Computational Complexity

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1 Sample problems in NP

- 1. Integer Knapsack and a DP based algorithm.
- 2. Vertex cover, clique and independent set.

2 Search, Existence and Nondeterminism

- 1. Certificate definition of \mathbf{NP} .
- 2. NP and EXP.
- 3. A third definition of **NP**.
- 4. Logical structure of **NP**.
- 5. The class **coNP**.
- 6. The class $\mathbf{NP} \cap \mathbf{coNP}$.
- 7. Nondeterministic computation and \mathbf{NP} .
- 8. The complexity of Linear Programming.
- 9. The complexity of PRIMES.

3 Homework discussion

1. Discussion of Homework 2 solutions.