Q4

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Answer:

We assume the $a[\ i\ ]$ is the total number of apples from n^2 trees. We can simply calculate $a[\ 1\ ] = A[1] + A[2] + \cdots + A[n]$ using n additions and it takes O (n^2) times, we store $a[\ 1\ ]$ into an array B with the index 1, then we use $B[\ 1\ ]$ to calculate $a[\ 2\ ]$ by adding $A[\ n+1\ ]$ and subtracting $A[\ 1\ ]$ ($a[\ 2\ ] = B[\ 1\ ] + A[\ n+1\ ] - A[\ 1\ ]$), we store $a[\ 2\ ]$ into $B[\ 2\ ]$, it will take O (1) to compute $a[\ 2\ ]$. we do the same process to $a[\ 3\ ]$, $a[\ 4\ ]$ till $a[\ 3n+1\ ]$. Hence, this algorithm will run in time O (n^2).