

* i = Arr[i] problem

- Here we will ignore -ve numbers and zero as they are out of the equation. Rest approach will be same, eliminate one of the halves to save on time complexity.

Recurrence Relation:

$$T(n) = T(n/2) + O(1)$$

$$a = 1, b = 2, d = 0$$

$$O = b^d \Rightarrow O(\log n)$$

Algorithm:

$$\text{mid} = \left\lfloor \frac{p+q}{2} \right\rfloor$$

$$A[\text{mid}] = \text{mid}$$

$$A[\text{mid}] < \text{mid} \Rightarrow \text{L is}$$

$$A[\text{mid}] > \text{mid} \Rightarrow \text{R is}$$

if ($A[\text{mid}] == \text{mid}$)

return mid

if ($A[\text{mid}] < \text{mid}$)

return indequl(arr, mid+1, right)

else

return indequl(arr, left, mid-1)