Homework Assignment #1

Due: January 16, 2020, by 5:30 pm

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Question 1

If the condition in line 4 is not satisfied, then the input is A [n, n – 1, n – 2, ……, 2, 1] $n \geq 2$. In such case, the condition in line 5 is satisfied and program terminated. In terms of worst-case analysis, we need to satisfy the condition in line 5. So, program runs at most $n+1$ times, $T(n) \in O(n)$.

Let A be [n, n – 1, n – 2, ……, 2, 1] $n \geq 2$, the first condition is not met, but the second is. In this case, program runs $n+1$ time, $T(n) \in \Omega(n)$

So, $T(n) \in \Theta(n)$. ■