



DESIGN AND ANALYSIS OF ALGORITHMS

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Sequential Search

Major Slides Content: Anany Levitin

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- Compares successive elements of a given list with a given search key until:
 - A match is encountered (Successful Search)
 - List is exhausted without finding a match (Unsuccessful Search)
- An improvisation to the algorithm is to append the key to the end of the list
- This means the search has to be successful always and we can eliminate the end of list check

- Sequential / Linear Search

10	14	19	26	27	31	33	35	42	44
0	1	2	3	4	5	6	7	8	9

- For key = 33, 6 is returned
- For key = 50, -1 is returned

ALGORITHM SequentialSearch2($A[0 \dots n]$, K)

//Implements sequential search with a search key as a sentinel

//Input: An array A of n elements and a search key K

//Output: The index of the first element in $A[0 \dots n-1]$ whose value is

// equal to K or -1 if no such element is found

$A[n] \leftarrow K$

$i \leftarrow 0$

while $A[i] \neq K$ do

$i \leftarrow i + 1$

if $i < n$ return i

else return -1

Sequential Search Analysis

- Sequential Search is a $\Theta(n)$ algorithm



THANK YOU

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