

### Group Members

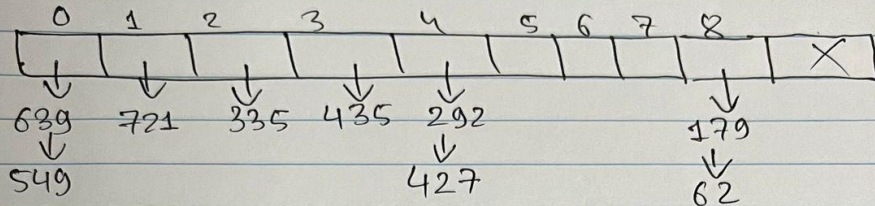
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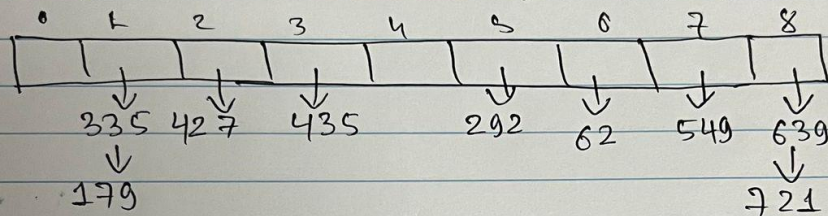
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W2 D2

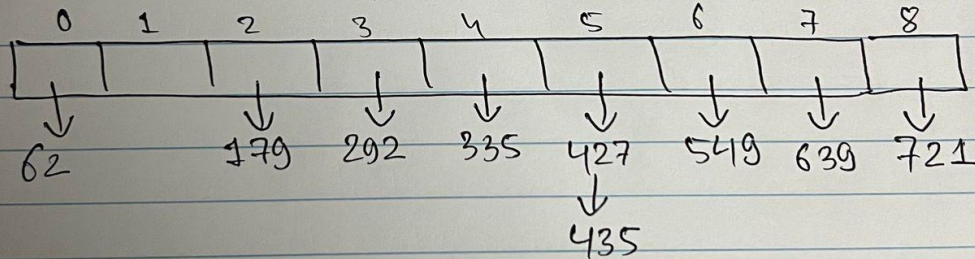
Q. No. 1 179, 721, 639, 549, 292, 427, 335, 435, 62  
Radix = 9



⇒ 639, 549, 721, 335, 435, 292, 427, 179, 62



⇒ 335, 179, 427, 435, 292, 62, 549, 639, 721



Sorted:

⇒ 62, 179, 292, 335, 427, 435, 549, 639, 721



W2 D2

Q.w.2

Here,

An algorithm sort 4 element in 5 Comparison in worst case.

Lower bound for comparison-based algorithm is  $O(n \log n)$  so, for

$$n=4$$

$$n(\log n) = 4 \times \log 4 \\ = 8$$

Lower bound is with 8 comparison for 4 elements so,

It ~~will~~ violate the theoretical lower bound.



## Lab W2D2

Q. 13

Algorithm makeFBS( $s, n$ )

Input array  $s$  with  $n$  elements

Output  $s$  in FBS format return true

$i \leftarrow 0$

$j \leftarrow 1$

for  $i, j$  to  $n-1$  do

if ( $AC[i] > AC[j]$ ) return false

if ( $AC[i] > AC[i+1]$ ) return false

if ( $AC[i] > AC[j+1]$ ) return false

$i \leftarrow i+2$

$j \leftarrow j+2$

return true

Asymptotic running time for this algorithm is  $O(n)$ , which is the largest of all running time.

$O(n)$  is the fastest possible asymptotic running time for such algorithm.