

-snow the comprehe downery will have the tost demant of me sorked aright way of the array will have I', now PI= 1 - ne need to check it are [Pi] = = compared may [Pi], it it is P2=0 come il need to Trac. treg any (P2) += 2 - gdo AyThu needs add mit element into the companied and into add 1 to trepenors away around 2 > One we have all the housers my of companies my - B. son he fremen any for ele preach growing in B.s we need to take (any low, lentonmend any or Pr, 17 mcmil) = - elen, mid = idx up it idx = -1, huis (Tax) rehun. 1 dx = -1 his Pz w lenlarpen * code: am. sort () lon=0 Ca = [auro]], fa=[1], P,=1, P=0 Bs(au, low, ni, ere) unile (P, < = len(au)): mid = hi +10W if ca[P2] = = ari[P] Ham(mid) == ele fa[P,]+=1elie: ca.append(ancP,]ilx-mid elit aucmid) sele: hi=mid-1 ta.append[2] # 6th Approach: arr = 20 30 20 19 -16 24 20 30 19 surfed: aun : 3 -16,19,10,20,20,20,24,30,30,40 Q wer Overies = 20, -16, 19, -16, 35 Sated Quarisz -16, -16, 19, 20, 35 Fregum. Q = 22230 20 -16 19 -16 3 5

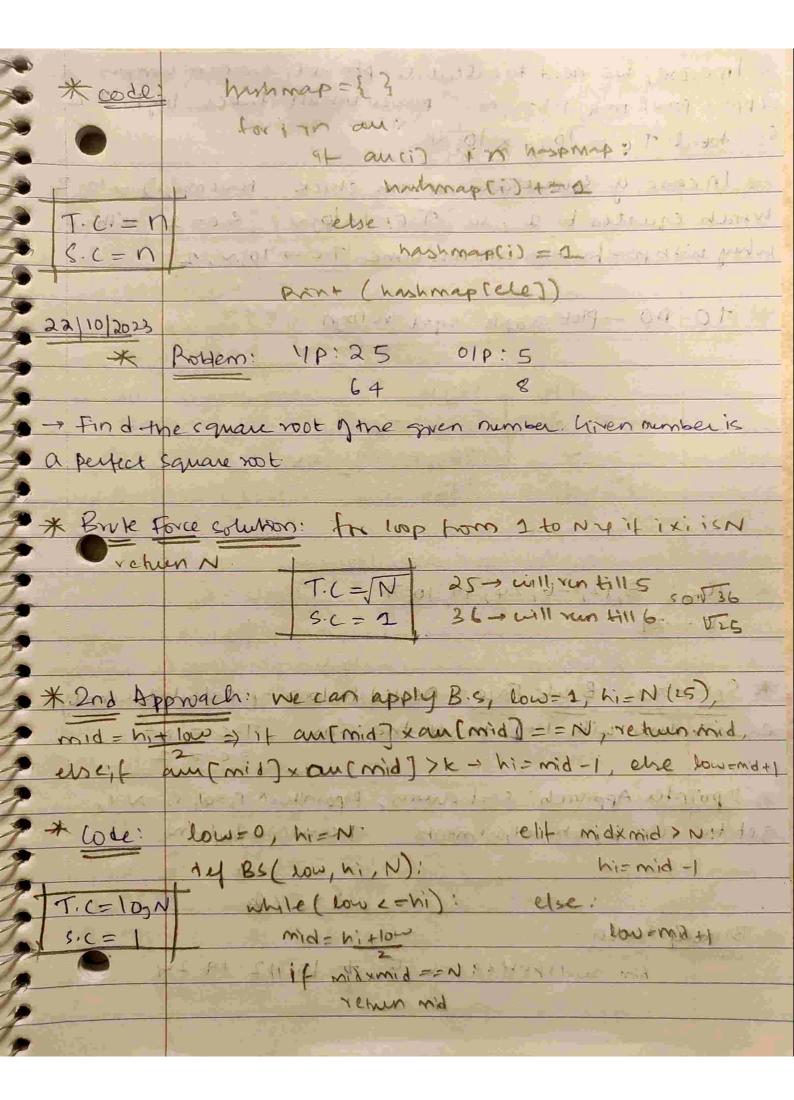
7th Approach: Or sind anous, since the elements in a historian the unique elements a inscauntum, historian the unique elements a inscauntum, historian the unique elements a inscauntum, hash map: {20,30,20,19,-16,24,20,30,19,40

