Neel Katrodiya 1002254987 HW 6

Q- 7.1-1 A = {13, 19, 9, 5, 12, 8, 7, 4, 21, 2, 6, 11}

Ans.- {| 13, 19, 9, 5, 12, 8, 7, 4, 21, 2, 6, 11}
i ↖ swap ↗ j

(9, | 19, 13, 5, 12, 8, 7, 4, 21, 2, 6, 11)
↖ swap ↗

(9, 5 | 13, 19, 12, 8, 7, 4, 21, 2, 6, 11)
i ↖ swap ↗ j

(9, 5, 8 | 19, 12, 13, 7, 4, 21, 2, 6, 11)
i ↖ swap ↗ j

(9, 5, 8, 7 | 12, 13, 19, 4, 21, 2, 6, 11)
i ↖ swap ↗ j

(9, 5, 8, 7, 4 | 13, 19, 12, 2, 21, 6, 11)
i ↖ swap ↗ j

(9, 5, 8, 7, 4, 2 | 19, 12, 13, 21, 6, 11)
i ↖ swap ↗ j

(9, 5, 8, 7, 4, 2, 6 | 12, 21, 13, 19, 11)
i ↖ swap with pivot ↗ j

(9, 5, 8, 7, 4, 2, 6 | 11 | 21, 13, 19, 12)//

Ans - 7.2-2

Quicksort's running time is when all elements of the array A have the same value, then what pivot is picked is no matter that much, it will be equivalent to the worst case of quick sort. So that, in this such case quick sorts running time is $\Theta(n^2)$.