

## 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-

The image shows a web-based IDE with a C program being executed. The code in the editor is as follows:

```
main.c
14 arr[i]=rand()%100;
15 printf("%d ",arr[i]);
16 }
17 start = clock();
18 for(i=1;i<n;i++)
19 {
20 temp=arr[i];
```

The console output shows the program's execution:

```
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.
```

The IDE interface includes a top toolbar with buttons for Run, Debug, Stop, Share, Save, and Beautify. The language is set to C. The bottom status bar shows the system clock as 23:01 on 07-06-2021.