Exercise 2

Let's run our algorithm on the following data:

$n = 4$ (# of elements)

$W = 5$ (max weight)

Elements (weight, benefit value):

(2,3), (3,4), (4,5), (5,6)

Exercise 2

W \ i	0	1	2	3	4
0	0				
1	0				
2	0				
3	0				
4	0				
5	0				

for $w = 0$ to W

$B[0,w] = 0$

Exercise 2

W \ i	0	1	2	3	4
0	0	0	0	0	0
1	0	0			
2	0	**3**			
3	0				
4	0				
5	0				

Items:

1: (2,3)

2: (3,4)

3: (4,5)

4: (5,6)

i=1

b_i=3

w_i=2

w=2

w-w_i =0

if w_i <= w // item i can be part of the solution
  if b_i + B[i-1,w-w_i] > B[i-1,w]
    B[i,w] = b_i + B[i-1,w- w_i]
  else
    B[i,w] = B[i-1,w]
else B[i,w] = B[i-1,w] // w_i > w

Exercise 2

W \ i	0	1	2	3	4
0	0	0	0	0	0
1	0	0	0	0	0
2	0	3	3	3	3
3	0	3	4	4	4
4	0	3	4	5	5
5	0	3	7	7 →	**7**

$i=3$

$b_i=5$

$w_i=4$

$w=5$

Items:

1: (2,3)
2: (3,4)
3: (4,5)
4: (5,6)

if $w_i <= w$ // item i can be part of the solution
  if $b_i + B[i-1,w-w_i] > B[i-1,w]$
    $B[i,w] = b_i + B[i-1,w- w_i]$
  else
    B[i,w] = B[i-1,w]
else $B[i,w] = B[i-1,w]$ // $w_i > w$