

Ejercicio # 2

Semana	Fuerza Laboral	Rangos	bi
1	6	0	61
2	9	6,7,8,9,10,11	62
3	6	9	63
4	11	6,7,8,9,10,11	64
5	8	11	65
6	7	8	66
7	4	7,8	67
8	2	4,5,6,7,8	68
9	8	2,3,4,5,6,7,8	69
10	3	8	610
11	7	3,4,5,6,7	611

Costo de exceso: $C1(x_i - b_i) = C1 = 550$

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

Costo de Contratación: 225

100 (100%)

[illegible]

Etapa 11 ($b_i = 7$) $\Rightarrow 550(X_i - b_i) + [225 + 350(X_i - X_{i-1})]$

$X_{10}(X_{i-1})$	$X_i = X_{11} = 7$ (require) $550(X_i - b_i) + [225 + 350(X_i - X_{i-1})]$	$F_{11}(X_{10})$	X_{11}^*
3	$550(7-7) + [225 + 350(7-3)] = 1625$	1625	7
4	$550(7-7) + [225 + 350(7-4)] = 1275$	1275	7
5	$550(7-7) + [225 + 350(7-5)] = 925$	925	7
6	$550(7-7) + [225 + 350(7-6)] = 575$	575	7
7	$550(7-7) + [225 + 350(7-7)] = 0$	0	7

Etapa 10 ($b_i = 3$) $\Rightarrow 550(X_i - b_i) + [225 + 350(X_i - X_{i-1})] + F_{11}(X_{10})$

$X_9(X_{i-1})$	$X_i = X_{10} = 3$	$X_i = X_{10} = 4$	$X_i = X_{10} = 5$	$X_i = X_{10} = 6$	$X_i = X_{10} = 7$	$F_{10}(X_9)$	X_{10}^*
8	$550(3-3) + 0 + 1625 = 1625$	$550(4-3) + 0 + 1275 = 1825$	$550(5-3) + 0 + 925 = 2025$	$550(6-3) + 0 + 575 = 2225$	$550(7-3) + 0 + 0 = 2200$	1625	3

Etapa 9 ($b_i = 8$) $\Rightarrow 550(X_i - b_i) + [225 + 350(X_i - X_{i-1})] + F_{10}(X_9)$

$X_8(X_{i-1})$	$X_i = X_9 = 8$	$F_9(X_8)$	X_9^*
2	$550(8-8) + [225 + 350(8-2)] + 1625 = 3950$	3950	8
3	$550(8-8) + [225 + 350(8-3)] + 1625 = 3600$	3600	8
4	$550(8-8) + [225 + 350(8-4)] + 1625 = 3250$	3250	8
5	$550(8-8) + [225 + 350(8-5)] + 1625 = 2900$	2900	8
6	$550(8-8) + [225 + 350(8-6)] + 1625 = 2550$	2550	8
7	$550(8-8) + [225 + 350(8-7)] + 1625 = 2200$	2200	8
8	$550(8-8) + [225 + 350(8-8)] + 1625 = 1625$	1625	8

$$\text{Etapa 8 } (b_i = 2) \Rightarrow SSO(X_i - b_i) + [225 + 350(X_i - X_{i-1})] + F_9(X_8)$$

$X_7(X_{i-1})$	$X_i = X_8 = 2$	$X_i = X_8 = 3$	$X_i = X_8 = 4$	$X_i = X_8 = 5$	$X_i = X_8 = 6$	$X_i = X_8 = 7$	$X_i = X_8 = 8$	$F_8(X_7)$	X_8^*
4	$SSO(2-2) + 0 + 3950 = 3950$	$SSO(3-2) + 0 + 3600 = 4150$	$SSO(4-2) + 0 + 3250 = 4350$	$SSO(5-2) + 0 + 2900 = 4550$	$SSO(6-2) + 0 + 2550 = 4750$	$SSO(7-2) + 0 + 2200 = 4950$	$SSO(8-2) + 0 + 1850 = 5150$	3950	2
5	$SSO(2-2) + 0 + 3950 = 3950$	$SSO(3-2) + 0 + 3600 = 4150$	$SSO(4-2) + 0 + 3250 = 4350$	$SSO(5-2) + 0 + 2900 = 4550$	$SSO(6-2) + 0 + 2550 = 4750$	$SSO(7-2) + 0 + 2200 = 4950$	$SSO(8-2) + 0 + 1850 = 5150$	3950	2
6	$SSO(2-2) + 0 + 3950 = 3950$	$SSO(3-2) + 0 + 3600 = 4150$	$SSO(4-2) + 0 + 3250 = 4350$	$SSO(5-2) + 0 + 2900 = 4550$	$SSO(6-2) + 0 + 2550 = 4750$	$SSO(7-2) + 0 + 2200 = 4950$	$SSO(8-2) + 0 + 1850 = 5150$	3950	2
7	$SSO(2-2) + 0 + 3950 = 3950$	$SSO(3-2) + 0 + 3600 = 4150$	$SSO(4-2) + 0 + 3250 = 4350$	$SSO(5-2) + 0 + 2900 = 4550$	$SSO(6-2) + 0 + 2550 = 4750$	$SSO(7-2) + 0 + 2200 = 4950$	$SSO(8-2) + 0 + 1850 = 5150$	3950	2
8	$SSO(2-2) + 0 + 3950 = 3950$	$SSO(3-2) + 0 + 3600 = 4150$	$SSO(4-2) + 0 + 3250 = 4350$	$SSO(5-2) + 0 + 2900 = 4550$	$SSO(6-2) + 0 + 2550 = 4750$	$SSO(7-2) + 0 + 2200 = 4950$	$SSO(8-2) + 0 + 1850 = 5150$	3950	2

$$\text{Etapa 7 } (b_i = 4) \Rightarrow SSO(X_i - b_i) + [225 + 350(X_i - X_{i-1})] + F_8(X_7)$$

