Experiment Name / No.: 15

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QUICK SORT & MERGE SORT

AIM

write a menu driven C program to implement Quick sort and merge sort

ALGORITHM

1 Start

2 enter choice for choosing between entry, display, quick sort and merge sort

3 case 1 entry

3.1 Read size of array n

3.2 Repeat for i = 0 to n

3.2.1 Read a(i)

4 case 2: Display

4.1 Repeat for i = 0 to N

4.1.1 Print a[i]

5 case 3: Quick sort

5.1 Globally initialize left = 0, right = n-1

5.2 if left < right

5.2.1 set i = left, j = right + 1, pivot = a[left]

5.3 Repeat while i<j

5.3.1 do i++ while (a(i) < pivot and i <= right)

5.3.2 do j++ while (a(j) > pivot and j >= left)

5.3.3 if i<j

5.3.3.1 swap(a(i), a[j])

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5.3.4 else swap (a[left], a[j])
5.4 call quick sort (a, left, j-1), jump to step 5.2
5.5 call quicksort (a, j+1, right) jump to step 5.2
6. case 4: merge sort
6.1 Globally initialize beg = 0, enel = n-1
6.2 if beg < enel
6.3 set mid = (beg + enel) / 2
6.4 call merge sort (a, beg, mid), jump to step 6.3
6.5 call mergesort (a, mid+1, mid) jump to step 6.3
6.6 call merge (a, beg, mid, enel)
6.6.1 initialize i = beg, j = mid+1, index = 0
6.6.2 Repeat while (i<=mid) and (j<=enel)
6.6.2.1 if a(i) < a(j)
6.6.2.1.1 set temp[index++] = a(i++)
6.6.2.2 else set emp(index++) = a(j++)
6.6.3 if i > mid
6.6.3.1 Repeat while j<=enel
6.6.3.1.1 set temp(index++) = a(j++)
6.6.4 Else
6.6.4.1 Repeat while i<= mid
6.6.4.1.1 set temp(index++) a(i++)
7. Stop

CONCLUSION

The program has been executed correctly and output has been verified

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