Program:

```
def merge_sort(arr):
    if len(arr) > 1:
        mid = len(arr) // 2
        left_half = arr[:mid]
        right_half = arr[mid:]

        # Recursive call to sort the two halves
        merge_sort(left_half)
        merge_sort(right_half)

        # Merging the sorted halves
        i = j = k = 0

        while i < len(left_half) and j < len(right_half):
            if left_half[i] < right_half[j]:
                arr[k] = left_half[i]
                i += 1
            else:
                arr[k] = right_half[j]
                j += 1
            k += 1

        # Check if any element was left
        while i < len(left_half):
            arr[k] = left_half[i]
            i += 1
            k += 1

        while j < len(right_half):
            arr[k] = right_half[j]
```

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        j += 1
        k += 1

# Input
arr = list(map(int, input("Enter the elements of the array separated by space: ").split()))

# Perform merge sort
merge_sort(arr)

# Display the sorted array
print("Sorted array is:", arr)
```

Output: