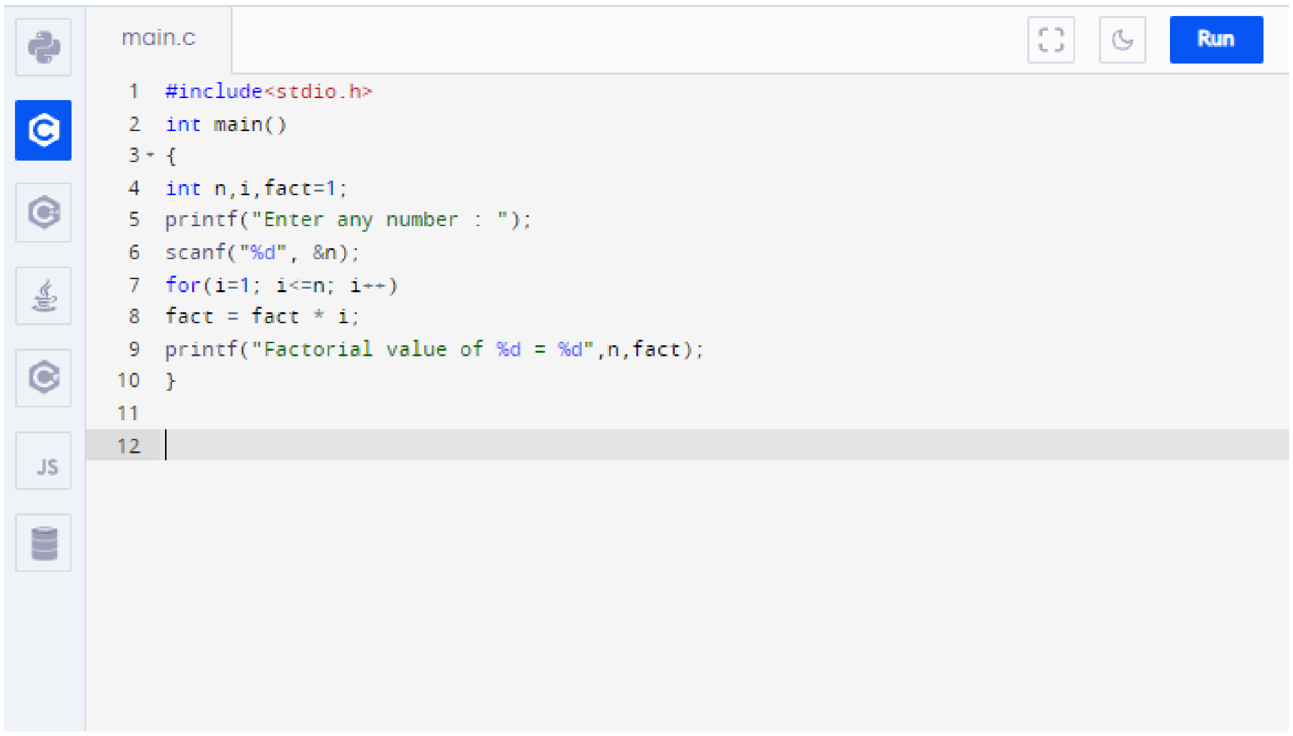
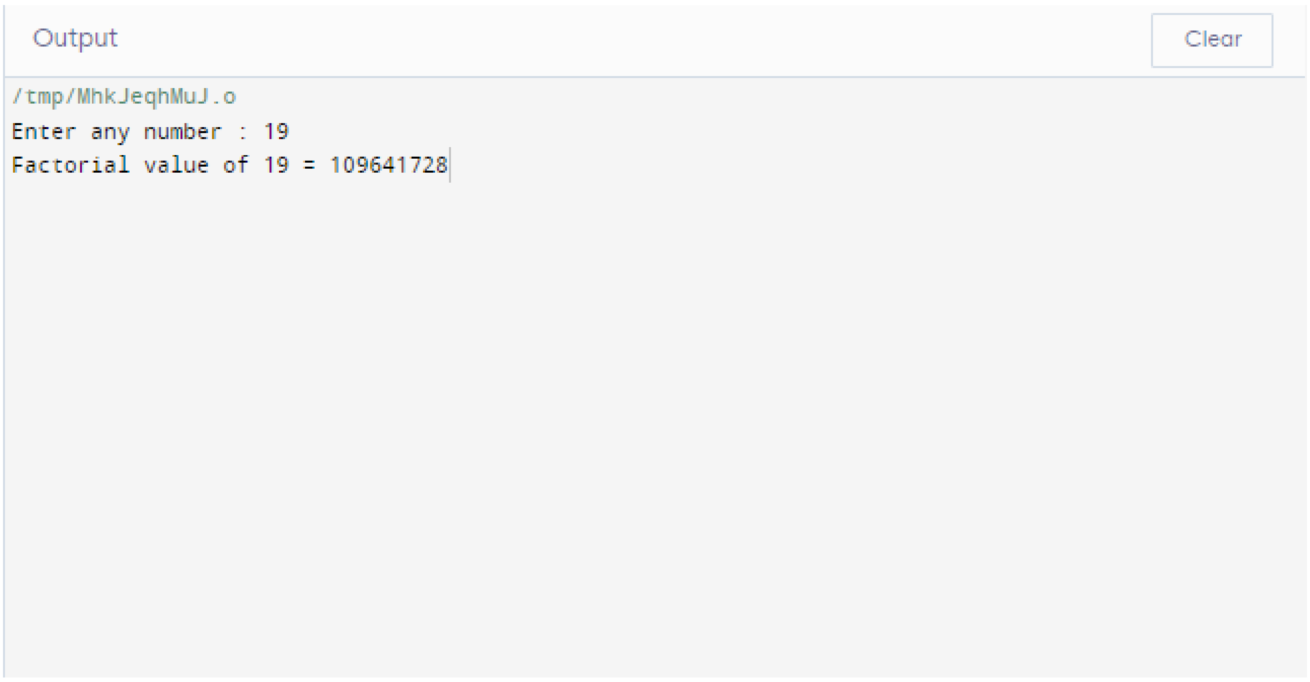
Program:



