בס"ד

אלגוריתמים כלכליים מטלה 4 שאלה 2

Example 1:

object 1	object 0	
55	11	player 1
44	33	player 2

1. Initialize:(0; 0,0)
2. For every object:
   For every new state nether p1 gets the object or p2:
   Object 0 - new states:
   (0; 0, 0) ⇒ (1; 11, 0)
   (0; 0, 0) ⇒ (1; 0, 33)

   Object 1 - new states:
   (1; 11, 0) ⇒ (2; 66, 0) (2; 11, 44)
   (1; 0, 33) ⇒ (2; 55, 33) (2; 0, 77)
3. From the last states we choose the state with the max min value: (2; 55, 33)

Results:
To know which items the students get , we go back to from the leaf to the root:
(2; 55, 33) ⇒ (1; 0, 33) ⇒ (0; 0, 0)
player 0 gets item 0 with value 55
player 1 gets item 1 with value 33

Example 2:

object 2	object 1	object 0	
66	55	11	player 1
22	44	33	player 2

1. Initialize:(0; 0,0)
2. For every object:
   For every new state nether p1 gets the object or p2:
   Object 0 - new states:
   (0; 0, 0) ⇒ (1; 11, 0)
   (0; 0, 0) ⇒ (1; 0, 33)

   Object 1 - new states:

(1; 11, 0) ⇒ (2; 66, 0) (2; 11, 44)
(1; 0, 33) ⇒ (2; 55, 33) (2; 0, 77)

Object 2 - new states:
(2; 66, 0) ⇒ (3; 132, 0) (3; 66, 22)
(2; 11, 44) ⇒ (3; 77, 44) (3; 11, 66)
(2; 55, 33) ⇒ (3; 121, 33) (3; 55, 55)
(2; 0, 77) ⇒ (3; 66, 77) (3; 0, 99)

3. From the last states we choose the state with the max min value: (3; 66, 77)

Results:
To know which items the students get , we go back to from the leaf to the root:
(3; 66, 77) ⇒ (2; 0, 77) ⇒ (1; 0, 33) ⇒ (0; 0, 0)
player 0 gets item 2 with value 66
player 1 gets items 0,1 with value 77

Example 3:

object 3	object 2	object 1	object 0	
44	33	22	11	player 1
33	44	11	22	player 2

1. Initialize:(0; 0,0)
2. For every object:
   For every new state nether p1 gets the object or p2:

Object 0 - new states:
(0; 0, 0) ⇒ (1; 11, 0)
(0; 0, 0) ⇒ (1; 0, 22)

Object 1 - new states:
(1; 11, 0) ⇒ (2; 33, 0) (2; 11, 11)
(1; 0, 22) ⇒ (2; 0, 33) (2; 22, 22)

Object 2 - new states:
(2; 33, 0) ⇒ (3; 66, 0) (3; 33, 44)
(2; 11, 11) ⇒ (3; 44,11) (3; 11, 55)
(2; 0, 33) ⇒ (3; 33, 33) (3; 0, 77)
(2; 22, 22) ⇒ (3; 55, 22) (3; 22, 66)

Object 3 - new states:
(3; 66, 0) ⇒ (4; 110, 0) (4; 66, 33)
(3; 33, 44) ⇒ (4; 77, 44) (4; 33, 77)

(3; 44,11) ⇒ (4; 88,11) (4; 44,44)
(3; 11, 55) ⇒ (4; 55, 55) (4; 11, 88)
(3; 33, 33) ⇒ (4; 77, 33) (4; 33, 66)
(3; 0, 77) ⇒ (4; 44, 77) (4; 0, 121)
(3; 55, 22) ⇒ (4; 99, 22) (4; 55, 55)
(3; 22, 66) ⇒ (4; 66, 66) (4; 22, 99)

3. From the last states we choose the state with the max min value: (4; 66, 66)

Results:
To know which items the students get , we go back to from the leaf to the root:
(4; 66, 66) ⇒ (3; 22, 66) ⇒ (2; 22, 22) ⇒ (1; 0, 22) ⇒ (0; 0, 0)
player 0 gets items 1,3 with value 66
player 1 gets items 0,2,4 with value 66