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//Created By Ritwik Chandra Pandey
//On 6 Nov' 2021
//Radix Sort


#include <stdio.h>
#include <conio.h>

int largest(int a[],int n){
	int large = a[0];
	for(int i=0;i<n;i++){
		if(large<a[i]){
			large = a[i];
		}
	}
	return large;
}
void printArray(int arr[],int n){
	for(int i=0;i<n;i++)
		printf("%d ",arr[i]);
	printf("\n");

}
void RadixSort(int a[], int n){
	int bucket[10][10];
	int bucket_count[10];
	int i,j,k,remainder,pass,NOP,divisor,large;
	NOP = 0,divisor = 1;
	large = largest(a,n);
	while(large>0){
		NOP++;
		large = large/10;
	}
	for(pass=0;pass<NOP;pass++){
		for(i=0;i<10;i++){
			bucket_count[i] = 0;
		}
		for(i=0;i<n;i++){
			remainder = a[i]/divisor %10;
			bucket[remainder][bucket_count[remainder]]=a[i];
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                        bucket_count[remainder]++;
                }
                i=0;
                for(k=0;k<10;k++){
                        for(j=0;j<bucket_count[k];j++){
                                a[i]= bucket[k][j];
                                i++;
                        }
                }
                divisor =divisor*10;
        }
}

int main()  {
        int size;
        int *arr, i;
        printf("Enter array size : ");
   scanf("%d",&size);
        arr = (int*) malloc(size * sizeof(int));
        printf("Enter %d elements : ",size);
   for (i = 0; i < size; i++) {
                scanf("%d", &arr[i]);
   }
   printf("Before sorting the elements are : ");
        printArray(arr,size);
        RadixSort(arr,size);
        printf("After sorting the elements are : ");
        printArray(arr,size);
        return 0;
}
```