Advanced Analysis of Algorithms

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1. Complete the discussion of Prim's algorithm with the example.
2. Give the detailed code.
3. Analysis and correctness. Why is a spanning tree produced?
4. Why is a spanning tree produced by Kruskal?
5. The cut rule and cycle rule.
6. Task scheduling to minimize number of machines. (s_i, f_i). T_i and T_j are said to be non-conflicting if $f_j \leq s_i$ or $f_i \leq s_j$. Rule: Sort the jobs by order of start times. Find the first machine with no task conflicting with this task. If none exists, assign the task to a new machine.
7. Scheduling to minimize wait time on a single machine. Examples from book. Smallest job first.
8. Scheduling with deadlines and profits. Go through most of the analysis except the the theorem that establishes optimality.