1. For each value, perform counting on all factors of k. $n \cdot 2^{O(\log n / \log \log n)}$.
2. For each i, put $a[i]$ in all bins j where $j|\gcd(i,k)$. (or similar to sieve). The running time is $\sum_{d|k} \frac{n}{d} = O(n \log \log n)$.

References