

# Binary Search

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

① Key = 10. left

②  $L = 0$   
 $R = 8$   
 $M = 4$

③  $10 \neq 55$ , no

④ check in LSA.

mid

Right

LSA

[0]	[1]	[2]	[3]
11	22	33	44

left mid. Right

②  $L = 0$   
 $R = (mid - 1) = 3$   
 $M = 1$

③  $10 \neq arr[mid]$   
 $10 \neq 22$ .

④ consider LSA

LSA = left to mid-1

LSA

[0]
11

left  
Right  
mid.

②  $L = 0$   
 $R = (mid - 1) = 0$   
 $M = 0$

③  $10 \neq 11 \rightarrow$  no.

④ consider LSA as key is smaller to mid element

left Sub Array is from left to mid-1.

$L = 0$   
 $R = (mid - 1) = (0 - 1) = -1$

As left and Right cross, key not found.