n = int(input("Enter the number of brackets: "))

l = []

def parenthesis(s, open, close, n):

    if(open == close == n):

        l.append(s)

    else:

        if open<n:

            parenthesis(s+"(", open+1, close, n)

        if close<open:

            parenthesis(s+")", open, close+1, n)

parenthesis("", 0, 0, n)

print(l)

print("Number of valid parenthesis are ", len(l))