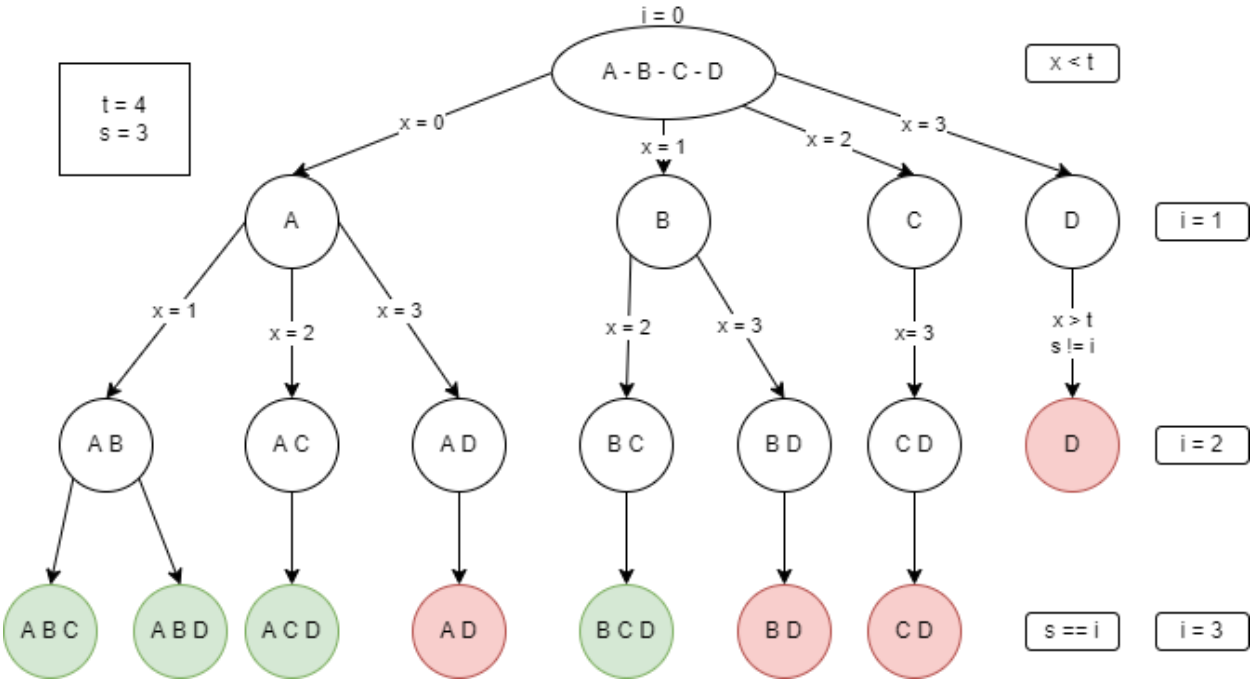
Help the leaders, algorithm explanation by Pablo Maya Villegas

- Why does it work?

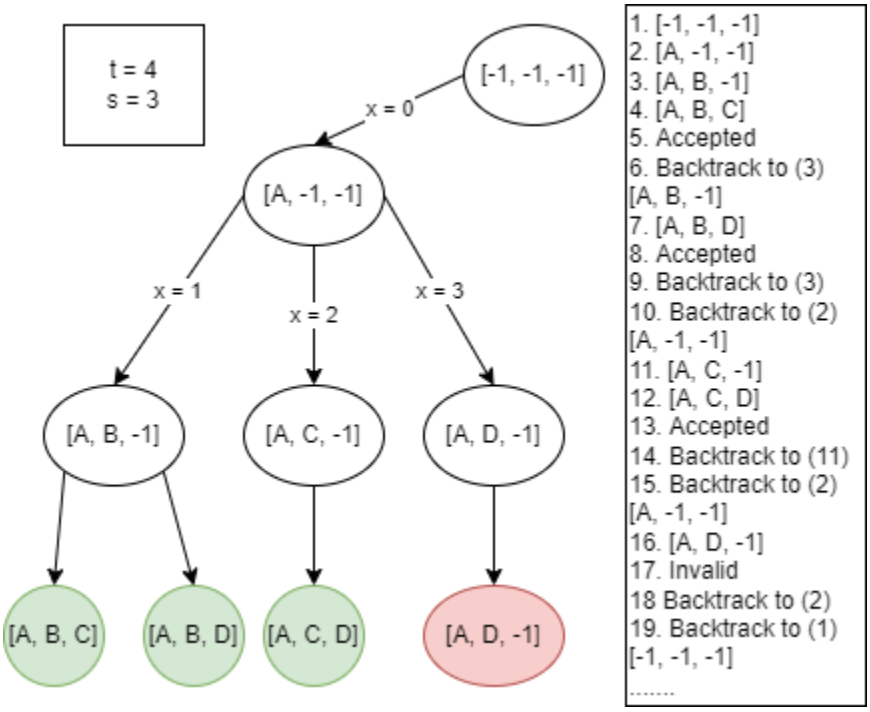
It's a simple algorithm with a complex code, the algorithm basically reads the first n variable and starts a Set cycle, the 3 int variables are red, then the starter topics are saved in a list and the prohibited combinations in another list, both these lists are organized alphabetically and by size.
Now that the data is acquired the tree begins forming, first a divide for every element of the starter array, in each branch they are the first element and all of them get their own branches:



The elements have a value x that represents their position in the starter array, every time a branch is created the x value changes and this way, we can get all the possible combinations, if a branch has an x bigger than the length of the starter array and the s goal wasn't reached, that branch is discarded. When a branch is accepted as a combination it's confirmed if is prohibited, if everything passes then that combination is saved.

- Backtracking algorithm:

As stated above, there are 2 criteria that are tested for a branch: if it's complete and if it's prohibited. The algorithm uses an array to store the current combination, when the branch ends, it makes the last changed element empty to be able to be used by their brother branches, this array is filled by *-1* and the length is s:



- How would it change if only one solution was needed?

The overall idea would be simpler and but very similar, as soon as one combination is found that is valid, that set is over. However, in the worst-case scenario all the combinations created are prohibited, so it goes through each one still.

Submission in Online judge accepted – User: Payagas ID: 1271096

My Submissions

#		Problem	Verdict	Language	Run Time	Submission Date
27252741	10475	Help the Leaders	Accepted	PYTH3	0.190	2022-02-21 16:48:29

uDebug 100 sets by Morass compared to my output (output.txt)