

# LAK tutorials 7

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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](mailto:cerny@kam.mff.cuni.cz).

## A-type assignment

### Exercise 1

Determine the spectrum of the path graph on  $n$  vertices,  $Sp(P_n)$ .

## Star-type assignment

### Exercise 2

Let  $G$  be a graph,  $\Delta$  its maximal degree and  $\lambda_1$  the largest eigenvalue of its adjacency matrix. Show that

$$\lambda_1 \geq \sqrt{\Delta}.$$