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# Facebook | Phone | Two Pointer Question + Valid Parentheses

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Hey everyone,

Just recently finished up my fb E3 phone interview and I got the following questions.

1. Given vectors SV1 = [0,1,0,0,0,1,0,2,0] and SV2 = [0,2,0,1,0,0,1,1,0,1], the dot product of the two compressed version of the vectors (CV1 = [(1,1), (5,1), (7,2)] and CV2 = [(1,2), (4,1), (6,1), (7,1), This was pretty simple. Just a two pointer method, if the first pair within the tuple are equal to eac multiplication and add it to a resulting sum. If one number was less than, then you would increme and check.

```
public int dotproduct(List<List<Integer>> CV1, List<List<Integer>> CV2) {
    int sum = 0;
    int p1 = 0; int p2 = 0;
    if (CV1 == null || CV2 == null || CV1.size() == 0 || CV2.size() == 0) return
    while (p1 < CV1.size() && p2 < CV2.size()) {
        List<Integer> curr1 = CV1.get(p1);
        List<Integer> curr2 = CV2.get(p2);
        if (curr1.get(0) == curr2.get(0)) {
            sum += curr1.get(1) * curr2.get(1);
            p1++;
            p2++;
            } else {
                if (curr1.get(0) > curr2.get(0)) p2++;
                else p1++;
            }
        }
    }
    return sum;
    }
```

2. An expression can use the following: [a-z], [A-Z], [0-9], (), <>, {}, [], check to see if it is a valid exp returns true, and 'k<f(>2)' returns false. This was just valid parentheses.

(moving to onsite!)

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