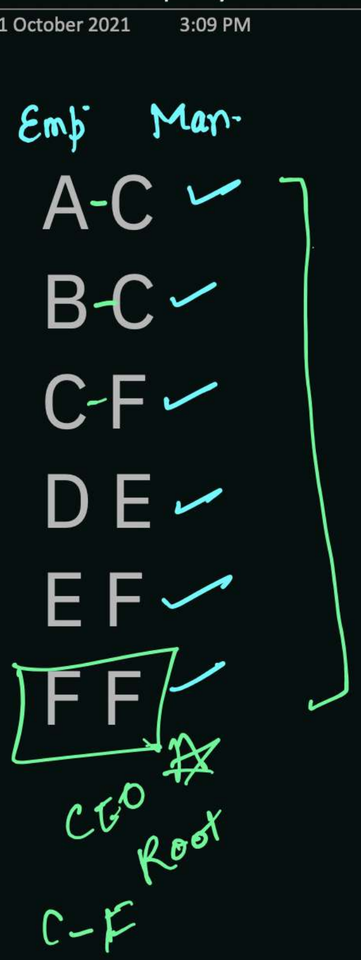
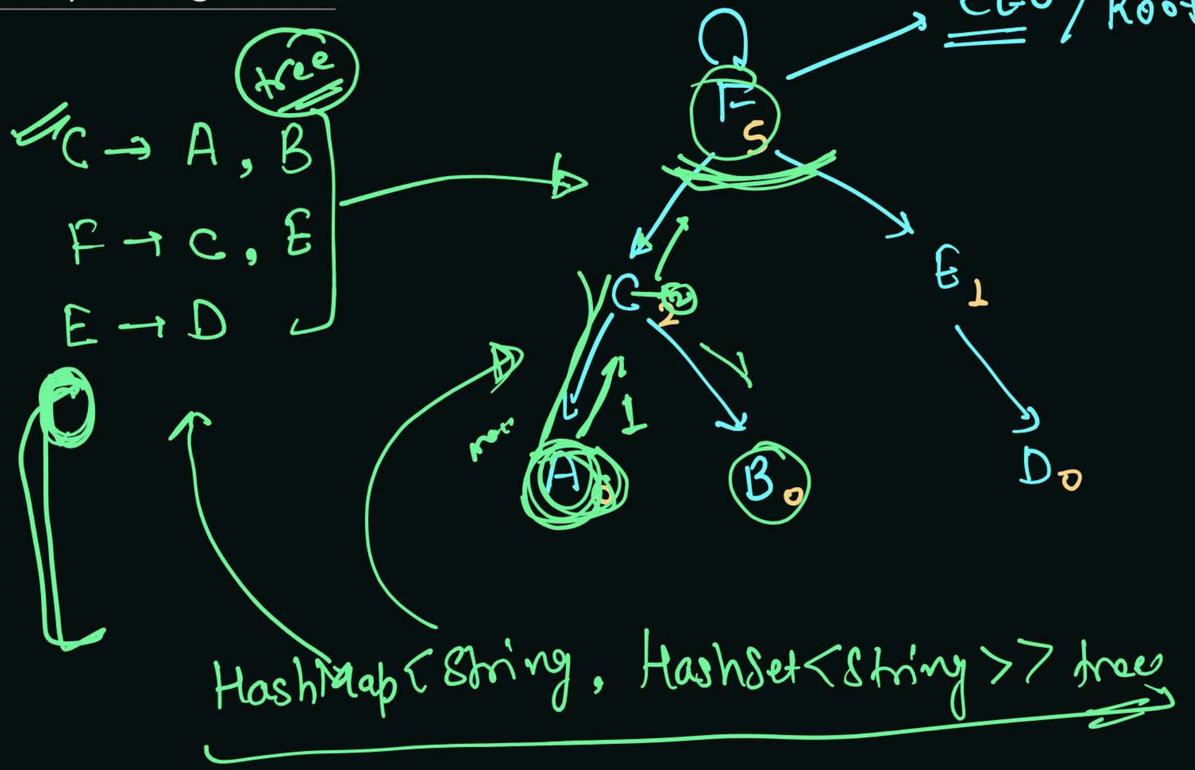
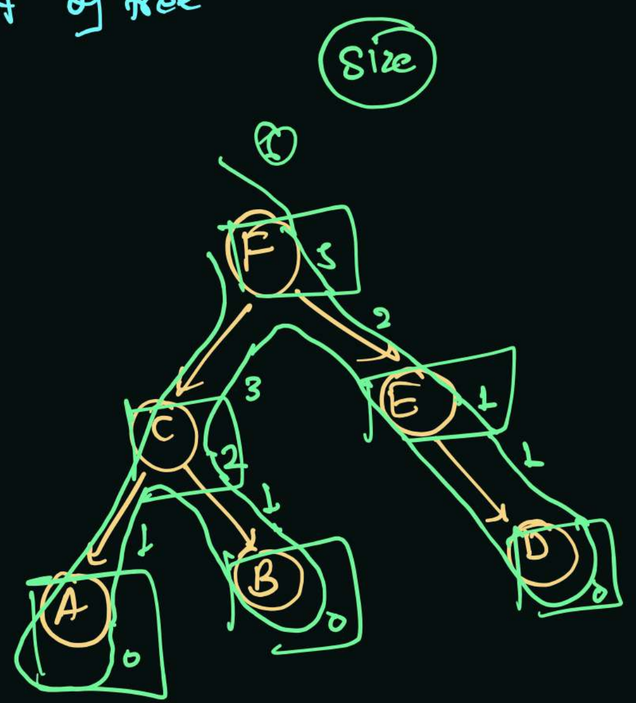
Number of Employees Under Every Manager

