Hommad Zafar 19-EE-328 Case Study - 2. Finding Stolen doska elections by Mot box. Solution -I Assumptions Ballot box will hot be placed in the same block from where they are stolen Total blacks = 100 After assemption = 100-2 = 98 blacks Scarch space. Search Space = 100-92 = 98 to be searched. Analysis! Best case the states born we find the states born be first black me search 2-(-) = 1 hour

	'emi	niz	b/	ceks	2	98-	20 =	= 78	blocks
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Scanned with CamScanner

Analysis Best cose is when we find
the ballot bones at the birght
location we seasch 2(.) = (hour worst case is when we find the bollet boxes of the last lacation we search 0(·) = 78 pours · Aurage cose = 39 hours Ballot bours will be destroyed in the vorst-case, as the 78 hours are required while this solution will & not work.

D Turn of electricity and internet

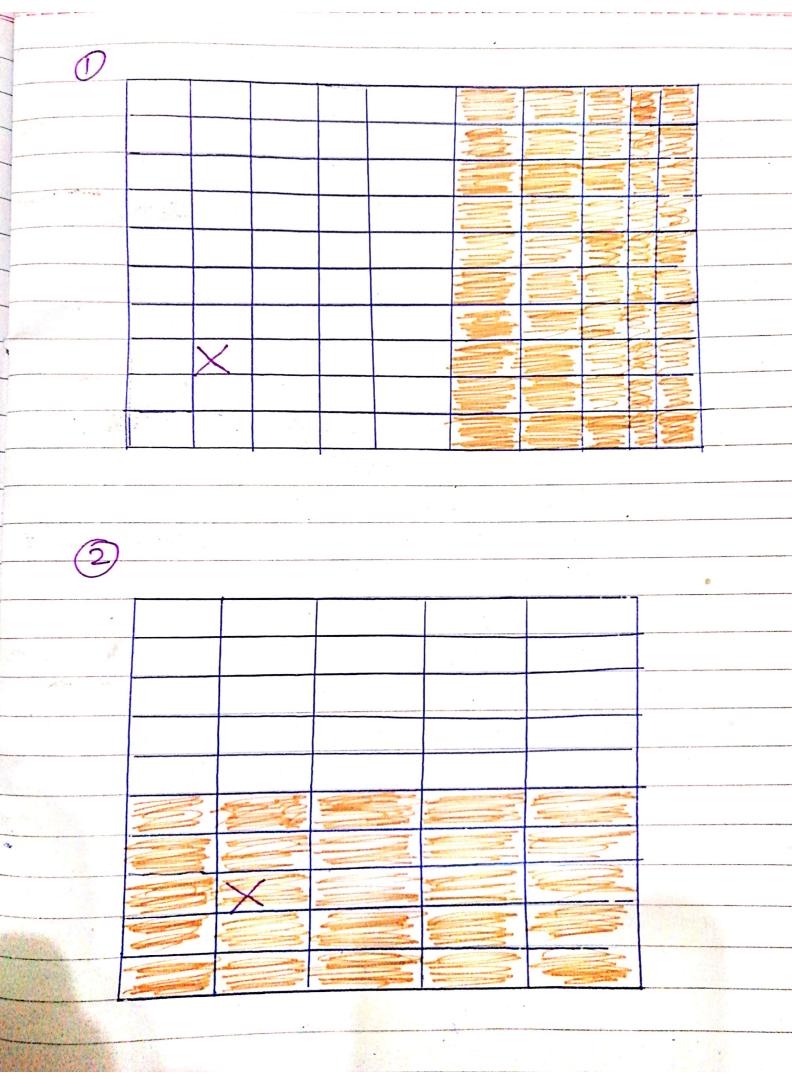
of hold city for (20 mins) i-c

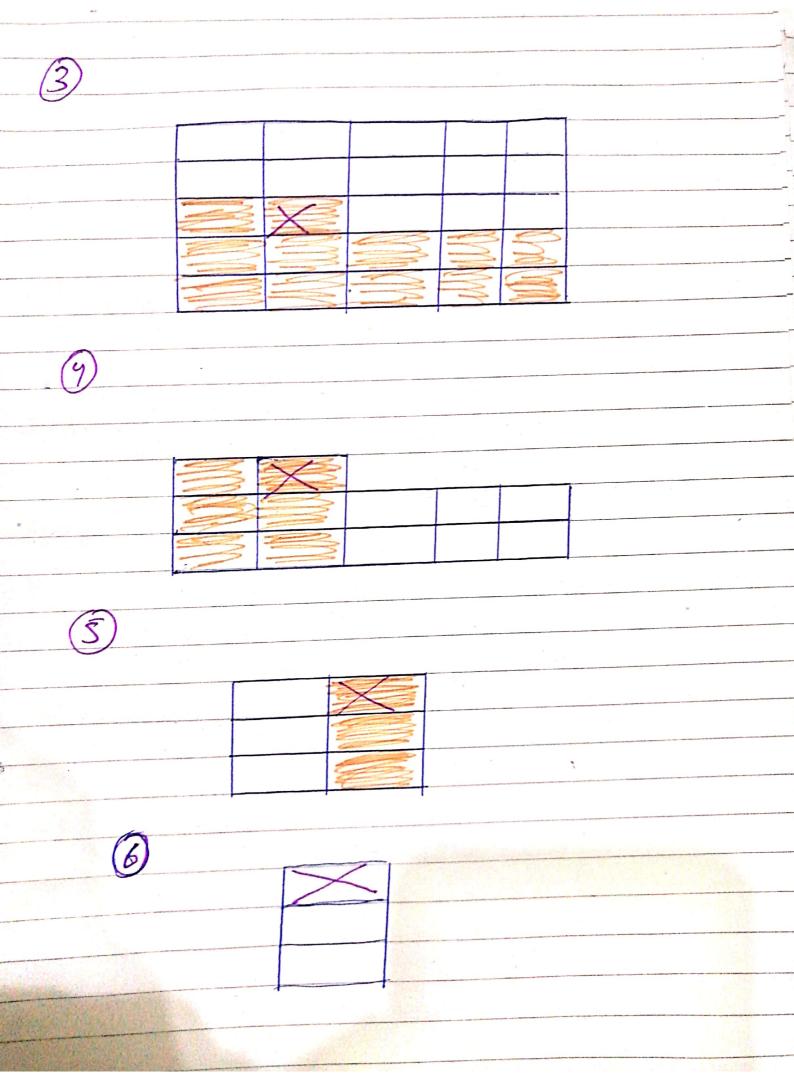
so blocks, if the live streaming

does not stops, it means stolen ballet box in those so blocks where light is not turned off and vice verse 2) Now divide the 50 blocks into two 25 blocks, and check if the live streeming stops or not. Note if the live straning stops, et means ballot bon is in the those 25 areas where electricity and internet were cut off. 3) Now divide 25 by two, and the town off electricity of one half port and check the live streaming. 9 New 12 blocks left, divide them into half i cut of the electricity of books, check the streaming stops, it means ballot bon is in those of

Solution 3#

blocks.
and hill hills
S) Now divide those b Blocks by 2, check it the steeming disconnets by turning off all internet and electricity.
check if the stroming disconnets
by turning off all internet and exectsicity
(b) Check monely when in those 3 blocks where the strenging was stopped
where the streaming was stopped
Search space:
In first step, los blacks were
geduced to so blocks, seach space
was reduced by half
25 blocks spear search space nos
25 blocks
In 3xd step, remaine search space was 12 blocks
was 12 blocks
In 48th step, search space
In 48th step, search space. was only 6 blocks
only 3 blocks
only 3 blocks





Analysis: · Each iteration Bineary seach abouthum divides the sourch space in half.

· Time taken for bineary seach,

with S iterations = 20x5 = 100 mins · Best case is when we get

The bellet box from the first

block from last 3 remaining blocks 2(-) = (20x5) +1 (hour) = 100 + 60 ming - 180 mins = 2.66 hours · Avergge case when we get the boll book box from the second Average case = 100 # 120 mis = 220m/2 Set the stoken box from list location among the @3 locations O(.) = 100 n/s + 180 mins = 280 min = 4.66 hours So solution 3 ès only applicable solution that works