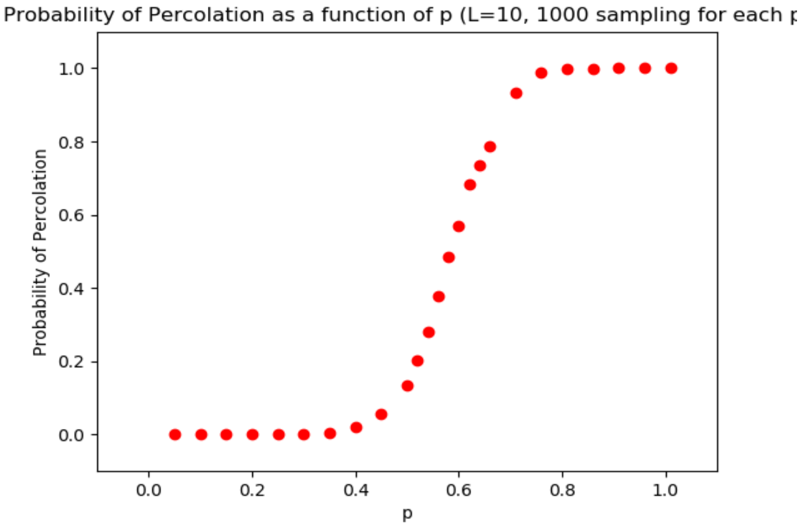
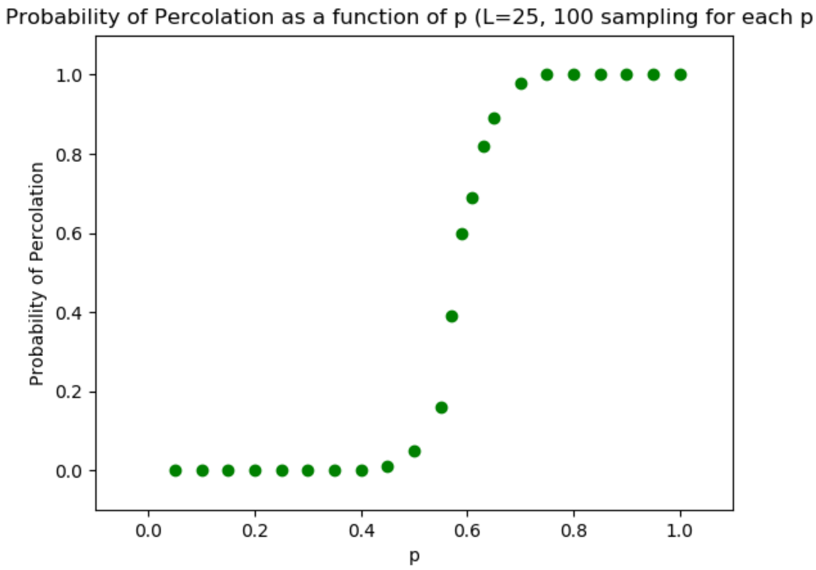
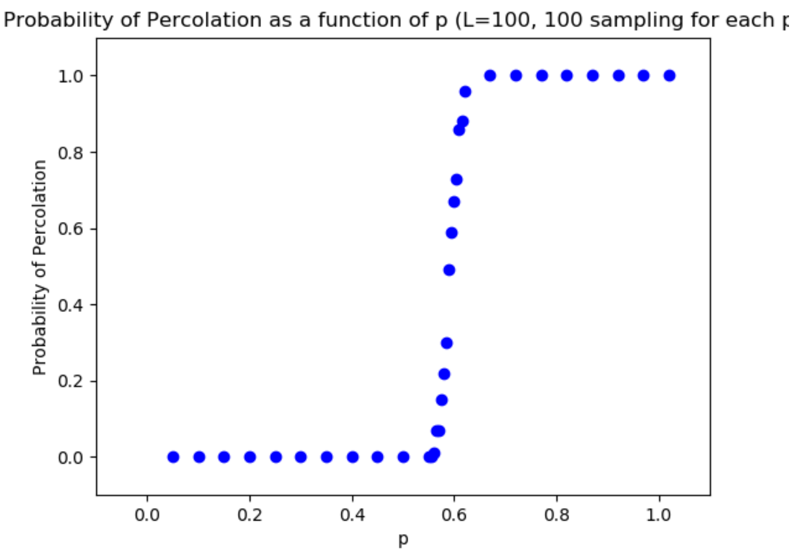
