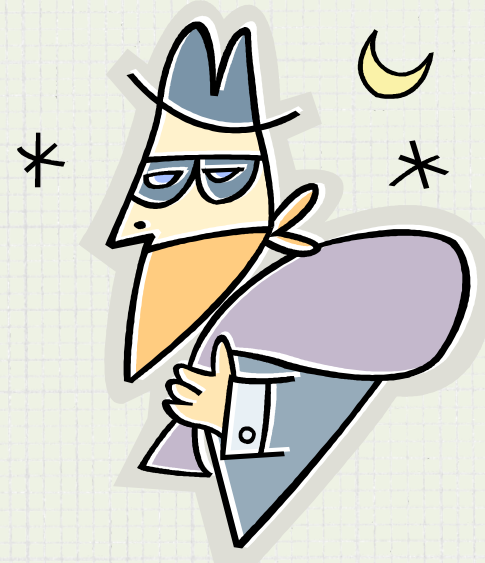
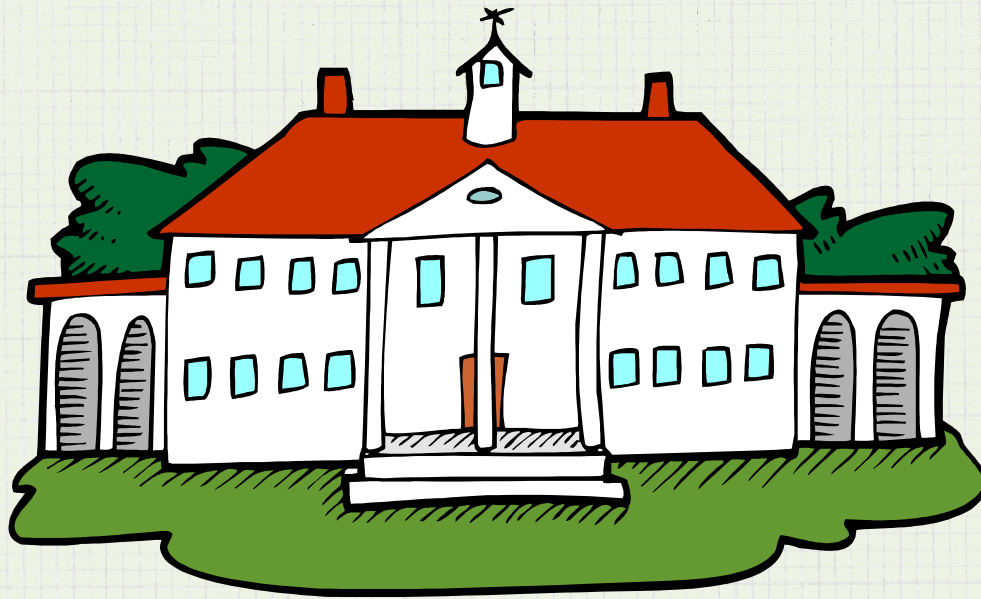
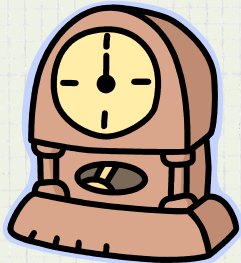


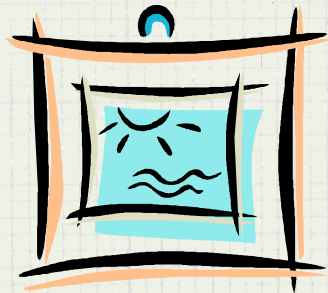
Example: Burglar's dilemma



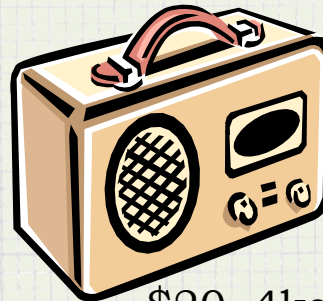
0/1 Knapsack Problem



\$175, 10kg



\$90, 9kg



\$20, 4kg



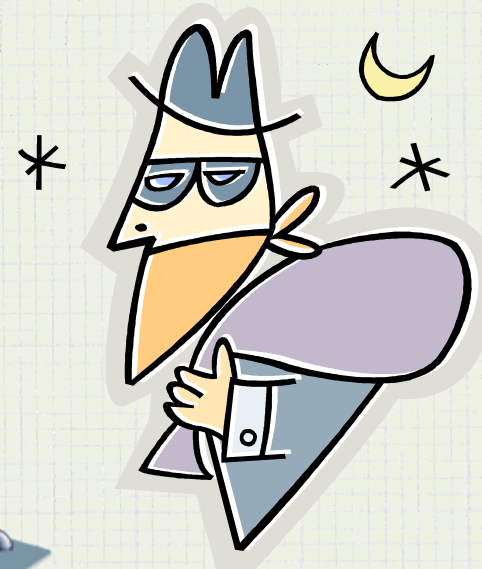
\$50, 2kg



\$10, 1kg



\$200, 20kg



“Greedy” algorithm

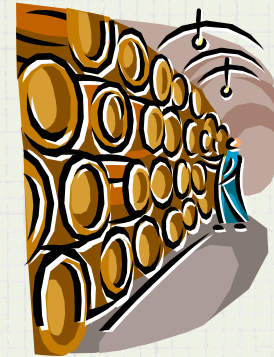
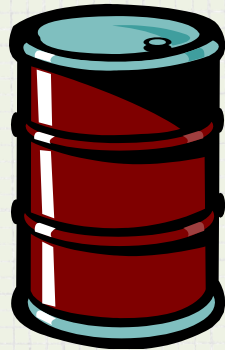
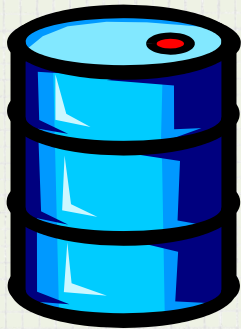
Which metric works best?

(1) max value (2) min weight (3) max value/weight

Greedy algorithm is a heuristic for 0/1 knapsack problem

Continuous knapsack problem

“Given materials of different value/weight ratios, find the most valuable combination of materials which fit in a knapsack of fixed capacity W .”



Greedy algorithm with max value/weight metric finds optimal solution for continuous knapsack problem.