A2SV Community
Prefix Sum Resource

Prefix Sum Introduction

Prefix Sum

- The prefix sum of a sequence of numbers x0, x1, x2, ... xn is a second sequence of numbers y0, y1, y2, ...,yn such that

$$y0 = x0$$

$$y1 = x0 + x1$$

$$y2 = x0 + x1+ x2$$

$$yn=x0+x1+....Xn$$

Prefix Sum

For example

arr= [7, 20, 5, 35, 17]

PrefixSum = [7, 27, 32, 67, 84]

prefixSum[0] = 7,

prefixSum[1] = prefixSum[0] + arr[1] = 27,

prefixSum[2] = prefixSum[1] + arr[2] = 32 …

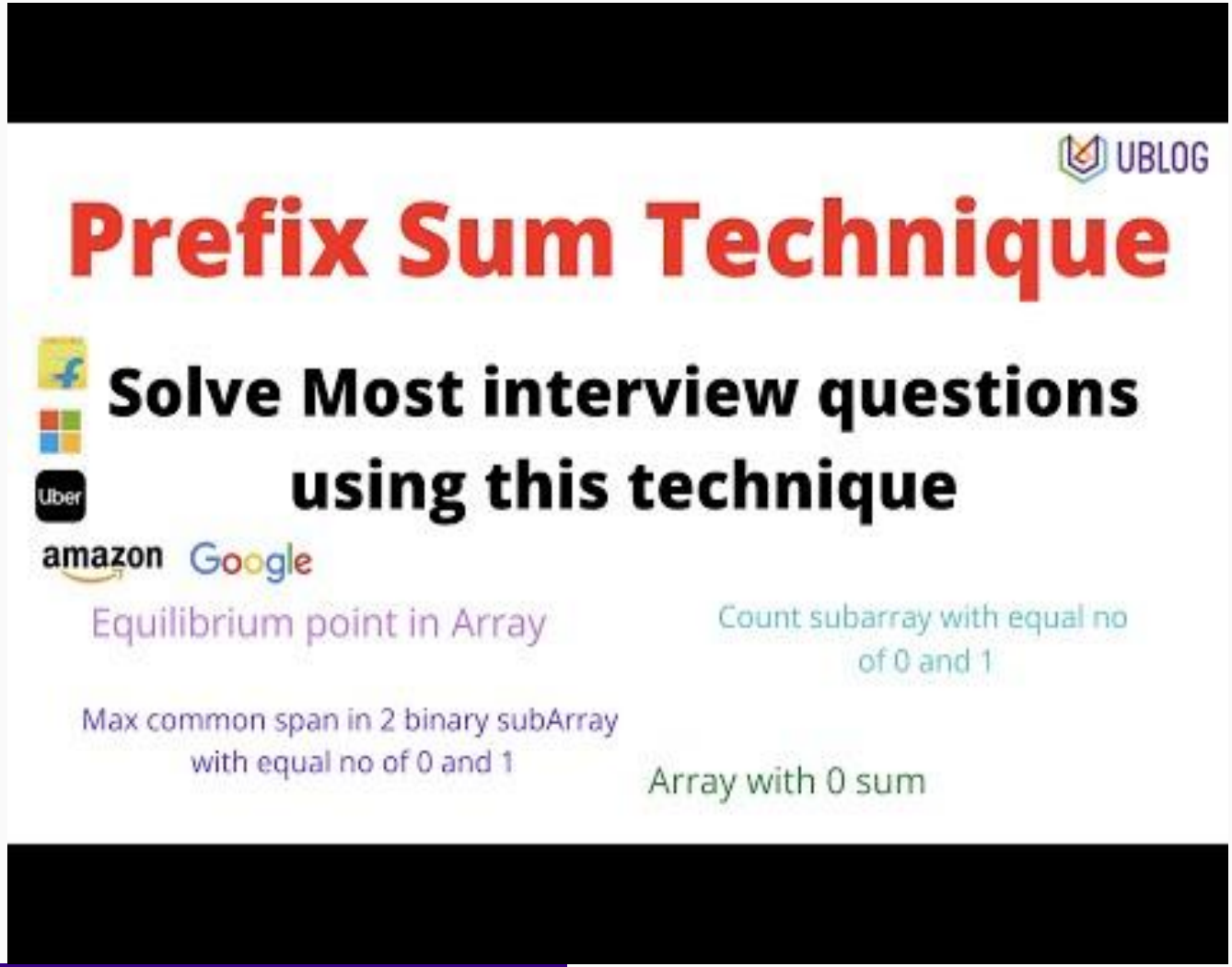
Prefix Sum Algorithm Explained

Reading Options

- Geeks for Geeks
- Prefix Sum Technique

Application of prefix sums

- Prefix sum technique can be used to solve wide range of problems
- From trivial computation in sequential models,to Counting sort ,a sorting algorithm that uses the prefix sum of a histogram of key frequencies to calculate the position of each key in the sorted output array prefix sums can be used



Reading Option

- Algorithms: How Prefix Sums Can Help Improving Operations Over Arrays

Practice Problems

- Range sum query
- Find pivot Index
- Find-the-pivot-integer
- Longest Subsequence With Limited Sum
- Minimum Value to Get Positive Step by Step Sum
- Range-sum-query-2d-immutable

More Practice Problems

- Subarray sum equals K
- Subarray Sums Divisible by K
- Contiguous Array
- Sum of Absolute Differences in a Sorted Array

Even More Practice Problems

- Maximum Side Length of a Square with Sum Less than or Equal to Threshold
- Intervals Between Identical Elements