hash map: {20:3,30:2,19:2,-16:1,2+:1,40:2}

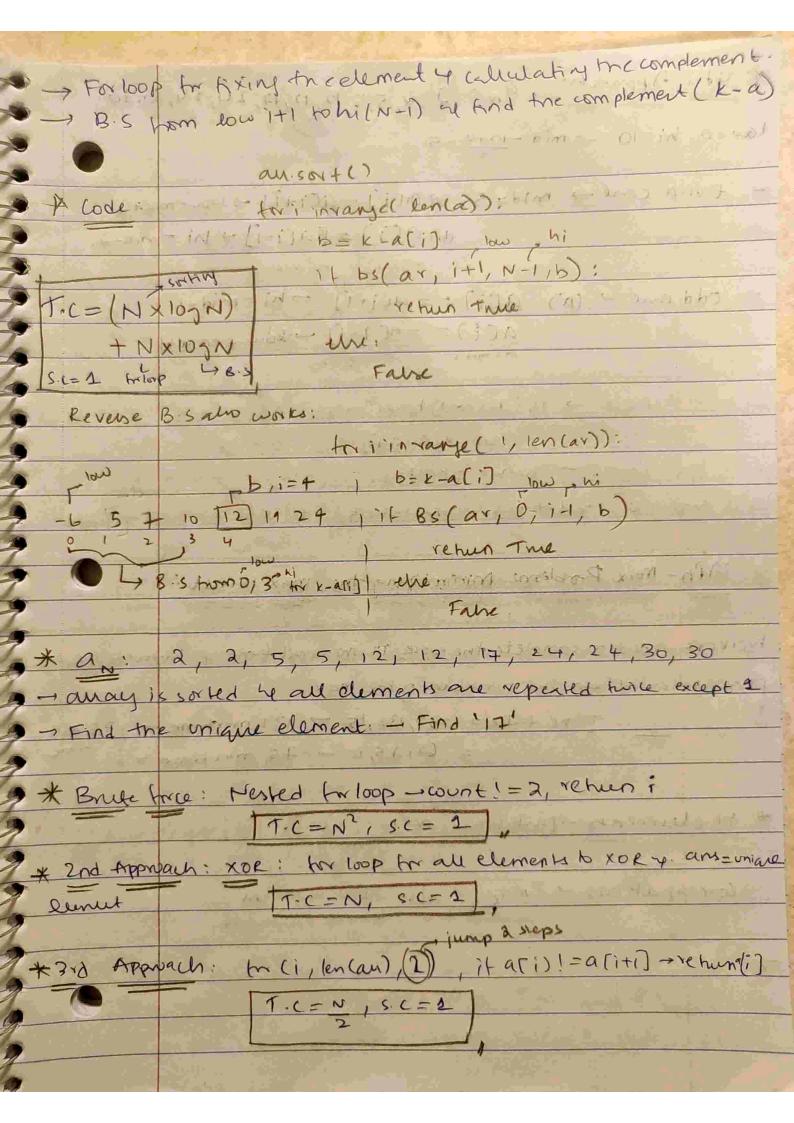
T-(=Nx1+0x)

