

# 077. Combinations

## 077 Combinations

- 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

```
1 class Solution {
2 private:
3     void backTrackingCombine(int st, int& ed, int& k, vector<int>& temp, vector<vector<int>>& result){
4         if (temp.size()==k){
5             result.push_back(temp);
6             return;
7         }
8         if (st>ed || temp.size()>k) return;
9
10        for (int i = st; i<=ed; ++i){
11            temp.push_back(i);
12            backTrackingCombine(i+1, ed, k, temp, result);
13            temp.pop_back();
14        }
15    }
16 }
17 public:
18 vector<vector<int>> combine(int n, int k) {
19     vector<vector<int>> result(0);
20     vector<int> temp(0);
21     backTrackingCombine(1, n, k, temp, result);
22     return result;
23 }
24 };
```