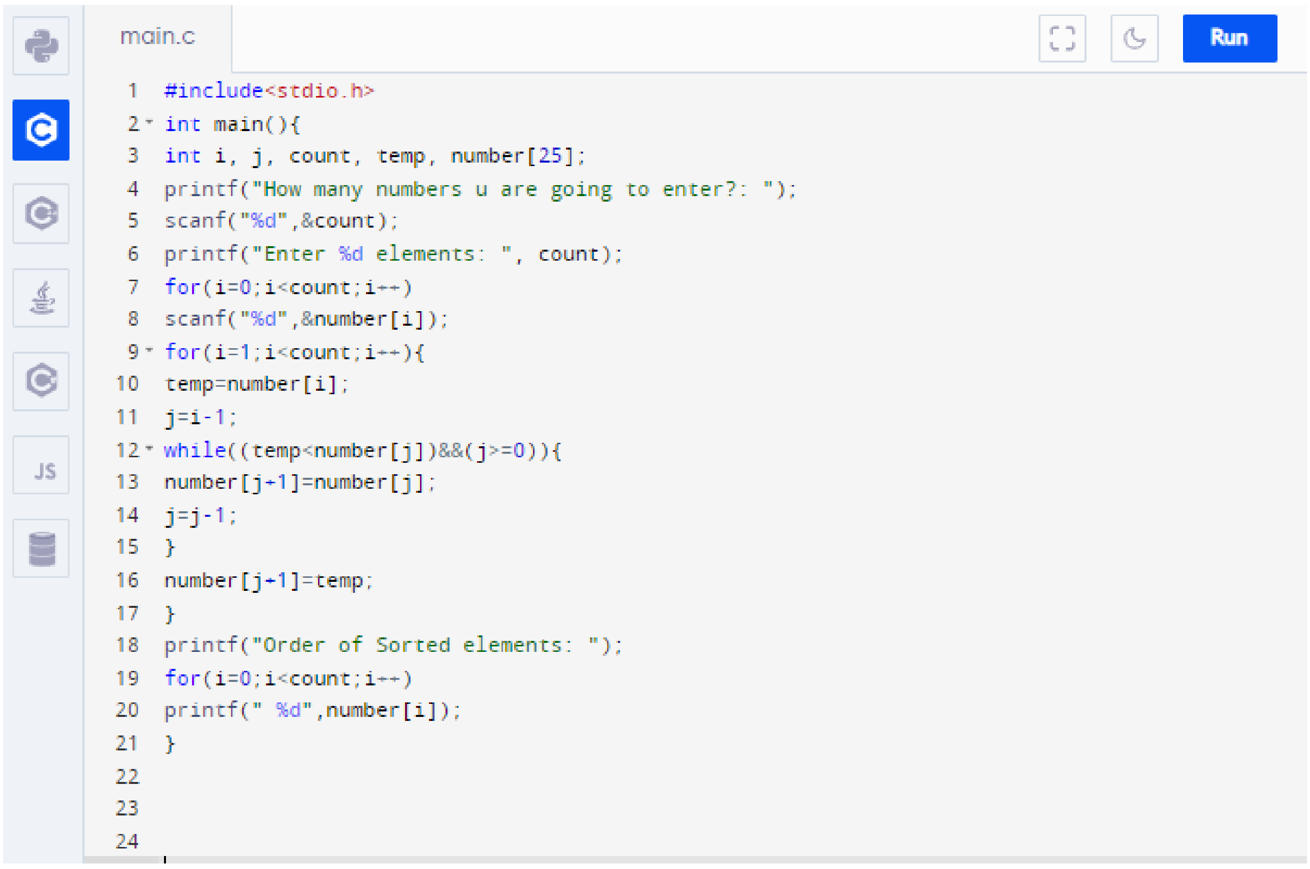
```c
#include<stdio.h>
int main()
{
int n,i,fact=1;
printf("Enter any number : ");
scanf("%d", &n);
for(i=1; i<=n; i++)
fact = fact * i;
printf("Factorial value of %d = %d",n,fact);
}


```

Output:



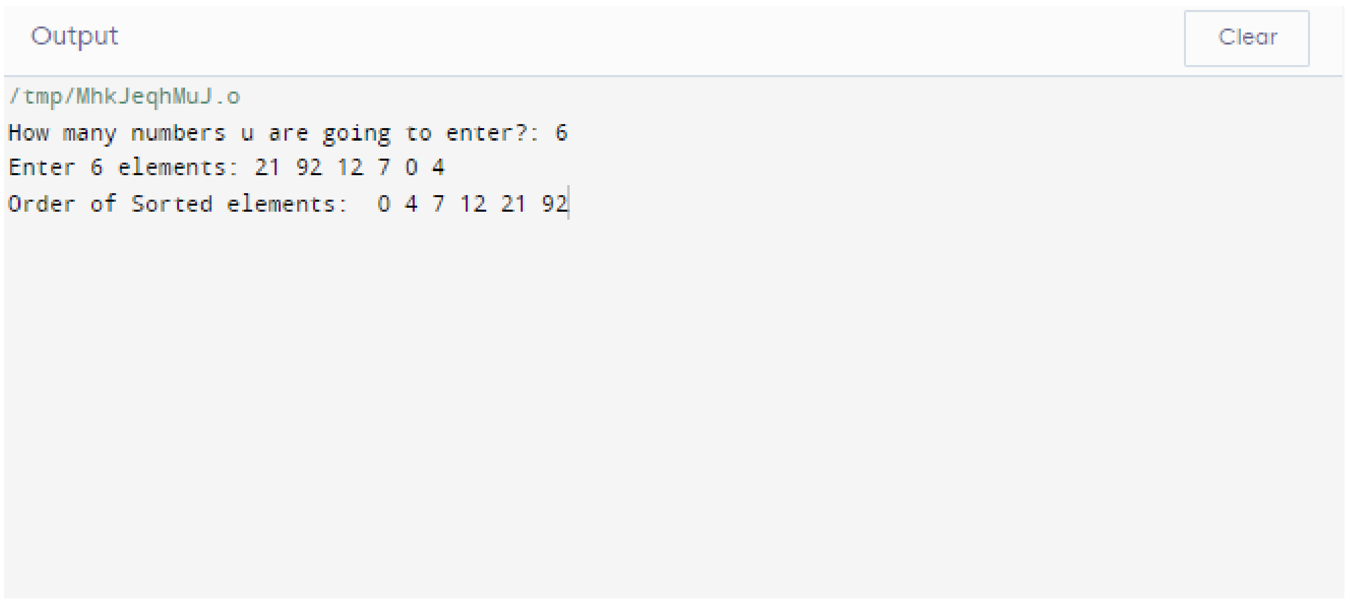
```
/tmp/MhkJeqhMuJ.o
Enter any number : 19
Factorial value of 19 = 109641728
```

Program:



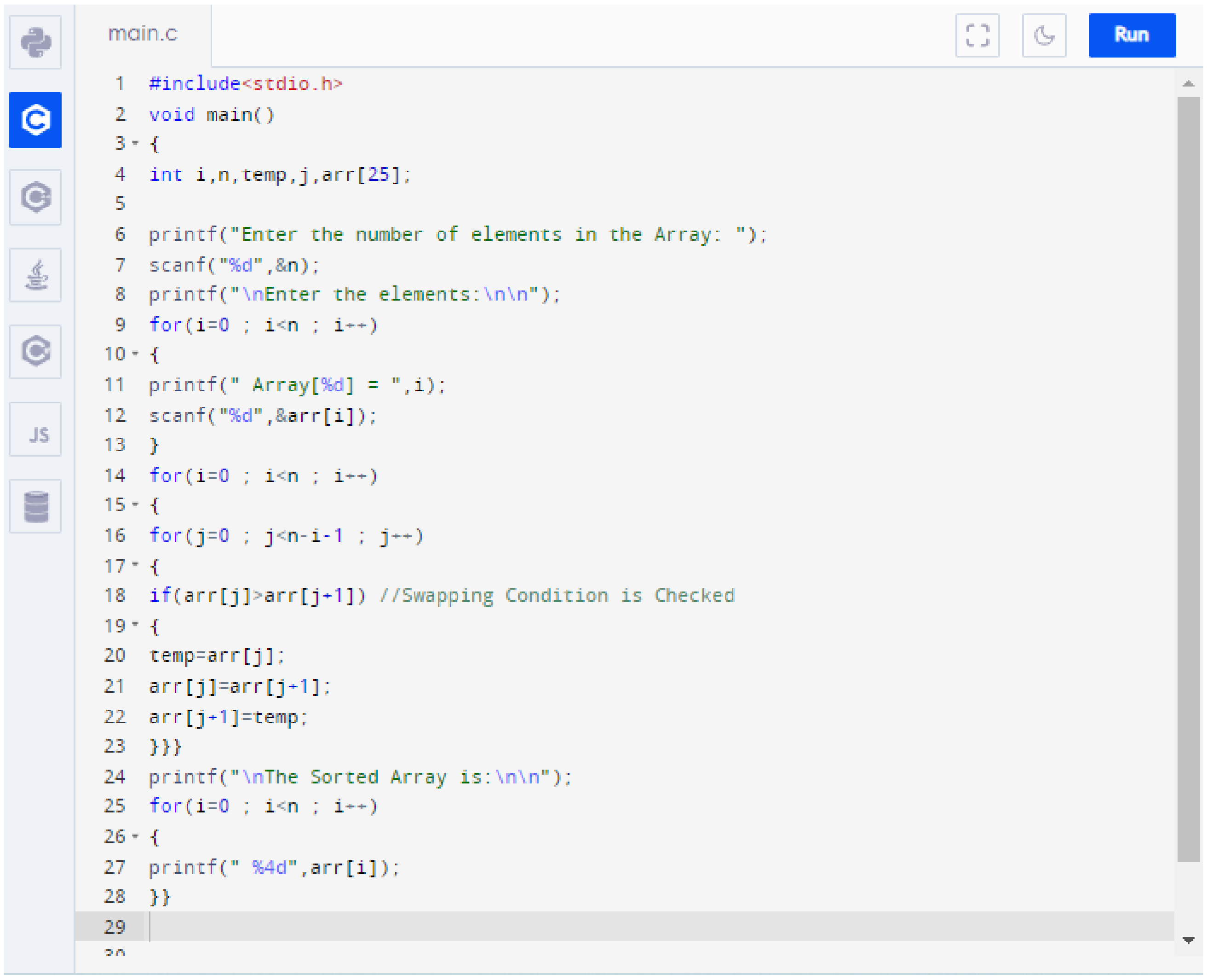
```c
#include<stdio.h>
int main(){
int i, j, count, temp, number[25];
printf("How many numbers u are going to enter?: ");
scanf("%d",&count);
printf("Enter %d elements: ", count);
for(i=0;i<count;i++)
scanf("%d",&number[i]);
for(i=1;i<count;i++){
temp=number[i];
j=i-1;
while((temp<number[j])&&(j>=0)){
number[j+1]=number[j];
j=j-1;
}
number[j+1]=temp;
}
printf("Order of Sorted elements: ");
for(i=0;i<count;i++)
printf(" %d",number[i]);
}



```

Output:



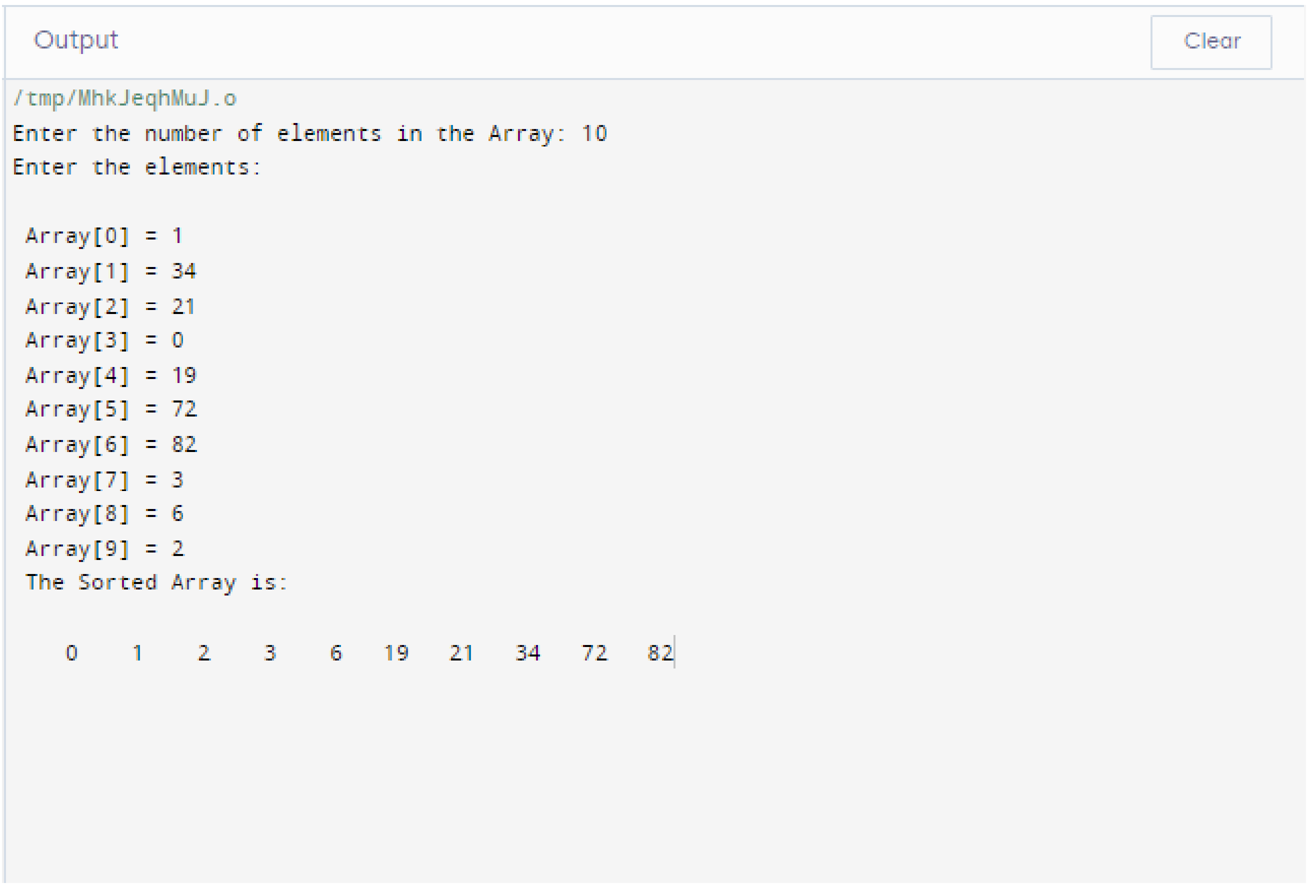
```
/tmp/MhkJeqhMuJ.o
How many numbers u are going to enter?: 6
Enter 6 elements: 21 92 12 7 0 4
Order of Sorted elements:  0 4 7 12 21 92
```

Program:



