Merge two sorted Arrays into another sorted array

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Loop Exercise (Try this and analyse output)

```
int j=0, i=0;
while (i < m && j < n)
{
    printf("Array1[%d]=%d, Array2[%d]=%d\n",i,array1[i],j,array2[j]);
  i++;
  j++;
}
```

This is not a nested loop. But two index I and j are pointing to two elements of the array. And they are moved parallely.

Merge two sorted arrays(cont.)

Problem

INPUT:

array1[ ]

10	13	25	48	70

array2[ ]

15	35

j=2 …..outof bound

OUTPUT:

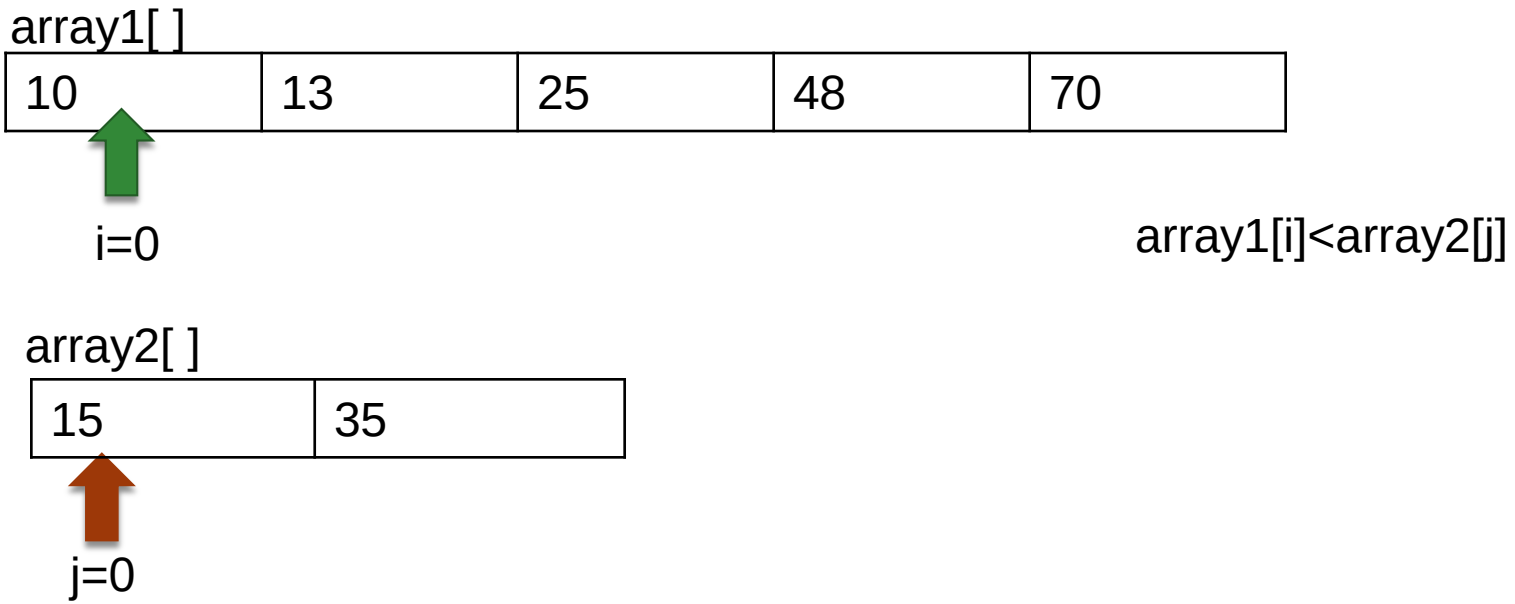
array3[ ]

