

Q Add two arrays

$$a_1 = [2 \ 3 \ 6]$$

$$a_2 = [9 \ 8 \ 7 \ 1]$$

$$\text{output} \rightarrow [10 \ 10 \ 7]$$

$$a_1 \rightarrow [9 \ 9 \ 9]$$

$$a_2 \rightarrow [9 \ 9 \ 9 \ 9]$$

$$\text{output} \rightarrow [10 \ 9 \ 9 \ 8]$$

$$\begin{array}{r} a_1 \rightarrow [9 \ 2 \ 3 \ 6] \\ a_2 \rightarrow [9 \ 8 \ 7 \ 1] \\ \hline 10 \ 10 \ 7 \end{array} \quad \text{carry} = 1$$

Q Rotate an array by  $k$  steps.

$$\text{arr} \rightarrow [3 \ 2 \ 5 \ 1 \ 4]$$

$$k=2 \quad [1 \ 4 \ 3 \ 2 \ 5]$$

$$k=4 \quad [2 \ 5 \ 1 \ 4 \ 3]$$

$$k=11 \quad [4 \ 3 \ 2 \ 5 \ 1]$$

$k \rightarrow$  +ve ✓  
 $k \rightarrow$  -ve ✓

$k=-1$	$[3 \ 2 \ 5 \ 1 \ 4]$	$k=6 \% 5$
$k=0$	$[3 \ 2 \ 5 \ 1 \ 4]$	$k=1$
$k=1$	$[4 \ 3 \ 2 \ 5 \ 1]$	$k=2 \% 5$
$k=2$	$[1 \ 4 \ 3 \ 2 \ 5]$	$k=2$
$k=3$	$[5 \ 1 \ 4 \ 3 \ 2]$	$k=3 \% 5$
$k=4$	$[2 \ 5 \ 1 \ 4 \ 3]$	$k=4 \% 5$
$k=5$	$[3 \ 2 \ 5 \ 1 \ 4]$	
$k=6$	$[4 \ 3 \ 2 \ 5 \ 1]$	

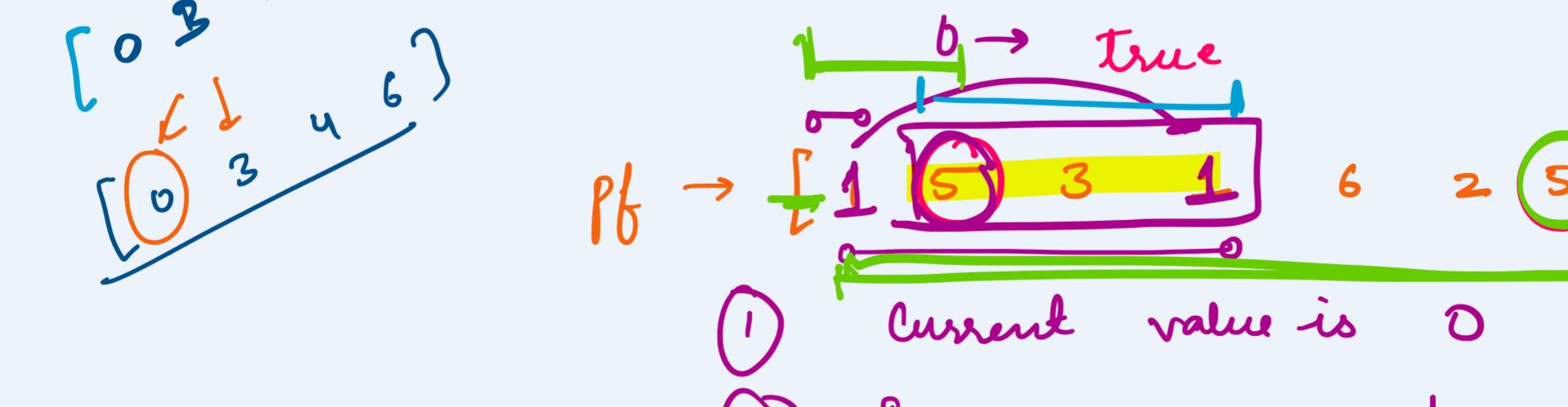
$k=-1 \rightarrow k=4$   
 $k=-2 \rightarrow k=3$   
 $k=-3 \rightarrow k=2$

Q Given an array, of size 5.

