# SNS COLLEGE OF ENGINEE

Kurumbapalayam(Po), Coimbatore – 641 107

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## Department of Artificial Intelligence anc

## Course Name: 23ITB201 Data structures a

II Year / III semester

Unit III – Sorting, searching and ha

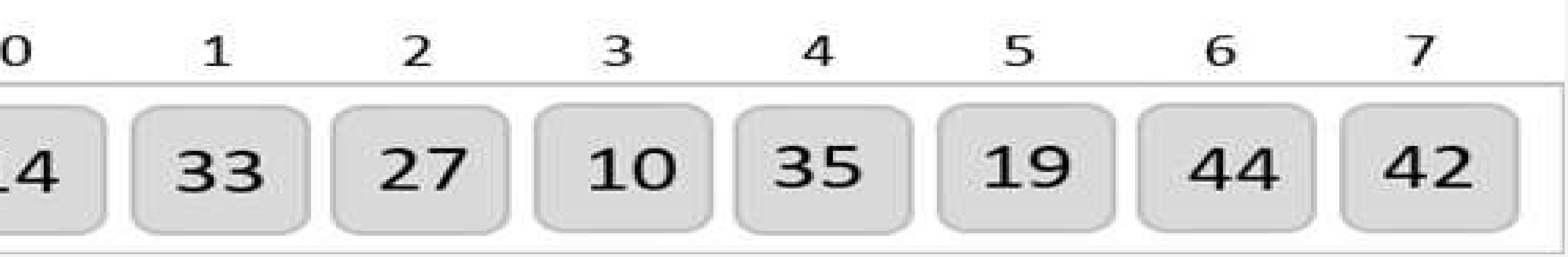
Topic: Selection Sort

orting is called Selection Sort as it works by repeatedly sorting

rst find the smallest value in the array and exchange it with the
e first position, then find the second smallest element and exch
ent in the second position, and we continue the process in this
e array is sorted.

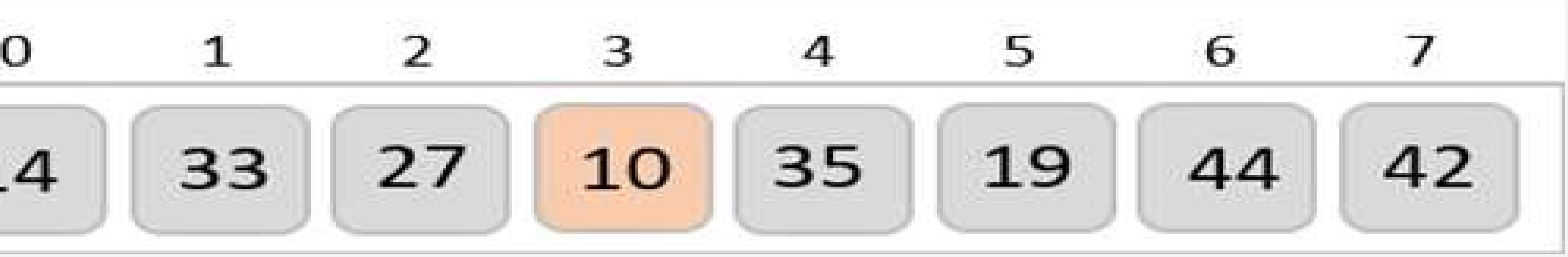
```
nction:
rt(int array[], int size){


-1; i++) {
t index of minimum data
size; j++)
array[imin])


orrect position


[i];
y[imin];
temp;
```

der the following depicted array as an example.



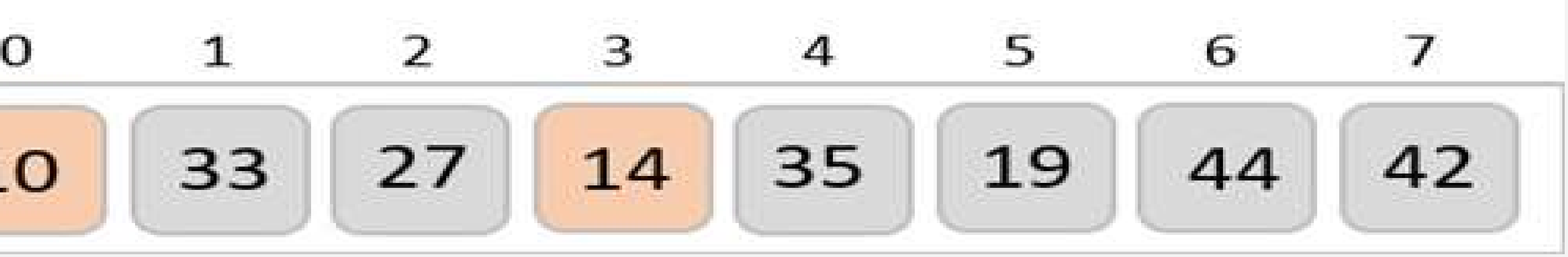
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| 4 | 33 | 27 | 10 | 35 | 19 | 44 | 42 |

