

Homework 1: Big O notation and Time Complexity

Problem Description

- 1) What do you want from the Data Structure course? or, do you have any suggestions for this course? (Please at least write four sentences to describe your expectations and suggestions, it will help me make this course better.)
- 2) What are the upper bound, lower bound, and tight bound of an algorithm which runs $4n^2 + 3n + 1$ operations? (Please provide answers with proofs.)
- 3) Prove that: $4n^2 + 3n + 1$ is NOT $O(n)$. (Hint: proof by contradiction.)

Please submit the PDF version to assistant.

Solution: Your answers and proofs go here. Note that all math symbols should be in $\$$, such as \div , or use the “equation” command to generate a complex formula.