

Dynamic Programming

0/1 Knapsack Problem

Only problem will be asked

Set theory

Purging Rule

$$S^i$$

$$S_1^i$$

$$S^{i+1}$$

$$P = [1, 2, 5]$$

$$W = [2, 3, 4]$$

$$M=6$$

$$S^0 = \{(0, 0)\}$$

Consider 1st element

$$S_1^0 = \{(1, 2)\}$$

$$S^1 = \{(0, 0), (1, 2)\}$$

Consider 2nd element

$$S_1^1 = \{(2, 3), (3, 5)\}$$

$$S^2 = \{(0, 0), (1, 2), (2, 3), (3, 5)\}$$

Consider 3rd element(5,4)

$$S_1^2 = \{(5, 4), (6, 6), (7, 7), (8, 9)\}$$

$$S^3 = \{(0, 0), (1, 2), (2, 3), (5, 4), (6, 6), (7, 7), (8, 9)\}$$

As Weight is 6 select the element (6,6) from the set.

(6,6) is appeared when 3rd element is selected.

$$(6,6)-(5,4)=(1,2)$$

(1,2) is appeared when 1st element is selected.

$$(1,2)-(1,2)=(0,0)$$

$$[1,0,1]$$