e first position in the sorted list, the whole list is scanned sequentially. The first position
14 is stored presently, we search the whole list and find that 10 is the lowest value.



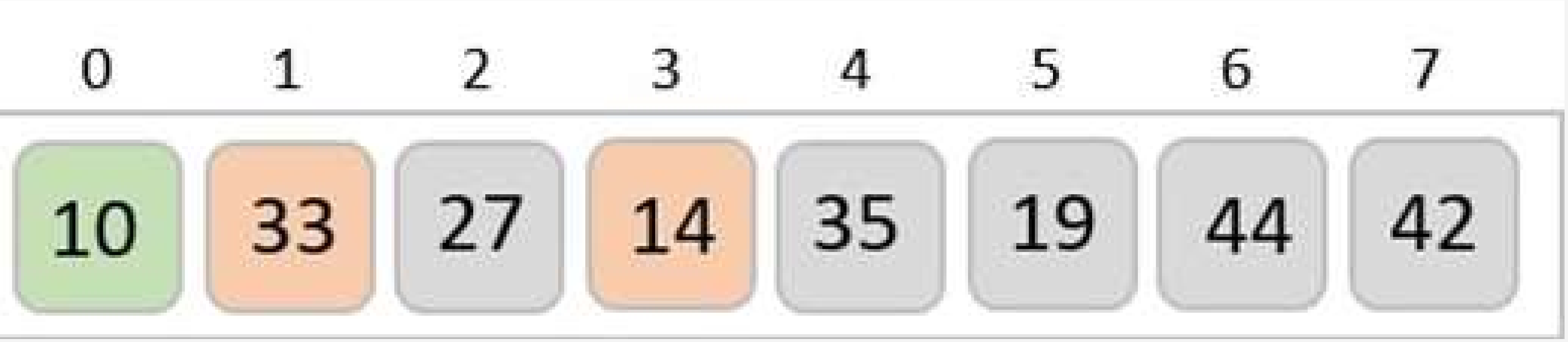
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| 4 | 33 | 27 | 10 | 35 | 19 | 44 | 42 |

e replace 14 with 10. After one iteration 10, which happens to be the minimum value in t
ppears in the first position of the sorted list.



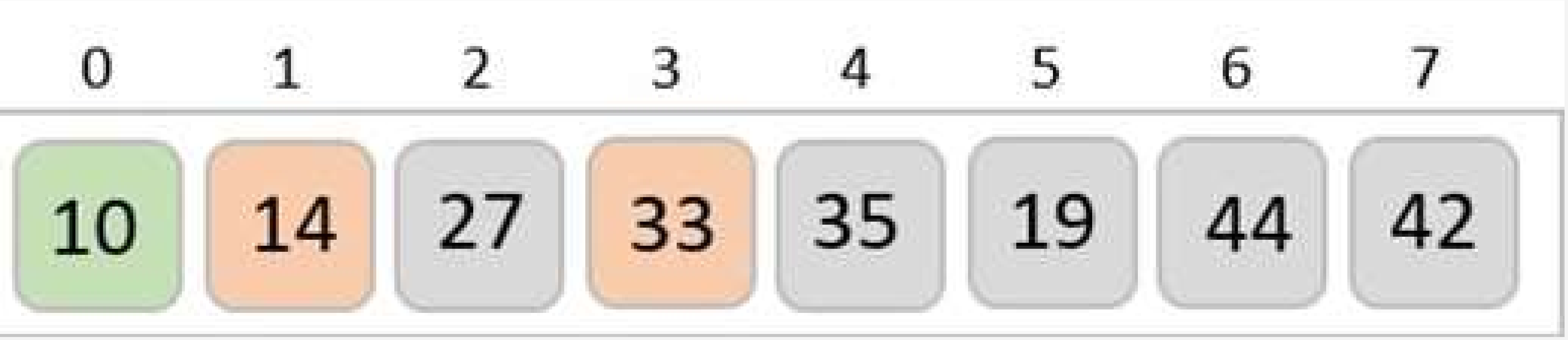
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| 0 | 33 | 27 | 14 | 35 | 19 | 44 | 42 |

e second position, where 33 is residing, we start scanning the rest of the list in a linear



| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| 10 | 33 | 27 | 14 | 35 | 19 | 44 | 42 |

