

```
In [2]: import clique_finder as cf
import grouping_homomorphisms as gh
import adjacency as aj
import drawing as dr

#step 1- define vars
n = 4
k = 2
l = 2

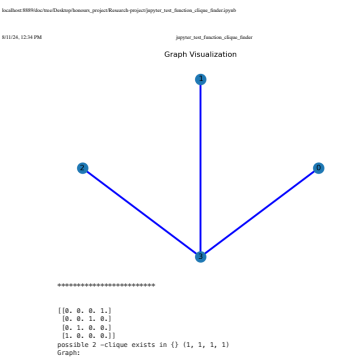
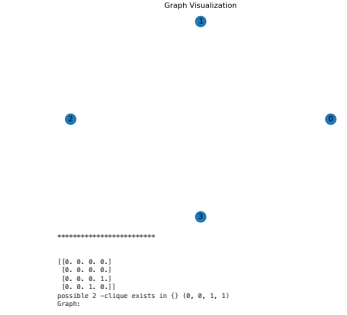
#step 2 - get adj_matrices
adjm_list = aj.all_adj_matrices(n)

#result2 = cf.find_cliques(n, l, adjm_list)

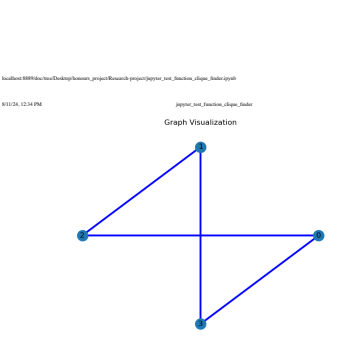
We can expect 11 groups of graphs.

[[0, 0, 0, 0],
 [0, 0, 0, 0],
 [0, 0, 0, 1],
 [0, 0, 0, 1]]
no 2 -clique found in (0, 0, 0, 0)
Graph:

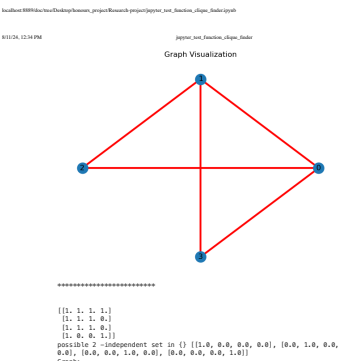
Graph Visualization
1
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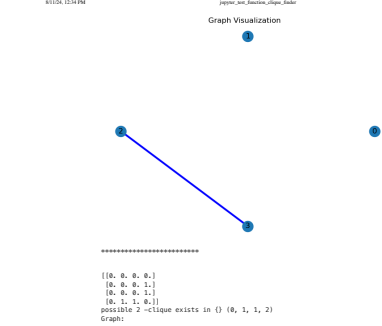
[[0, 0, 0, 1],
 [0, 0, 1, 0],
 [0, 1, 0, 0],
 [1, 0, 0, 0]]
possible 2 -clique exists in {} (1, 1, 1, 1)
Graph:



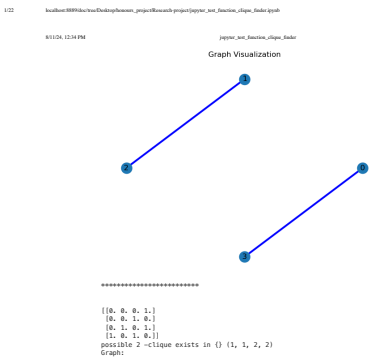
[[0, 0, 1, 1],
 [0, 0, 1, 1],
 [0, 1, 0, 1],
 [1, 1, 0, 0]]
possible 2 -clique exists in {} (2, 2, 2, 3)
Graph:



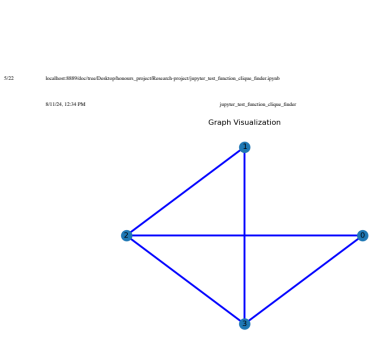
[[1, 1, 1, 1],
 [1, 1, 1, 0],
 [1, 1, 0, 1],
 [1, 0, 0, 1]]
