

IF672cc 2017.2 - PROVA FINAL

Q1

0	
1	
2	24
3	14
4	37
5	
6	58
7	117
8	
9	
10	

$$h(k,i) = (h_0(k) + i \times h_1(k)) \bmod m$$

$$14) h(14,0) = 14 \bmod 11 = 3 \checkmark$$

$$37) h(37,0) = 37 \bmod 11 = 4 \checkmark$$

$$117) h(117,0) = 117 \bmod 11 = 7 \checkmark$$

$$24) h(24,0) = 24 \bmod 11 = 2 \checkmark$$

$$58) h(58,0) = 58 \bmod 11 = 3 \times$$

$$\begin{aligned} h(58,1) &= (3 + (1 + 58 \bmod 7)) \bmod 11 \\ &= (3 + 3) \bmod 11 = 6 \checkmark \end{aligned}$$

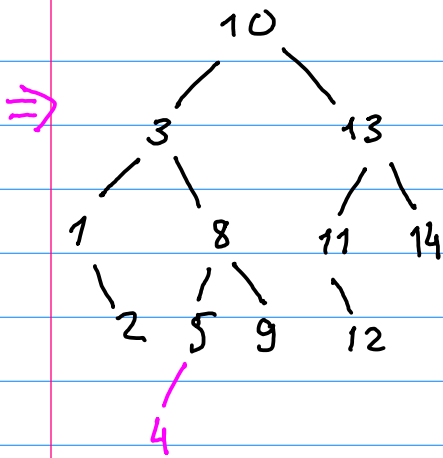
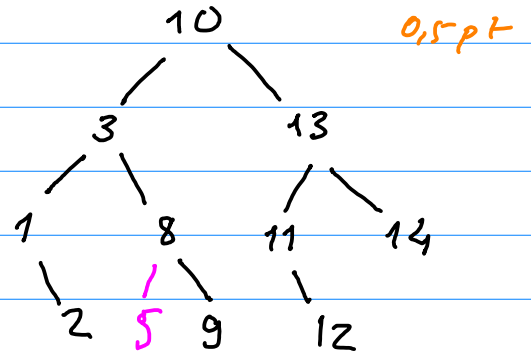
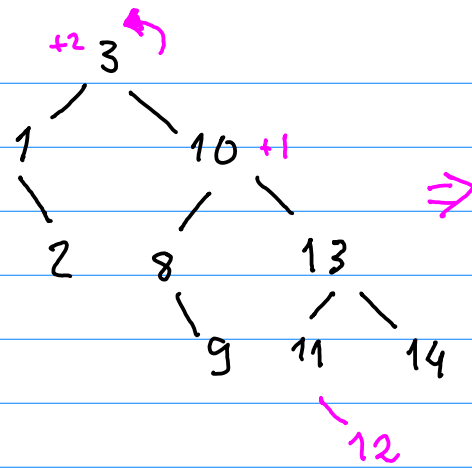


Houve um erro de digitação na questão que fez com que ficasse quase trivial.

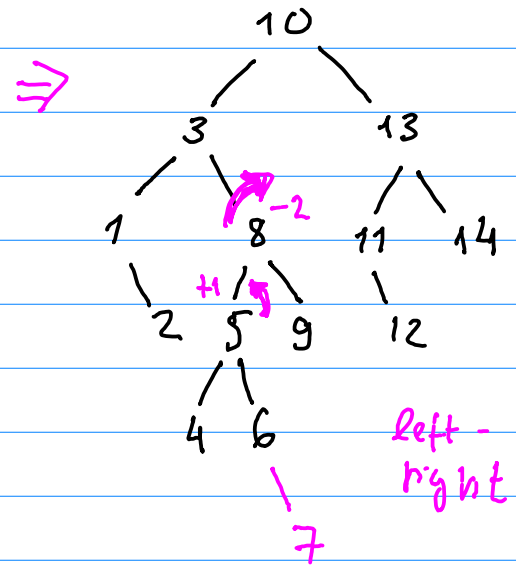
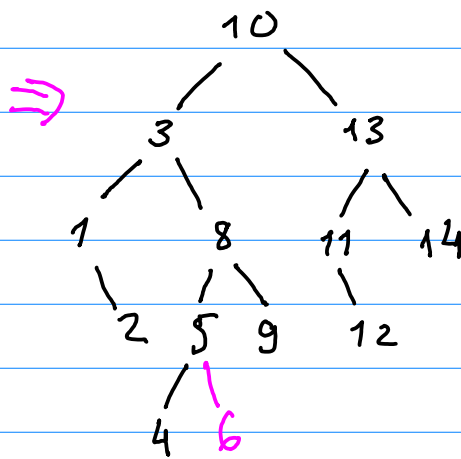
Portanto a correção foi binária.