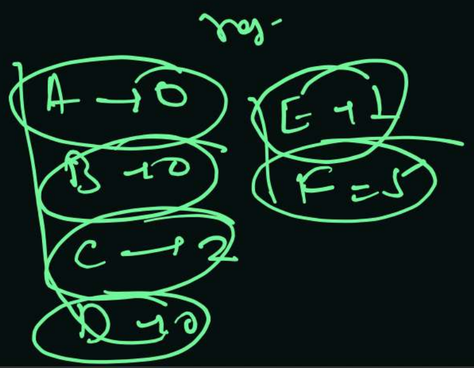
Sunday, 31 October 2021 3:09 PM







HashMap<String, Integer>



Find Itinerary from tickets

Sunday, 31 October 2021 4:25 PM

4 String String
Chennai Banglore
Bombay Delhi
Goa Chennai
Delhi Goa

Goa → Chennai → Banglore
Bombay → delhi

task =?
starting point
source position?

Bombay → delhi → Goa → chennai → Banglore

Starting point - Bombay

Chennai → True False
Banglore → False
Bombay → True → Source
Delhi → False
Goa → True False

Bombay → Delhi → Goa → Chennai
↓
Banglore

Count Distinct Elements In Every Window Of Size K

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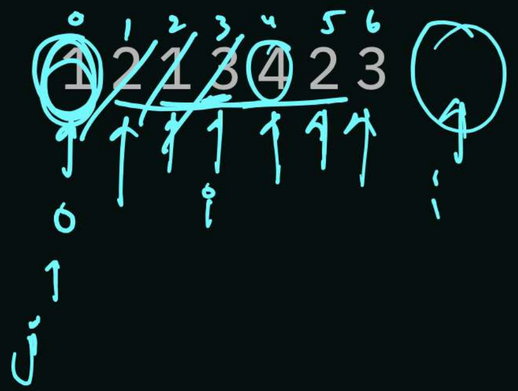

K=4

1

1 → 2 1

2 → 1

3 → X 2 1

4 → 1

2 → 1

< K-1

1 2 1 3 4 2 3

3 4 4 3] Result

Check If An Array Can Be Divided Into Pairs Whose Sum Is Divisible By K

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$k = 10$

array →	46	24	25	11	38	43	15	42	5	17	60	29	30	40	10	55
arr[i]%k =	6	4	5	1	8	3	5	2	5	7	0	9	0	0	0	5

$4 * k + 6 + 2 * k + 4 \rightarrow 6k + k$

First Number $\rightarrow x * k + \text{rem1}$

$46 + 24 \rightarrow 70$
$25 + 15 \rightarrow 40$
$11 + 29 \rightarrow 40$
$38 + 42 \rightarrow 80$
$43 + 17 \rightarrow 60$
$5 + 55 \rightarrow 60$
$60 + 30 \rightarrow 90$
$40 + 10 \rightarrow 50$

Second number ? such that sum should be divisible by by 'k'

