

Insertion Sort

23 April 2023 16:29

If j is at valid index and key is smaller than element at j ,  
1)Then shift element at j to j+1  
2) Decrement j

Key  
44

[0]	[1]	[2]	[3]	[4]	[5]
55	44	22	66	11	33

j i

44 < 55, follow the 2 steps as above  
Shift j to j+1  
j--

Key  
44

[0]	[1]	[2]	[3]	[4]	[5]
44	55	22	66	11	33

j i

J is not at valid index,  
Copy key to j+1

Key  
22

[0]	[1]	[2]	[3]	[4]	[5]
44	55	22	66	11	33

j i

22 < 55, shift j to j+1  
j--

Key  
22

[0]	[1]	[2]	[3]	[4]	[5]
44	55	55	66	11	33

j i

22 < 44 , shift j to j+1 and j--

Key  
22

[0]	[1]	[2]	[3]	[4]	[5]
22	44	55	66	11	33

j i

J is not at valid index, copy key to j+1

Key  
66

[0]	[1]	[2]	[3]	[4]	[5]
22	44	55	66	11	33

j i

Key is not smaller to 55  
Copy key to j+1

Key  
11

[0]	[1]	[2]	[3]	[4]	[5]
22	44	55	66	11	33

j i

11 < 66, shift 66 to j+1  
j--

[0]	[1]	[2]	[3]	[4]	[5]
22	44	55	66	66	33

j i

11 < 55, shift 55 to j+1  
j--

[0]	[1]	[2]	[3]	[4]	[5]
22	44	55	55	66	33

j i

11 < 44, shift 44 to j+1  
j--

[0]	[1]	[2]	[3]	[4]	[5]
22	44	44	55	66	33

j i

11 < 22, shift 22 to j+1  
j--

[0]	[1]	[2]	[3]	[4]	[5]
22	22	44	55	66	33

j i

J is not a valid index,  
Copy key to j+1

Key  
33

[0]	[1]	[2]	[3]	[4]	[5]
11	22	44	55	66	33

j i

33 < 66, shift 66 to j+1  
j--

[0]	[1]	[2]	[3]	[4]	[5]
11	22	44	55	66	66

j i

33 < 55, shift 55 to j+1  
j--

[0]	[1]	[2]	[3]	[4]	[5]
11	22	44	55	55	66

j i

33 < 44, shift 44 to j+1  
j--

[0]	[1]	[2]	[3]	[4]	[5]
11	22	44	55	55	66

j

i

33 < 44, shift 44 to j+1  
j--

[0]	[1]	[2]	[3]	[4]	[5]
11	22	44	44	55	66

j

i

33 is not smaller to 22 , so copy key to j+1

[0]	[1]	[2]	[3]	[4]	[5]
11	22	33	44	55	66