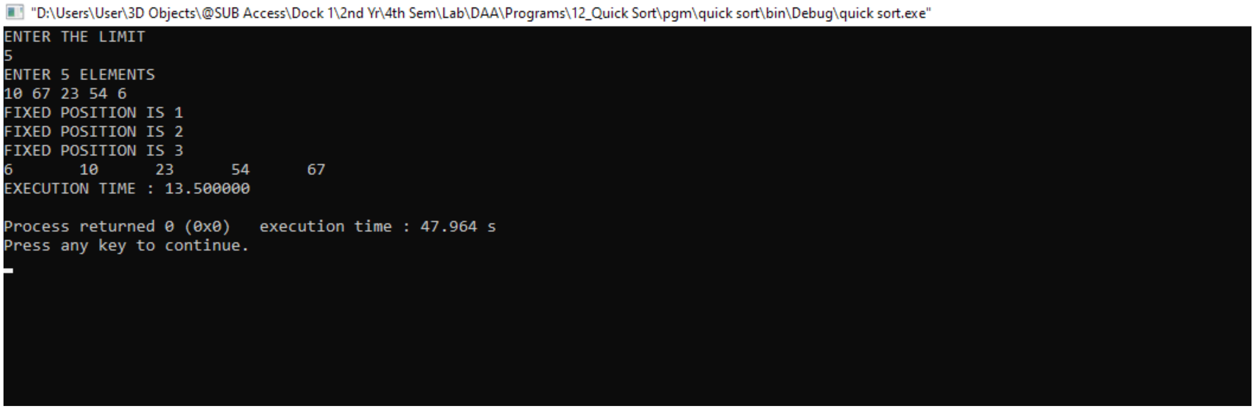
//program to implement quick sort

```
#include<stdio.h>

#include<stdlib.h>

#include<time.h>

int main()

{

   int a[20],i,n;

   clock_t start,end;

   double t;

   printf("ENTER THE LIMIT\n");

   scanf("%d",&n);

   printf("ENTER %d ELEMENTS\n",n);

   start=clock();

   for(i=0;i<n;i++)

      scanf("%d",&a[i]);

   quicksort(a,0,n-1);

   for(i=0;i<n;i++)

      printf("%d\t",a[i]);

   end=clock();

   t=(double)(end-start)/CLOCKS_PER_SEC;

   printf("\nEXECUTION TIME : %f\n",t);

   return 0;


}

void quicksort(int a[],int l,int r)

{

   int s;

   if(l<r)

   {
        s=partition(a,l,r);
        printf("FIXED POSITION IS %d\n",s);
        quicksort(a,l,s-1);
        quicksort(a,s+1,r);
    }
    return;
}
int partition(int a[],int l,int r)
{
    int temp,var;
    int p=a[l];
    int i=l;
    int j=r+1;
    do
    {
        do
            {
                i=i+1;
            }while(a[i]<p && i<r);
        do
            {
                j=j-1;
            }while(a[j]>p && j>l);
        temp=a[i];
        a[i]=a[j];
        a[j]=temp;

    }while(j>i);
    temp=a[i];
```

```
   a[i]=a[j];

   a[j]=temp;


   var=a[j];

   a[j]=a[l];

   a[l]=var;

   return j;

}
```

Output:



"D:\Users\User\3D Objects\@SUB Access\Dock 1\2nd Yr\4th Sem\Lab\DAA\Programs\12_Quick Sort\pgm\quick sort\bin\Debug\quick sort.exe"

```
ENTER THE LIMIT
5
ENTER 5 ELEMENTS
10 67 23 54 6
FIXED POSITION IS 1
FIXED POSITION IS 2
FIXED POSITION IS 3
6       10      23      54      67
EXECUTION TIME : 13.500000

Process returned 0 (0x0)   execution time : 47.964 s
Press any key to continue.
```