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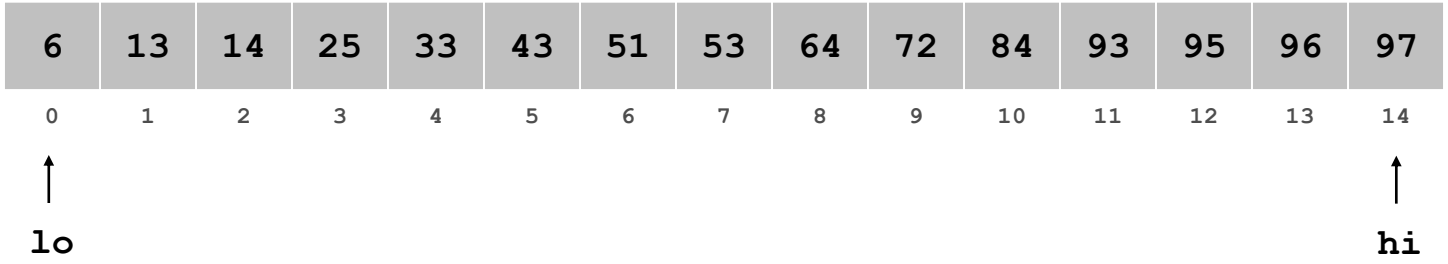
Ex. Binary search for 33.



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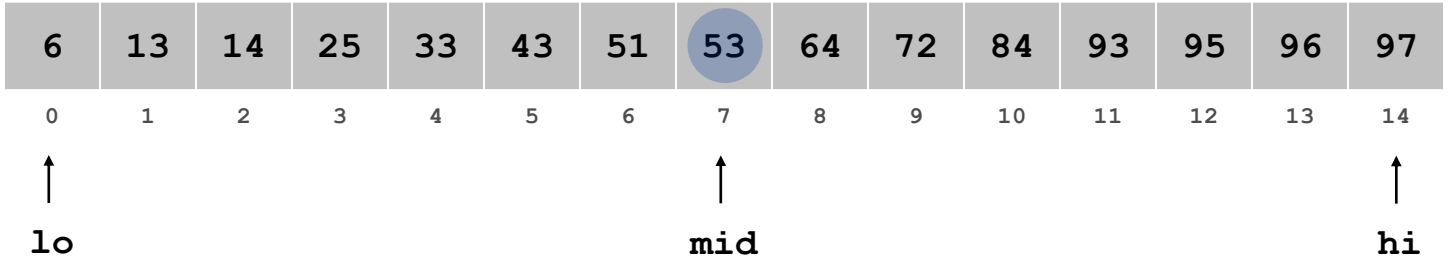

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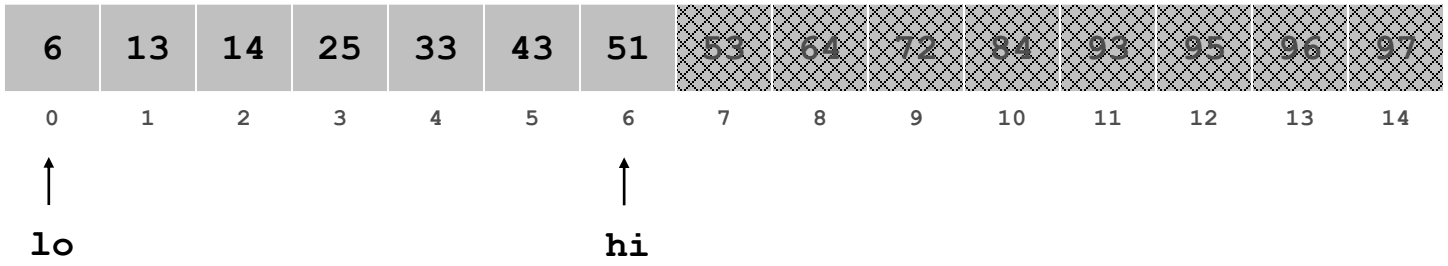

