
2. To run the file, on a command prompt type ‘python light\_switches.py’

**Explanation**

**1. What is the state space?**

The Statespace is I = {000, 001, 010, 011, 101, 110, 111}

where eg 110 means switches one and two are on, and three is off.

Equations that display probabilities

x001 = x010 = x100,

x011 = x101 = x110.

x000 = 1 + (1/3)x001 + (1/3)x010 + (1/3)x100 = 1 + X001,

x001 = 1 + (1/3)x000 + (1/3)x011 + (1/3)x101 = 1 + (1/3)x000 + (2/3)x011,

x011 = 1 + (1/3)x001 + (1/3)x010 = 1 + (2/3)x001

***it takes on averge 10 passes to hit state 111 from 000***

1. **Give a graphical representation of the Markov chain describing this process**

The attached program generates the graphical representation of the Markov Chain describing the process.



