

077. Combinations

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- Backtracking

Description

Given two integers n and k , return all possible combinations of k numbers out of $1 \dots n$.

For example,

If $n = 4$ and $k = 2$, a solution is:

```
[
  [2,4],
  [3,4],
  [2,3],
  [1,2],
  [1,3],
  [1,4],
]
```

1. Thought line

2. Backtracking

```
class Solution {
private:
    void backTrackingCombine(int st, int& ed, int& k, vector<int>& temp, vector<vector<int>>& result){
        if (temp.size()==k){
            result.push_back(temp);
            return;
        }
        if (st>ed || temp.size(>k) return;

        for (int i = st; i<=ed; ++i){
            temp.push_back(i);
            backTrackingCombine(i+1, ed, k, temp, result);
            temp.pop_back();
        }
    }
public:
    vector<vector<int>> combine(int n, int k) {
        vector<vector<int>> result(0);
        vector<int> temp(0);
        backTrackingCombine(1, n, k, temp, result);
        return result;
    }
};
```