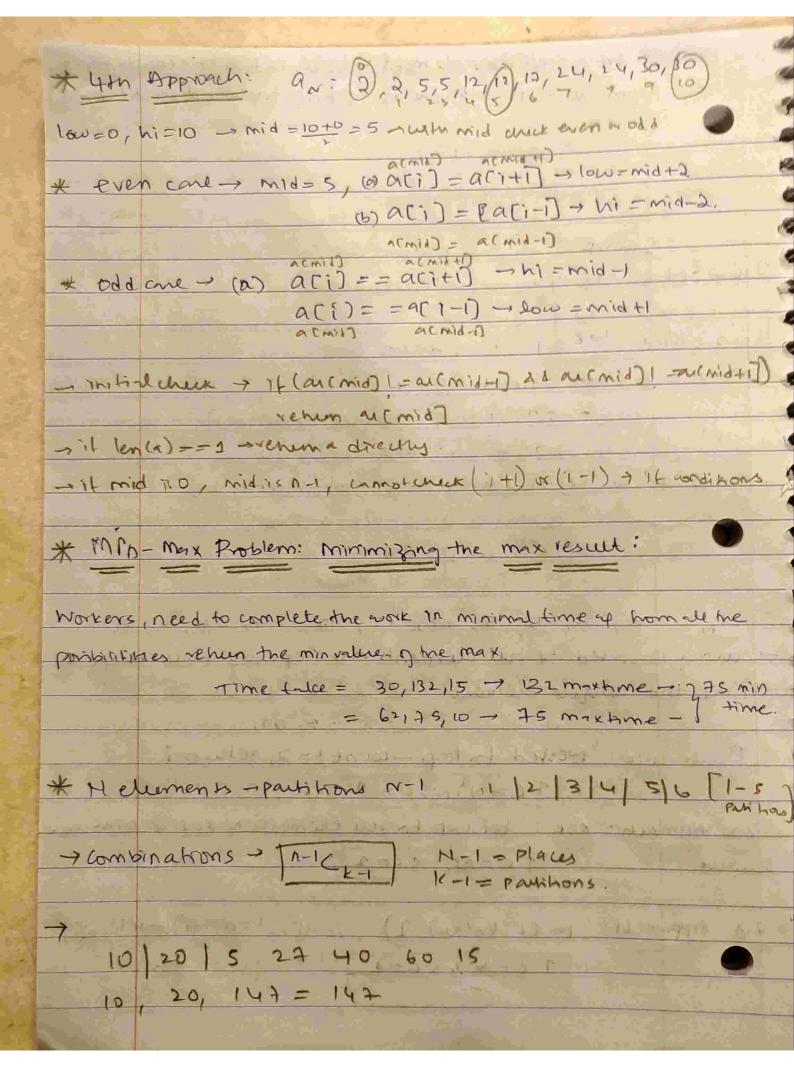
S.C=N

Route cours pointing value.



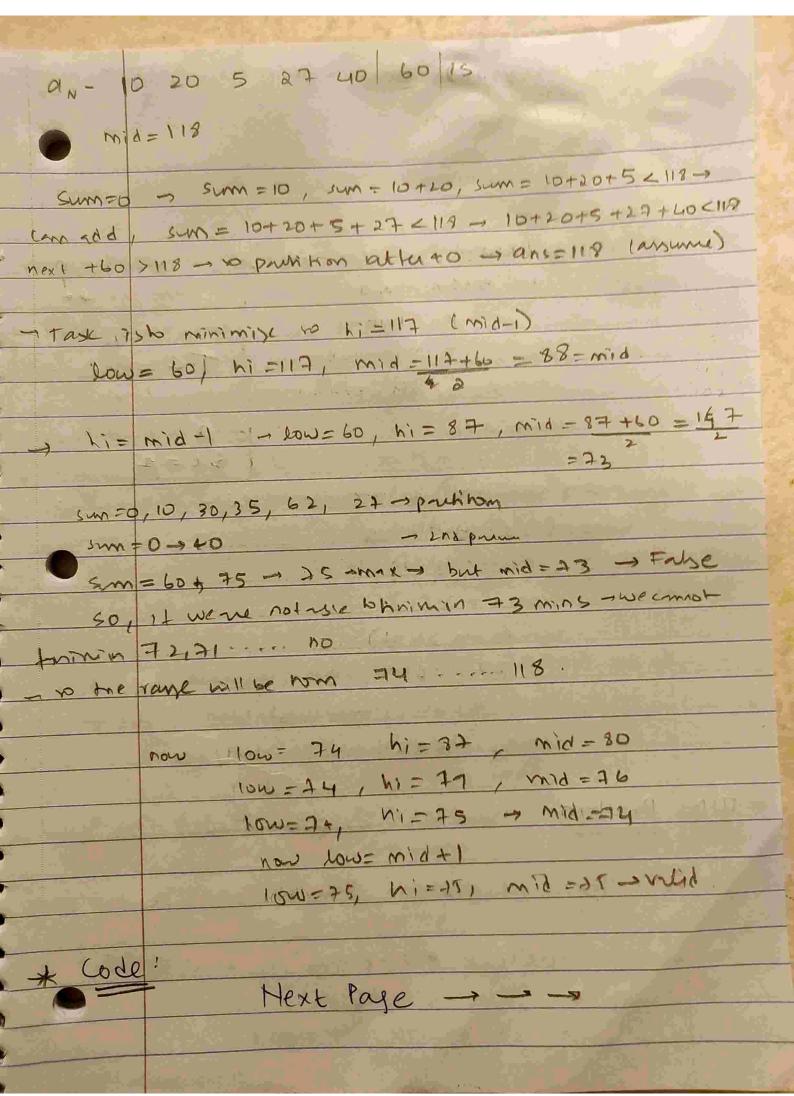
*In case, we need to calculate pth voot, we can samples apply par(mid, P) == N, power inbuilt takes log P. T. L So total T.C = logp x log N -> In case of squareroot, we can check pow (mid, 2) -> 10,2 which equates to 1, so Tic=1xlogN / 3.c=1 /- This is when with pow frekon also has same T-C > 100N, 1 * TO-DO - Plot graph sqrt vs 1000 + " " 1000 H = 12 2 100 1994 = 240 1000 2000 300 5000 1078=1074=4 1000 = 100 * an: 5,12,-6,24,19,10,7 = [a+b=K] K = 29 * Solutions: Brute Force: nested for loop by calculatesim of each value with 1+1 to get the ans. T-c = N2 * 2 pointer Approach: sort away, 2 pointes, P,=0, P,=N-1, get the and by and adjustments Tic = NlogN+N INT 2 panks C.C = 1 - mouth make * Binary search: sorted: -6 5 7 10 12 19 24 6 1 2 3 4 5 6