possible 2 -independent set in {} [[1,0,0,0,0,0,0,0], [0,0,1,0,0,0,0,0], [0,0,0,0,1,0,0,0], [0,0,0,0,0,0,1,0]]
Graph:



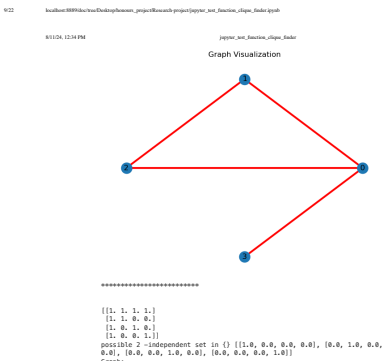
[[0, 0, 0, 0],
 [0, 0, 0, 1],
 [0, 1, 0, 0],
 [0, 1, 1, 0]]
possible 2 -clique exists in {} (0, 1, 1, 2)
Graph:



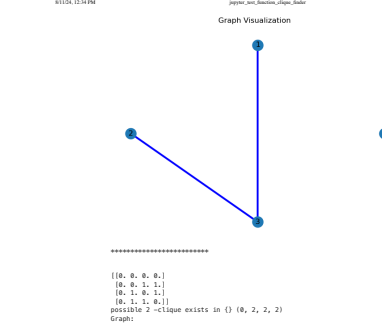
[[0, 0, 0, 1],
 [0, 0, 1, 0],
 [0, 1, 0, 1],
 [1, 0, 1, 0]]
possible 2 -clique exists in {} (1, 1, 2, 2)
Graph:



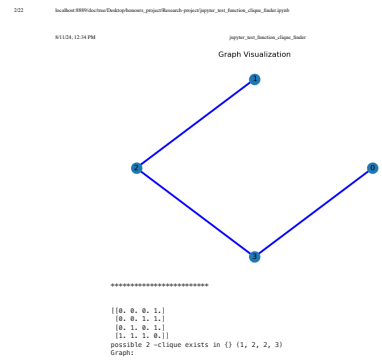
[[0, 1, 1, 1],
 [1, 0, 1, 1],
 [1, 1, 0, 1],
 [1, 1, 1, 0]]
possible 2 -clique exists in {} (2, 3, 3, 3)
Graph:



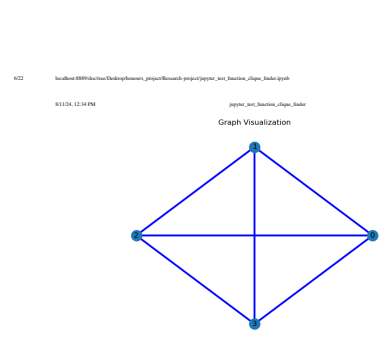
[[1, 1, 1, 1],
 [1, 1, 1, 0],
 [1, 0, 1, 0],
 [1, 0, 0, 1]]
possible 2 -independent set in {} [[1,0,0,0,0,0,0,0], [0,0,1,0,0,0,0,0], [0,0,0,0,1,0,0,0], [0,0,0,0,0,0,1,0]]
Graph:



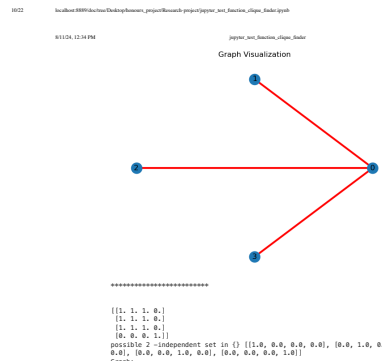
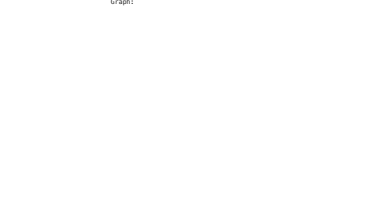
[[0, 0, 0, 0],
 [0, 0, 1, 1],
 [0, 1, 0, 1],
 [0, 1, 1, 0]]
possible 2 -clique exists in {} (0, 2, 2, 2)
Graph:



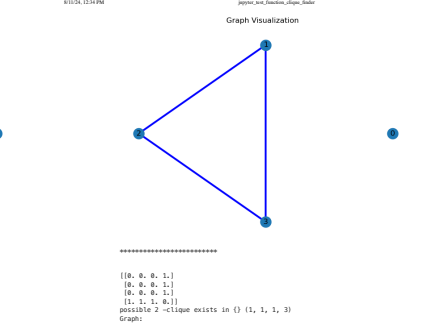
[[0, 0, 0, 1],
 [0, 0, 1, 1],
 [0, 1, 0, 1],
 [1, 1, 1, 0]]
possible 2 -clique exists in {} (1, 2, 2, 3)
Graph:



