

Ejercicio # 2

Semana	Fuerza laboral	Rangos	b_i
1	6	0	b_1
2	9	6, 7, 8, 9, 10, 11	b_2
3	6	9	b_3
4	11	6, 7, 8, 9, 10, 11	b_4
5	8	11	b_5
6	7	8	b_6
7	4	7, 8	b_7
8	2	4, 5, 6, 7, 8	b_8
9	8	2, 3, 4, 5, 6, 7, 8	b_9
10	3	8	b_{10}
11	7	3, 4, 5, 6, 7	b_{11}

Costo de exceso: $C_1(x_i - b_i) = C_1 = 550$

costo de contratación: $C_2(x_i - x_{i-1}) = 350$

Costo de contratación: 1225

($x_i = 7$)

x_{i-1}	$x_i = x_{i-1} + 1$	b_i
0	1	b_1
1	2	b_2
2	3	b_3
3	4	b_4
4	5	b_5
5	6	b_6
6	7	b_7
7	8	b_8
8	9	b_9
9	10	b_{10}
10	11	b_{11}

$$\text{Etapa } II \quad (b_i=7) \Rightarrow SSO(x_{i-6i}) + [225 + 350(x_i - x_{i-1})]$$

$x_{10}(x_{i-1})$	$x_i = x_{11} = 7$ (1c que 1c) $SSO(x_{i-6i}) + [225 + 350(x_i - x_{i-1})]$	$F_{11}(x_{10})$	x_{11}^*
3	$SSO(7-7) + [225 + 350(7-3)] = 1625$	1625	7
4	$SSO(7-7) + [225 + 350(7-4)] = 1275$	1275	7
5	$SSO(7-7) + [225 + 350(7-5)] = 925$	925	7
6	$SSO(7-7) + [225 + 350(7-6)] = 575$	575	7
7	$SSO(7-7) + [225 + 350(7-7)] = 0$	0	7

$$\text{Etapa } 10 \quad (b_i=3) \Rightarrow SSO(x_{i-6i}) + [225 + 350(x_i - x_{i-1})] + F_{10}(x_{10})$$

$x_9(x_{i-1})$	$x_i = x_{10} = 3$	$x_i = x_{10} = 4$	$x_i = x_{10} = 5$	$x_i = x_{10} = 6$	$x_i = x_{10} = 7$	$F_{10}(x_9)$	x_{10}^*
8	$SSO(3-3) + 0$ + 1625 = 1625	$SSO(4-3)$ + 0 + 1275 = 1825	$SSO(5-3) + 0 + 925$ = 2025	$SSO(6-3) + 0 + 575$ = 2225	$SSO(7-3) + 0 + 0$ = 2200	1625	3

$$\text{Etapa } 9 \quad (b_i=8) \Rightarrow SSO(x_{i-6i}) + [225 + 350(x_i - x_{i-1})] + F_{10}(x_9)$$

$x_8(x_{i-1})$	$x_i = x_9 = 8$	$F_9(x_8)$	x_9^*
2	$SSO(8-8) + [225 + 350(8-2)] + 1625 = 3950$	3950	8
3	$SSO(8-8) + [225 + 350(8-3)] + 1625 = 3600$	3600	8
4	$SSO(8-8) + [225 + 350(8-4)] + 1625 = 3250$	3250	8
5	$SSO(8-8) + [225 + 350(8-5)] + 1625 = 2900$	2900	8
6	$SSO(8-8) + [225 + 350(8-6)] + 1625 = 2550$	2550	8
7	$SSO(8-8) + [225 + 350(8-7)] + 1625 = 2200$	2200	8
8	$SSO(8-8) + [225 + 350(8-8)] + 1625 = 1625$	1625	8

Etapa 8 ($b_i=2$) $\Rightarrow sso(x_i-b_i) + [225 + 350(x_i-x_{i-1})] + f_9(x_8)$

