DP and Greedy: More practice problems

Here are a list of problems discussed in class/lab (and textbook):

- board game

- rod cutting

- weighted interval scheduling

- interval scheduling/activity selection

- 0-1 knapsack and fractional knapsack

- longest-common-subsequence [skipped]

- matrix chain multiplication [skipped]

Below are more practice problems:

1. *(from Jeff Erickon, UIUC)* Congratulations! You have succesfully conquered Camelot, transforming the former battle-scarred kingdom with an anarcho-syndicalist commune...*(check out jeff website for full version)*.

   As afinal symbolic act, you order the Round Table to be split into pizza-like wedges and distributed to the citizens of Camelot as trophies. Each citizen has submitted a request for an angular wedge of the table, specified by two angles—for example Sir Robin the Brave might request the wedge from 23.16 deg to 42 deg. Each citizen will be happy if and only if they receive precisely the wedge that they requested. Unfortunately some of these ranges overlap, so satisfying *all* the citizens' requests is simply impossible. Welcome to politics.

   Describe and analyze an algorithm to find the maximum number of requests that can be satisfied.

2.