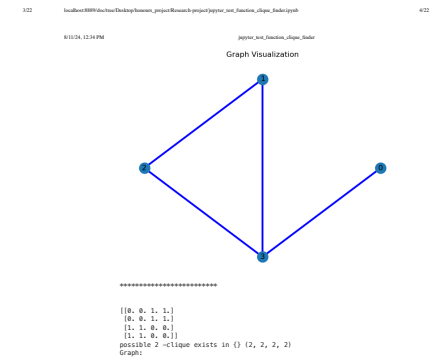
[[1, 1, 1, 1],
 [1, 1, 1, 1],
 [1, 1, 1, 1],
 [1, 1, 1, 1]]
possible 2 -independent set in {} [[1,0,0,0,0,0,0,0], [0,0,1,0,0,0,0,0], [0,0,0,0,1,0,0,0], [0,0,0,0,0,0,1,0]]
Graph:



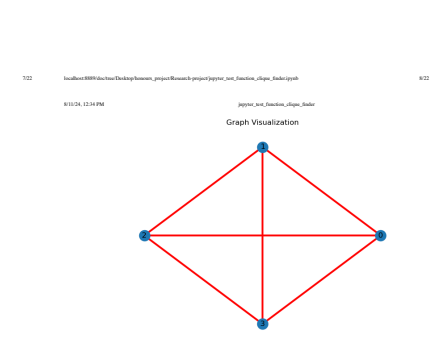
[[1, 1, 1, 0],
 [1, 1, 1, 0],
 [0, 0, 0, 1],
 [0, 0, 0, 1]]
possible 2 -independent set in {} [[1,0,0,0,0,0,0,0], [0,0,1,0,0,0,0,0], [0,0,0,0,1,0,0,0], [0,0,0,0,0,0,1,0]]
Graph:



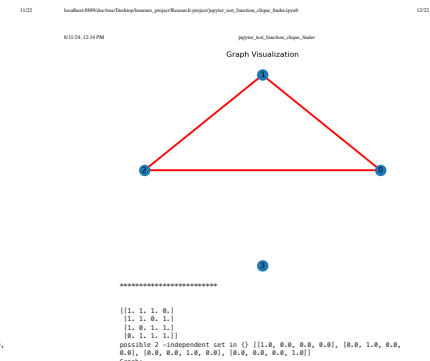
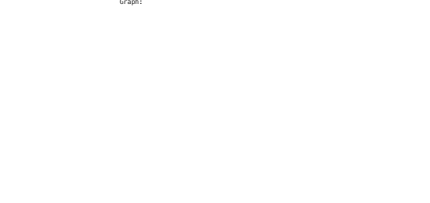
[[0, 0, 0, 1],
 [0, 0, 0, 1],
 [0, 0, 0, 1],
 [1, 1, 1, 0]]
possible 2 -clique exists in {} (1, 1, 1, 3)
Graph:



[[0, 1, 1, 1],
 [0, 0, 1, 1],
 [1, 1, 0, 0],
 [1, 1, 0, 0]]
possible 2 -clique exists in {} (2, 2, 2, 2)
Graph:



[[1, 1, 1, 1],
 [1, 1, 1, 1],
 [1, 1, 1, 1],
 [1, 1, 0, 1]]
possible 2 -independent set in {} [[1,0,0,0,0,0,0,0], [0,0,1,0,0,0,0,0], [0,0,0,0,1,0,0,0], [0,0,0,0,0,0,1,0]]
Graph:



[[1, 1, 1, 0],
 [1, 1, 0, 1],
 [1, 0, 1, 1],
 [0, 1, 1, 1]]
possible 2 -independent set in {} [[1,0,0,0,0,0,0,0], [0,0,1,0,0,0,0,0], [0,0,0,0,1,0,0,0], [0,0,0,0,0,0,1,0]]
Graph:

