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//Implement mergesort
#include <stdio.h>
#define MAX 100

void merge(int A[], int start, int mid, int end)
{
    int temp[MAX];
    for(int i=start ; i<=end ; i++)
    {
        temp[i] = A[i];
    }
    int k=start,i,j;
    for(i=start,j=mid+1 ; i<=mid && j<=end ; )
    {
        if(temp[i] <= temp[j])
        {
            A[k++] = temp[i++];
        }
        else
        {
            A[k++] = temp[j++];
        }
    }
    while(i <= mid)
        A[k++] = temp[i++];
    while(j <= end)
        A[k++] = temp[j++];
}

void mergesort(int A[], int start, int end)
{
    if(start < end)
    {
        int mid = (start+end)/2;;
        mergesort(A, start, mid);
        mergesort(A, mid+1, end);
        merge(A, start, mid, end);
    }
}

int main()
{
    int a[] = {2,23,4,15,62,13,7,8};
    printf("Original array\n");
    for(int i=0 ; i<8 ; i++)
        printf("%6d", a[i]);
    printf("\n");
    mergesort(a, 0, 7);
    printf("Sorted array\n");
    for(int i=0 ; i<8 ; i++)
        printf("%6d", a[i]);
    printf("\n");
}

/*OUTPUT
Original array
    2    23    4    15    62    13    7    8
Sorted array
    2     4     7     8    13    15    23    62
*/

```