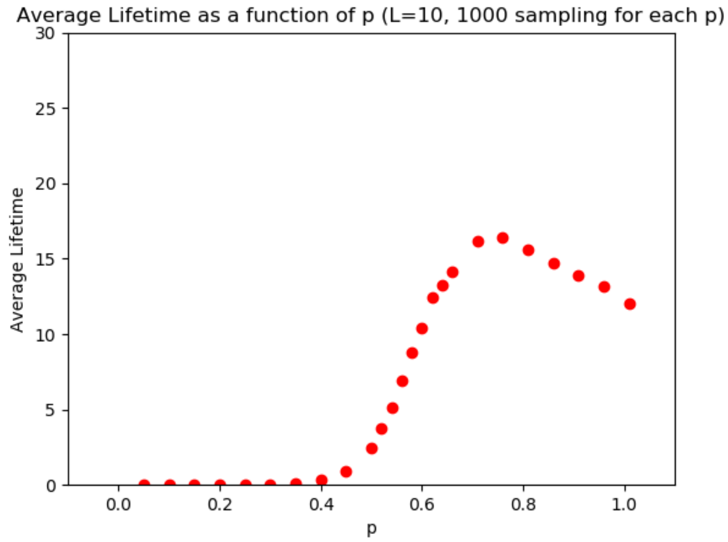
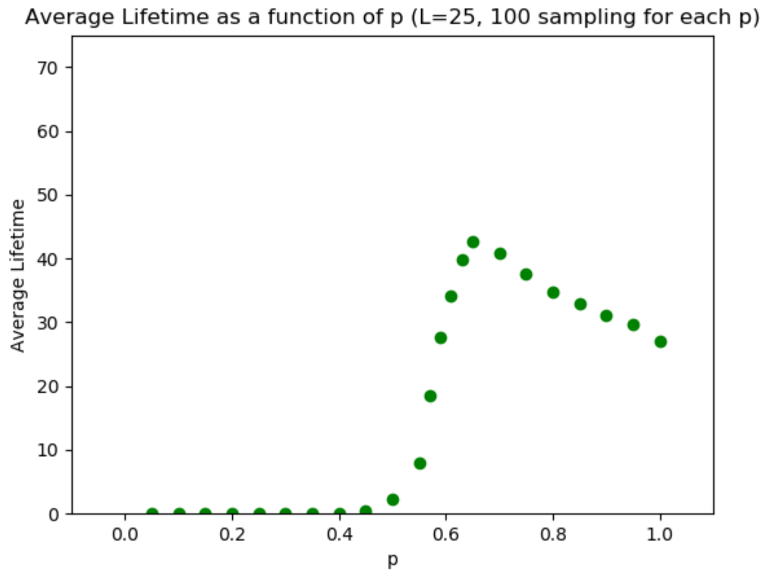

