최적화근사해법
제 6주 과제

홍 성 필

서울대학교 산업공학과
최적화 연구실

A supplementary lecture note for the book *Approximation algorithms* by V. Vazirani

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11.1 Show that we may assume that the length of the bounding square can be taken to be $L = 4n^2$ and that there is a unit grid defined on the square such that each point lies on a gridpoint.
Hint: Since we started with the smallest axis-parallel bounding square, its length is a lower bound on OPT. Therefore, moving each point to a grid point can increase the length of the tour by at most OPT/n^2.

11.2 Provide the missing details in the proof of Lemma 11.3.

11.3 Give an instance of the Euclidean TSP problem for which, w.r.t. the basic dissection, the process of making the optimal tour well behaved increases its length by a fixed constant factor.
Hint: Make the optimal tour cross the middle line of the dissection that has the largest interportal distance numerous times.