```cpp
const int MAXN = 8010;
const ll INFINITE = 1e17;

ll dp[8010][810];
ll v[8010];
int n;

ll cost(int x, int y) {
    if(x>y) return 0;
    ll sum = v[y] - (x ? v[x-1] : 0LL);
    return sum*(y-x+1);
}

void fill(int g, int lmin, int lmax, int pmin, int pmax) {
    if(lmin>lmax) return;
    int lmid = (lmin+lmax)/2;
    dp[lmid][g] = INFINITE;
    ll minp;
    FOR(i,pmin, pmax+1) {
        ll ncost = dp[i][g-1] + cost(i+1,lmid);
        if(ncost < dp[lmid][g]) {
            dp[lmid][g] = ncost;
            minp = i;
        }
    }
    fill(g,lmin,lmid-1,pmin,minp);
    fill(g,lmid+1,lmax,minp,pmax);
}

int main() {
    int g;
    cin >> n >> g;
    FOR0(i,n) {
        cin >> v[i];
        if(i) v[i] += v[i-1];
    }
    FOR0(i,n) {
        dp[i][1] = cost(0,i);
    }
    FOR(i,2,g+1) {
        fill(i,0,n-1,0,n-1);
    }
    cout << dp[n-1][g] << endl;
    return 0;
}
```