

22. Generate Parentheses

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Given n pairs of parentheses, write a function to generate all combinations of well-formed parentheses.

For example, given $n = 3$, a solution set is:

```
[
  "((()))",
  "(()())",
  "(())()",
  "()()()",
  "()(())"
]
```

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C++ ▾



```
1 class Solution {
2 public:
3     vector<string> generateParenthesis(int n) {
4         vector<string> res;
5         string path(2*n, '(');
6         helper(res, path, n, 0);
7         return res;
8     }
9
10    void helper(vector<string>& res, string& path, int left, int ind){
11        int n = path.size();
12        if(ind==n){
13            res.push_back(path);
14            return;
15        }
16        if(left==0){
17            for(int i=ind; i<n; i++){
18                path[i]=')';
19                res.push_back(path);
20                return;
21            }
22        }
23        if(n-ind<left)
24            return;
25        path[ind]='(';
26        helper(res, path, left-1, ind+1);
27        if(n/2-left>ind/2){
28            path[ind]=')';
29            helper(res, path, left, ind+1);
30        }
31    }
32 }
33 };
34 
```

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