Knapsack without repetition example for $W = 10$

$K(w, j)$ = maximum value achievable using a knapsack of capacity w and items $1, \ldots, j$.

Item	Weight	Value
1	6	\$30
2	3	\$14
3	4	\$16
4	2	\$9

```
Initialize all K(0, j) = 0 and all K(w, 0) = 0
for j = 1 to n:
    for w = 1 to W:
        if w_j > w:   K(w, j) = K(w, j − 1)
        else:         K(w, j) = max{K(w, j − 1), K(w − w_j, j − 1) + v_j}
return K(W, n)
```

	0	1	2	3	4
0	0	0	0	0	0
1	0	0	0		
2	0	0	0		
3	0	0	14		
4	0	0			
5	0	0			
6	0	30			
7	0	30			
8	0	30			
9	0	30	44		
10	0	30			

$K(1,1) = 0 \quad K(2,1) = K(2,0) = 0$

$K(6,1) = \max\{K(6,0), K(6-6,0)+30\} = 30$

$K(7,1)$

$K(1,2) = 0, \quad K(2,2) = 0$

$K(3,2) = \max\{K(3,1), K(3-3,1)+14\} = 14$

$K(9,2) = \max\{K(9-3,1)+14, \ldots\} = 44$

is

$30+14$