

1140. Stone Game II

```
typedef std::vector<int> vi;
typedef std::vector<vi> vvi;
typedef std::vector<vvi> vvvi;
class Solution {
```

```
    public:
        int stoneGameII(std::vector<int>& piles) {
            int n=piles.size();

            vi suffix_sum(n,0);
```

```
            // Calculate suffix sums
            suffix_sum[n-1]=piles[n-1];
            for (int i=n-2;i>=0;--i) {
                suffix_sum[i]=suffix_sum[i+1]+piles[i];
            }
```

```
            vvi memo(n+1,vi(n+1,-1));

            auto solve=[&](int i,int M,auto& self)->int{
                if(i>=n) return 0;

                if(memo[i][M]!=-1) return memo[i][M];

                int ans=INT_MIN;

                int prefix_sum=0;
                for(int X=1;X<=std::min(2*M,n-i);++X){
                    ans=std::max(ans,suffix_sum[i]-self(i+X,std::max(X,M),self));
                }
                return memo[i][M]=ans;
            };

            int sum=accumulate(piles.begin(), piles.end(), 0);
            return solve(0,1,solve);
        }
};
```