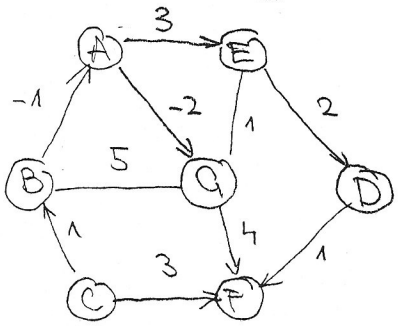
NASP - GRAFOVI - BELLMAN FORD

21 2009/10. (3.)



BELLMAN FORD; ae, ag, ba, bg, cb, cf, df, ed, eg, gb, ge, gf

	INIT	1	2	3	4	
A	∞	∞	(0,b)			0(c,b,a)
B	∞	(1,e)				1(c,b)
C	0					0
D	∞	∞	∞	(5,e)	(1,e)	1(c,b,a,g,e,d)
E	∞	∞	(7,g)	(3,a) (-1,g)		-1(c,b,a,g,e)
F	∞	(3,c)		(2,g)		2(c,b,a,g,e)
G	∞	∞	(6,b)	(-2,a)		-2(c,b,a,g)

NASP KNAPSACK

ZI 2010/11. (7) 12 dana

Predmet	A	B	C	D	E
ECTS	5	6	3	4	7
Vrijeme	4	6	2	5	7

Predmet	A	B	C	D	E
1	0	0	0	0	0
2	0	0	→3	→3	→3
3	0	0	3	3	3
4	→(5)	→5	→5	→5	→5
5	5	5	5	5	5
6	5	→6	→8	→8	→8
7	5	6	8	8	8
8	5	6	→9	→9	9
9	5	6	9	9	→10
10	5	→(11)	9	9	10
11	5	11	9	→12	→12
12	5	11	(14)	→14	12

A, B i C

MAX ECTS → 11

Vrijeme 12 //

ZI 2009/10. (5) 12 m

investicija	šted	stara šted	obv	dion	nek
1	0	0	0	0	0
2	0	→3	3	3	3
3	0	3	3	→10	10
4	0	3	→7	10	10
5	0	3	7	13	13
6	→7	→7	10	13	13
7	7	7	10	17	17
8	7	→10	10	17	→18
9	7	10	10	20	→20
10	7	10	14	20	21
11	7	10	14	20	28
12	7	10	17	20	28 //

	1	2	3	4	5
Zarada	7	3	7	10	18
ulaganje	6	2	4	3	8

28

dionice i nekretnine

11 mil

SIMPLEKS

21 - 2010 - (6)

$\min \; 2x_1 + 3x_2$

$4x_1 + 2x_2 \geq 12$

$x_1 + 4x_2 \geq 6$

$x_1, x_2 \geq 0$

$2x_1 + 3x_2$

$4x_1 + 2x_2 - y_1 + a_1 = 12$

$x_1 + 4x_2 - y_2 + a_2 = 6$

	x_1	x_2	y_1	y_2	a_1	a_2	
a_1	4	2	-1	0	1	0	12
a_2	1	(4)	0	-1	0	1	6
	0	0	0	0	1	1	0
	-5	-6	1	1	0	0	-18
a_1	(7/2)	0	-1	1/2	1	-1/2	9
x_2	1/4	1	0	-1/4	0	1/4	3/2
	-7/2	0	1	-1/2	0	3/2	-9
x_1	1	0	-2/7	1/7	2/7	1/7	18/7
x_2	0	1	-1/14	-2/7	-1/14	2/7	6/7
	0	0	0	0	1	1	0

		x_1	x_2	y_1	y_2	
2	x_1	1	0	-2/7	1/7	18/7
3	x_2	0	1	1/14	-2/7	6/7
		2	3	0	0	0
		0	0	5/14	4/7	-54/7

MREŽE

OSVJEŽAVANJE PARAMETARA:

$$w_1^{h(a)} = w_1^{h(0)} - \alpha E w_1^h = \begin{bmatrix} 0 \\ 0 \end{bmatrix} - \begin{bmatrix} 0 \\ 0 \end{bmatrix} = \begin{bmatrix} 0 \\ 0 \end{bmatrix}$$

$$w_2^{h(1)} = w_2^{h(0)} - \alpha E w_2^h = \begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix} - \begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix} = \begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}$$

$$w^{a(1)} = w^{a(0)} - \alpha E w^a = \begin{bmatrix} 0 & 0 \end{bmatrix} - \begin{bmatrix} -1/16 & -1/16 \end{bmatrix} = \begin{bmatrix} 1/16 & 1/16 \end{bmatrix}$$

