Binary search algorithm

1. Inspect the middle item of an array of size N.
2. Inspect the middle of an array of size n/2
3. Inspect the middle of an array of size n/4 .And so on until lower bound becomes upper bound

K=log2N

1. Binary search(A, Short, End, Key)
2. {
3. If(start<=end)
4. {
5. Mid=(start +end)/2
6. If(key equal to A[mid])
7. Return mid
8. Else
9. If(key<A[mid])
10. Return binary search(start,mid-1,key)
11. Else
12. Return binary search(mid+1,end,key)
13. }
14. Return-1

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 5 | 7 | 9 | 13 | 32 | 33 | 42 |

Example:

Mid= (start + end)/2 start End

(0+6)/2=3

13 > A[mid]

13 >A [3] start= mid+1

|  |  |  |  |
| --- | --- | --- | --- |
| 13 | 32 | 33 | 42 |

Mid =3 + 6/2 = 3

13 < A [mid]

13 < A [3] End= mid-1