

11th Exercise sheet for Advanced Algorithmics, SS 15

Hand In: Until Wednesday, 08.07.2015, 12:00am, in lecture, exercise sessions, hand-in box in stairwell 48-6 or via email.

Problem 30

Consider the following approach for solving VERTEX COVER:

Compute a spanning forest F of G by depth-first search and return the set of all inner nodes of F as result.

Show that this is a 2-approximation for VERTEX COVER.

Problem 31

Show that there is no $\varepsilon > 0$ so that layering is a $(f - \varepsilon)$ -approximation for SET COVER, i. e. that f is tight.

Hint: Give a set of instances that contains infinitely many counterexamples for every $\varepsilon > 0$.