

Lab-06

Group-2

problem 2: Radix sort

Given: $S = [125, 27, 728, 1, 27, 8, 64, 343, 216]$

using radix = 9,

using three Buckets B_1, B_2, B_3 .

such that at $B_1 \Rightarrow x \% 9$

$B_2 \Rightarrow (x/9) \% 9$

$B_3 \Rightarrow (x/81) / 9$

where $x = \text{elements of } S$.

At B_1

216	343							8
27	64							728
27	1							125
$x \% 9 = 0$	1	2	3	4	5	6	7	8

At B_2

8			27					
1		343	27	125		216	64	728
$(x/9) \% 9 = 0$	1	2	3	4	5	6	7	8

At B_3

64								
27								
27								
8								
1	125	216		343				728
$(x/81) / 9 = 0$	1	2	3	4	5	6	7	8

So, final sorted $S = [1, 8, 27, 27, 64, 125, 216, 343, 728]$

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Group -2

Problem 3: Radix sort

Given: $\{80, 27, 72, 1, 27, 8, 64, 34, 16\}$

Here $\max = 80 < (10^2 = 100)$

Using radix = 10.

Since $\max = 80 \leq 10^2$ so, two bucket is sufficient.

i.e. B1, B2.

At B1

27	64							8	
72									
27	1				34		16	80	
$x \% 9 =$	0	1	2	3	4	5	6	7	8

At B2

			34					80	
8			27				64	72	
1	16		27						
$n/9 =$	0	1	2	3	4	5	6	7	8

∴ final sorted = $\{1, 8, 16, 27, 27, 34, 64, 72, 80\}$