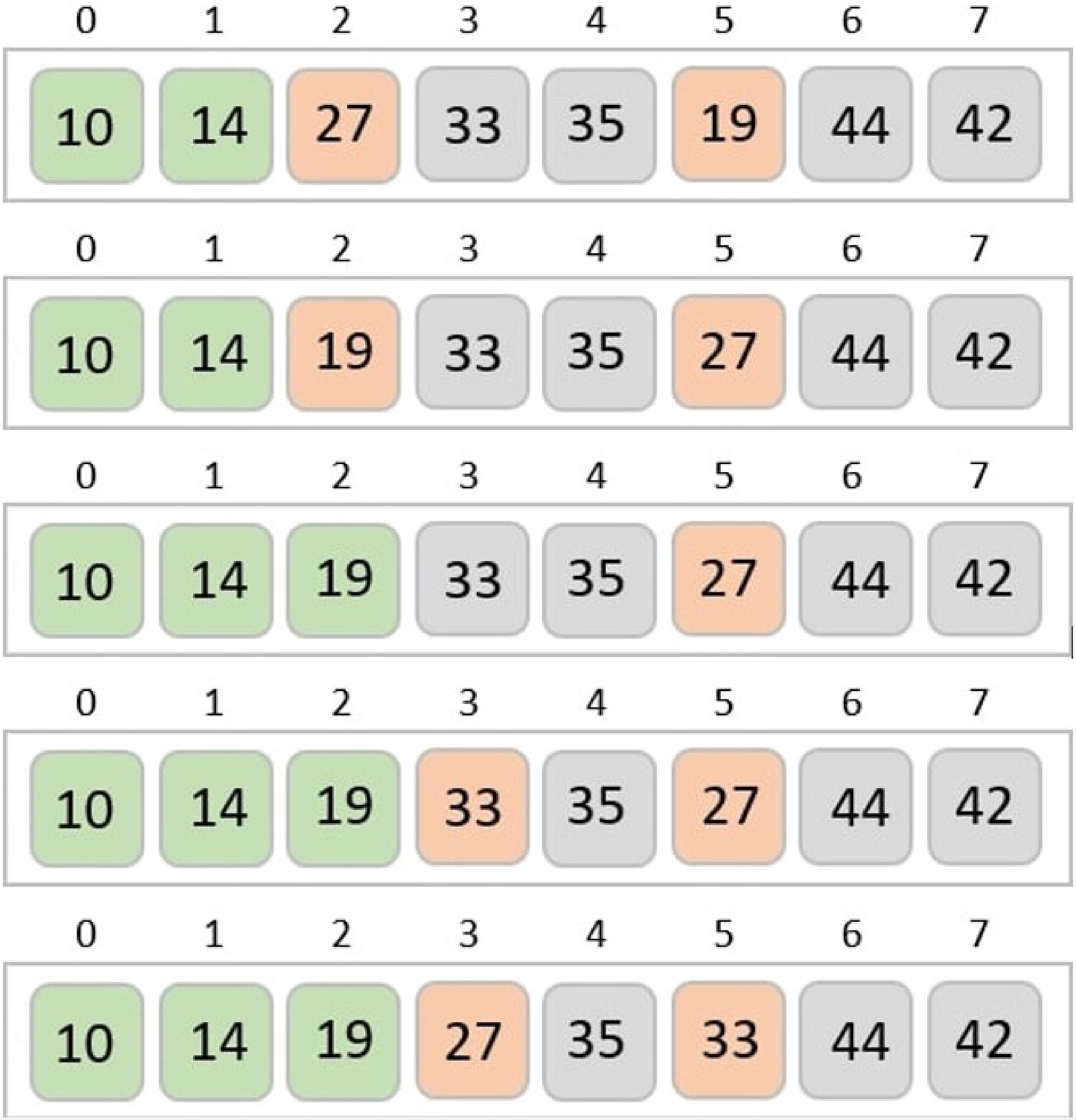
Ve find that 14 is the second lowest value in the list and it should appear at the second place. We wap these values.



| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| 10 | 14 | 27 | 33 | 35 | 19 | 44 | 42 |

fter two iterations, two least values are positioned at the beginning in a sorted manner.

