| Algorithmics | Student information      | Date                                    | Number of session |
|--------------|--------------------------|---|-------------------|
|              | UO:269546                | 20-04-21                                | 6                 |
|              | Surname: Fernández Arias | Escuela de<br>Ingeniería<br>Informática |                   |
|              | Name: Sara               |   |                   |

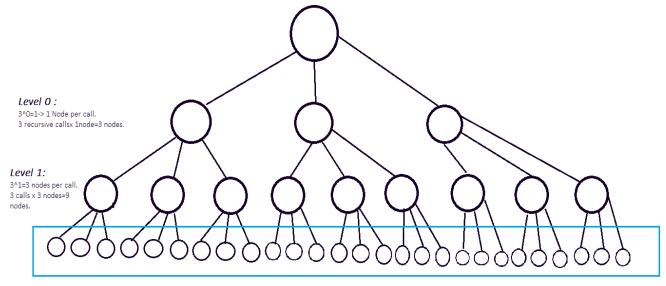


## Activity 1. Validation results.

• Indicate in the document what the complexity of your algorithm is (or approximately). Why you get that complexity?

For each call to backtracking() method, new node will be created. Since backtracking has three recursive calls, each level will  $3^n$  nodes. Being n the level we are at.

An example for n=3 would be the following:



## Level 2:

Final level . It contains all the solutions

found.

3^2=9 nodes per call.

3 calls x 9 nodes =27 nodes.

Then , from all the possible 27 solutions, we will choose the optimal. In my approach I made this solution by solution instead of choosing the best after all are computed.

Note that each leftmost node will be the result of not adding the song to ANY block. The middle one will be the result of adding the node to block A and the rightmost will be the result of adding the song to block B.

Since In my implementation I check certain conditions for a solution to be considered valid, the number of nodes won't be exactly the same since some results will be discarded.

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|              | Name: Sara               |          |                   |

• Indicate in the document (you can copy and paste the solution of your program) what is your solution for the following example: BestList list01.txt 20

```
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:21sdf9 seconds:3:22 score:3842
id:3j4yQ6 seconds:5:02 score:2834
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:20:00
Total score:27619,0
Total count:31030
Best block A:
id:31d4R7 seconds:4:27 score:3475
id:0fmvy3 seconds:4:40 score:3842
id:8id4R7 seconds:4:27 score:3475
id:3j4yQ6 seconds:5:02 score:2834
Best block B:
id:9u4gE3 seconds:6:59 score:2834
id:21sdf9 seconds:3:22 score:3842
id:06rwq3 seconds:4:48 score:3842
id:87UKo2 seconds:3:27 score:3475
```