QUICK SORT:

```
#include<stdio.h>
#include<time.h>
#include<stdlib.h>
void quicksort(int number[25],int first,int last){
   int i, j, pivot, temp;

   if(first<last){
      pivot=first;
      i=first;
      j=last;

      while(i<j){
         while(number[i]<=number[pivot]&&i<last)
            i++;
         while(number[j]>number[pivot])
            j--;
         if(i<j){
            temp=number[i];
            number[i]=number[j];
            number[j]=temp;
         }
      }

      temp=number[pivot];
      number[pivot]=number[j];
      number[j]=temp;
      quicksort(number,first,j-1);
      quicksort(number,j+1,last);

   }
}

int main(){
   int i, count, number[25];
   clock_t start,end;

   printf("Enter size of array: ");
   scanf("%d",&count);

   printf("Enter %d elements: ", count);
   for(i=0;i<count;i++)
      scanf("%d",&number[i]);
start = clock();
```

```
   quicksort(number,0,count-1);
   end = clock();

   printf("Order of Sorted elements: ");
   for(i=0;i<count;i++)
      printf(" %d",number[i]);

      printf("\n Time taken to sort %d numbers is %f Secs",count,
(((double)(end-start))/CLOCKS_PER_SEC));

     int n=500,a[15000];
while(n<=14500) {
for(i=0;i<n;i++)
{
a[i]=n-i;

}
start=clock();
quicksort(a,0,n-1);
//Dummy loop to create delay
// for(j=0;j<500000;j++){ temp=38/600;}
end=clock();
printf("\n Time taken to sort %d numbers is %f Secs",n,
(((double)(end-start))/CLOCKS_PER_SEC));
n=n+1000;
}
   return 0;
}
```

OUTPUT:

```
User@PRATHIKSHA /c/ada lab
$ cd "/c/ada lab/" && gcc quick_sort.c -o quick_sort && "/c/ada lab/"quick_sort
Enter size of array: 5
Enter 5 elements: 2 0 -1 3 2
Order of Sorted elements:  -1 0 2 2 3
 Time taken to sort 5 numbers is 0.000000 Secs
 Time taken to sort 500 numbers is 0.001000 Secs
 Time taken to sort 1500 numbers is 0.004000 Secs
 Time taken to sort 2500 numbers is 0.017000 Secs
 Time taken to sort 3500 numbers is 0.037000 Secs
 Time taken to sort 4500 numbers is 0.054000 Secs
 Time taken to sort 5500 numbers is 0.074000 Secs
 Time taken to sort 6500 numbers is 0.097000 Secs
 Time taken to sort 7500 numbers is 0.130000 Secs
 Time taken to sort 8500 numbers is 0.164000 Secs
 Time taken to sort 9500 numbers is 0.208000 Secs
 Time taken to sort 10500 numbers is 0.178000 Secs
 Time taken to sort 11500 numbers is 0.180000 Secs
 Time taken to sort 12500 numbers is 0.299000 Secs
 Time taken to sort 13500 numbers is 0.249000 Secs
 Time taken to sort 14500 numbers is 0.358000 Secs
User@PRATHIKSHA /c/ada lab
```