DESIGN AND ANALYSIS OF ALGORITHMS
UE19CS251

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Sequential Search

Major Slides Content: Anany Levitin

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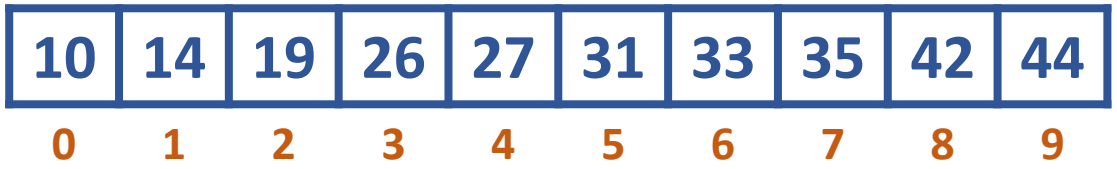
Sequential Search

- 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 Search

- Sequential / Linear Search



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

Sequential Search

```
AlGORITHM  SequentialSearch2(A[0 .. 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 .. n -1] whose value is
//  equal to K or -1 if no such element is found
A[n]<---K
i<---0
while A[i] ≠K  do
   i<--- i + 1
if i  <  n return i
else return -1
```

Sequential Search

Sequential Search Analysis

- Sequential Search is a Θ(n) algorithm

THANK YOU

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