10/20,5/27 40 60 15
10, 25, 142 = 142
10 20 5 24 40 60 5
10, 57, 105 - 105
10 2 5 2 7 40 60 5
10, 74, 65 -> 74
10 2, 5, 27, 40, 60 5
10, 134, 5 -134
10,2 5,127 127
10 2 5 27 1 40,60
12, 32,100 100.
continues till me end . remu the min (all sums).
Back Tracking Approach: Yez. Parameters: away, size of away,
for get the min. value before taking it in the parany metran, but in
the area to let he socia 1 sum gall putitions she take int man
theanay to get the month of sum gall putitions swe take int man
cam= -0, idx=0 5,10,20, 40,90,15
Cam= -0, idx=0 - 5, 10, 20, 40, 90, 15
Cam= -0, idx=0 5,10,20, 40,90,15
cam = -0 , idx = 0 $s, 10, 20, u0, 90, 15$ $lord part (am(), N, K, idx, cans)$ $to in vanje(idx, N,).$
cam = -0, idx = 0 $s, 10, 20, u0, 90, 15$ $loid part (am(), N, K, idx, cans)$ $to invange(idx, N,)$ $x = x + an(i)$
cam = -0 , idx = 0 $s, 10, 20, u0, 90, 15$ $lord part (am(), N, K, idx, cans)$ $to in vanje(idx, N,).$
(an = -0, idx = 0 5, 10, 20, 40, 90, 15. Noid part (am(), N', K', idx, cans) tox i in vanje (idx, N,). Y=Y+an(i) Party (av, N, 1e-1, 1+1, max(cans, x))
Cam = -0 , $idx = 0$ Void part (am(), i
(an = -0, idx = 0 5, 10, 20, 40, 90, 15. Noid part (am(), N', K', idx, cans) tox i in vanje (idx, N,). Y=Y+an(i) Party (av, N, 1e-1, 1+1, max(cans, x))

cans = max (cans, s) ans = mint ans, cane) Vihun * Code: ans of port min - 0 void part (art], N, K, idx, cans); IL K == 1 or idx == n for it in rangel ide, N): yt =arci) Cans = max (cans, y) t000: ans = min(ans, cans) trace it own rehun + MEO : (Cu, voi) squar or continue 1 MEN+ a[i] part (ar, N, K-1, itt, max (cans, x)) * 2nd Approach: max sum that we set is lawken - sung all clements in anay man sum is the mixt gam) with H-1 & conteis, each worker, I element - max gelement is the time. low= max(ar), hi= sum(au). an: 10,20,5,27,40,60,15 mid= 177+60 = 118 low = max (ax) = 60 hi = sum (an) = 177.



Int low = max (au) , hi = sum carr), and = hi awast while (low = hi): mid= ni+low it (valid (ar, N, K, mid)): aniemid h'= mid-1 range = hi + 100 Trc = log (hi-lou+) ere: low-miat! = Nlog(sum-max +1) rehun ans S.C = 1 def volid (av, N, k, vel): Kwarens - K-1 partitions sum=0, partitions=0 trainnampe (N-D: sum + = au[i] It (sum >val): P+1=2 - count is pruth hom sum=u(i) - curent cleanet after partitions remen PK=K-1-velid the / Falmo * TO DO: Problem: Homes: 5, 20, 40, 47, 70, 90,07,140 - K = 3, Houses are vacant, Houses should be for hom - maximize the gap blw homes. dith the 5 to 10 is 15 70 5,20, 40, 47, 70, 90, 107, 140 min (III) I went 35 30 20