he same process is applied to the rest of the items in the array



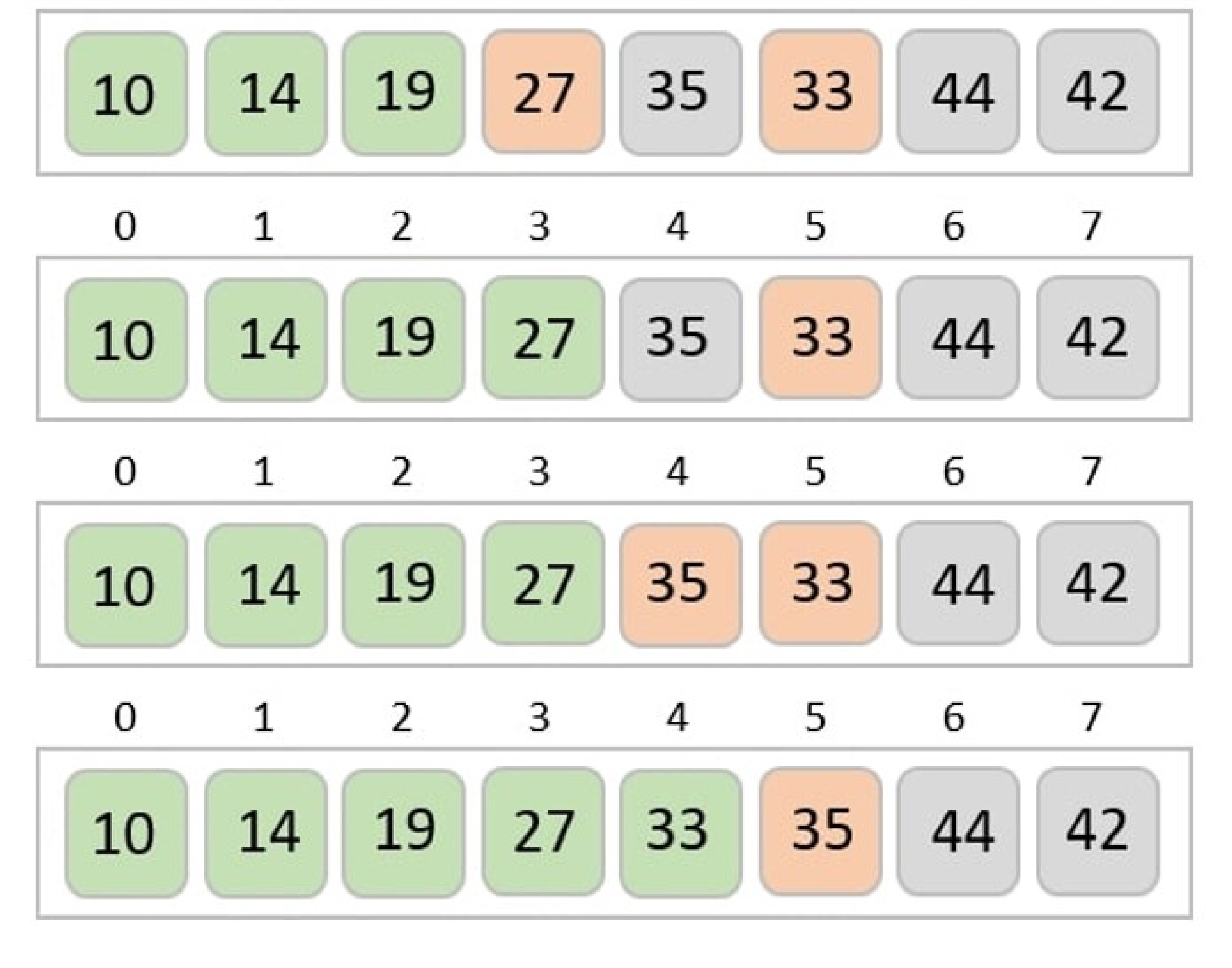
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| 10 | 14 | 27 | 33 | 35 | 19 | 44 | 42 |

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| 10 | 14 | 19 | 33 | 35 | 27 | 44 | 42 |