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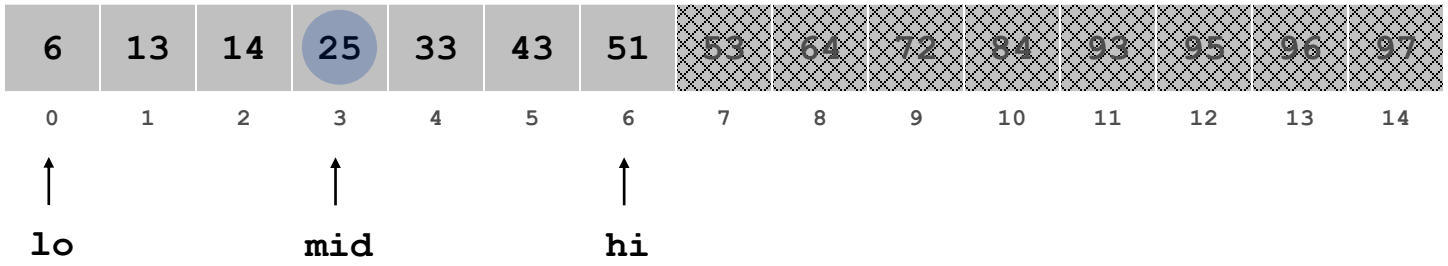

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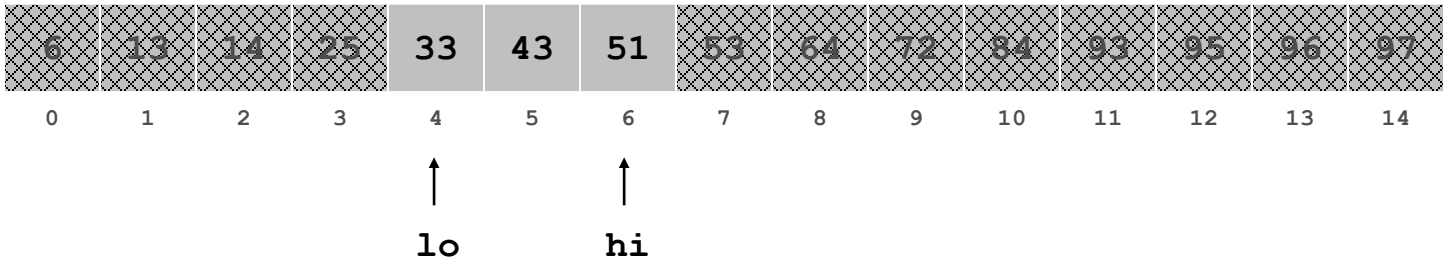

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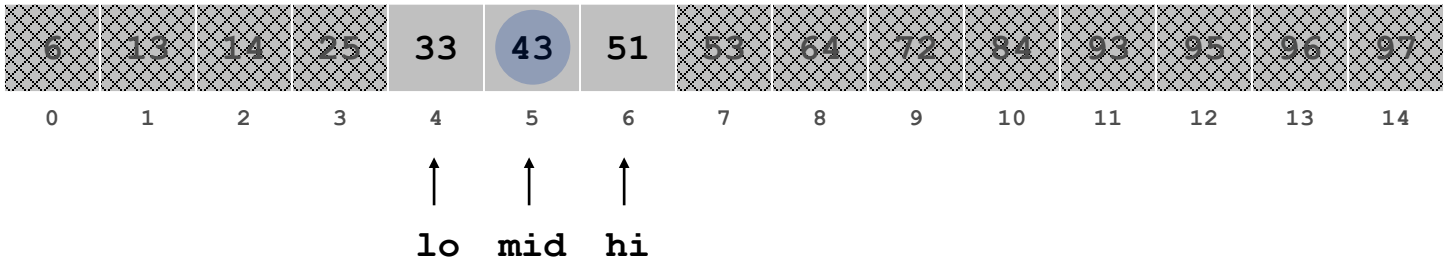

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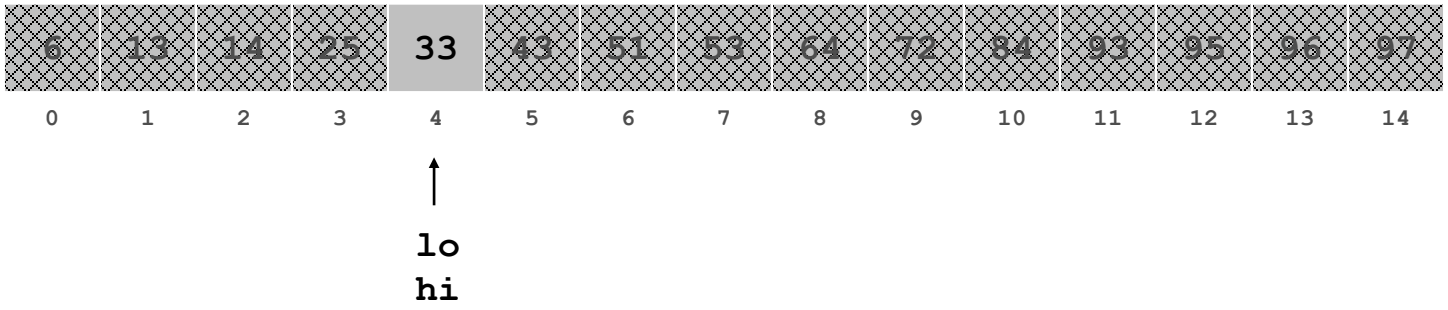

