

Insertion Sort

23 October 2023 12:49

Temp
44

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

j

i

44 < 55 ? Yes
Shift 55 to j+1
j--

j

i

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

As there is no
element to
compare
Copy 44 at index 0

Temp
22

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

j

i

22 < 55 ? Yes
1) Shift 55 at j+1.
2) j--

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

j

i

22 < 44 ? Yes
Shift 44

j

i

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

Temp
66

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

j

i

66 < 55 ? No

Temp
11

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

j

i

Temp < arr[j]
11 < 66 ? Yes
1) Shift arr[j] to j+1
2) j--

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

j

i

Temp < arr[j]
11 < 55 ?
Yes
1) Shift arr[j] to j+1
2) j--

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

j

i

11 < 44 ? Yes
1) Shift
2) Decrement j

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

j

i

11 < 22 ? Yes
1) Shift
2) Decrement j

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

j

i

J is at invalid index,
Copy temp to j+1

Temp
33

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

j

i

Is j at valid position and
Temp < arr[j] ?
Yes
1) Shift
2) Decrement j

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

j

i

Is j >= 0 &&
temp < arr[j] ?
yes
1) Shift
2) Decrement
j

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

j

i

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

j

i

J is at valid index but
temp is not smaller to
arr[j]
So copy temp to j+1

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