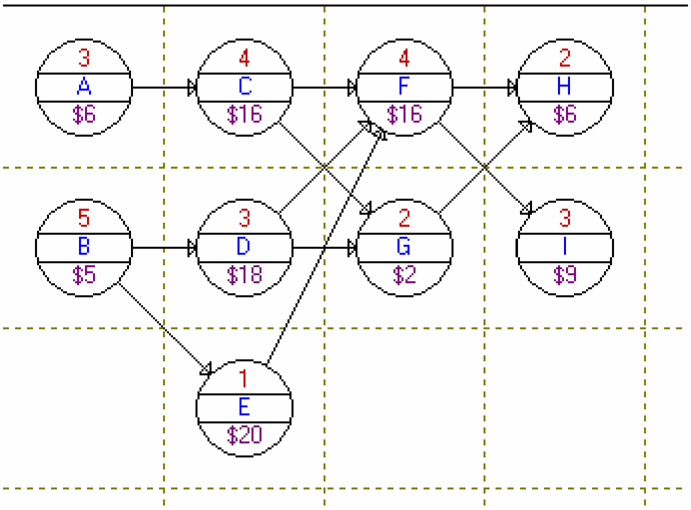
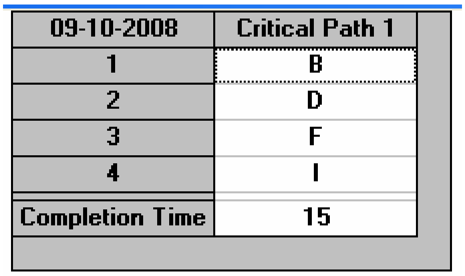
SOLUCIONES PROPUESTO SESIÓN 8

Se trata de un CPM con tiempos normales y reducidos, que resolveremos con el módulo PERT-CPM de WinQSB.

a) Red CPM:

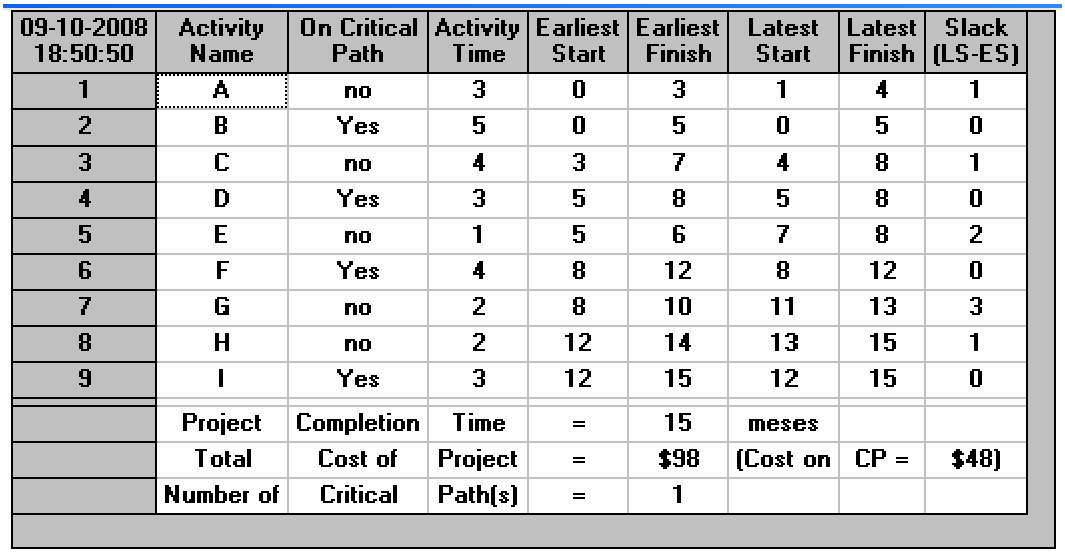

3
A
$6
4
C
$16
4
F
$16
2
H
$6
5
B
$5
3
D
$18
2
G
$2
3
I
$9
1
E
$20

Camino crítico:



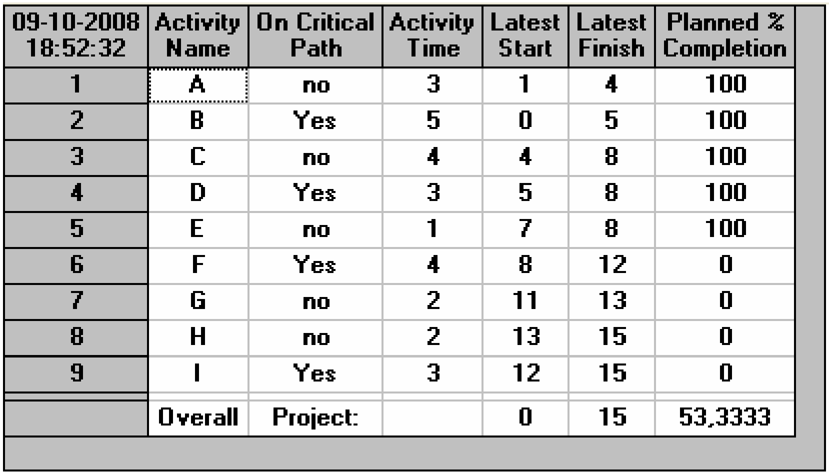
09-10-2008	Critical Path 1
1	B
2	D
3	F
4	I
Completion Time	15

Coste del proyecto: 98.000
La actividad G permite mayor demora: 3 meses



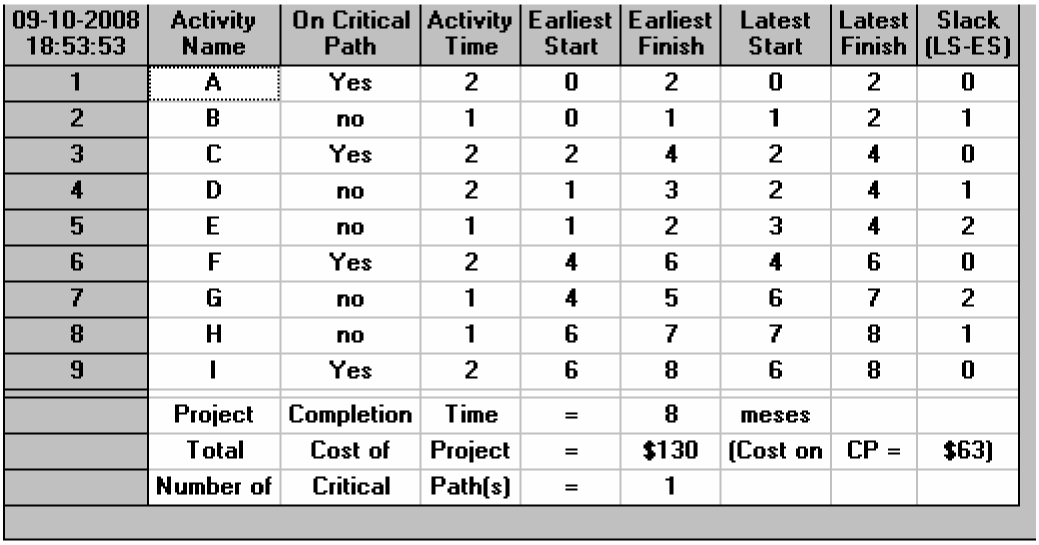
09-10-2008 18:50:50	Activity Name	On Critical Path	Activity Time	Earliest Start	Earliest Finish	Latest Start	Latest Finish	Slack (LS-ES)
1	A	no	3	0	3	1	4	1
2	B	Yes	5	0	5	0	5	0
3	C	no	4	3	7	4	8	1
4	D	Yes	3	5	8	5	8	0
5	E	no	1	5	6	7	8	2
6	F	Yes	4	8	12	8	12	0
7	G	no	2	8	10	11	13	3
8	H	no	2	12	14	13	15	1
9	I	Yes	3	12	15	12	15	0
	Project	Completion	Time	=	15	meses		
	Total	Cost of	Project	=	$98	(Cost on	CP =	$48)
	Number of	Critical	Path(s)	=	1			

A los 8 meses el estado es:



