**CN Quiz2**

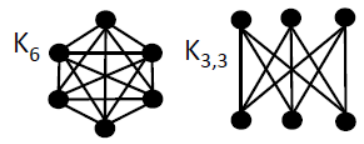
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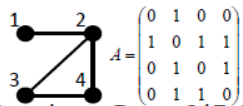
1. **Write pros and cons of “edge list” and “adjacency matrix”.**

|  |  |  |
| --- | --- | --- |
|  | pros | cons |
| edge list | 1. Simple constructions 2. Saving memory space (<N^2) | 1. Difficult to tell where is a edge. 2. Have to list all the nodes to check the edges.  3. Not that easy to add/delete and edge. |
| adjacency matrix | 1. Easy to judge whether there is an edge between two nodes.  2. Fast access time to check an edge.  3. Easy to add/delete an edge. | 1. Difficult constructions 2.Waste of memory space when the graph is sparse. O(N^2) |

1. **Are these planar? Why?**



: It is NOT a planar network because it cannot be turned into without having edges cross. The graph can be made from by adding a node which connected to other 5 nodes, so we can say it is an expansion of , which is definitely not a planar.

 : This is also NOT a planar network, because has the same nodes and edges like graph (shown in slides). It’s just a transformation of , so according to Kuratowski’s theorem, it is not a planar.

**3. Compute mean degree, density and of the right net:**

Since , we can easily know from the graph that number of edges m=4,

So, we can calculate mean degree:

After that we can get the density

We need to calculate :

At last, we can get according to :