Probability of Percolation as a function of p (L=10, 1000 sampling for each p
Probability of Percolation
p
0.0
0.2
0.4
0.6
0.8
1.0


Probability of Percolation as a function of p (L=25, 100 sampling for each p
Probability of Percolation
p
0.0
0.2
0.4
0.6
0.8
1.0

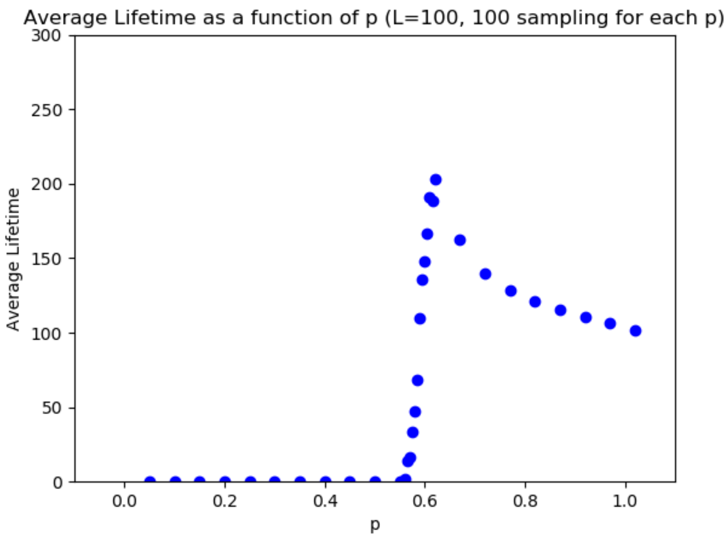

Probability of Percolation as a function of p (L=100, 100 sampling for each p
Probability of Percolation
p
0.0
0.2
0.4
0.6
0.8
1.0



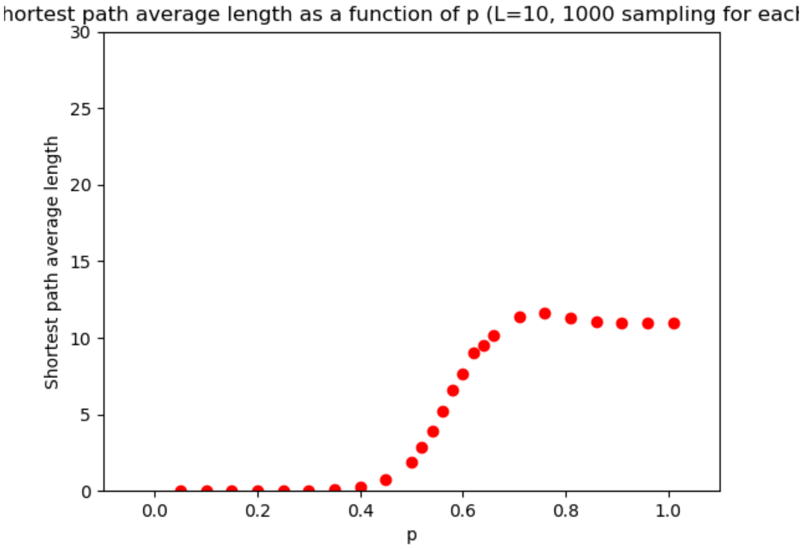
Average Lifetime as a function of p (L=10, 1000 sampling for each p)
Average Lifetime
p
0
5
10
15
20
25
30
0.0
0.2
0.4
0.6
0.8
1.0