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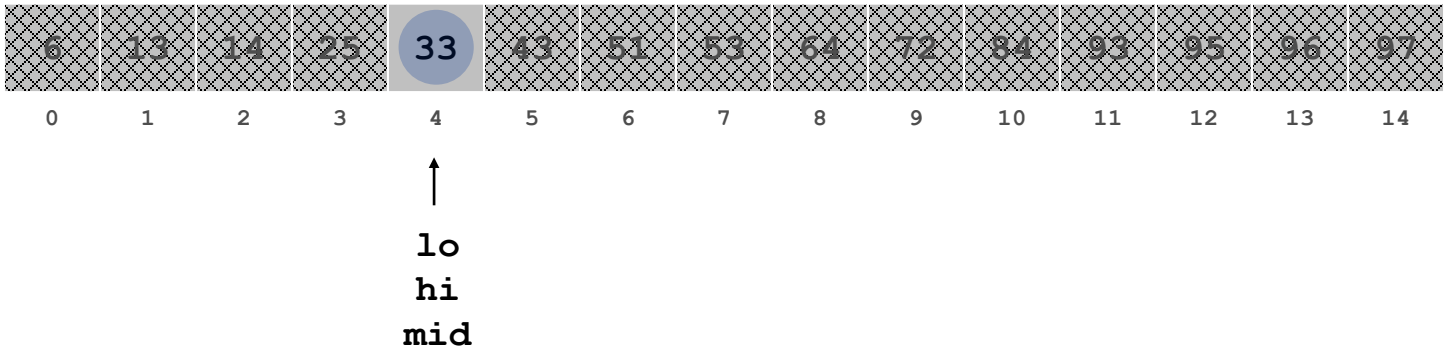

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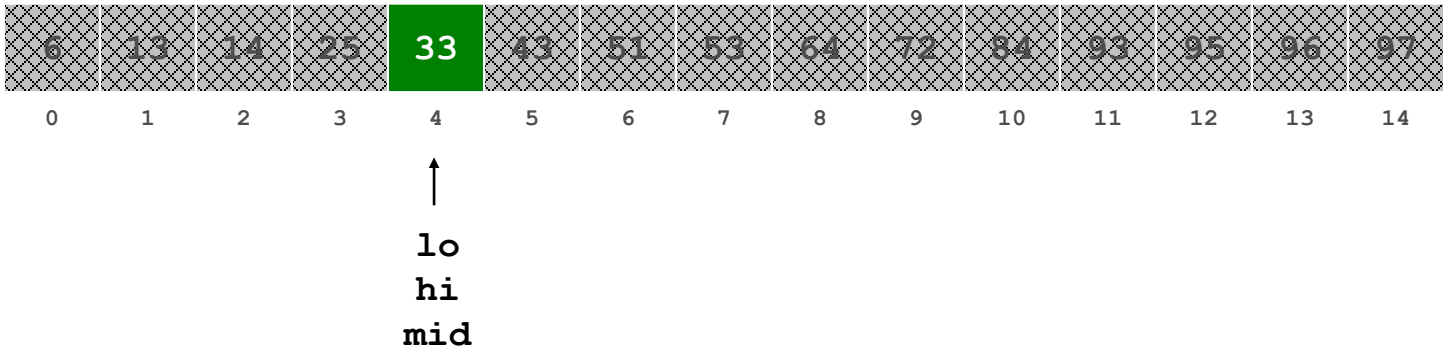

Binary Search Algorithm

```
int binarySearch(int[] a, int target) {
    int min = 0;
    int max = a.length - 1;

    while (min <= max) {
        int mid = (min + max) / 2;
        if (a[mid] < target) {
            min = mid + 1;
        } else if (a[mid] > target) {
            max = mid - 1;
        } else {
            return mid;    // target found
        }
    }

    return -(min + 1);     // target not found
}
```

Binary Search with Recursion

```
int binarySearch(int[] a, int target,int min, int max) {
  if (min > max) {
        return -1;          // target not found
   } else {
       int mid = (min + max) / 2;
       if (a[mid] < target) {          // go right
           return binarySearch(a, target, mid + 1, max);
       } else if (a[mid] > target) {  // go left
           return binarySearch(a, target, min, mid - 1);
       } else {
           return mid;    // target found; a[mid] = target
        }
    }
}
```