Homework 2

Due 09/03/15

August 27, 2015

1. Consider the *biggest sum* problem. The input to this problem is a list of integers and a target integer t. The output is a subset of the list whose sum is as close to t as possible without going over. Prove that the algorithm below does *not* find the correct elements for every possible input.

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   Input: values: an array of integers
   Input: n: the length of values
   Input: t: the target integer
   Output: a subset of values whose sum is as close to t as possible without
           going over
 1 Algorithm: GreedySum
 2 Sort values in decreasing order (i.e., max-first)
 3 sum = 0
 4 select = {}
 5 for i = 1 to n do
 6 |   if values[i] + sum < t then
 7 |   |   Add values[i] to select
 8 |   |   sum = sum + values[i]
 9 |   end
10 end
11 return select
```