I'll Buy you anything!

There are n * (n - 1) / 2 possible pairings. But according to the problem, you can pair up only n - 1 values so that all become connected. What? it is somewhat similar to trees, Yeah you're right. Lets consider all n * (n - 1) / 2 pairings as edges and now you have to pick n - 1 edges, with maximum total cost so that it become connected. What now it even became a simple Maximum Spanning tree problem.

But what is the efficient way to pick costs?
for the naive approach it will take O(n * n * log(n)),which is slow. There are several approaches, even you may find a solution for higher constraints, but lets use simple sieve technique here. Since maximum value of A[i] is 10^5, You can check all the possible candidate of greatest common divisor from K = 10 ^ 5 and check there is possible to add an edge of weight K to add.