CS313H Logic, Sets, and Functions: Honors Fall 2012

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Good Morning, Colleagues



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Are there any questions?





• Official course evaluation surveys





- Official course evaluation surveys
- Remaining modules published





- Official course evaluation surveys
- Remaining modules published
- Due date of last homework?





- Official course evaluation surveys
- Remaining modules published
- Due date of last homework?
 - Wed. at discussion section would mean you can go over it
 - Thurs. in class gives you an extra day



Is proving program correctness always done with induction?



- Is proving program correctness always done with induction?
- Importance of loop invariants



- Is proving program correctness always done with induction?
- Importance of loop invariants
 - Start by identifying the loop invariant



- Is proving program correctness always done with induction?
- Importance of loop invariants
 - Start by identifying the loop invariant
 - Prove that it's true at the beginning



- Is proving program correctness always done with induction?
- Importance of loop invariants
 - Start by identifying the loop invariant
 - Prove that it's true at the beginning
 - Prove that it stays true



- Is proving program correctness always done with induction?
- Importance of loop invariants
 - Start by identifying the loop invariant
 - Prove that it's true at the beginning
 - Prove that it stays true (induction)



- Is proving program correctness always done with induction?
- Importance of loop invariants
 - Start by identifying the loop invariant
 - Prove that it's true at the beginning
 - Prove that it stays true (induction)
 - Prove termination



- Is proving program correctness always done with induction?
- Importance of loop invariants
 - Start by identifying the loop invariant
 - Prove that it's true at the beginning
 - Prove that it stays true (induction)
 - Prove termination
 - Prove that at termination, the loop invariant leads to a correct result



• Prove the correctness of Insertion Sort



- Prove the correctness of Insertion Sort
 - Start by identifying the loop invariant



- Prove the correctness of Insertion Sort
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 - Prove that it's true at the beginning



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 - Prove that it's true at the beginning
 - Prove that it stays true
 - Prove termination
 - Prove that at termination, the loop invariant leads to a correct result



• Prove the correctness of Binary Search



- Prove the correctness of Binary Search
 - What's your proof startegy?



- Prove the correctness of Binary Search
 - What's your proof startegy?
 - What's your predicate?

