**// Write a C program to Merge two sorted arrays into a single array**

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#include<stdio.h>

int\* fillArray(int [],int);

int\* mergeArray(int [],int \*,int \*,int , int); //Function declaration

void display(int [],int);

int main()

{

int arr1\_len,arr2\_len;

printf("\nEnter the range of array 1 : ");

scanf("%d",&arr1\_len);

printf("\nEnter the range of array 2 : ");

scanf("%d",&arr2\_len);

int arr1[arr1\_len];

int arr2[arr2\_len]; //Array Declaration

int finalArray[arr1\_len+arr2\_len];

int \*array1;

int \*array2;

int \*finalArrayAddress;

array1 = fillArray(arr1,arr1\_len); //Function calling to fill the array

array2 = fillArray(arr2,arr2\_len);

finalArrayAddress=mergeArray(finalArray,array1,array2,arr1\_len,arr2\_len);

/\*Function calling to merge the arrays \*/

display(finalArrayAddress,arr1\_len+arr2\_len);

/\*Function calling to display the resultant array \*/

return 0;

}

int\* fillArray(int arr[],int len)

{

int i;

printf("\nEnter elements in ascending order : ");

for(i=0;i<len;i++)

scanf("%d",&arr[i]); //Taking array elements from the user

return arr;

}

void display(int arr[],int len)

{

int i;

for(i=0;i<len;i++)

printf("%d\t",arr[i]); //Displaying the array elements

}

int\* mergeArray(int finalArray[],int arr1[],int arr2[],int arr1\_len,int arr2\_len)

{

int i=0,j=0,k=0;

while((i<arr1\_len)&&(j<arr2\_len))

{

/\* Comparing the two arrays and and copying the smaller one ine the resultant array \*/

if(arr1[i]<arr2[j])

{

finalArray[k]=arr1[i];

i++;

k++;

}

else

{

finalArray[k]=arr2[j];

j++;

k++;

}

}

if(i==arr1\_len) //Checking the reason for the break of while loop

{

while(j<arr2\_len)

{

finalArray[k]=arr2[j];

j++;

k++;

}

}

else{

while(i<arr1\_len)

{

finalArray[k]=arr1[i];

i++;

k++;

}

}

return finalArray;

}

**OUTPUT :**