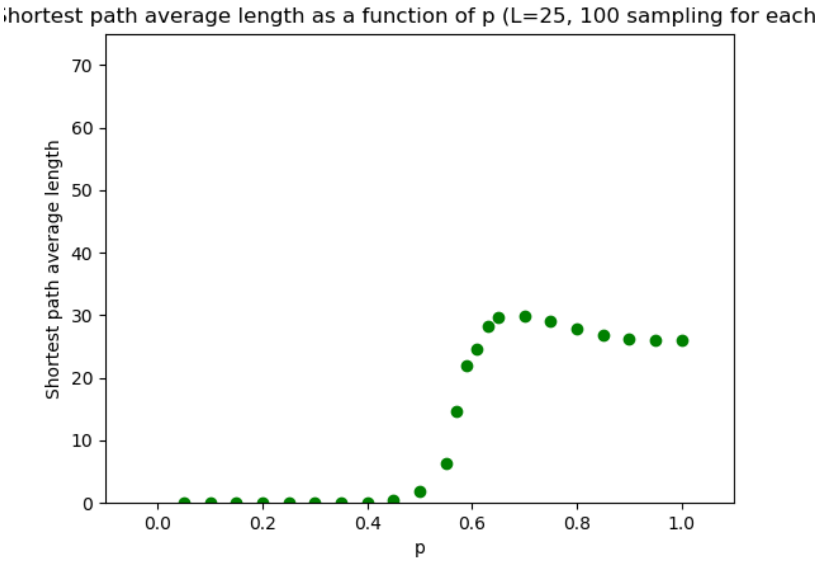


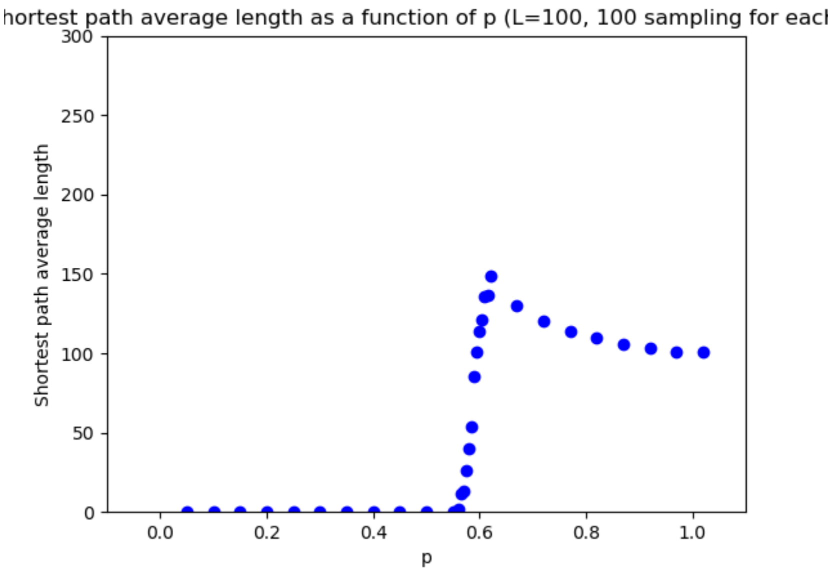
Average Lifetime as a function of p (L=25, 100 sampling for each p)
Average Lifetime
p
0
10
20
30
40
50
60
70
0.0
0.2
0.4
0.6
0.8
1.0



Average Lifetime as a function of p (L=100, 100 sampling for each p)
Average Lifetime
p
0
50
100
150
200
250
300
0.0
0.2
0.4
0.6
0.8
1.0


hortest path average length as a function of p (L=10, 1000 sampling for eacl
Shortest path average length
p
0
5
10
15
20
25
30
0.0
0.2
0.4
0.6
0.8
1.0


ihortest path average length as a function of p (L=25, 100 sampling for each
Shortest path average length
p
0
10
20
30
40
50
60
70
0.0
0.2
0.4
0.6
0.8
1.0


hortest path average length as a function of p (L=100, 100 sampling for eacl
Shortest path average length
p
0
50
100
150
200
250
300
0.0
0.2
0.4
0.6
0.8
1.0

COMMENTS

Percolation:

The first set of graphs describes the average probability of percolation as a function of p (probability of a tree to be spawned on a generic square of the grid). It is possible to observe that the represented curve gets steeper as the grid becomes larger. I was not able to find the threshold value precisely. From the graphs it seems to be a value close to 0.6, but I do not know it precisely nor can say if it depends on the grid’s dimension or not. However if i were to give an opinion I would say it does not depend on the grid’s dimension. One way to find the threshold value could be to interpolate the points in the graph with a function and see which value of p maximizes the derivative of the said function, that p is the threshold value.

Life time:

The second set of graphs describes the average life time of a forest based on the value of p. By life time we mean the number of steps it takes from the start of the fire to the last burning tree. The function appears to have a maximum that gets closer to the treshold value (and more peaked) as the grid gets larger.

Shortest Path:

The third set of graphs shows the average shortest (percolating) path (length) as a function of p. The same considerations that held for the Life time graphs are still true for the shortest paths plots.