17-355 Homework 7

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Question 1.

a) $a[i] \leq a[j]$

b) The loop invariant does not account for the case where $i = 0$ on the exit condition of the loop which is that $i \leq 0$ or specifically for this code since i decrements by 1 every iteration $i = 0$. `0 <= i < a.Length`

c) This loop invariant still does not account for the case when we have an input of length 0, so that $i = -1$ and because it is an empty list, it is vacuously true that it is sorted. I fixed this by adding the following at the beginning of the method
```
if(a.Length == 0){
return;
}
```