Insertion Sort

11 April 2024   14:47

temp

44

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

j   i

If j is at valid index and
Temp < arr[j] ?
44 < 55 ? Yes
1)shift arr[j] to j + 1index
 2) Decrement j : j--

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

j   i

If j is at valid index ? No
Copy temp to j+1 index

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

i

Temp

22

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

j   i

Copy arr[i] to temp variable

Check if j is at valid index
and
If temp < arr[j]
 1) Shift arr[j] to j+1 index
 2) j--

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

j   i

Check if j is at valid position
and
If temp < arr[j] ?
 1) Shift arr[j] to j+1 index
 2) j--

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

j   i

Here j is not at valid
position,
Copy temp to j+1

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

j   i

temp

66

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

j   i

Is j at valid position
And
Temp < arr[j] ?
66 < 55 ? no

temp

11

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

j   i

J is at valid position
And temp < arr[j]
 1) Shift arr[j] to j+1 index
 2) j--

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

j (under [2]), i (under [4])

J is at valid position
And temp < arr[j]
1) Shift arr[j] to j+1 index
2) j--

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

j (under [0]), i (under [4])

J is at valid position
And temp < arr[j]
1) Shift arr[j] to j+1 index
2) j--

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

j (left of [0]), i (under [4])

J is not at valid position
So,
Copy temp to j+1 index

---

temp

33

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

j (under [3]), i (under [4])

J is at valid position and
Temp < arr[j]
1) Shift
2) j--

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

j (under [3]), i (under [4])

J is at valid position and
Temp < arr[j]
1) Shift
2) j--

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

j (under [2]), i (under [4])

J is at valid position and
Temp < arr[j]
1) Shift
2) j--

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

j (under [1]), i (under [4])

J is at valid position
Temp < arr[j] ? False
So,
Copy temp to j + 1 index

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