Optimal Binary Search Trees

Dynamic programming.

Operation Research.

The goal of the maximum weight independent set problem (MWIS) is to compute, for a given set of geometric objects with certain weights, a subset of disjoint (non-overlapping) objects with maximum total weight.

There is a PTAS (polynomial-time algorihtm scheme) for MWIS in disk graphs, provided that a disk representation of the graph is given. The running-time for achieving approximation ratio $1 + \epsilon$ is $n^{O(1/\epsilon^2)}$ for a disk graph with n disks.

Details:

- Executed on : Seg Out 06 01:47:26 BRT 2014.
- Number of disks : 42.
- Execution time : 134182,139052 seconds.
- Memory required : 16080 bytes.

Nodes

Contents

Execution

Analisis

Figure 1: Optimal search tree.

Digest

- Total nodes : 42.
- Levels : 1.
- Expected cost : 340282346638528859811704183484516925440,00.

	Name	Probabilities
1	A0	0,00
2	A1	0,00
3	B0	0,00
4	B1	0,00
5	C0	0,00
6	C1	0,00
7	D0	0,00
8	D1	0,00
9	E0	0,00
10	E1	0,00
11	F0	0,00
12	F1	0,00
13	G0	0,00
14	G1	0,00
15	H0	0,00
16	H1	0,00
17	I0	0,00
18	I1	0,00
19	J0	0,00
20	J1	0,00
21	K0	0,00
22	K1	0,00
23	L0	0,00
24	L1	0,00
25	M0	0,00
26	M1	0,00
27	M1	0,00
28	N0	0,00
29	N1	0,00
30	N1	0,00
31	O0	0,00
32	O1	0,00
33	P1	0,00
34	R0	0,00
35	S0	0,00
36	T0	0,00
37	U0	0,00
38	V0	0,00
39	W0	0,00
40	X0	0,00
41	Y0	0,00
42	Z0	0,00

Table 1: Nodes probabilities.

	1	2	3	4
0	0,00	340282346638528859811704183484516925440,00	340282346638528859811704183484516925440,00	34028234663852885981170
1		0,00	340282346638528859811704183484516925440,00	34028234663852885981170
2			0,00	34028234663852885981170
3				0,00
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				
32				
33				
34				
35				
36				
37				
38				
39				
40				
41				
42				

Table 2: Table A.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6							0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7								0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8									0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9										0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10											0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11												0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12													0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13														0	0	0	0	0	0	0	0	0	0	0	0	0	0
14															0	0	0	0	0	0	0	0	0	0	0	0	0
15																0	0	0	0	0	0	0	0	0	0	0	0
16																	0	0	0	0	0	0	0	0	0	0	0
17																		0	0	0	0	0	0	0	0	0	0
18																			0	0	0	0	0	0	0	0	0
19																				0	0	0	0	0	0	0	0
20																					0	0	0	0	0	0	0
21																						0	0	0	0	0	0
22																							0	0	0	0	0
23																								0	0	0	0
24																									0	0	0
25																										0	0
26																											0
27																											
28																											
29																											
30																											
31																											
32																											
33																											
34																											
35																											
36																											
37																											
38																											
39																											
40																											
41																											
42																											

Table 3: Table R.