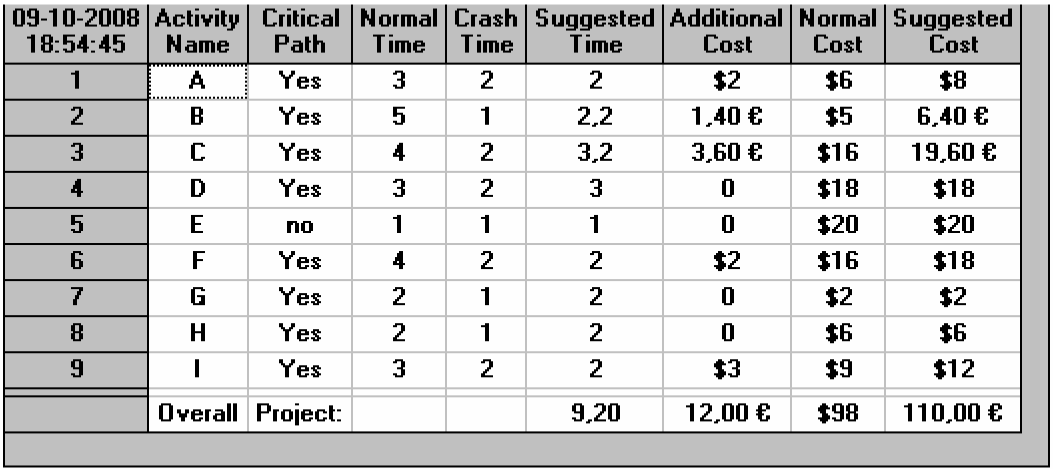
09-10-2008 18:52:32	Activity Name	On Critical Path	Activity Time	Latest Start	Latest Finish	Planned % Completion
1	A	no	3	1	4	100
2	B	Yes	5	0	5	100
3	C	no	4	4	8	100
4	D	Yes	3	5	8	100
5	E	no	1	7	8	100
6	F	Yes	4	8	12	0
7	G	no	2	11	13	0
8	H	no	2	13	15	0
9	I	Yes	3	12	15	0
	Overall	Project:		0	15	53,3333

b) Usando tiempos acelerados sale:



09-10-2008 18:53:53	Activity Name	On Critical Path	Activity Time	Earliest Start	Earliest Finish	Latest Start	Latest Finish	Slack (LS-ES)
1	A	Yes	2	0	2	0	2	0
2	B	no	1	0	1	1	2	1
3	C	Yes	2	2	4	2	4	0
4	D	no	2	1	3	2	4	1
5	E	no	1	1	2	3	4	2
6	F	Yes	2	4	6	4	6	0
7	G	no	1	4	5	6	7	2
8	H	no	1	6	7	7	8	1
9	I	Yes	2	6	8	6	8	0
	Project	Completion	Time	=	8	meses		
	Total	Cost of	Project	=	$130	(Cost on	CP =	$63)
	Number of	Critical	Path(s)	=	1			

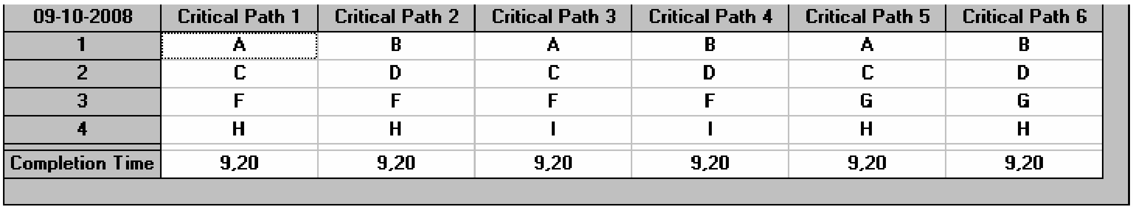
c) Si disponemos de 110.000 euros, el proyecto se puede realizar en 9,20 meses:



09-10-2008 18:54:45	Activity Name	Critical Path	Normal Time	Crash Time	Suggested Time	Additional Cost	Normal Cost	Suggested Cost
1	A	Yes	3	2	2	$2	$6	$8
2	B	Yes	5	1	2,2	1,40 €	$5	6,40 €
3	C	Yes	4	2	3,2	3,60 €	$16	19,60 €
4	D	Yes	3	2	3	0	$18	$18
5	E	no	1	1	1	0	$20	$20
6	F	Yes	4	2	2	$2	$16	$18
7	G	Yes	2	1	2	0	$2	$2
8	H	Yes	2	1	2	0	$6	$6
9	I	Yes	3	2	2	$3	$9	$12
	Overall	Project:			9,20	12,00 €	$98	110,00 €