10	13	15	25	35	48	70	

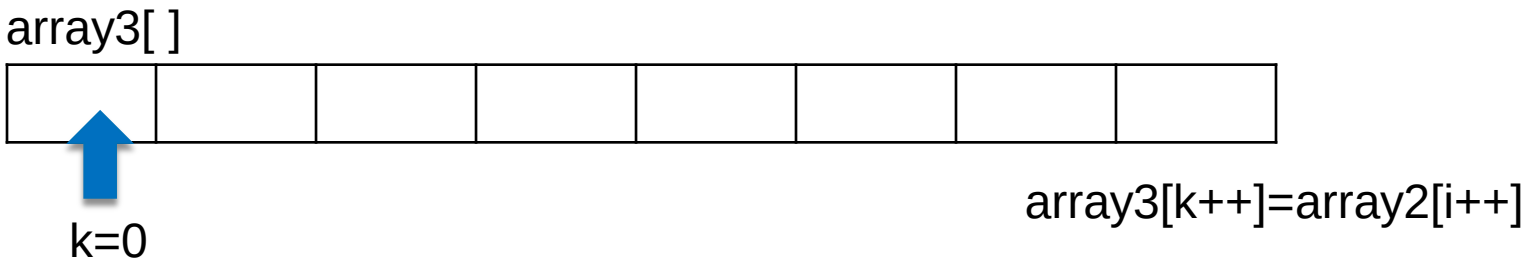
Merge two sorted arrays(cont.)

Solution Approach

INPUT:



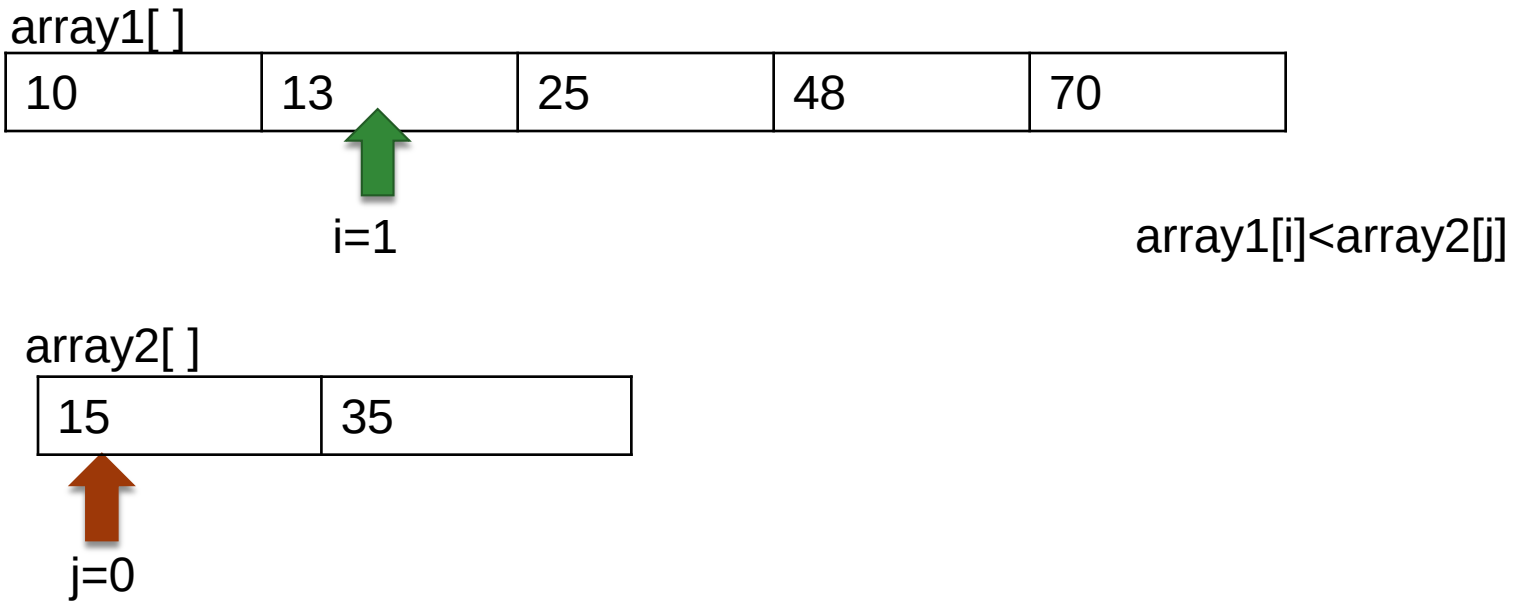
OUTPUT:



