Basic Prefix Sum Problems

1. Compute prefix sum of an array.
2. Compute suffix sum of an array.
3. Find sum of elements from index `l` to `r`.
4. Update an element and recompute prefix sum.
5. Count sum of even elements in range `l` to `r`.
6. Count sum of odd elements in range `l` to `r`.
7. Find maximum prefix sum.
8. Find minimum prefix sum.
9. Compute running average using prefix sum.
10. Compute running product (logarithmic trick).

Subarray / Range Queries

11. Find sum of all subarrays.
12. Find sum of subarrays of size k.
13. Count subarrays with sum = k.
14. Count subarrays with sum < k.
15. Count subarrays with sum > k.
16. Maximum sum subarray of size k.
17. Minimum sum subarray of size k.
18. Find subarray with maximum sum.
19. Find subarray with minimum sum.
20. Count subarrays with sum divisible by k.

Binary Array / 0-1 Problems

21. Count subarrays with equal 0s and 1s.
22. Count subarrays with exactly k ones.
23. Count subarrays with at most k ones.
24. Count subarrays with sum = k ones.
25. Longest subarray with equal 0s and 1s.
26. Longest subarray with sum ≤ k ones.
27. Maximum length subarray with sum ≤ k.
28. Count subarrays with sum divisible by 2.
29. Count subarrays with sum divisible by 3.
30. Count subarrays with sum divisible by 5.

String / Character Problems

31. Compute prefix sum of character frequencies.
32. Count vowels in substring using prefix sum.
33. Count consonants in substring using prefix sum.
34. Count digits in substring using prefix sum.
35. Count uppercase letters in substring using prefix sum.
36. Count lowercase letters in substring using prefix sum.
37. Count special characters in substring using prefix sum.
38. Compute cumulative XOR of string characters.

39. Count palindromic substrings using prefix sum trick.
40. Longest substring with k distinct characters using prefix sum array.

Two-Dimensional Prefix Sum

41. Compute 2D prefix sum of a matrix.
42. Find sum of submatrix using 2D prefix sum.
43. Find maximum sum submatrix.
44. Find minimum sum submatrix.
45. Count number of elements in submatrix.
46. Count submatrices with sum = k.
47. Count submatrices with all ones.
48. Find largest rectangle of 1s in binary matrix using prefix sum.
49. Compute cumulative XOR in submatrix.
50. Find sum of diagonal elements using prefix sum.

Sliding Window + Prefix Sum

51. Maximum sum subarray of size k.
52. Minimum sum subarray of size k.
53. Average of subarrays of size k.
54. Maximum average subarray of size k.
55. Count subarrays with sum ≤ k.
56. Count subarrays with sum ≥ k.
57. Count subarrays with sum = k.
58. Maximum sum subarray after at most one deletion.
59. Minimum sum subarray after at most one deletion.
60. Longest subarray with sum ≤ k.

Advanced Array Problems

61. Count subarrays with sum divisible by n.
62. Count number of subarrays with sum = multiple of k.
63. Maximum sum of subarray with even length.
64. Maximum sum of subarray with odd length.
65. Count subarrays with sum in given range.
66. Longest subarray with sum divisible by k.
67. Count subarrays with sum divisible by 3.
68. Count subarrays with sum divisible by 5.
69. Find maximum sum of non-overlapping subarrays.
70. Count subarrays with alternating sum using prefix sum.

Prefix XOR / Bit Manipulation

71. Compute prefix XOR array.
72. Count subarrays with XOR = k.
73. Find maximum XOR subarray.
74. Find minimum XOR subarray.
75. Count subarrays with XOR divisible by k.

76. Find number of subarrays with XOR = 0.
77. Find longest subarray with XOR = k.
78. Count pairs with XOR = k.
79. Count triplets with XOR = k.
80. Maximum XOR of any subarray.

Geometric / Coordinate Problems

81. Count number of points in range using 2D prefix sum.
82. Compute cumulative sum of x-coordinates.
83. Compute cumulative sum of y-coordinates.
84. Find number of points in rectangle using prefix sum.
85. Count points in circular range using prefix sum.
86. Find sum of distances in submatrix.
87. Compute Manhattan distance sum using prefix sums.
88. Compute sum of points in triangle using prefix sum.
89. Count distinct elements in 2D grid using prefix sum.
90. Maximum sum of rectangle in 2D grid.

Miscellaneous Prefix Sum Problems

91. Count number of subarrays with sum less than average.
92. Count number of subarrays with sum greater than average.
93. Maximum sum subarray of length $\leq k$.
94. Minimum sum subarray of length $\geq k$.
95. Count number of peaks in array using prefix sum.
96. Count number of valleys in array using prefix sum.
97. Compute weighted prefix sum (element $\times$ index).
98. Maximum weighted sum of subarray.
99. Count subarrays with sum equal to twice the average.
100.   Count number of subarrays with sum divisible by sum of array.