

Input:

n

present [ ]

future [ ]

budget

} knapsack

hierarchy → graph/tree

Output:

Maximize profit

Constraint

If parent bought,

direct children get half discount

Knapsack & Tree Traversal

f, budget, parent Bought

by

no buy

budget - cost(i)  
parent Bought = True

②

③

knapsack

$\uparrow$   
 $O(2^n)$

budget  
parent Bought = False

②

③

knapsack

$O(2^n)$