

Algorithmics	Student information	Date	Number of session
	UO: 258220	10-04-21	6
	Surname: Cuesta Martínez Name: Miguel		

Activity 1. Validation results

The complexity of the backtracking algorithm provided is $O(3^n)$. This value comes from the fact that in the conceptual tree of states that the algorithm goes through to find the best solution, three new ramifications are added on each level (corresponding to the states of adding the song to block A, block B, or no block at all). As such, we can expect an exponential increase of those 3 options by the number of levels in the tree, which is the number of songs in the list, n .

For the input with the following arguments:

List01.txt 20

We obtain the following result:

Number of songs: 10

List of songs:

id: 3ld4R7 seconds: 4:27 score: 3475

id: 8j4gE3 seconds: 5:22 score: 2834

id: 0fmvy3 seconds: 4:40 score: 3842

id: 8id4R7 seconds: 4:27 score: 3475

id: 9u4gE3 seconds: 6:59 score: 2834

id: 2lsdf9 seconds: 3:22 score: 3842

id: 3j4yQ6 seconds: 5:02 score: 2834

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id: 06rwq3 seconds: 4:48 score: 3842

id: 87UKo2 seconds: 3:27 score: 3475

id: 5rtZe9 seconds: 4:44 score: 2834

Length of the blocks: 20:0

Total score: 27619

Total counter: 47246

Best block A:

id: 3ld4R7 seconds: 4:27 score: 3475

id: 8j4gE3 seconds: 5:22 score: 2834

id: 0fmvy3 seconds: 4:40 score: 3842

id: 8id4R7 seconds: 4:27 score: 3475

Best block B:

id: 9u4gE3 seconds: 6:59 score: 2834

id: 2lsdf9 seconds: 3:22 score: 3842

id: 06rwq3 seconds: 4:48 score: 3842

id: 87UKo2 seconds: 3:27 score: 3475