$X_6(X_{i-1})$	$X_i = X_7 = 4$	$X_i = X_7 = 5$	$X_i = X_7 = 6$	$X_i = X_7 = 7$	$X_i = X_7 = 8$	$F_7(X_6)$	X_7^*
7	$SSO(4-4) + 0 + 3950 = 3950$	$SSO(5-4) + 0 + 3600 = 4150$	$SSO(6-4) + 0 + 3250 = 4350$	$SSO(7-4) + 0 + 2900 = 4550$	$SSO(8-4) + 0 + 2550 = 4750$	3950	4
8	$SSO(4-4) + 0 + 3950 = 3950$	$SSO(5-4) + 0 + 3600 = 4150$	$SSO(6-4) + 0 + 3250 = 4350$	$SSO(7-4) + 0 + 2900 = 4550$	$SSO(8-4) + 0 + 2550 = 4750$	3950	4

$$\text{Etapa 6 } (b_i = 7) \Rightarrow SSO(X_i - b_i) + [225 + 350(X_i - X_{i-1})] + F_7(X_6)$$

$X_5(X_{i-1})$	$X_i = X_6 = 7$	$X_i = X_6 = 8$	$F_6(X_5)$	X_6^*
8	$SSO(7-7) + 0 + 3950 = 3950$	$SSO(8-7) + 0 + 3600 = 4150$	3950	7

$$\text{Etapa 5 } (b_i=8) \Rightarrow 550(X_i - b_i) + [225 + 350(X_i - X_{i-1})] + F_6(X_5)$$

$X_4(X_{i-1})$	$X_i = X_5 = 8$	$F_5(X_4)$	X_5^*
11	$550(8-8) + 0 + 3950$ $= 3950$	3950	8

$$\text{Etapa 4 } (b_i=11) \Rightarrow 550(X_i - b_i) + [225 + 350(X_i - X_{i-1})] + F_5(X_4)$$

$X_3(X_{i-1})$	$X_i = X_4 = 11$	$F_4(X_3)$	X_4^*
6	$550(11-11) + [225 + 350(11-6)] + 3950 = 5925$	5925	11
7	$550(11-11) + [225 + 350(11-7)] + 3950 = 5575$	5575	11
8	$550(11-11) + [225 + 350(11-8)] + 3950 = 5225$	5225	11
9	$550(11-11) + [225 + 350(11-9)] + 3950 = 4875$	4875	11
10	$550(11-11) + [225 + 350(11-10)] + 3950 = 4525$	4525	11
11	$550(11-11) + [225 + 350(11-11)] + 3950 = 3950$	3950	11

$$\text{Etapa 3 } (b_i=6) \Rightarrow 550(X_i - b_i) + [225 + 350(X_i - X_{i-1})] + F_4(X_3)$$

$X_2(X_{i-1})$	$X_i = X_3 = 6$	$X_i = X_3 = 7$	$X_i = X_3 = 8$	$X_i = X_3 = 9$	$X_i = X_3 = 10$	$X_i = X_3 = 11$	$F_3(X_2)$	X_3^*
9	$550(6-6) + 0 + 5925 = 5925$	$550(7-6) + 0 + 5575 = 6125$	$550(8-6) + 0 + 5225 = 6325$	$550(9-6) + 0 + 4875 = 6525$	$2200 + [225 + 350(1)] + 4525 = 7300$	$2750 + [225 + 350(2)] + 3950 = 7625$	5925	6
10	$550(6-6) + 0 + 5925 = 5925$	$550(7-6) + 0 + 5575 = 6125$	$550(8-6) + 0 + 5225 = 6325$	$550(9-6) + 0 + 4875 = 6525$	$550(10-6) + 0 + 4525 = 6725$	$2750 + [225 + 350(1)] + 3950 = 7275$	5925	6
11	$550(6-6) + 0 + 5925 = 5925$	$550(7-6) + 0 + 5575 = 6125$	$550(8-6) + 0 + 5225 = 6325$	$550(9-6) + 0 + 4875 = 6525$	$550(10-6) + 0 + 4525 = 6725$	$550(11-6) + 0 + 3950 = 6700$	5925	6

Etapa 2 ($b_i = 9$) \Rightarrow $SSO(X_i - b_i) + [225 + 350(X_i - X_{i-1})] + F_3(X_2)$

$X_1(X_{i-1})$	$X_i = X_2 = 9$	$X_i = X_2 = 10$	$X_i = X_2 = 11$	$F_2(X_1)$	X_2^*
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

Etapa 1 ($b_i = 6$) \Rightarrow $SSO(X_i - b_i) + [225 + 350(X_i - X_{i-1})] + F_2(X_1)$

$X_0(X_{i-1})$	$X_i = X_1 = 6$	$X_i = X_1 = 7$	$X_i = X_1 = 8$	$X_i = X_1 = 9$	$X_i = X_1 = 10$	$X_i = X_1 = 11$	$F_1(X_0)$	X_1^*
0	$0 + [225 + 350(6)] + 7200 = 9525$	$SSO(7-6) + [225 + 350(7)] + 6850 = 10075$	$SSO(8-6) + [225 + 350(8)] + 6500 = 10625$	$SSO(9-6) + [225 + 350(9)] + 5925 = 10950$	$SSO(10-6) + [225 + 350(10)] + 5925 = 11850$	$SSO(11-6) + [225 + 350(11)] + 5925 = 12750$	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.