Merge Sort
ADA Lab

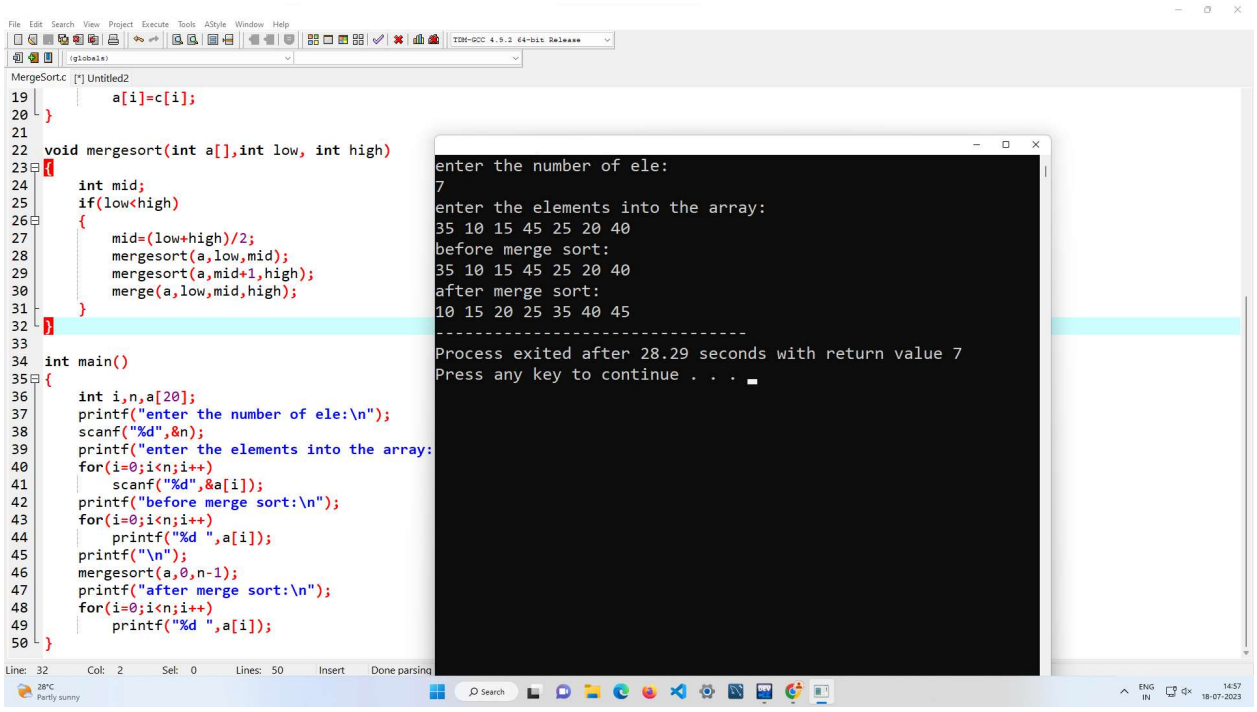
```
void merge(int a[],int low, int mid,int high)
{
	int i,j,k,c[20];
	i=low;
	j=mid+1;
	k=low;
	while(i<=mid && j<=high)
	{
		if(a[i]<a[j])
			c[k++]=a[i++];
		else
			c[k++]=a[j++];
	}
	while(i<=mid)
		c[k++]=a[i++];
	while(j<=high)
		c[k++]=a[j++];
	for(i=low;i<=high;i++)
		a[i]=c[i];
}

void mergesort(int a[],int low, int high)
{
	int mid;
	if(low<high)
	{
		mid=(low+high)/2;
```

```
            mergesort(a,low,mid);
            mergesort(a,mid+1,high);
            merge(a,low,mid,high);
        }
}

int main()
{
        int i,n,a[20];
        printf("enter the number of ele:\n");
        scanf("%d",&n);
        printf("enter the elements into the array:\n");
        for(i=0;i<n;i++)
                scanf("%d",&a[i]);
        printf("before merge sort:\n");
        for(i=0;i<n;i++)
                printf("%d ",a[i]);
        printf("\n");
        mergesort(a,0,n-1);
        printf("after merge sort:\n");
        for(i=0;i<n;i++)
                printf("%d ",a[i]);
}
```

Output:


MergeSort.c
[*] Untitled2
a[i]=c[i];
}
void mergesort(int a[],int low, int high)
{
int mid;
if(low<high)
{
mid=(low+high)/2;
mergesort(a,low,mid);
mergesort(a,mid+1,high);
merge(a,low,mid,high);
}
}
int main()
{
int i,n,a[20];
printf("enter the number of ele:\n");
scanf("%d",&n);
printf("enter the elements into the array:
for(i=0;i<n;i++)
scanf("%d",&a[i]);
printf("before merge sort:\n");
for(i=0;i<n;i++)
printf("%d ",a[i]);
printf("\n");
mergesort(a,0,n-1);
printf("after merge sort:\n");
for(i=0;i<n;i++)
printf("%d ",a[i]);
}
enter the number of ele:
7
enter the elements into the array:
35 10 15 45 25 20 40
before merge sort:
35 10 15 45 25 20 40
after merge sort:
10 15 20 25 35 40 45
Process exited after 28.29 seconds with return value 7
Press any key to continue . . .