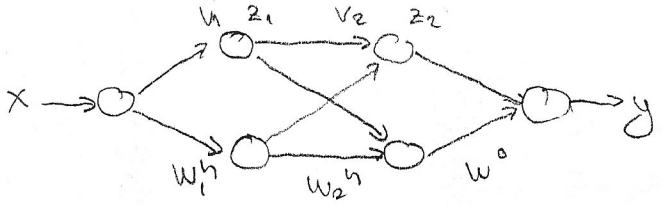
$$\theta_1^{h(1)} = \theta_1^{h(0)} - \alpha E \theta_1^h = \begin{bmatrix} 0 \\ 0 \end{bmatrix} - \begin{bmatrix} 0 \\ 0 \end{bmatrix} = \begin{bmatrix} 0 \\ 0 \end{bmatrix}$$

$$\theta_2^{h(1)} = \theta_2^{h(0)} - \alpha E \theta_2^h = \begin{bmatrix} 0 \\ 0 \end{bmatrix} - \begin{bmatrix} 0 \\ 0 \end{bmatrix} = \begin{bmatrix} 0 \\ 0 \end{bmatrix}$$

$$\theta^{o(1)} = \theta^{o(0)} - \alpha E \theta^o = 0 - 1/8 = -1/8$$

NASP- MREŽE

21 2010 (7)



x	y
0	1
1	0

$k=0$ $\quad w_1^h = \begin{bmatrix}0\\0\end{bmatrix}$ $\quad w_2^h = \begin{bmatrix}0&0\\0&0\end{bmatrix}$ $\quad w^o = [0\ 0]$

$\Theta_1^h = \begin{bmatrix}0\\0\end{bmatrix}$ $\quad \Theta_2^h = \begin{bmatrix}0\\0\end{bmatrix}$ $\quad \Theta^o = 0$

FORWARD PASS

$v_1 = w_1^h \cdot x_{d,i} - \Theta_1^h = \underset{2\times1}{\begin{bmatrix}0\\0\end{bmatrix}} \cdot 0 - \Theta_1^h = \begin{bmatrix}0\\0\end{bmatrix}$

$z_1 = \frac{1}{1+e^{-v_1}} = \begin{bmatrix}1/2\\1/2\end{bmatrix}$

$v_2 = \underset{2\times2}{w_2^h} \cdot \underset{2\times1}{z_1} - \Theta_2^h = \begin{bmatrix}0&0\\0&0\end{bmatrix}\begin{bmatrix}1/2\\1/2\end{bmatrix} - \begin{bmatrix}0\\0\end{bmatrix} = \begin{bmatrix}0\\0\end{bmatrix}$

$z_2 = \frac{1}{1+e^{-v_2}} = \begin{bmatrix}1/2\\1/2\end{bmatrix}$

$u = \underset{1\times2}{w^o} \cdot z - \Theta^o = [0\ 0] \cdot \begin{bmatrix}1/2\\1/2\end{bmatrix} - 0 = 0$

$y = \frac{1}{1+e^{-0}} = 1/2$

REVERSE PASS

$EA^o = y - y_d = 1/2 - 1 = -1/2$

$EI^o = EA^o * y * (1-y) = -1/2 \cdot 1/2 \cdot 1/2 = -1/8$ $\quad E\Theta^o = -EI^o = 1/8$

$\delta^o = -1/8$

$EW^o = \delta^o \cdot z_2^T = -1/8 \cdot [1/2\ 1/2] = [-1/16\ -1/16]$

$EA_2^h = (w^o)^T \cdot EI^o = \begin{bmatrix}0\\0\end{bmatrix} \cdot (-1/8) = \begin{bmatrix}0\\0\end{bmatrix}$

$EI_2^h = EA_2^h * z_2 * (1-z_2) = \begin{bmatrix}0\\0\end{bmatrix}$ $\quad E\Theta_2^h = -EI_2^h = \begin{bmatrix}0\\0\end{bmatrix}$

$\delta_2^h = \begin{bmatrix}0\\0\end{bmatrix}$

$EW_2^h = \delta_2^h \cdot z_1^T = \begin{bmatrix}0\\0\end{bmatrix} \cdot [1/2\ 1/2] = \begin{bmatrix}0&0\\0&0\end{bmatrix}$

$EA_1^h = (w_2^h)^T \cdot EI_2^h = \begin{bmatrix}0&0\\0&0\end{bmatrix} \cdot \begin{bmatrix}0\\0\end{bmatrix} = \begin{bmatrix}0\\0\end{bmatrix}$

$EI_1^h = EA_1^h * z_1 * (1-z_1) = \begin{bmatrix}0\\0\end{bmatrix}$ $\quad E\Theta_1^h = -EI_1^h = \begin{bmatrix}0\\0\end{bmatrix}$

$\delta_1^h = \begin{bmatrix}0\\0\end{bmatrix}$

$EW_1^h = \delta_1^h \cdot x^T = \begin{bmatrix}0\\0\end{bmatrix} \cdot 0 = \begin{bmatrix}0\\0\end{bmatrix}$