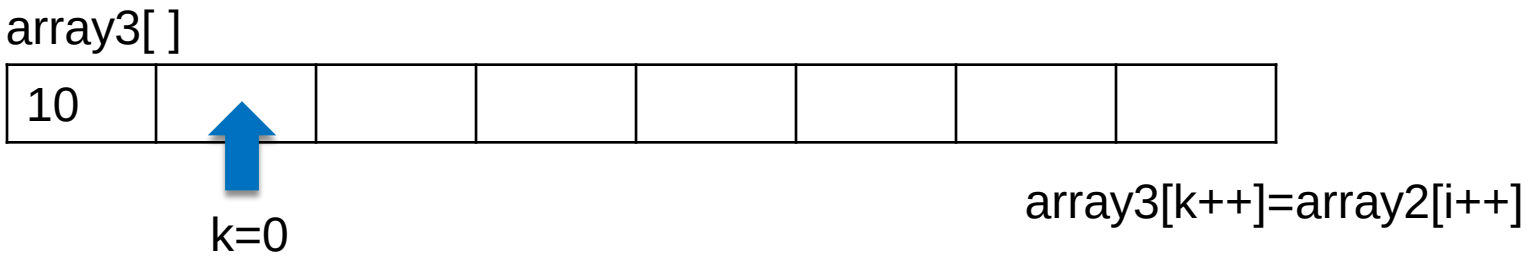
Merge two sorted arrays(cont.)

Solution Approach

INPUT:



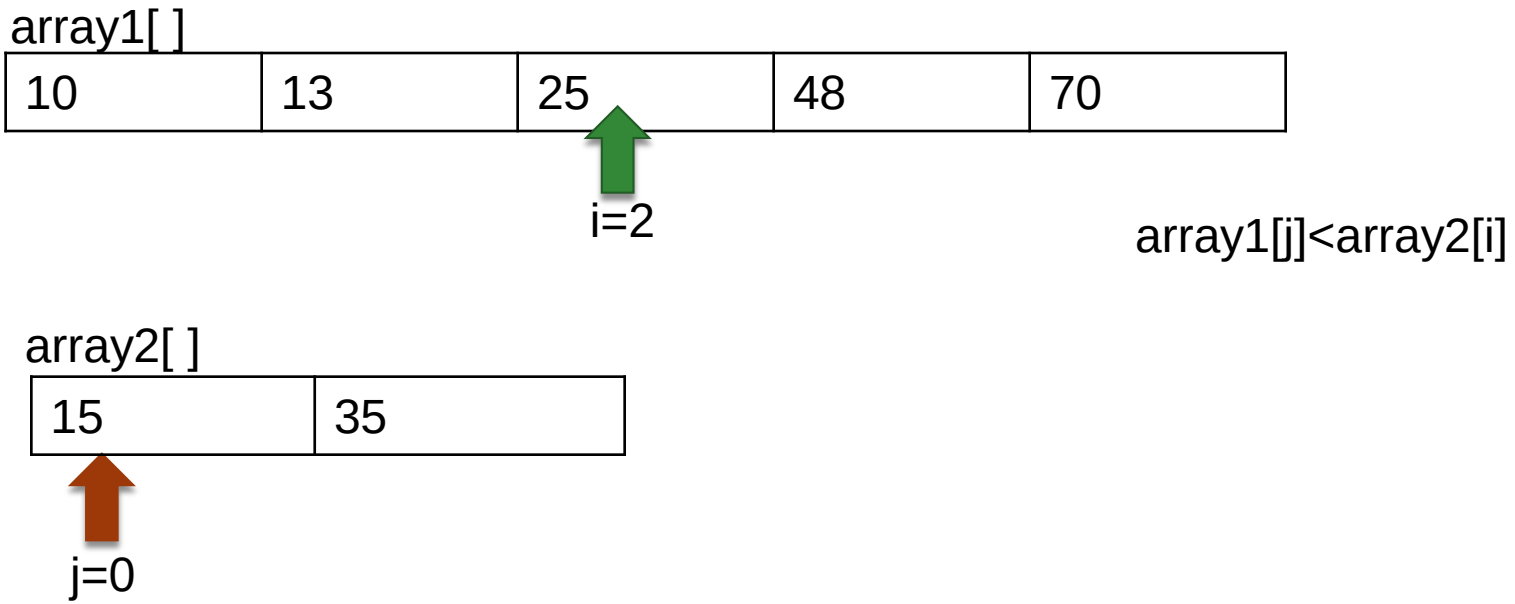
OUTPUT:



