b) [3 Points] What is the total size of the search space, i.e. how many possible states are there in total? Assume again that there are *n* locations.

Total size of states is the number of permutations of n locations.

$n*(n-1)*(n-2)*(n-3)*\cdots*2*1$

$= n!$

c) [9 Points] Imagine that a student wants to hand out fliers about an upcoming programming contest. The student wants to visit the Leavey Library (L), Salvatori Computer Science Center (S), Olin Hall (O), and Kaprielian Hall (K) to deliver the fliers. The goal is to find a tour as short as possible. The distance matrix between these locations is given as follows:

	L	**S**	**O**	**K**
L	0	0.6	0.9	0.7
S	0.6	0	0.3	0.2
O	0.9	0.3	0	0.4
K	0.7	0.2	0.4	0

The student starts applying hill-climbing algorithm from the initial state: <L-O-S-K>. What is the next state reached by hill-climbing, or explain why there is no neighboring state. When will we know if we should stop or continue the search? Will we know if the state is a global optimal solution when we stop? Briefly explain your answers.