DATE :

# Ternary Search

↳ It is actually similar to the binary search In binary search array is divided into two parts and also has one mid but in ternary search array is divided into three parts and has two mids.

Ternary Search is also based on divide-&-Conquer ~~tenchigh~~ technique.

= It also need sorted array to perform the search.

66 In Ternary search, after each iteration it actually neglects half part of the array and repeats the same operation on the remaining (2/3) parts.

In ternary search, mid 1 = beg + (end - beg) / 3

mid 2 = end - (end - beg) / 3

Ex:- A[] = { 2, 3, 5, 6, 8, 9, 12, 13, 14 }

0 1 2 3 4 5 6 7 8 ] - (0-8) indices

Key = 13

ar[mid1] = 5

ar[mid2] = 12

As 13 is not equal to ar[mid1] & ar[mid2] and 13 is not smaller than ar[mid1]

Now 3rd part of the array is greater than ar[mid2]

Run the ternary search again with

beg = 7 end = 8 (indices)

then,

ar[mid1] = ar[7] = 13

ar[mid2] = ar[8] = 14

As ar[mid1] = x, mid 1 is the Ans

Complexity :-

$$T(n) = O(\log_3 N)$$