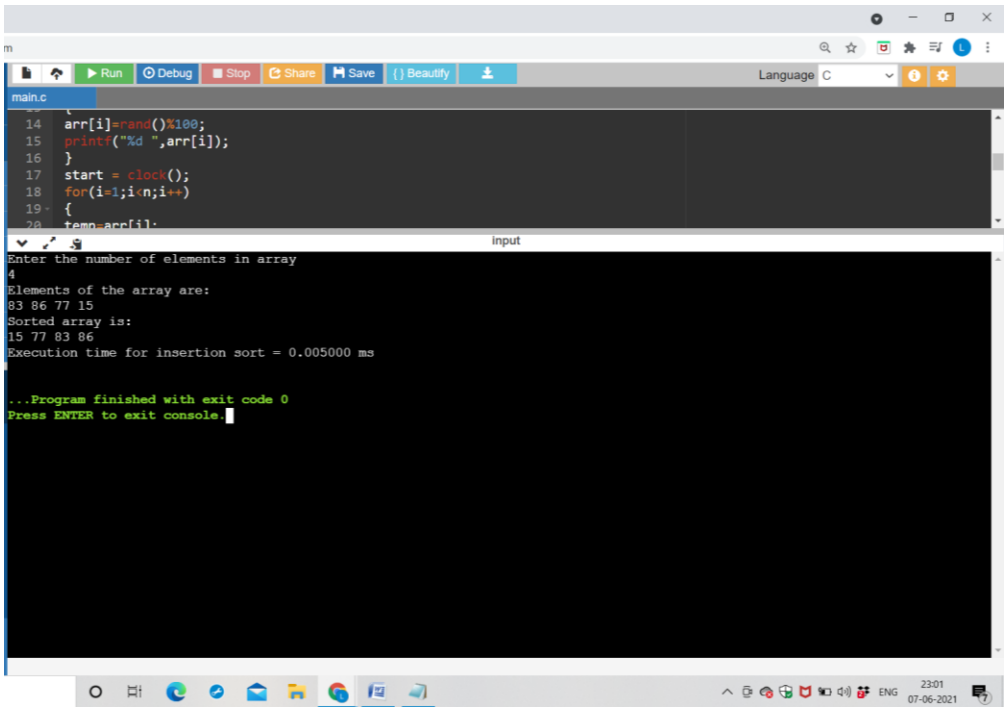
LAB PROGRAM 6-1

```
#include<stdio.h>
#include <stdlib.h>
#include <time.h>
clock_t start, end;
double cpu_time;
int main()
{
 int i,j,temp,n,arr[10000];
 printf("Enter the number of elements in array \n");
 scanf("%d", &n);
 printf("Elements of the array are:\n");
 for (i= 0; i<n; i++)
 {
 arr[i]=rand()%100;
 printf("%d ",arr[i]);
 }
 start = clock();
 for(i=1;i<n;i++)
 {
 temp=arr[i];
```

```
 j=i-1;
 while(j>=0 && arr[j]>temp)
 {
 arr[j+1]=arr[j];
 j=j-1;
 }
 arr[j+1]=temp;
 }
 end = clock();
 cpu_time = (double)(end - start) / CLOCKS_PER_SEC;
 printf("\nSorted array is:\n");
 for(i=0;i<n;i++)
 {
 printf("%d ",arr[i]);
 }
 printf("\nExecution time for insertion sort = %f ms\n", cpu_time*1000);
}
```

OUTPUT-


Run
Debug
Stop
Share
Save
{ } Beautify
Language C
main.c
arr[i]=rand()%100;
printf("%d ",arr[i]);
}
start = clock();
for(i=1;i<n;i++)
{
input
Enter the number of elements in array
4
Elements of the array are:
83 86 77 15
Sorted array is:
15 77 83 86
Execution time for insertion sort = 0.005000 ms
...Program finished with exit code 0
Press ENTER to exit console.
ENG
23:01
07-06-2021