

Microsoft Office India Interview experience | Set 170 (2 Years Exp)

- Difficulty Level : \nExpert
- Last Updated : \n10 Apr, 2018

Round 1:

Validate an infix arithmetic expression string (braces and brackets are similar to parentheses):
 $(1+2)*\{[90*3]-[67+8-9]\}$

Proposed Ans: Dijkstra's Shunting yard

Interviewer's Ans: Parser Tree

Round 2:

Given a shelf of books, categorise those books according to any particular property of a book e.g. Alphabetic increasing author's name, category, date of publish etc. The value of the property of the book has to be fetched from an external service and the call is expensive.

Constraints: $O(1)$ space, the calls to get the priority of a book should be as minimized as possible.

Proposed Ans: Quick sort with a priority map associated with the property of the book, a modified partitioning scheme where every element's priority is fetched once, total of $n \log n$ calls.

Constraint variation: Minimum swaps.

Proposed Ans:

1. Selection sort with $O(n^2)$ time and $O(1)$ space. n swaps
2. Bucket sort with $O(n)$ space and time. 0 swaps

Round 3:

Given a very long string and a transformation map, replace all the occurrences of any needle strings with their resultant transformations e.g.

```
input_string = "cabcd<lt;qwer>asd;"
map = {"<lt;" : "<<", ">" : ">>"}
transform(input_string, map) // should equal "cabcd<<qwer>>asd;"
```

Proposed Ans: Naive solution by processing character by character and replacing the suffix if it matches with any of the needles.

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