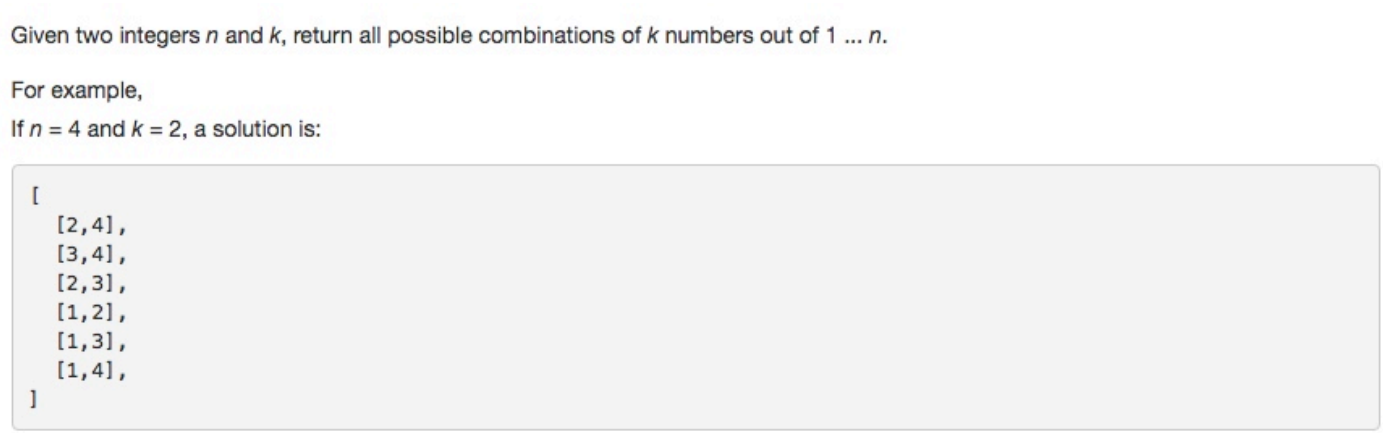
077. Combinations

077 Combinations

- **Backtracking**

Description



Given two integers *n* and *k*, return all possible combinations of *k* numbers out of 1 ... *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;
    }
};
```