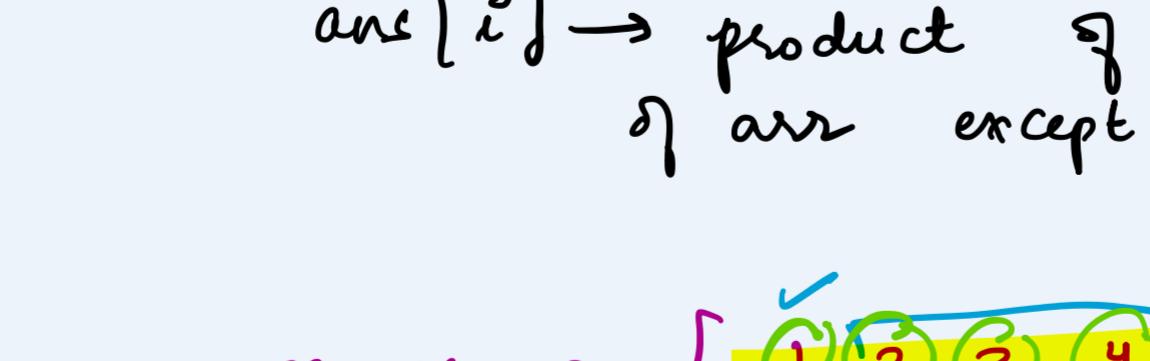
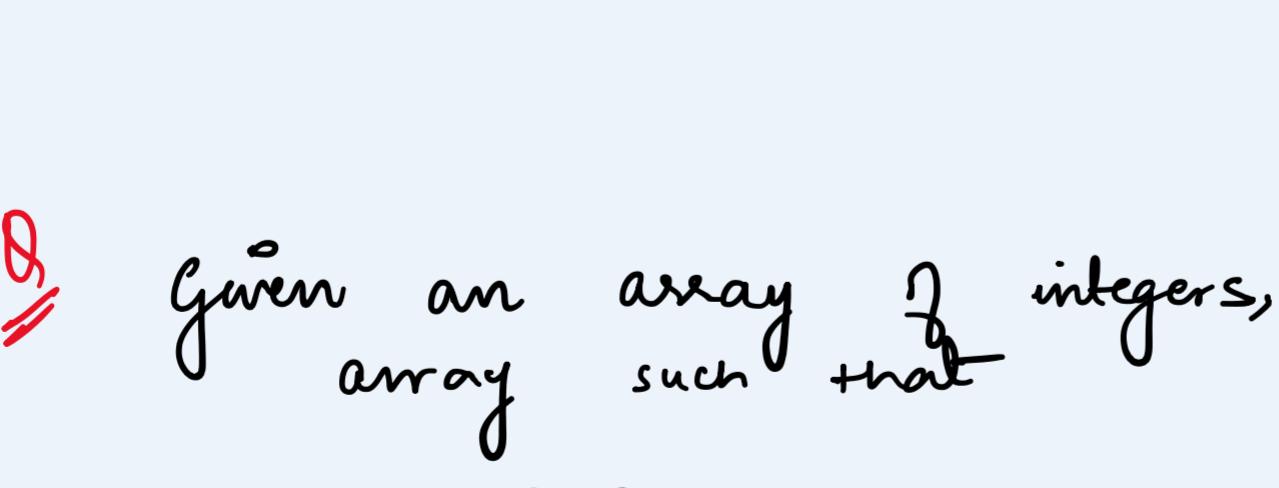
→ range of all the ele  
[0 - n-1]

→ none of the ele would be missed

→ no repetitions would be allowed.



→ find the inverse of the array



$$\text{ma}[ \text{arr}[1] ] = 1$$

$$\text{ma}[2] = 1$$

→ 2 pointers

→ Prefix / Suffix Array

Prefix sum array

→ Given an array of size  $n$ , its prefix sum array,

$$\text{prefix sum } [i] = \text{arr}[0] + \text{arr}[1] + \dots + \text{arr}[i];$$

$$\text{arr} \rightarrow [10, 20, 30, 5, 15]$$

$$\text{ps} \rightarrow [10, 30, 60, 65, 80]$$

Suffix Array

$$\text{arr} \rightarrow [10, 20, 30, 5, 15]$$

$$sf \rightarrow [80, 70, 50, 20, 15]$$

Applications

$$\text{arr} \rightarrow [10, 20, 30, 5, 15]$$

$$\text{find sum } (1, 4) \rightarrow 70$$

$$\text{find sum } (0, 3) \rightarrow 65$$

$$\text{find sum } (2, 4) \rightarrow 50$$

$$(0, 3) \rightarrow \text{prefix}[3] - \times$$

$$\rightarrow [0, 4]$$

$$\rightarrow [0, 1]$$

$$\text{pf} \rightarrow [10, 20, 60, 65, 80]$$

$$\rightarrow [0, 1]$$

Q Given an array of the 2-ve integers find if there is a subarray with 0 sum.

$$\text{arr} \rightarrow [1, 4, -2, -2, 5, -4, 3]$$

$$[0 \ 3 \ 1 \ 2]$$

$$[0 \ 3 \ 1 \ 4 \ 6]$$

$$\text{pf} \rightarrow [1, 5, 3, 1, 6, 2, 5]$$

$$\rightarrow [1, 5, 3, 1, 6, 2, 5]$$

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