Binary Search

01 April 2024 20:09

[0]	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
11	22	33	44	55	66	77	88	99
Left				mid				right

1) Key = 99
2) Left = 0
   Right = 8
   Mid = (0+8)/2 = 4
3) 99 == arr[4]
   99 == 55 ? No
   Got to step 4
4) Check :
   As 99 is greater to 55, consider right sub array

[5]	[6]	[7]	[8]
66	77	88	99
Left	mid		right

Right sub array

2) Left = mid + 1=4+1 = 5
   Right = 8
   Mid = (5+8)/2 = 6

3) Compare 99 == arr[6]
   99 == 77? No
   Go to step 4

4)check : as the key is greater to mid element, consider Right sub array

[7]	[8]
88	99
Left mid	right

Right sub array :

2) Left = mid+ 1
   6+1 = 7
   Right = 8 (remains same)
   Mid = (7+8)/2
   = 7
3) Compare : 99 == arr[7]
   99 == 88 ? No
   Go to step 4
4) Check : key is greater to mid element, hence consider Right sub array

[8]
99
Left Right mid

Right sub array : mid + 1 to right

2) Left = mid+ 1 = 8
   Right = 8
   Mid = (8+8)/2
   = 8
3) Compare the key with mid element
   99 == arr[mid]

99 == arr[8]
Yes, key found at index 8