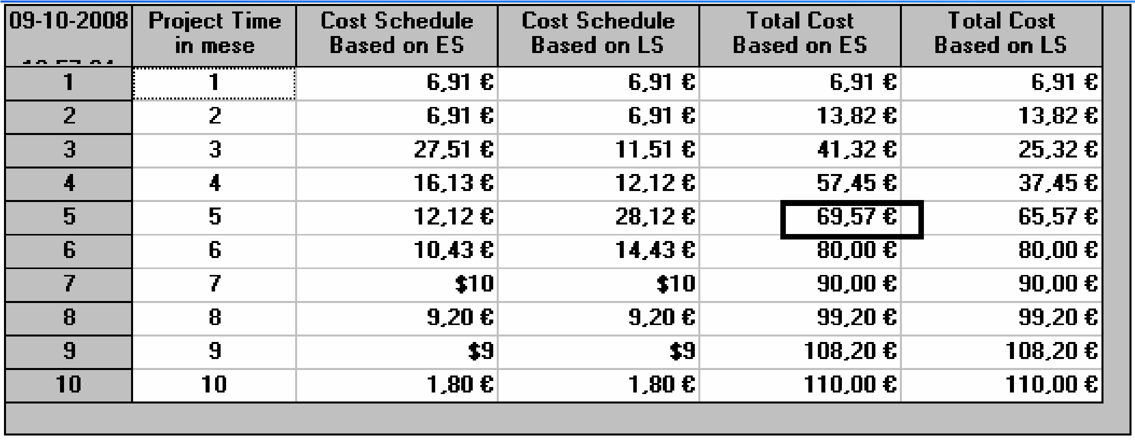
Hay que acelerar las actividades A, B, C, F e I.

Salen 6 rutas críticas:



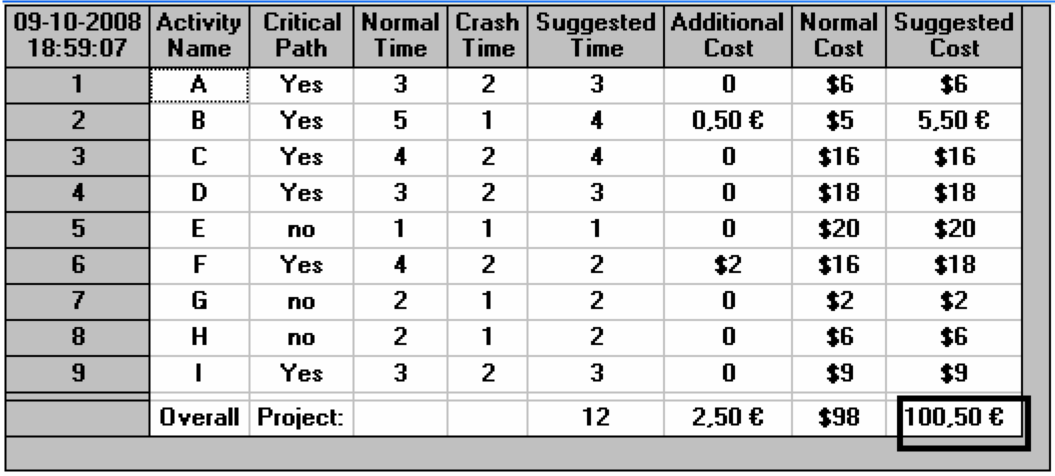
09-10-2008	Critical Path 1	Critical Path 2	Critical Path 3	Critical Path 4	Critical Path 5	Critical Path 6
1	A	B	A	B	A	B
2	C	D	C	D	C	D
3	F	F	F	F	G	G
4	H	H	I	I	H	H
Completion Time	9,20	9,20	9,20	9,20	9,20	9,20

