

EECS340 - Algorithms - HW#1

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2.3-4

$$\begin{aligned}T(n) &= \Theta(1) \\ &= 2T(n/n - 1) + \Theta(1)\end{aligned}$$

2.2

- a) We also need to prove that for each swap it is more in order.
- b) After each loop, $A[j]$ will be greater than $A[j-1]$. With each loop $A[j]$ and $A[j-1]$ are switched if $A[j]$ is smaller. Therefore at the end of the for loop, all $A[j]$ from $A.length$ down to $i+1$ will be greater than $A[j-1]$.
- c) After each loop, each array $A[1 \text{ to } i]$ will be sorted in regards to itself. Therefore the whole array will be sorted when $i = A.length - 1$.
- d) The worst case running time should be $O(n^2)$. This is the same as the worst case of insertion sort.