2-1 Merge Sort

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| a[0] | a[1] | a[2] | a[3] | a[4] | a[5] | a[6] | a[7] | a[8] | a[9] | a[10] |
| 12 | 2 | 16 | 30 | 8 | 28 | 4 | 10 | 20 | 6 | 18 |
| 2 | 12 | 16 | 30 | 8 | 28 | 4 | 10 | 6 | 20 | 18 |
| 2 | 12 | 16 | 30 | 4 | 8 | 10 | 28 | 6 | 18 | 20 |
| 2 | 4 | 8 | 10 | 12 | 16 | 28 | 30 | 6 | 18 | 20 |
| 2 | 4 | 6 | 8 | 10 | 12 | 16 | 18 | 20 | 28 | 30 |

List = (12,2,16,30,8,28,4,10,20,6,18)

2-2 Heap Sort

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | a[1] | a[2] | a[3] | a[4] | a[5] | a[6] | a[7] | a[8] | a[9] | a[10] | a[11] |
| origin | 12 | 2 | 16 | 30 | 8 | 28 | 4 | 10 | 20 | 6 | 18 |
| initial adjust | 30 | 20 | 28 | 12 | 18 | 16 | 4 | 10 | 2 | 6 | 8 |
| Loop1 | 28 | 20 | 16 | 12 | 18 | 8 | 4 | 10 | 2 | 6 | 30 |
| Loop 2 | 20 | 18 | 16 | 12 | 6 | 8 | 4 | 10 | 2 | 28 | 30 |
| Loop 3 | 18 | 12 | 16 | 10 | 6 | 8 | 4 | 2 | 20 | 28 | 30 |
| Loop 4 | 16 | 12 | 8 | 10 | 6 | 2 | 4 | 18 | 20 | 28 | 30 |
| Loop 5 | 12 | 10 | 8 | 4 | 6 | 2 | 16 | 18 | 20 | 28 | 30 |
| Loop 6 | 10 | 6 | 8 | 4 | 2 | 12 | 16 | 18 | 20 | 28 | 30 |
| Loop 7 | 8 | 6 | 2 | 4 | 10 | 12 | 16 | 18 | 20 | 28 | 30 |
| Loop 8 | 6 | 4 | 2 | 8 | 10 | 12 | 16 | 18 | 20 | 28 | 30 |
| Loop 9 | 4 | 2 | 6 | 8 | 10 | 12 | 16 | 18 | 20 | 28 | 30 |
| Loop 10 | 2 | 4 | 6 | 8 | 10 | 12 | 16 | 18 | 20 | 28 | 30 |

List = (12,2,16,30,8,28,4,10,20,6,18)