LAK tutorials 5

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To pass the tutorials, you have to attend all tutorials and submit (solve) at least 50% of homework assignments. There are two types of homework assignments:

1. A-type: You have to finish this assignment if you do not attend the tutorials,

2. Star-type: Throughout the semester, you have to submit (solve) at least 50% of these homework assignments.

Please, submit your solutions in PDF format to cerny@kam.mff.cuni.cz.

A-type assignment

For a graph G, its **spectrum** $Sp(G)$ is the set of eigenvalues (together with their multiplicity) of the adjacency graph of G.

Exercise 1

Determine the spectrum of the complete graph, $Sp(K_n)$.

Exercise 2

Decide if there is graph G such that $Sp(G) = Sp(K_n)$, but $G \not\simeq K_n$.

Star-type assignment

A k-regular graph G is a graph with $deg(u) = k$ for every $u \in V(G)$.

Exercise 3

Show, that the largest eigenvalue of a k-regular graph is k and its multiplicity corresponds to the number of its connected components.