Week 1

Wednesday, May 17, 2017

6:18 PM

No Tutorial Tomorrow

Learning Goals

* Design - Problem Solving
* Correct - Proofs
* "Efficient" Algorithm - "Better"
  + Faster - Better time
  + Less resources - Better than the current solution

Given: A sorted array , and an element

Goal: Find whether is in

Solution 1:

or . 
return True 
return False 

Different Proof Techniques

1. Proof by contradiction
3. Proof by mathematical induction

Prove something for every

Base Case: (could be other numbers)

Inductive Hypothesis: Assume the result holds for

Inductive Step: Prove the result holds for

1. Strong induction

Inductive Hypothesis: Assume this result holds for all (up to

1. Structural Induction
2. Proof by Elimination and Cases
3. Proof by contrapositive (
4. Direct Proof (
5. Proof by image/picture
6. Trivial Proof/Obvious
7. Proof by equivalence

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, ,

Binary Search:

If not: 1.

2. 1.



  
  