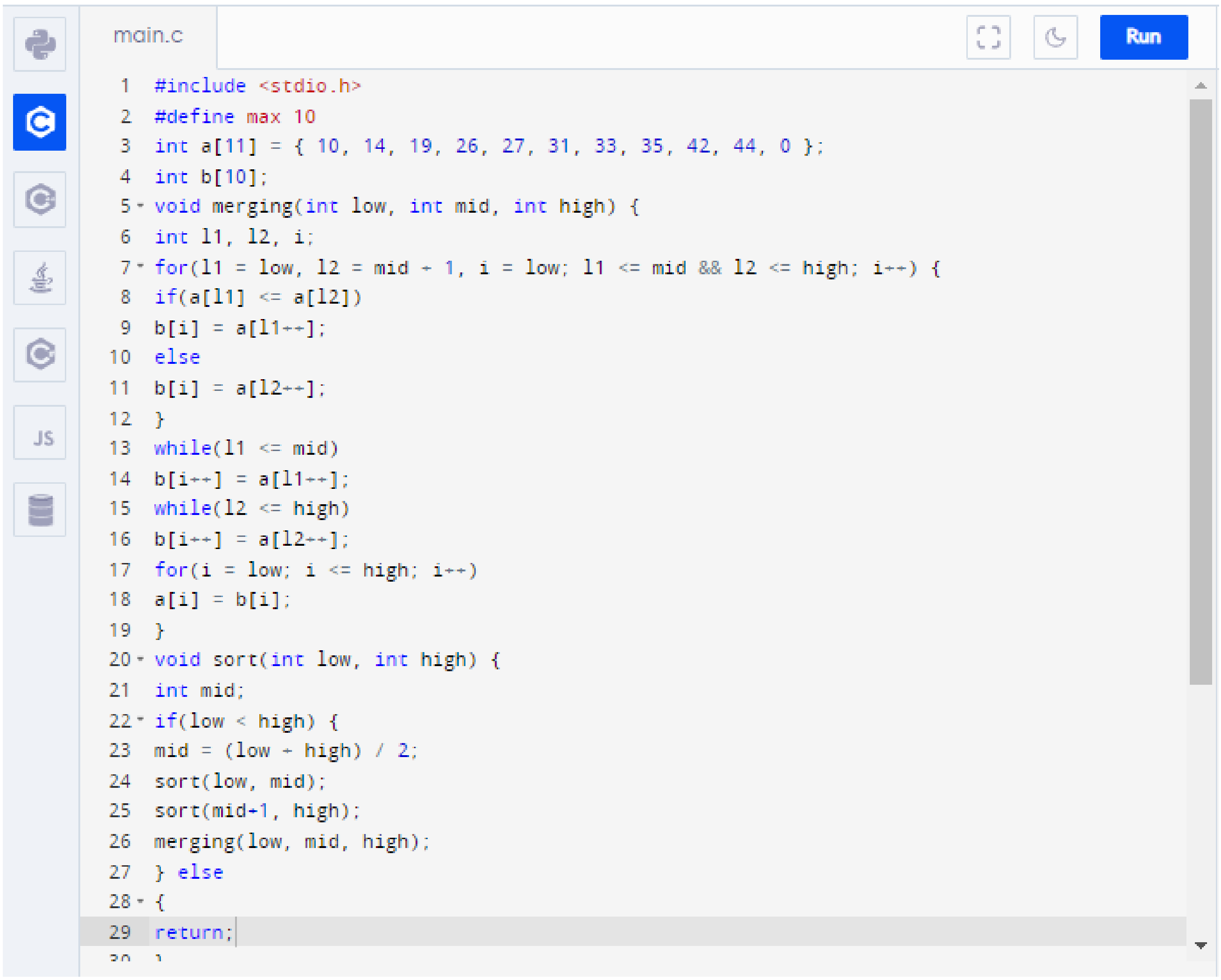
```c
#include<stdio.h>
void main()
{
int i,n,temp,j,arr[25];

printf("Enter the number of elements in the Array: ");
scanf("%d",&n);
printf("\nEnter the elements:\n\n");
for(i=0 ; i<n ; i++)
{
printf(" Array[%d] = ",i);
scanf("%d",&arr[i]);
}
for(i=0 ; i<n ; i++)
{
for(j=0 ; j<n-i-1 ; j++)
{
if(arr[j]>arr[j+1]) //Swapping Condition is Checked
{
temp=arr[j];
arr[j]=arr[j+1];
arr[j+1]=temp;
}}}
printf("\nThe Sorted Array is:\n\n");
for(i=0 ; i<n ; i++)
{
printf(" %4d",arr[i]);
}}
```

Output:

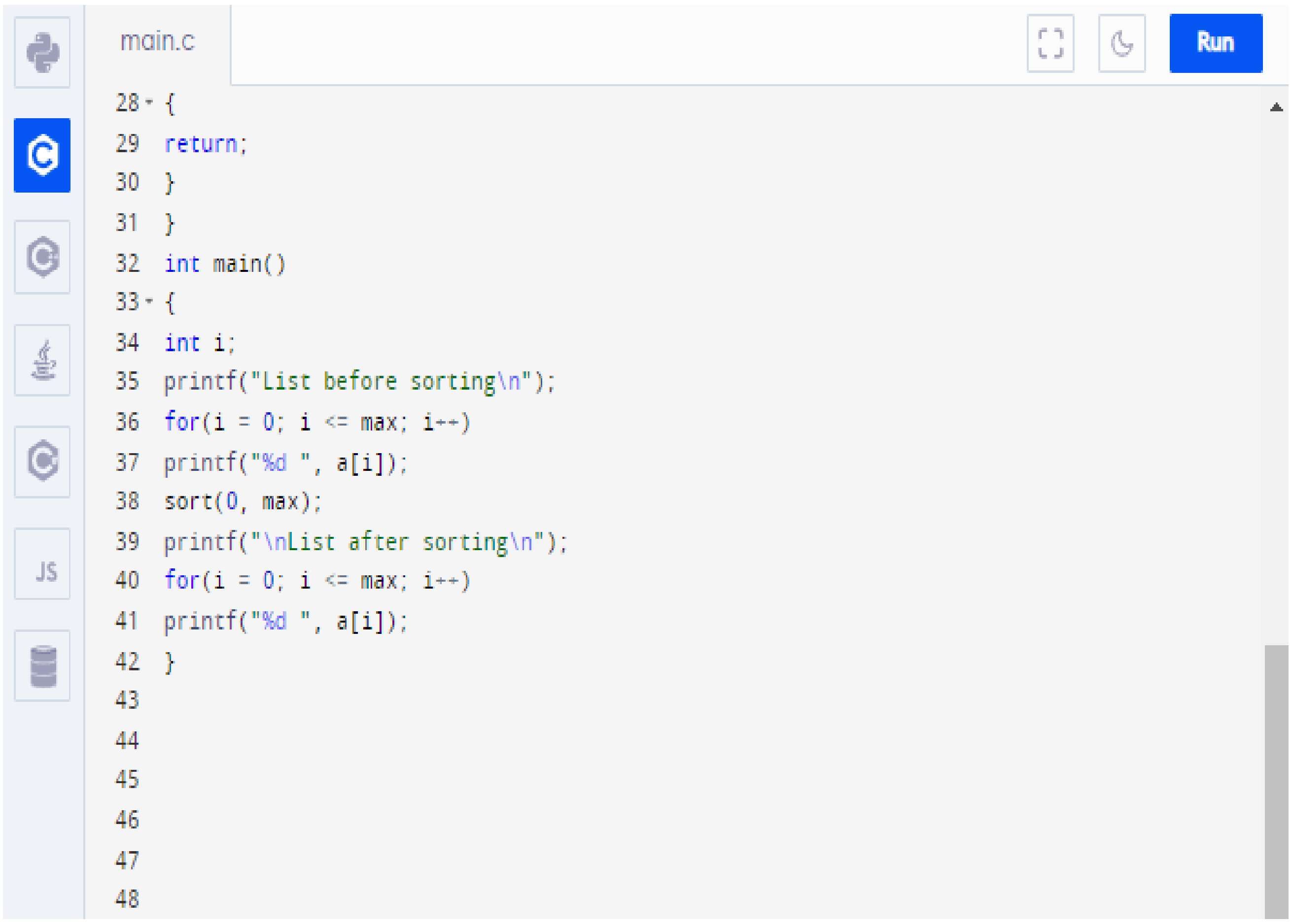


```
/tmp/MhkJeqhMuJ.o
Enter the number of elements in the Array: 10
Enter the elements:

 Array[0] = 1
 Array[1] = 34
 Array[2] = 21
 Array[3] = 0
 Array[4] = 19
 Array[5] = 72
 Array[6] = 82
 Array[7] = 3
 Array[8] = 6
 Array[9] = 2
 The Sorted Array is:

    0    1    2    3    6   19   21   34   72   82
```