$x_7(x_{i-1})$	$x_i = x_8 = 2$	$x_i = x_8 = 3$	$x_i = x_8 = 4$	$x_i = x_8 = 5$	$x_i = x_8 = 6$	$x_i = x_8 = 7$	$x_i = x_8 = 8$	$f_8(x_7)$	x_8^*
4	$sso(2-2) + 0 + 3950 = 3950$	$sso(3-2) + 0 + 3600 = 4150$	$sso(4-2) + 0 + 3250 = 4350$	$1650 + [225 + 350(1)] + 2900 = 5125$	$2200 + [225 + 350(2)] + 2850 = 5675$	$2750 + [225 + 350(3)] + 2700 = 6225$	$3300 + [225 + 350(4)] + 1675 = 6550$	3950	2
5	$sso(2-2) + 0 + 3950 = 3950$	$sso(3-2) + 0 + 3600 = 4150$	$sso(4-2) + 0 + 3250 = 4350$	$550 + [225 + 350(1)] + 4550 = 5325$	$2200 + [225 + 350(2)] + 2850 = 5875$	$2750 + [225 + 350(3)] + 2700 = 6200$	$3300 + [225 + 350(4)] + 1625 = 6200$	3950	2
6	$sso(2-2) + 0 + 3950 = 3950$	$sso(3-2) + 0 + 3600 = 4150$	$sso(4-2) + 0 + 3250 = 4350$	$850 + [225 + 350(1)] + 4750 = 4550$	$2200 + [225 + 350(2)] + 2850 = 5525$	$2750 + [225 + 350(3)] + 2700 = 5850$	$3300 + [225 + 350(4)] + 1675 = 5850$	3950	2
7	$sso(2-2) + 0 + 3950 = 3950$	$sso(3-2) + 0 + 3600 = 4150$	$sso(4-2) + 0 + 3250 = 4350$	$1150 + [225 + 350(1)] + 4750 = 4750$	$2200 + [225 + 350(2)] + 2850 = 5450$	$2750 + [225 + 350(3)] + 2700 = 5500$	$3300 + [225 + 350(4)] + 1625 = 5500$	3950	2
8	$sso(2-2) + 0 + 3950 = 3950$	$sso(3-2) + 0 + 3600 = 4150$	$sso(4-2) + 0 + 3250 = 4350$	$1450 + [225 + 350(1)] + 4750 = 4550$	$2200 + [225 + 350(2)] + 2850 = 5450$	$2750 + [225 + 350(3)] + 2700 = 5500$	$3300 + [225 + 350(4)] + 1625 = 5500$	3950	2

Etapa 7 ($b_i=4$) $\Rightarrow sso(x_i-b_i) + [225 + 350(x_i-x_{i-1})] + f_7(x_7)$

$x_6(x_{i-1})$	$x_i = x_7 = 4$	$x_i = x_7 = 5$	$x_i = x_7 = 6$	$x_i = x_7 = 7$	$x_i = x_7 = 8$	$f_7(x_6)$	x_7^*
7	$sso(4-4) + 0 + 3950 = 3950$	$sso(5-4) + 0 + 3950 = 4500$	$sso(6-4) + 0 + 3950 = 5050$	$sso(7-4) + 0 + 3950 = 5600$	$2100 + [225 + 350(1)] + 3950 = 6725$	3950	4
8	$sso(4-4) + 0 + 3950 = 3950$	$sso(5-4) + 0 + 3950 = 4500$	$sso(6-4) + 0 + 3950 = 5050$	$sso(7-4) + 0 + 3950 = 5600$	$2100 + [225 + 350(2)] + 3950 = 6725$	3950	4

Etapa 6 ($b_i=7$) $\Rightarrow sso(x_i-b_i) [225 + 350(x_i-x_{i-1})] + f_6(x_6)$

$x_5(x_{i-1})$	$x_i = x_6 = 7$	$x_i = x_6 = 8$	$f_6(x_5)$	x_6^*
8	$sso(7-7) + 0 + 3950 = 3950$	$sso(8-7) + 0 + 3950 = 4500$	3950	7

Etapa 5 ($b_i=8$) $\Rightarrow SSO(X_{i-b_i}) + [275 + 350(X_i - X_{i-1})] + f_6(X_5)$

$X_4(X_{i-1})$	$X_i = X_5 = 8$	$f_5(X_4)$	X_5^*
11	$SSO(8-8) + 0 + 3950 = 3950$	3950	8

Etapa 4 ($b_i=11$) $\Rightarrow SSO(X_{i-b_i}) + [275 + 350(X_i - X_{i-1})] + f_5(X_4)$

$X_3(X_{i-1})$	$X_i = X_4 = 11$	$f_4(X_3)$	X_4^*
6	$SSO(11-11) + [275 + 350(11-6)] + 3950 = 5925$	5925	11
7	$SSO(11-11) + [275 + 350(11-7)] + 3950 = 5575$	5575	11
8	$SSO(11-11) + [275 + 350(11-8)] + 3950 = 5225$	5225	11
9	$SSO(11-11) + [275 + 350(11-9)] + 3950 = 4875$	4875	11
10	$SSO(11-11) + [275 + 350(11-10)] + 3950 = 4525$	4525	11
11	$SSO(11-11) + [275 + 350(11-11)] + 3950 = 3950$	3950	11