Q2

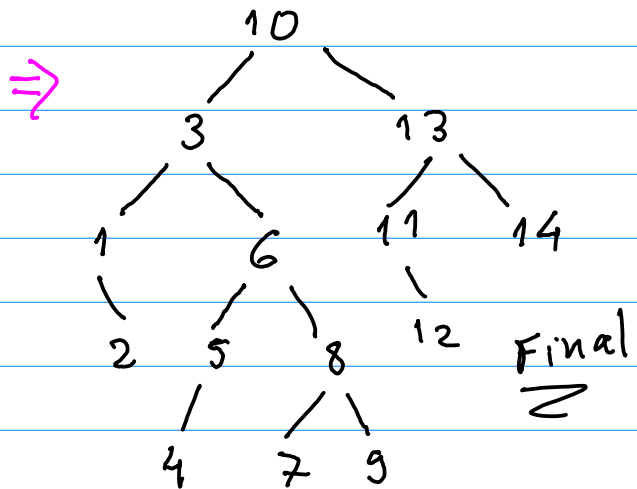
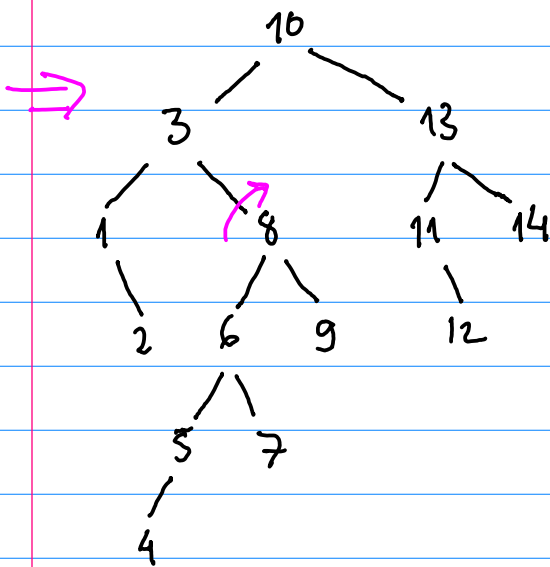
Início:



5-4-6 0,5 pt

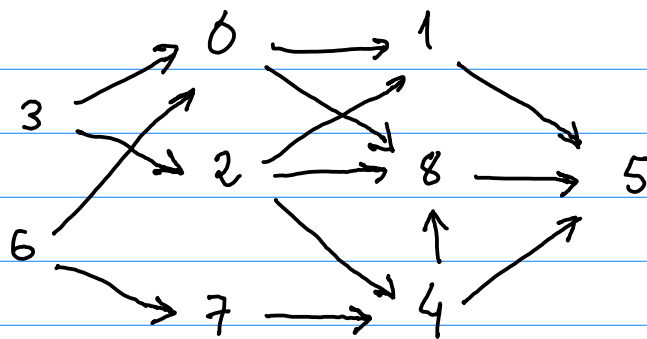


left-right



1 pt

Q3



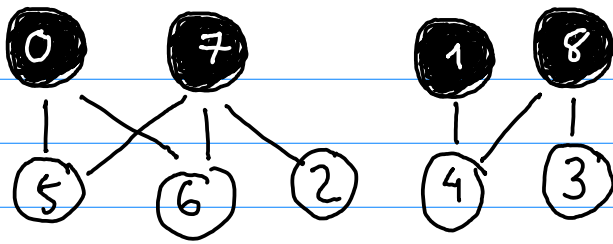
a)

# iter	D									Q		Print
	0	1	2	3	4	5	6	7	8			
Início	2	2	1	0	2	3	0	1	3	3	6	
1	1	2	0	0	2	3	0	1	3	6	2	3
2	0	2	0	0	2	3	0	0	3	2	0	7
3	0	1	0	0	1	3	0	0	2	0	7	2
4	0	0	0	0	1	3	0	0	1	7	1	0
5	0	0	0	0	0	3	0	0	1	1	4	7
6	0	0	0	0	0	2	0	0	1	4		1
7	0	0	0	0	0	1	0	0	0	8		4
8	0	0	0	0	0	0	0	0	0	5		8
9	0	0	0	0	0	0	0	0	0	Vazia		5

Ordem topológica: 3 6 2 0 7 1 4 8 5

b) Tempo idêntico a uma BFS = $\Theta(V+E)$

Q4



#visita	0	1	2	3	4	5	6	7	8
0	P	N	N	N	N	N	N	N	N
1	P	N	N	N	N	B	N	N	N
2	P	N	N	N	N	B	N	P	N
3	P	N	B	N	N	B	N	P	N
4	P	N	B	N	N	B	B	P	N
5	P	P	B	N	N	B	B	P	N
6	P	P	B	N	B	B	B	P	N
7	P	P	B	N	B	B	B	P	P
8	P	P	B	B	B	B	B	P	P

O grafo é bipartido.

Q5

k	A	B	C	D	E	F
0	0-	∞	∞	∞	∞	∞
1	0-	5A	∞	∞	∞	4A
2	0-	5A	4B	∞	8B	4A
3	0-	5A	4B	10E	8B	2C
4	0-	5A	2D	10E	8B	2C
5	0-	5A	2D	10E	8B	0C
6	0-	5A	2D	10E	8B	0C

↖ Não possui
ciclos negativos!