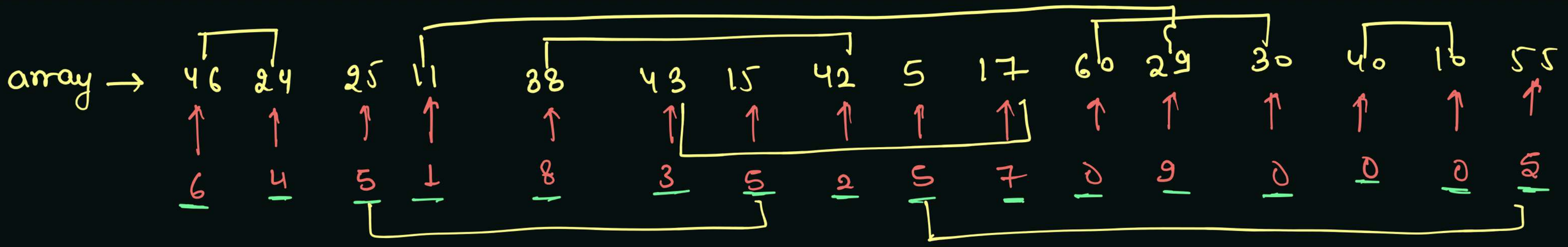
$x * k + \text{rem1} + y * k + \text{rem2}$

$k(x+y) + \text{rem1} + k - \text{rem1}$

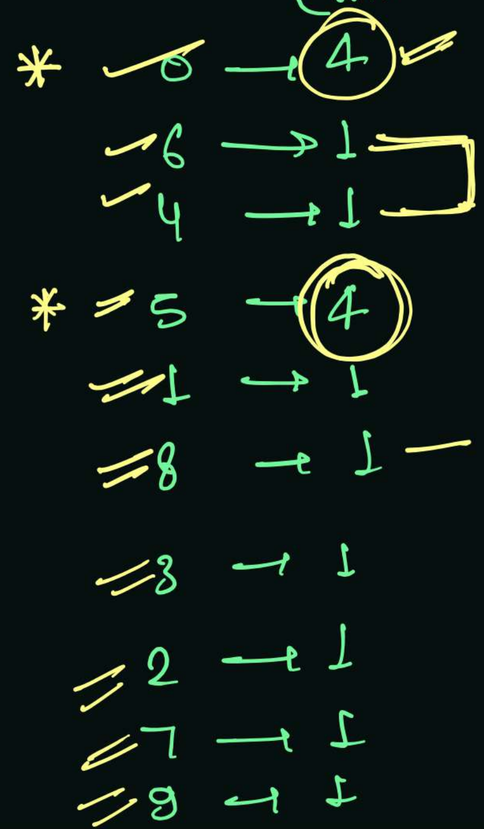
$k(x+y+1) \Rightarrow$ Sum is divisible by k

second number $= y * k + \text{rem2}$

where $\text{rem2} = k - \text{rem1}$



HashMap < remainder, freq. of that Remainds >
(int) (int)

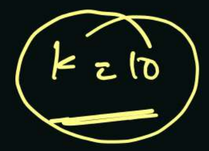


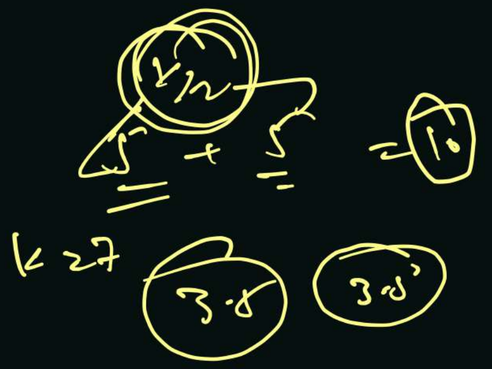
$f_x \rightarrow 1$

$f_{k-x} \rightarrow 1$

P1 - freq. of remainder '0' should be always even.

P2. if K is Even





Largest Subarray With Zero Sum

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0	1	2	3	4	5	6	7	8	9	10	11	12
1	3	2	-2	1	7	8	7	-1	4	-13	2	4
prefix → 1	4	6	(4)	5	12	20	13	12	16	3	5	9	4

HashMap → prefix sum vs index

necessary * 0 → -1

because if in between sum is equal to 0 then it will help us for process of result

1	0
4	1
6	2
5	4
12	5
20	6
13	7

length = ~~0~~ ~~2~~ ~~3~~ (7) - Ans

11	9
3	10
9	12