Program:

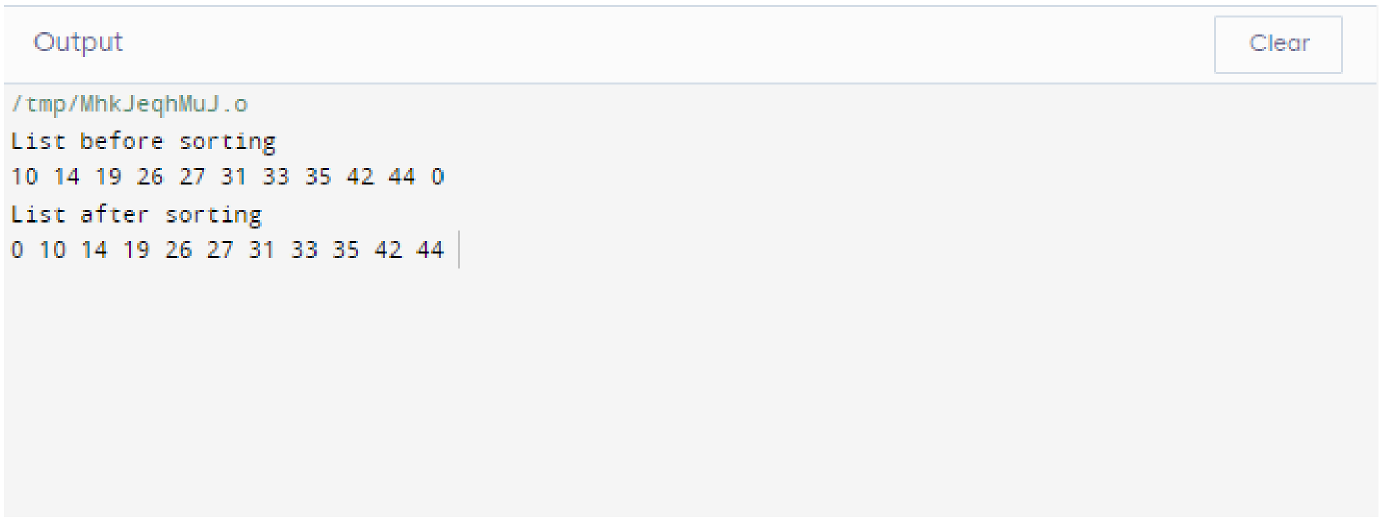


```c
#include <stdio.h>
#define max 10
int a[11] = { 10, 14, 19, 26, 27, 31, 33, 35, 42, 44, 0 };
int b[10];
void merging(int low, int mid, int high) {
int l1, l2, i;
for(l1 = low, l2 = mid + 1, i = low; l1 <= mid && l2 <= high; i++) {
if(a[l1] <= a[l2])
b[i] = a[l1++];
else
b[i] = a[l2++];
}
while(l1 <= mid)
b[i++] = a[l1++];
while(l2 <= high)
b[i++] = a[l2++];
for(i = low; i <= high; i++)
a[i] = b[i];
}
void sort(int low, int high) {
int mid;
if(low < high) {
mid = (low + high) / 2;
sort(low, mid);
sort(mid+1, high);
merging(low, mid, high);
} else
{
return;
}
```



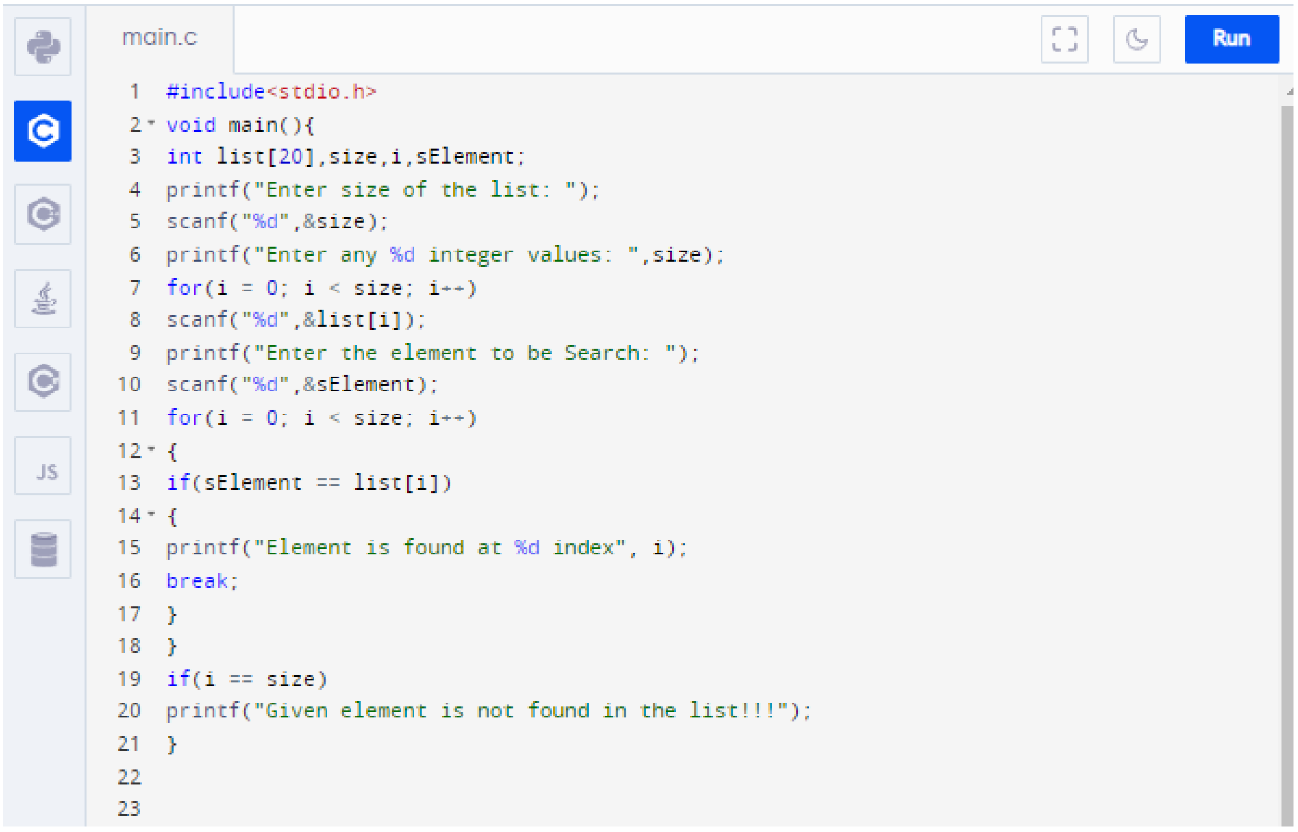
```
{
return;
}
}
int main()
{
int i;
printf("List before sorting\n");
for(i = 0; i <= max; i++)
printf("%d ", a[i]);
sort(0, max);
printf("\nList after sorting\n");
for(i = 0; i <= max; i++)
printf("%d ", a[i]);
}
```

Output:



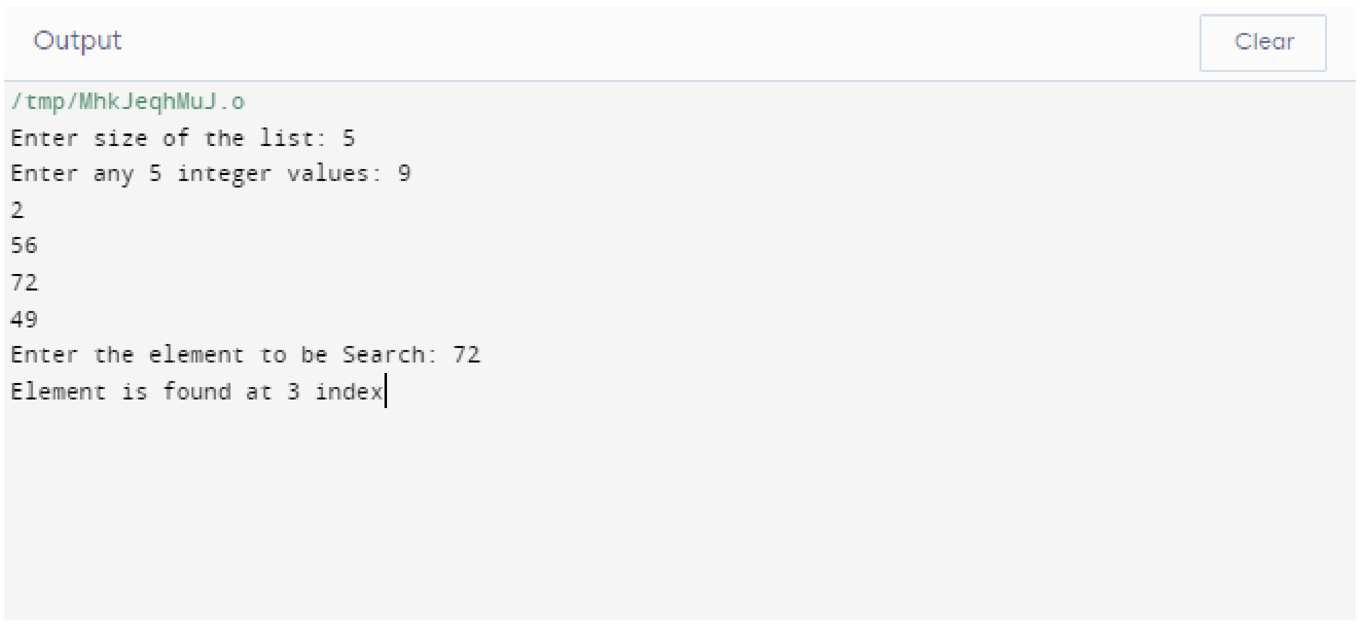
```
/tmp/MhkJeqhMuJ.o
List before sorting
10 14 19 26 27 31 33 35 42 44 0
List after sorting
0 10 14 19 26 27 31 33 35 42 44
```

Program:



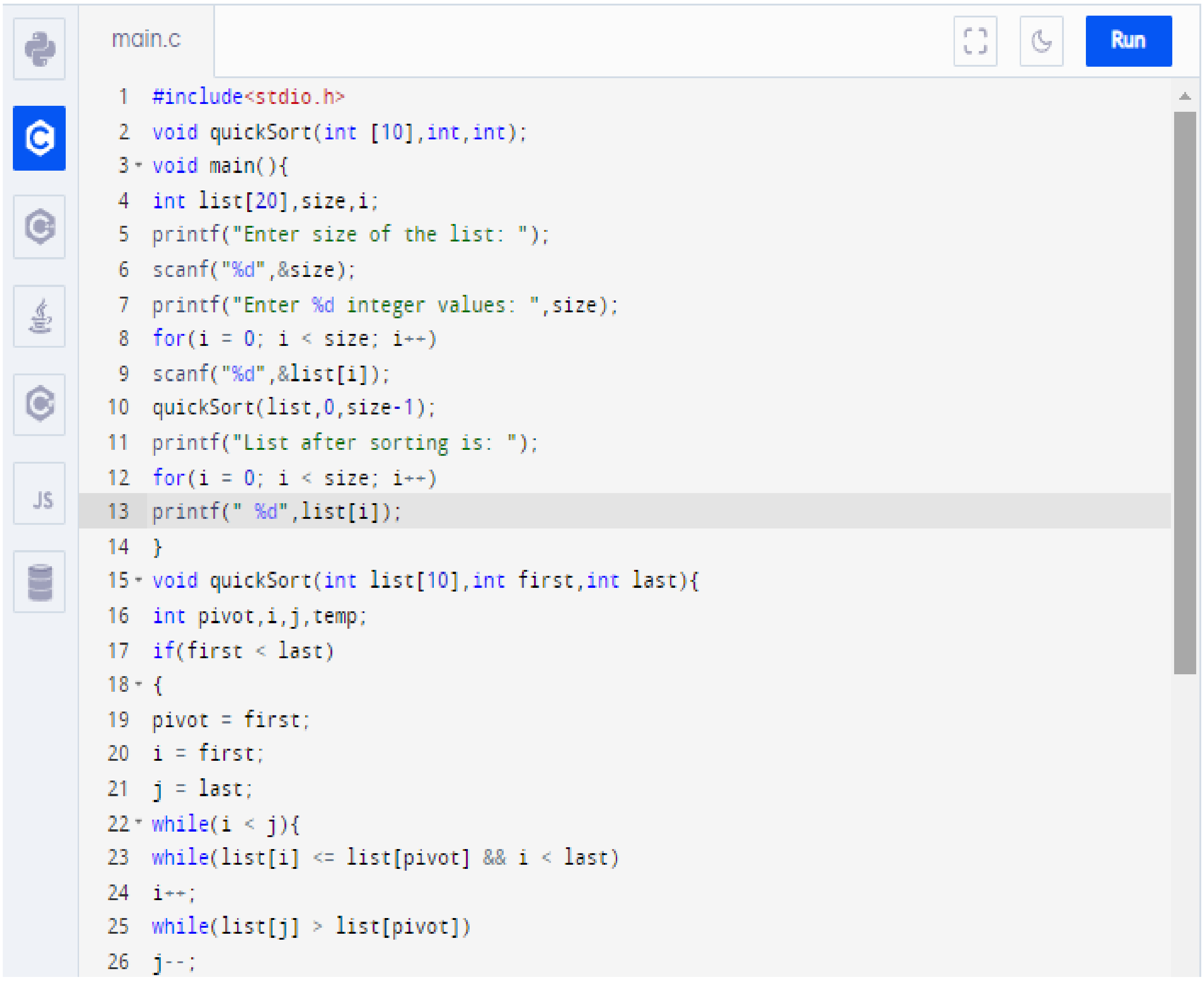
```c
#include<stdio.h>
void main(){
int list[20],size,i,sElement;
printf("Enter size of the list: ");
scanf("%d",&size);
printf("Enter any %d integer values: ",size);
for(i = 0; i < size; i++)
scanf("%d",&list[i]);
printf("Enter the element to be Search: ");
scanf("%d",&sElement);
for(i = 0; i < size; i++)
{
if(sElement == list[i])
{
printf("Element is found at %d index", i);
break;
}
}
if(i == size)
printf("Given element is not found in the list!!!");
}
```

Output:

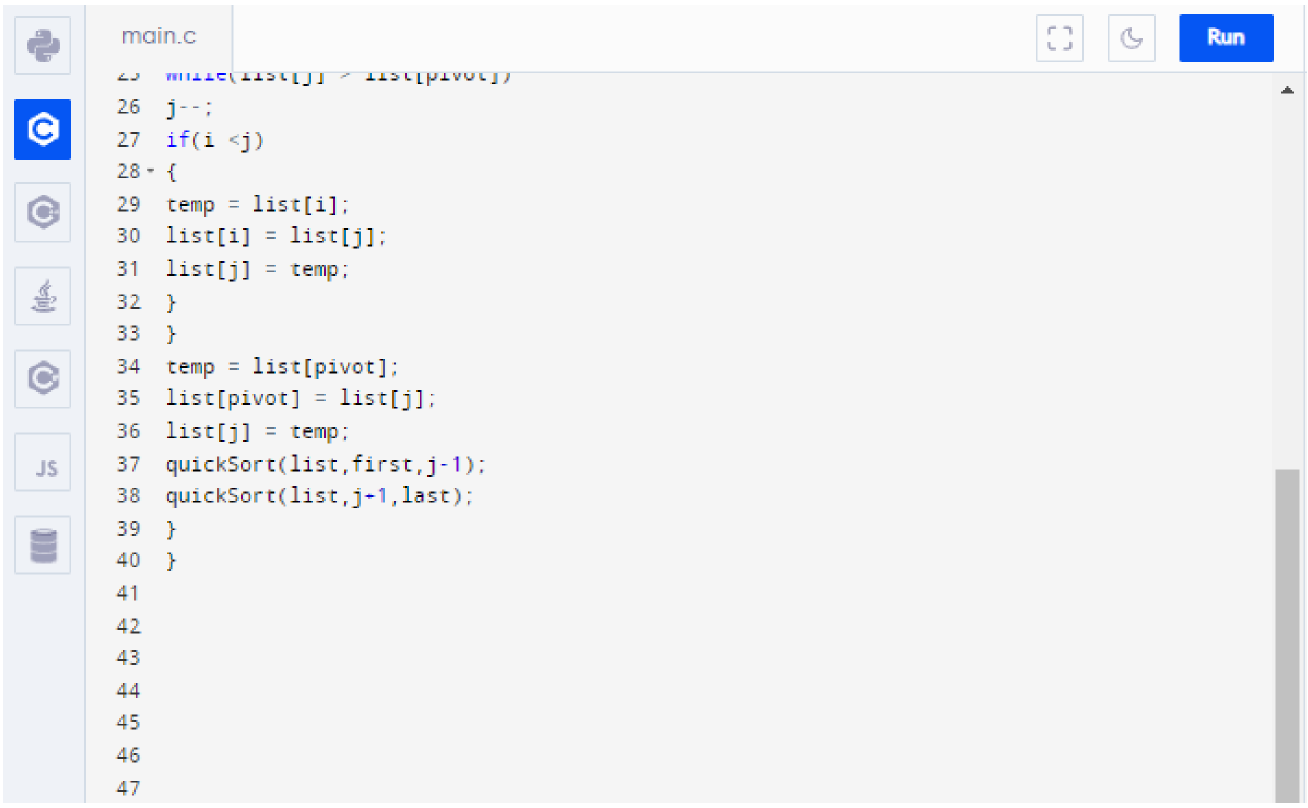


```
/tmp/MhkJeqhMuJ.o
Enter size of the list: 5
Enter any 5 integer values: 9
2
56
72
49
Enter the element to be Search: 72
Element is found at 3 index
```

Program:

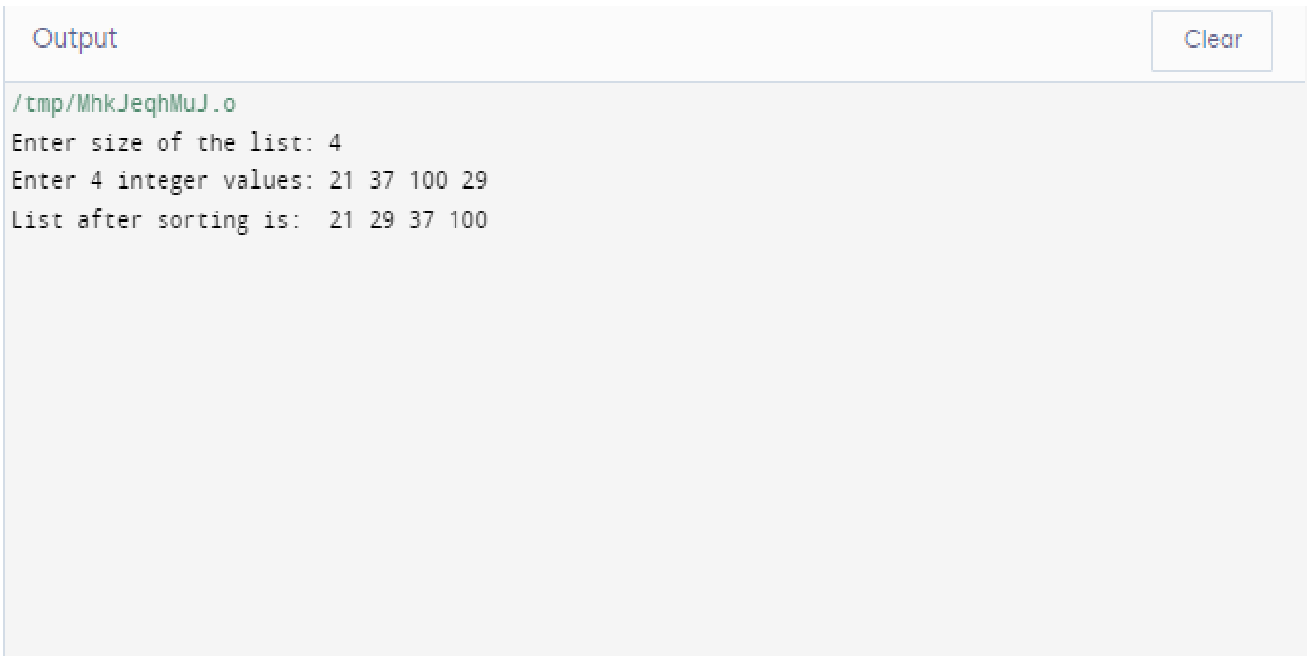


```
#include<stdio.h>
void quickSort(int [10],int,int);
void main(){
int list[20],size,i;
printf("Enter size of the list: ");
scanf("%d",&size);
printf("Enter %d integer values: ",size);
for(i = 0; i < size; i++)
scanf("%d",&list[i]);
quickSort(list,0,size-1);
printf("List after sorting is: ");
for(i = 0; i < size; i++)
printf(" %d",list[i]);
}
void quickSort(int list[10],int first,int last){
int pivot,i,j,temp;
if(first < last)
{
pivot = first;
i = first;
j = last;
while(i < j){
while(list[i] <= list[pivot] && i < last)
i++;
while(list[j] > list[pivot])
j--;
```



