CS 360 100P
Proofs

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Topics to learn

Please read up on the following subjects:

- inductive proofs, both strong and weak
- lower bound for comparison sorts
- master recurrence equation

Tasks to perform

Your task is to present two proofs representing the inductive proof technique. You should present two different examples, one which illustrates weak induction and one which illustrates strong induction. These examples should be unique to your cohort. That is to say, you should not present an example that is presented by anyone else in your cohort.

You should also present the proof that log-linear time complexity is a lower bound for sorts that involve the comparison of keys.

Finally, you should present four algorithms, three for which the *Master Recurrence Theorem* applies (one for each of the three cases) and one for which it does not apply at all. As with the inductive proofs, your algorithms should be unique with respect to your cohort.