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Fundamental Algorithms

WS 2017

Exercise Sheet 7

Exercise 1:
Show that there cannot be a graph G of size n with girth $> 2k$ and minimum degree $> \lceil n^{1/k} \rceil$.

Exercise 2:
Provide an efficient algorithm for the *maximal* matching problem and show its runtime.

Exercise 3:
Show that every tree has at most one perfect matching.

Exercise 4:
Compute of maximal matching of the following graph by repeatedly choosing any augmenting path P and updating your current matching M to $M \ominus P$.