

```
#include <stdio.h>

// open and close tell us how many opening and closing brackets have
// we used up so far
void generateBalanced(char *str, int n, int pos, int open, int close){
    if(open == n){ // filled our quota of opening brackets
        if(close == n){ // filled our quota of closing brackets as well
            str[pos] = '\0';
            printf("%s\n", str);
            return;
        }else if(close < n){ // Need to add more closing brackets
            str[pos] = ')';
            generateBalanced(str, n, pos+1, open, close+1);
            return;
        }
    }
    // I can add an opening bracket (lexicographic order)
    str[pos] = '(';
    generateBalanced(str, n, pos+1, open+1, close);
    // Can I add a closing bracket instead?
    if(close < open){ // Only if there are enough opening brackets
        str[pos] = ')';
        generateBalanced(str, n, pos+1, open, close+1);
    }
}

int main(){
    int n;
    scanf("%d", &n);
    char str[2*n+2];
    generateBalanced(str, n, 0, 0, 0);
    return 0;
}
```