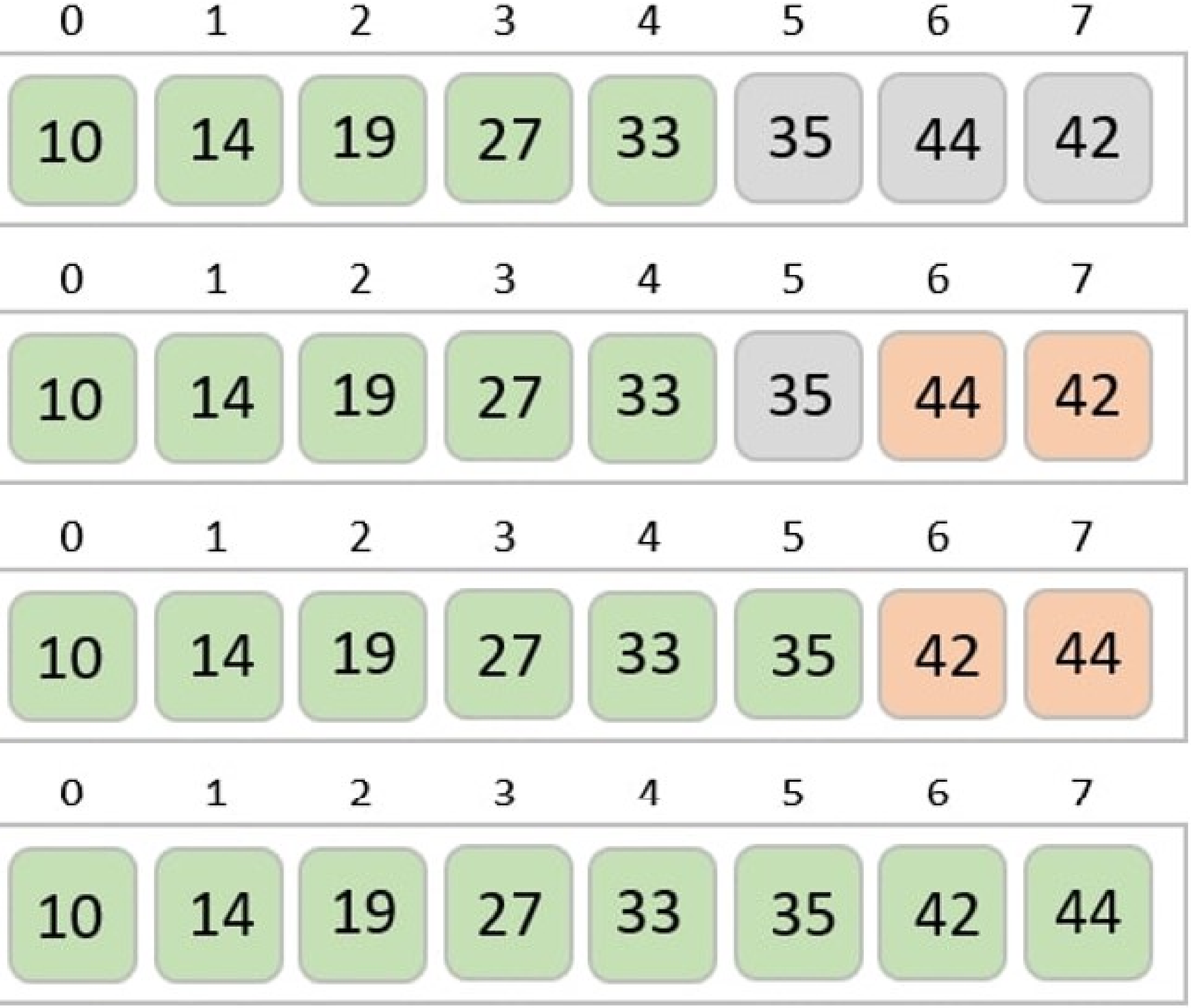
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| 10 | 14 | 19 | 33 | 35 | 27 | 44 | 42 |

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| 10 | 14 | 19 | 33 | 35 | 27 | 44 | 42 |

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| 10 | 14 | 19 | 27 | 35 | 33 | 44 | 42 |



|  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|
| 10 | 14 | 19 | 27 | 35 | 33 | 44 | 42 |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 10 | 14 | 19 | 27 | 35 | 33 | 44 | 42 |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 10 | 14 | 19 | 27 | 35 | 33 | 44 | 42 |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 10 | 14 | 19 | 27 | 33 | 35 | 44 | 42 |



| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| 10 | 14 | 19 | 27 | 33 | 35 | 44 | 42 |

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| 10 | 14 | 19 | 27 | 33 | 35 | 44 | 42 |

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| 10 | 14 | 19 | 27 | 33 | 35 | 42 | 44 |

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| 10 | 14 | 19 | 27 | 33 | 35 | 42 | 44 |