Lab #2: Backtracking

Students implemented the following problems using "Backtracking" technique.

1. **The n-Queens problem**: The `n`-Queens is the problem of placing `n` chess queens on an `n x n` chessboard so that no two queens attack each other.

Input	Output
Content of the *"input_ 1.txt"* file: positive integer `n` represent length and width of the square chessboard.	1^{st} line: positive integer `k` represent number of possible outcomes. - Next `k` lines: each line is a sequence of position of queens separated by "," represent a possible outcome.
Example *(This is a presentation example, not an answer)*	2 (0, 0) , (1 , 1) , (2 , 2) (0, 1) , (0 , 2) , (0 , 3)

2. **The Knight's tour problem**: A knight is placed on the first cell $< r_0, c_0 >$ of an empty board of the size `n x n`and, moving according to the rules of chess, must visit each cell exactly once.

Input	Output
Content of the *"input_ 2.txt"* file: positive integer `n` represent length and width of the square chessboard.	1^{st} line: positive integer `k` represent number of possible outcomes. - Next `k` lines: each line is a sequence of position of the knight's tour separated by "," represent a possible outcome.
Example *(This is a presentation example, not an answer)*	1 (0, 0) , (1 , 1) , (2 , 2) , (0, 1) , (0 , 2) , (1 , 2) , (1, 0) , (2 , 0) , (2 , 2)

3. **Sum of Subsets Problem**: Find a subset of a given set $\mathtt{W} = \{w_1, w_2, ..., w_n\}$ of `n` positive integers whose sum is equal to a given positive integer `t`.
   Requirement: Implement using 2 type of approach

Input	Output
Content of the *"input_ 3.txt"* file: 1^{st} line: positive integer `k` represent size of set `W`. 2^{nd} line: `n` positive integer represent elements of set `W`, separated by a single space " ". 3^{rd} line: positive integer `t`	List of required elements from set `W` that has total equal to `t`.
Example 4 1 2 3 10 6	1 2 3

- **FILE SUBMISSION REGULATION**
  - Only submit files with `.cpp` extensions: `1.cpp`, `2-1.cpp`, `2-2.cpp` ... . **Project submission is illegal**.
  - `.cpp` files must be located in `MSSV` folder, then be compressed into `MSSV.zip(.rar)`.
  - Source code must receive input and return output as specified for each problem. Submissions with wrong regulation will result in a "0" (zero).
  - Plagiarism and Cheating will result in a "0" (zero) for the entire course.
  - Contact: **bhthong@fit.hcmus.edu.vn** for more information.

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