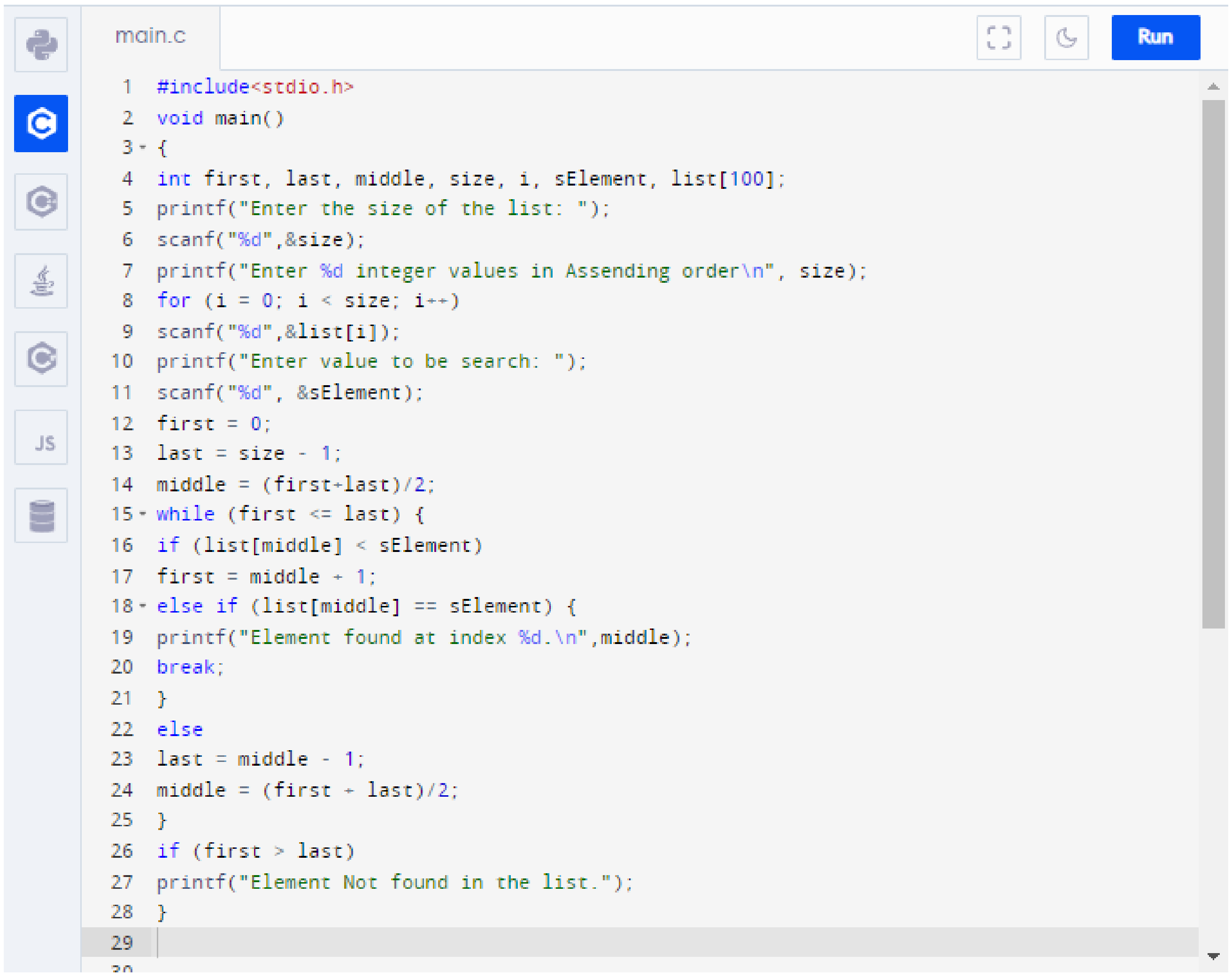
```c
while(list[j] > list[pivot])
j--;
if(i <j)
{
temp = list[i];
list[i] = list[j];
list[j] = temp;
}
}
temp = list[pivot];
list[pivot] = list[j];
list[j] = temp;
quickSort(list,first,j-1);
quickSort(list,j+1,last);
}
}
```

Output:



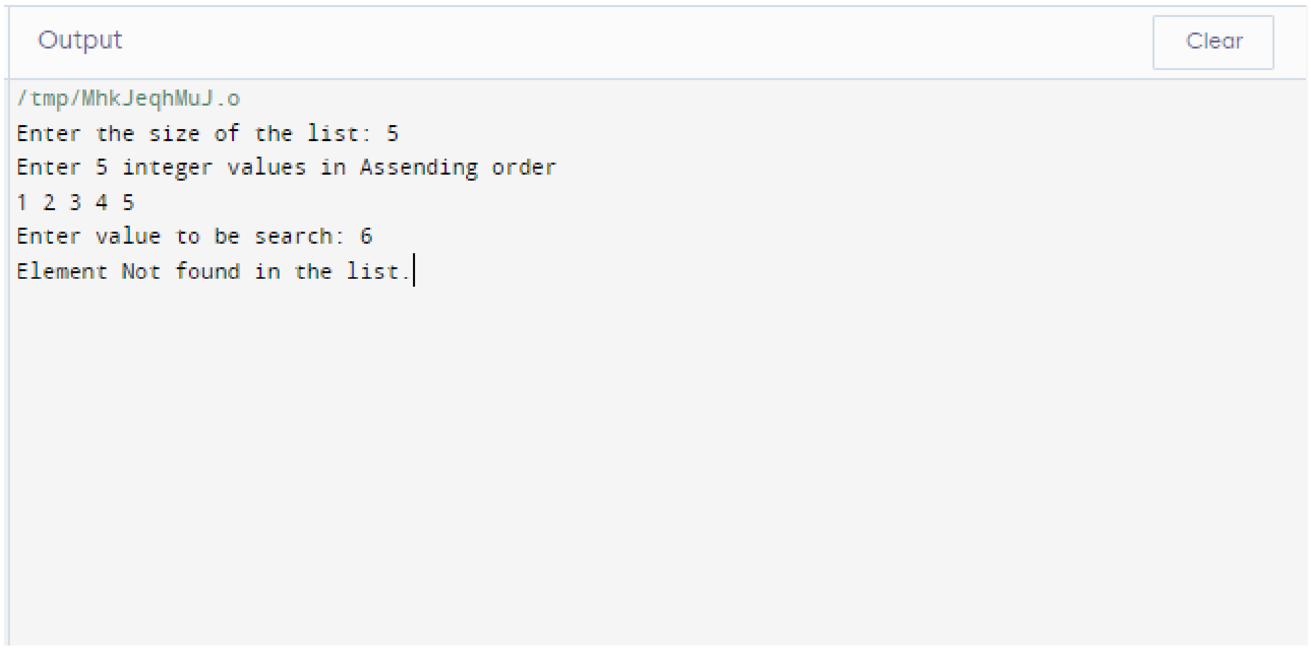
```
/tmp/MhkJeqhMuJ.o
Enter size of the list: 4
Enter 4 integer values: 21 37 100 29
List after sorting is:  21 29 37 100
```

Program:



```c
#include<stdio.h>
void main()
{
int first, last, middle, size, i, sElement, list[100];
printf("Enter the size of the list: ");
scanf("%d",&size);
printf("Enter %d integer values in Assending order\n", size);
for (i = 0; i < size; i++)
scanf("%d",&list[i]);
printf("Enter value to be search: ");
scanf("%d", &sElement);
first = 0;
last = size - 1;
middle = (first+last)/2;
while (first <= last) {
if (list[middle] < sElement)
first = middle + 1;
else if (list[middle] == sElement) {
printf("Element found at index %d.\n",middle);
break;
}
else
last = middle - 1;
middle = (first + last)/2;
}
if (first > last)
printf("Element Not found in the list.");
}
```

Output:



```
/tmp/MhkJeqhMuJ.o
Enter the size of the list: 5
Enter 5 integer values in Assending order
1 2 3 4 5
Enter value to be search: 6
Element Not found in the list.
```