一、题目说明

题目560. Subarray Sum Equals K，给一列整数和一个整数k，找到所有子数组和是k的个数。难度是Medium！

二、我的解答

这个题目第一印象是用dp，很快代码就写好了。然而`Memory Limit Exceeded`，其中`vector<vector<int> > dp(len+1,vector<int>(len+1,0));`

代码如下：

```
class Solution{
    public:
        int subarraySum(vector<int>& nums,int k){
            int len = nums.size();
            int total = 0;
            vector<vector<int> > dp(len+1,vector<int>(len+1,0));
            for(int i=0;i<len;i++){
                dp[i][i] = nums[i];
                if(nums[i]==k){
                    total++;
                }
            }
            for(int i=0;i<len;i++){
                for(int j=i+1;j<len;j++){
                    dp[i][j] = dp[i][j-1] + nums[j];
                    if(dp[i][j]==k){
                        total++;
                    }
                }
            }
            return total;
        }
};
```

三、优化措施

那就一个一计算吧，用dfs:

```
class Solution{
    public:
        int subarraySum(vector<int>& nums,int k){
            int len = nums.size();
            int total = 0;

            for(int i=0;i<len;i++){
                total += dfs(nums,i,k);
            }

            return total;
        }
        int dfs(vector<int>& nums,int start,int k){
            int total = 0;
```

```
            int sum = 0;
            for(int i=start;i<nums.size();i++){
                sum += nums[i];
                if(sum==k) total++;
            }
            return total;
        }
};
```

```
Runtime: 464 ms, faster than 24.82% of C++ online submissions for Subarray Sum Equals K.
Memory Usage: 9.8 MB, less than 98.67% of C++ online submissions for Subarray Sum Equals K.
```