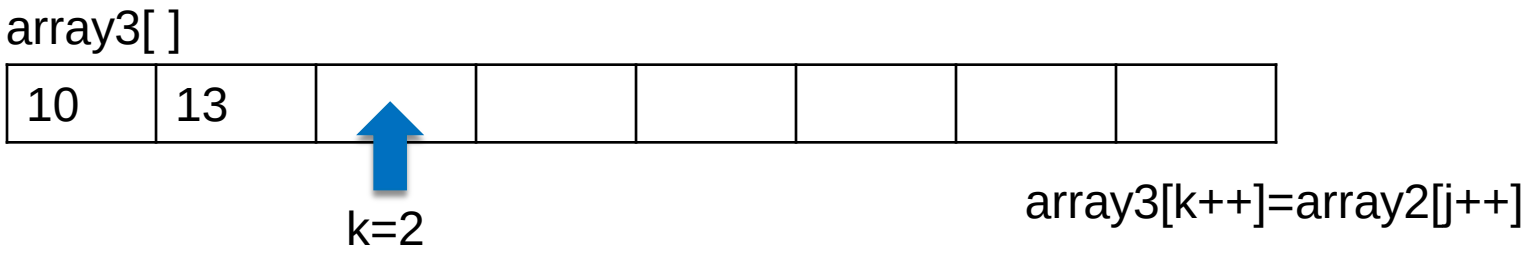
Merge two sorted arrays(cont.)

Solution Approach

INPUT:



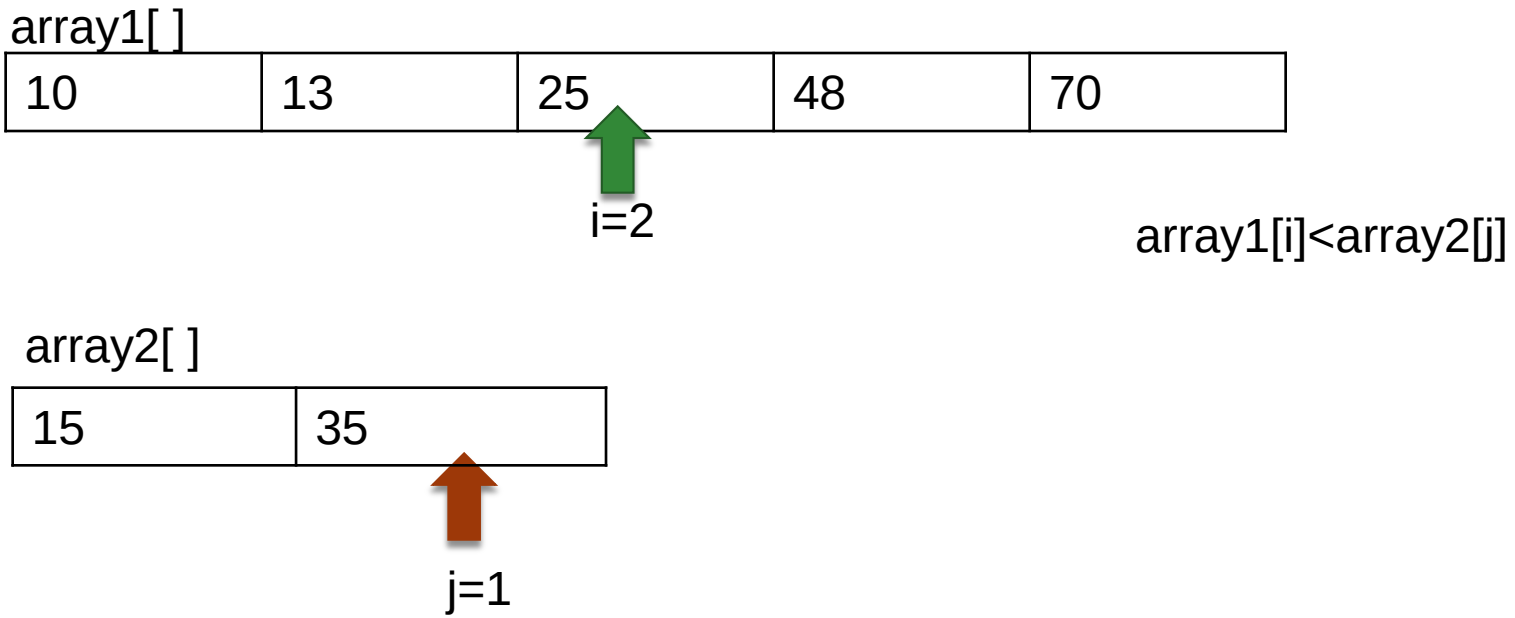
OUTPUT:



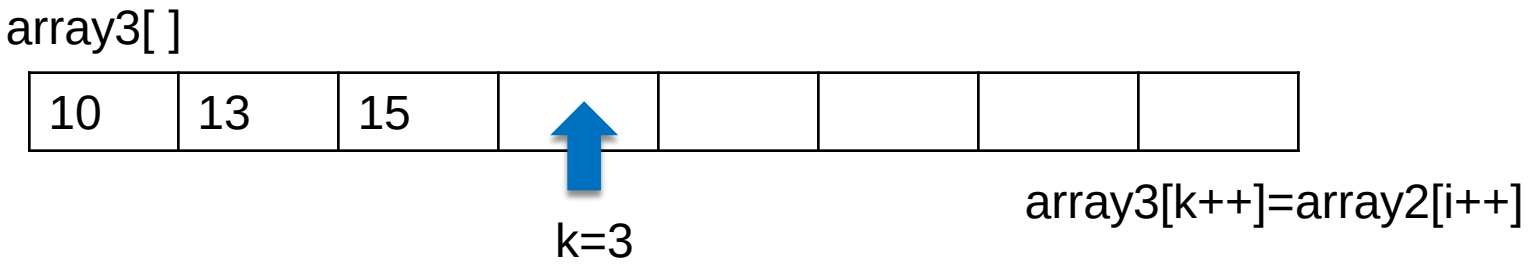
Merge two sorted arrays(cont.)

Solution Approach

INPUT:



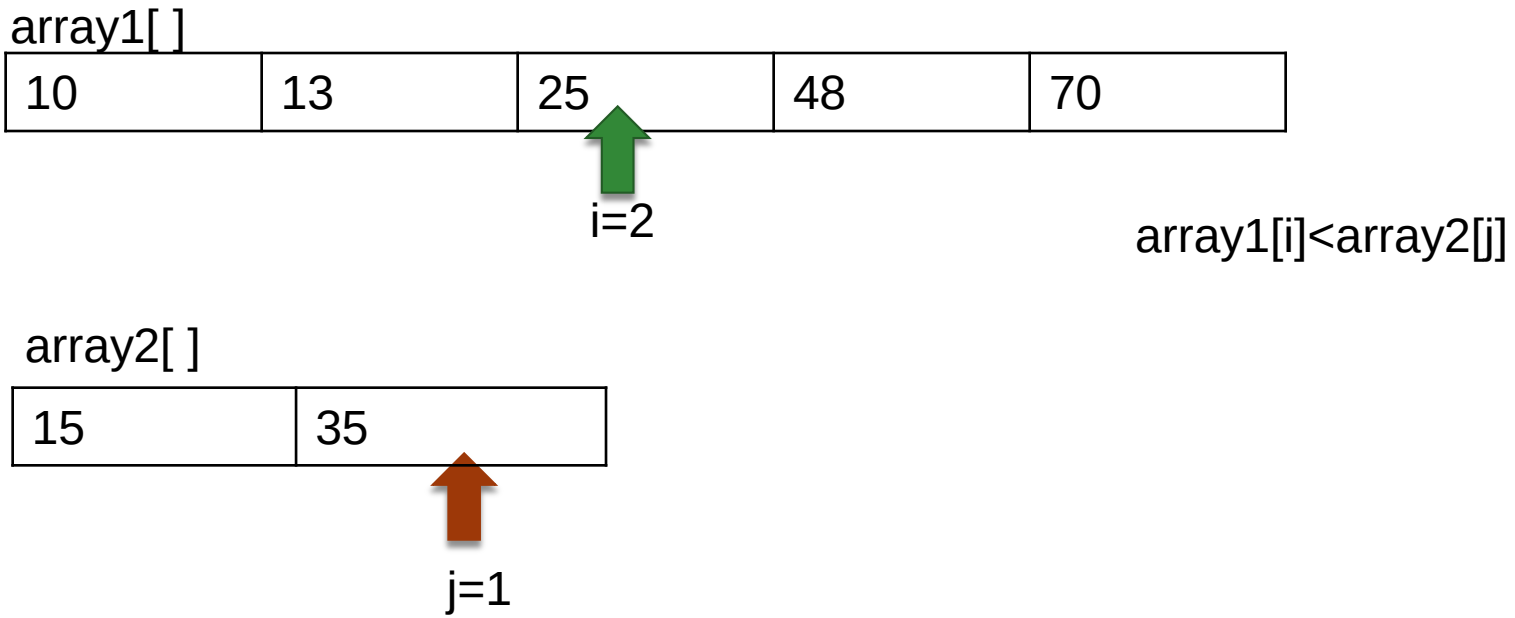
OUTPUT:



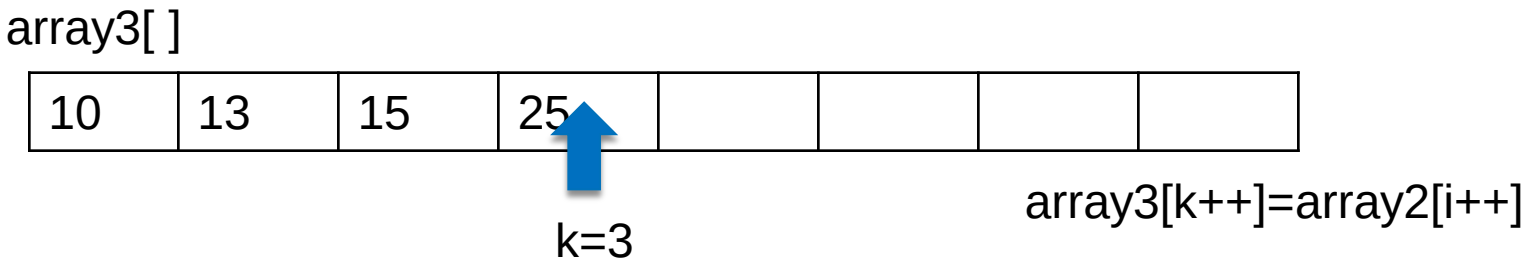
Merge two sorted arrays(cont.)

Solution Approach

INPUT:



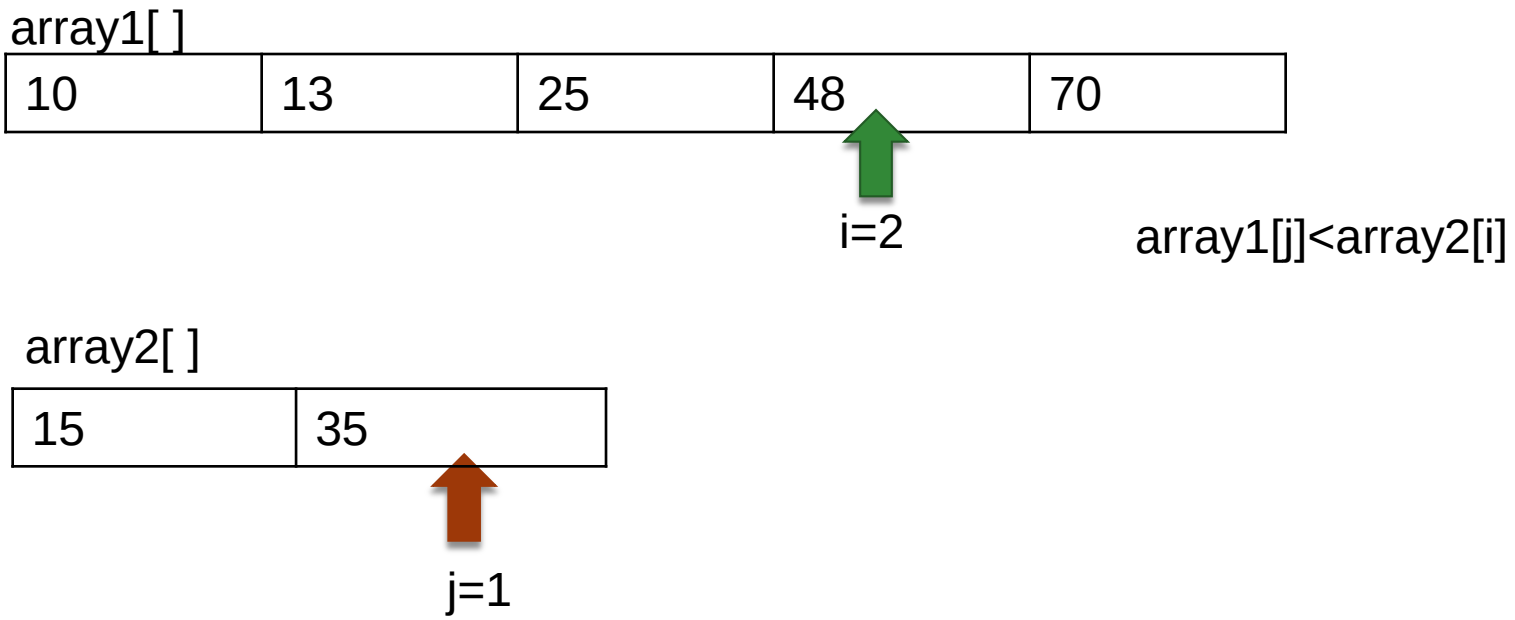
OUTPUT:



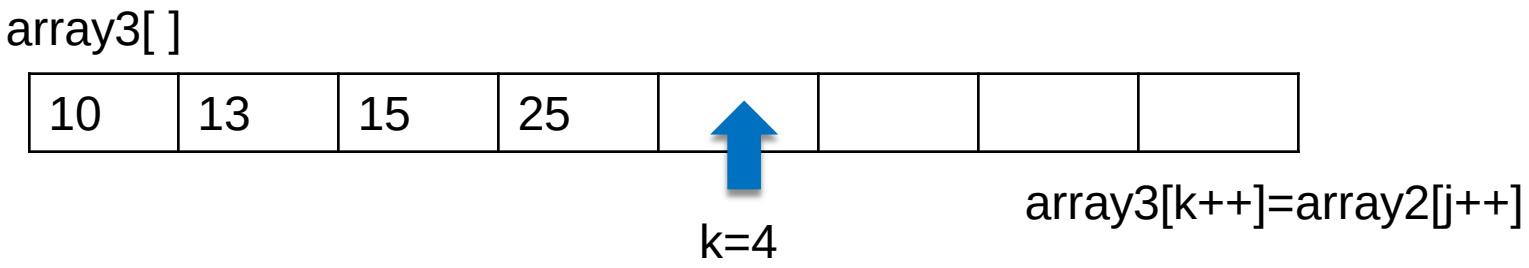
Merge two sorted arrays(cont.)

Solution Approach

INPUT:



OUTPUT:

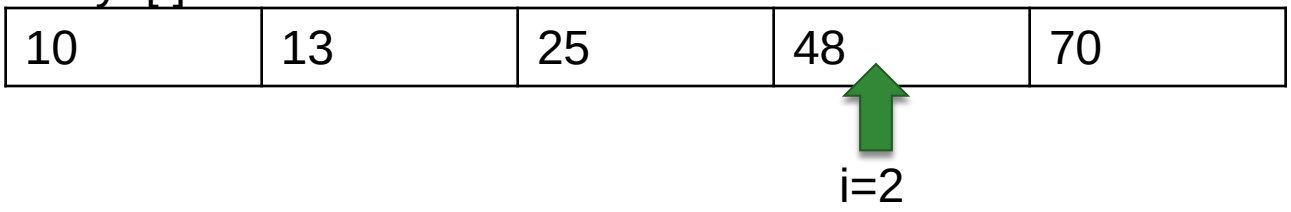


Merge two sorted arrays(cont.)

Solution Approach

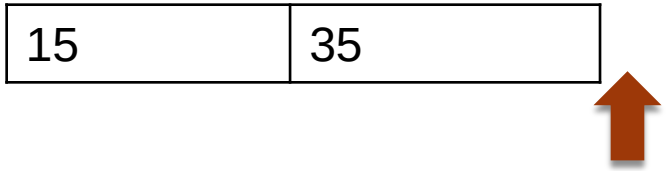
INPUT:

array1[ ]



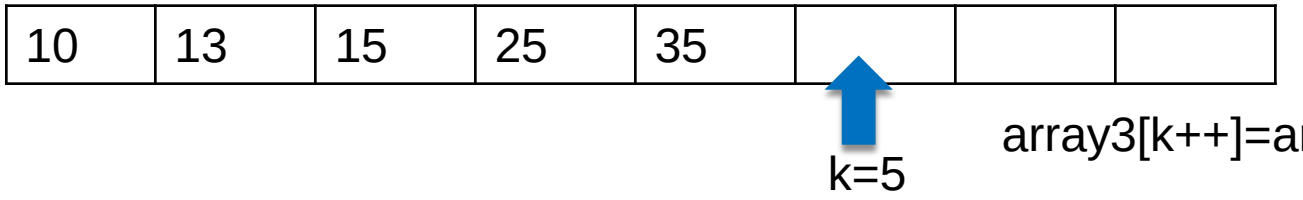
Copy remaining elements in array1

array2[ ]



