Discrete Optimization

The Knapsack Problem:
Greedy Algorithms Intuition

▸ Introduce greedy algorithms
  – What would Indiana Jones do?

$1 Million
2kg

$1 Million
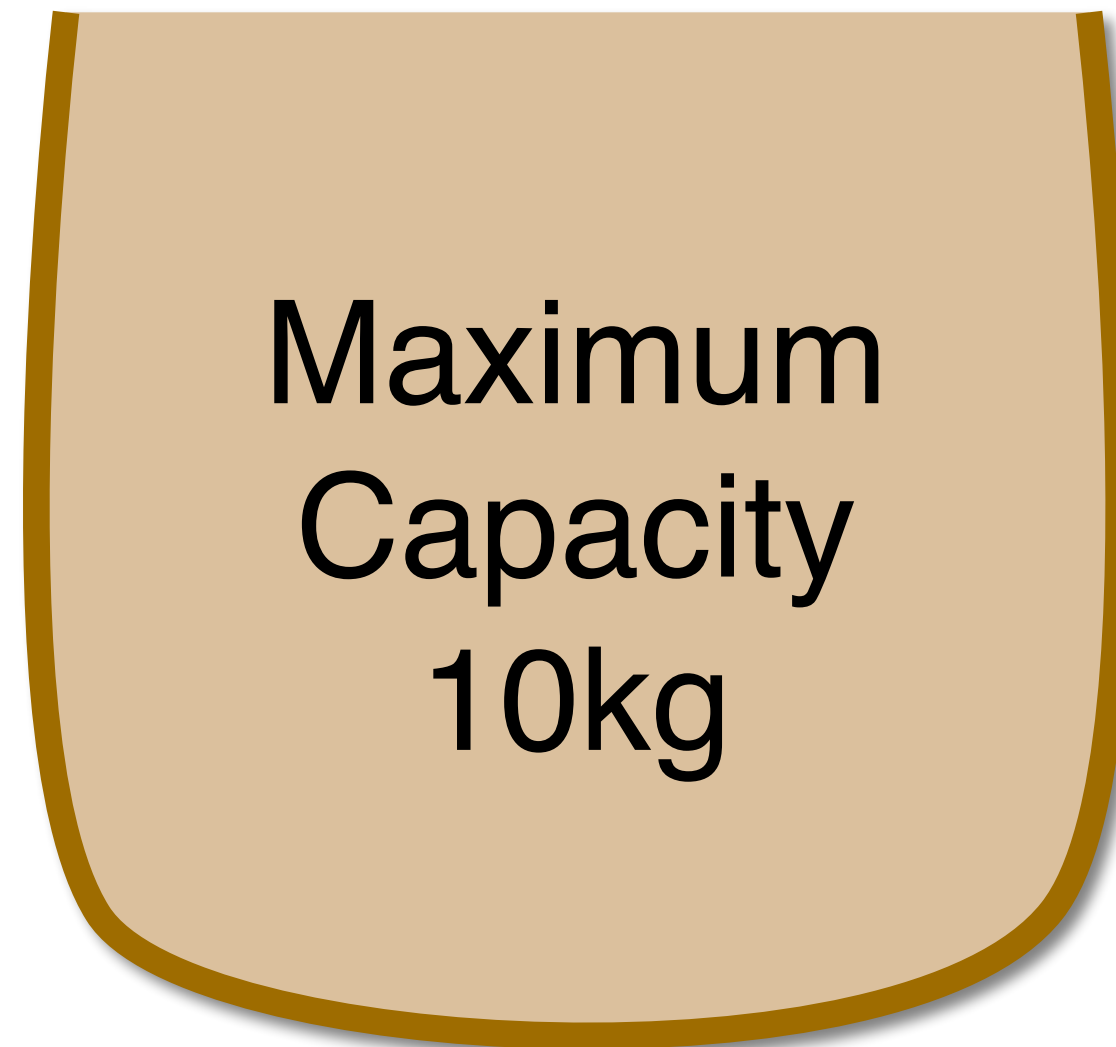2kg

$1 Million
2kg

$10 Million
5kg

$10 Million
5kg

$14 Million

can we
do better?

$13 Million
8kg

$7 Million
3kg

Maximum
Capacity
10kg

Greedy Algorithms

▸ Idea: "Take the most valuable items first"

– greedy algorithm

▸ For one problem, there are many possible greedy algorithms.

– some will do better than others

Until Next Time

Citations

Stone Foundation Tablet with Inscription of Gudea - 41221 (http://commons.wikimedia.org/wiki/File:Sumerian _-_Stone_Foundation_Tablet_with_Inscription_of_Gudea_-_Walters_41221_-_View_A.jpg). Artist Unknown. Walters Art Museum [Public domain, CC-BY-SA-3.0 (http://creativecommons.org/licenses/by-sa/3.0)], via Wikimedia Commons

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