d) 69.570 euros



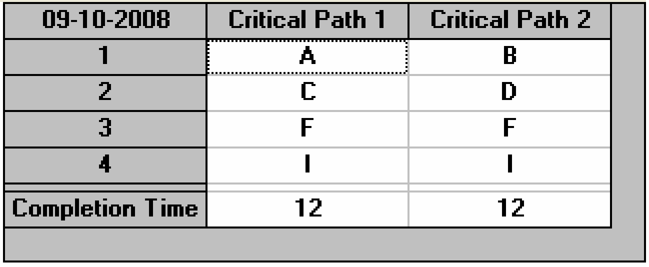
09-10-2008	Project Time in mese	Cost Schedule Based on ES	Cost Schedule Based on LS	Total Cost Based on ES	Total Cost Based on LS
1	1	6,91 €	6,91 €	6,91 €	6,91 €
2	2	6,91 €	6,91 €	13,82 €	13,82 €
3	3	27,51 €	11,51 €	41,32 €	25,32 €
4	4	16,13 €	12,12 €	57,45 €	37,45 €
5	5	12,12 €	28,12 €	69,57 €	65,57 €
6	6	10,43 €	14,43 €	80,00 €	80,00 €
7	7	$10	$10	90,00 €	90,00 €
8	8	9,20 €	9,20 €	99,20 €	99,20 €
9	9	$9	$9	108,20 €	108,20 €
10	10	1,80 €	1,80 €	110,00 €	110,00 €

e) Coste de 100.500 euros.



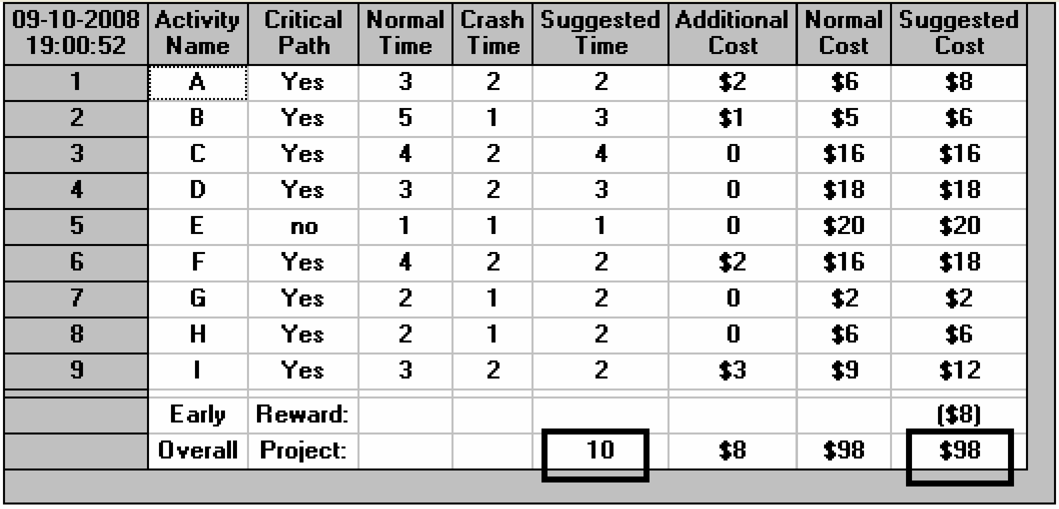
09-10-2008 18:59:07	Activity Name	Critical Path	Normal Time	Crash Time	Suggested Time	Additional Cost	Normal Cost	Suggested Cost
1	A	Yes	3	2	3	0	$6	$6
2	B	Yes	5	1	4	0,50 €	$5	5,50 €
3	C	Yes	4	2	4	0	$16	$16
4	D	Yes	3	2	3	0	$18	$18
5	E	no	1	1	1	0	$20	$20
6	F	Yes	4	2	2	$2	$16	$18
7	G	no	2	1	2	0	$2	$2
8	H	no	2	1	2	0	$6	$6
9	I	Yes	3	2	3	0	$9	$9
	Overall	Project:			12	2,50 €	$98	100,50 €

Hay dos caminos críticos:



09-10-2008	Critical Path 1	Critical Path 2
1	A	B
2	C	D
3	F	F
4	I	I
Completion Time	12	12

f) En 10 meses y cuesta 98.000 euros



09-10-2008 19:00:52	Activity Name	Critical Path	Normal Time	Crash Time	Suggested Time	Additional Cost	Normal Cost	Suggested Cost
1	A	Yes	3	2	2	$2	$6	$8
2	B	Yes	5	1	3	$1	$5	$6
3	C	Yes	4	2	4	0	$16	$16
4	D	Yes	3	2	3	0	$18	$18
5	E	no	1	1	1	0	$20	$20
6	F	Yes	4	2	2	$2	$16	$18
7	G	Yes	2	1	2	0	$2	$2
8	H	Yes	2	1	2	0	$6	$6
9	I	Yes	3	2	2	$3	$9	$12
	Early	Reward:						($8)
	Overall	Project:			10	$8	$98	$98