

# COMBINATORIAL OPTIMIZATION

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Exact Solution

## § Week VIII §

### Problem 1: Whatcha Packin’

Solve the following binary knapsack problem using enumeration.

item	weight	value
1	1	2
2	2	4
3	3	5
4	4	5
5	2	3
6	1	3

with knapsack capacity of 8.

### Problem 2: Tracking Order

Considering the following graph, provide a solution for the TSP using enumeration:

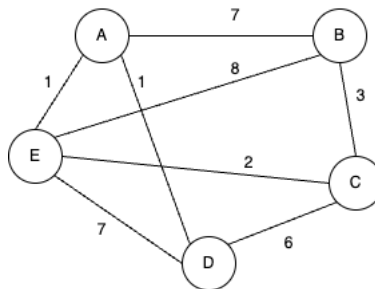


Figure 1: Undirected weighted graph

Is it necessary to check all subsets?

### Problem 3: One by One

Solve the shortest path between node  $s$  and node 4 using the dynamic programming principle.

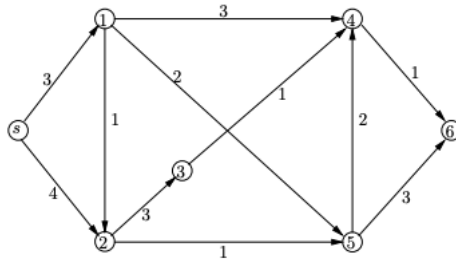


Figure 2: Example of a flow network

Repeat the process between node  $s$  and node 6.