OUTPUT:

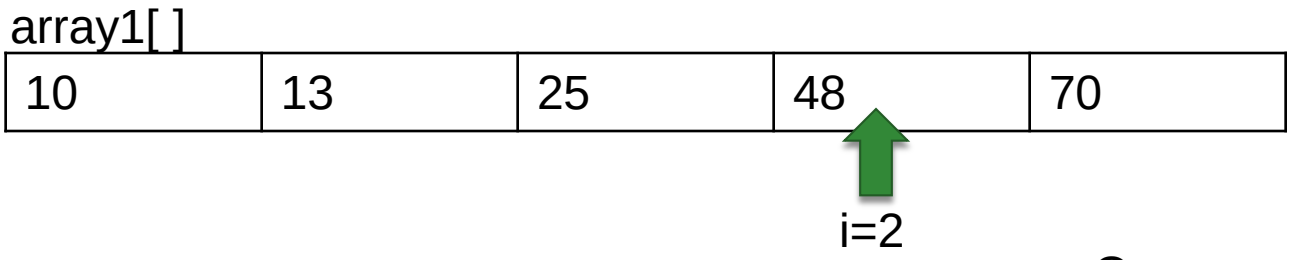
array3[ ]

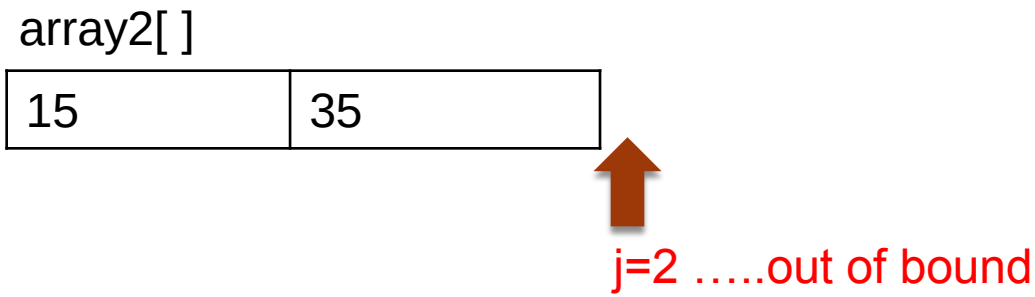


Merge two sorted arrays(cont.)

Solution Approach

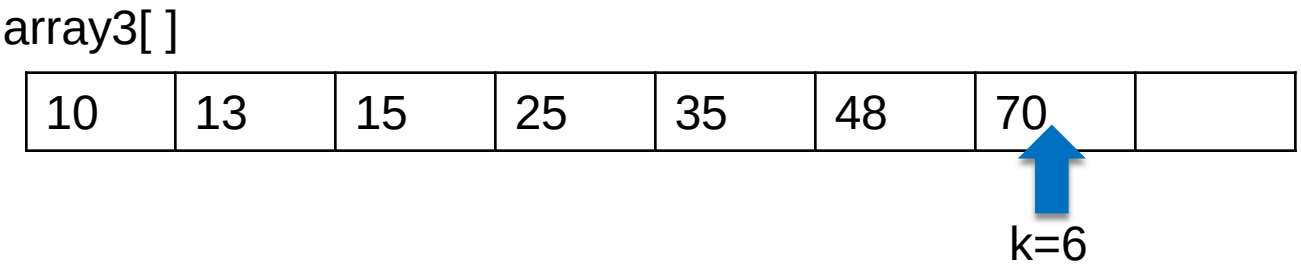
INPUT:





Once one array say array1 reach out of bound copy all the remaining elements of array2 to array3

OUTPUT:



```
void merge(int array1[],int m,int array2[],int n,int array3[])
 {      int i=0,j=0,k=0;
        while (i < m && j < n)
        {
            if (array1[i] < array2[j])
            {
                array3[k] = array1[i++];

            }

            else
            {
                array3[k] = array2[j++];

            }
            k++;
        }

```

```
    if (i >= m)
        {
            while (j < n)
            {
                array3[k] = array2[j];
                j++;
                k++;
            }
        }

        if (j >= n)
        {
            while (i < m)
            {
                array3[k] = array1[i];
                i++;
                k++;
            }
        }

     }// End of merge

```

Namah Shivaya