

Binary Search

Binary search. Given value and sorted array $a[]$, find index i such that $a[i] = \text{value}$, or report that no such index exists.

Invariant. Algorithm maintains $a[\text{lo}] \leq \text{value} \leq a[\text{hi}]$.

Ex. Binary search for 33.

[illegible]

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6	13	14	25	33	43	51	53	64	72	84	93	95	96	97
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
↑							↑							↑
lo							mid							hi

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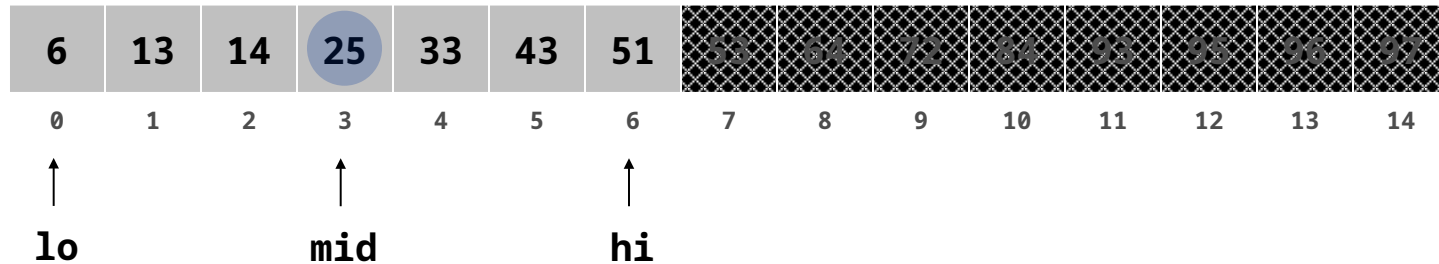
6	13	14	25	33	43	51	53	64	73	84	93	98	98	97
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
↑						↑								
lo						hi								

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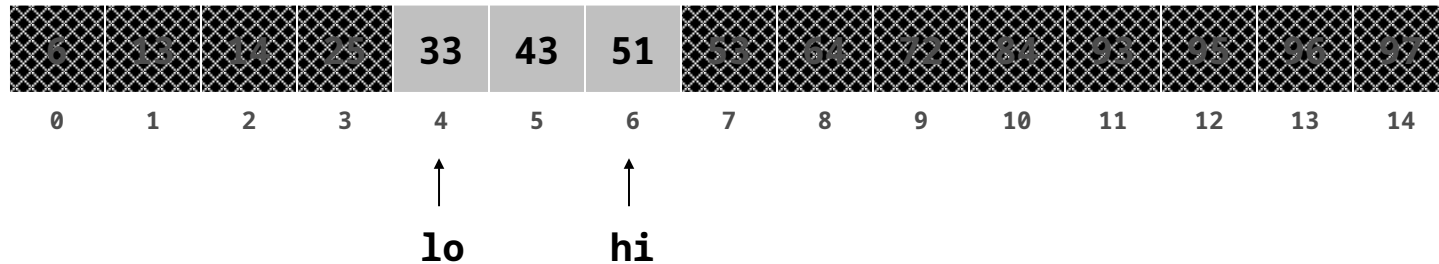


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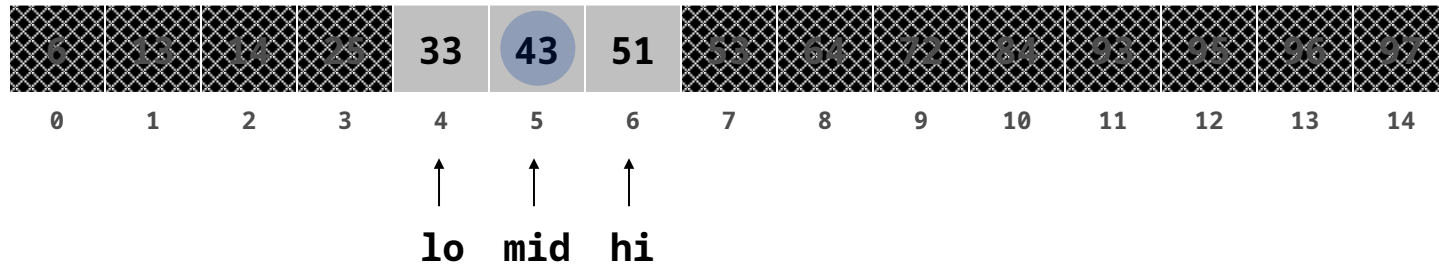


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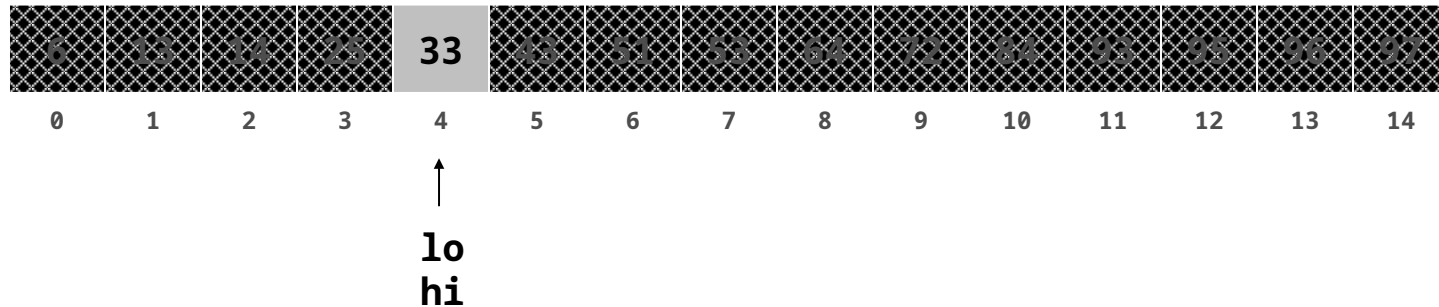


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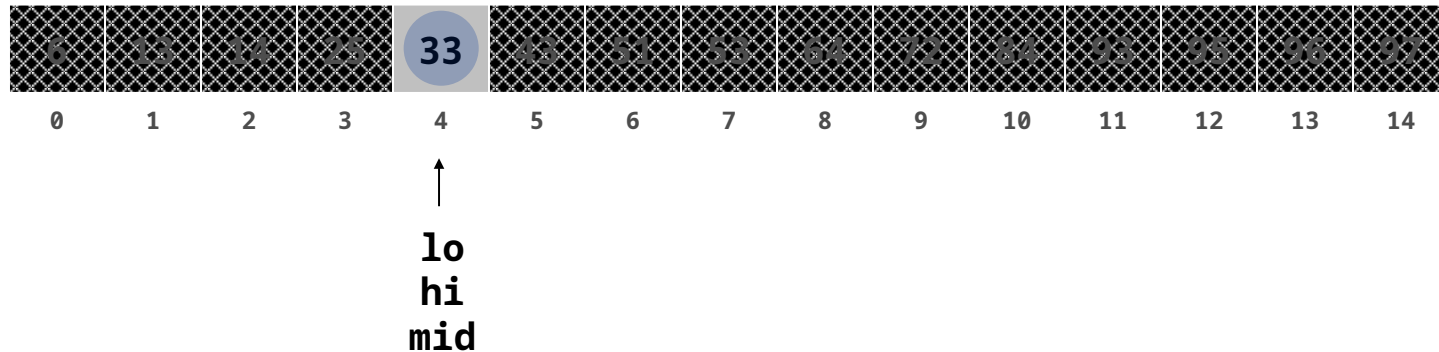


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