Etapa 3 ($b_i=6$) $\Rightarrow SSO(X_{i-b_i}) + [275 + 350(X_i - X_{i-1})] + f_4(X_3)$

$X_2(X_{i-1})$	$X_i = X_3 = 6$	$X_i = X_3 = 7$	$X_i = X_3 = 8$	$X_i = X_3 = 9$	$X_i = X_3 = 10$	$X_i = X_3 = 11$	$f_3(X_2)$	X_3^*
9	$SSO(6-6) + 0 + 5925 = 5925$	$SSO(7-6) + 0 + 5575 = 5575$	$SSO(8-6) + 0 + 5225 = 5225$	$SSO(9-6) + 0 + 4875 = 4875$	$2750 + [275 + 350(1)] + 4525 = 7300$	$2750 + [275 + 350(2)] + 3950 = 7625$	5925	6
10	$SSO(6-6) + 0 + 5925 = 5925$	$SSO(7-6) + 0 + 5575 = 5575$	$SSO(8-6) + 0 + 5225 = 5225$	$SSO(9-6) + 0 + 4875 = 4875$	$SSO(10-6) + 0 + 4525 = 6725$	$2750 + [275 + 350(1)] + 3950 = 7275$	5925	6
11	$SSO(6-6) + 0 + 5925 = 5925$	$SSO(7-6) + 0 + 5575 = 5575$	$SSO(8-6) + 0 + 5225 = 5225$	$SSO(9-6) + 0 + 4875 = 4875$	$SSO(10-6) + 0 + 4525 = 6725$	$SSO(11-6) + 0 + 3950 = 6700$	5925	6

Etapu 2 ($b_i = 9$) $\Rightarrow sso(x_i - b_i) + [225 + 350(x_i - x_{i-1})] + f_2(x_i)$

$x_1(x_{i-1})$	$x_i = x_2 = 9$	$x_i = x_2 = 10$	$x_i = x_2 = 11$	$f_2(x_i)$	x_i^*
6	$sso(9-9) + [225 + 350(7)] + 5925 = 7200$	$sso(10-9) + [225 + 350(4)] + 5925 = 8100$	$sso(11-9) + [225 + 350(5)] + 5925 = 9025$	7200	9
7	$sso(9-9) + [225 + 350(2)] + 5925 = 6850$	$sso(10-9) + [225 + 350(7)] + 5925 = 7750$	$sso(11-9) + [225 + 350(4)] + 5925 = 8650$	6850	9
8	$sso(9-9) + [225 + 350(1)] + 5925 = 6500$	$sso(10-9) + [225 + 350(2)] + 5925 = 7400$	$sso(11-9) + [225 + 350(3)] + 5925 = 8300$	6800	9
9	$sso(9-9) + 0 + 5925 = 5925$	$sso(10-9) + [225 + 350(1)] + 5925 = 7050$	$sso(11-9) + [225 + 350(2)] + 5925 = 7950$	5925	9
10	$sso(9-9) + 0 + 5925 = 5925$	$sso(10-9) + 0 + 5925 = 6475$	$sso(11-9) + [225 + 350(1)] + 5925 = 7600$	5925	9
11	$sso(9-9) + 0 + 5925 = 5925$	$sso(10-9) + 0 + 5925 = 6475$	$sso(11-9) + 0 + 5925 = 7025$	5925	9

Etapu 1 ($b_i = 6$) $\Rightarrow sso(x_i - b_i) + [225 + 350(x_i - x_{i-1})] + f_2(x_i)$

$x_0(x_{i-1})$	$x_i = x_1 = 6$	$x_i = x_1 = 7$	$x_i = x_1 = 8$	$x_i = x_1 = 9$	$x_i = x_1 = 10$	$x_i = x_1 = 11$	$f_1(x_0)$	x_i^*
0	$0 + [225 + 350(6)] + 7750 = 9525$	$550 + [225 + 350(7)] + 6850 = 10075$	$1100 + [225 + 350(8)] + 6500 = 10625$	$1650 + [225 + 350(9)] + 5925 = 10950$	$2200 + [225 + 350(10)] + 5925 = 11850$	$2750 + [225 + 350(11)] + 5925 = 12750$	9525	6

Respuesta

Semana	Fuerza laboral	Modelo estimación
1	6	6 contrata 6
2	9	9 contrata 3
3	6	6 despide 3
4	11	11 contrata 5
5	8	8 despide 3
6	7	7 despide 1
7	4	4 despide 3
8	2	2 despide 2
9	8	8 contrata 6
10	3	3 despide 5
11	7	7 contrata 4

Costo total : 9525.