

Sort a given set of N integer elements using Quick Sort technique and compute its time taken

```
#include <stdio.h>
#include <stdlib.h>
#include <time.h>
```

```
int arr[1000000];
```

```
void swap(int arr[], int index1,int index2){
    int temp= arr[index1];
    arr[index1] = arr[index2];
    arr[index2]=temp;
}
```

```
int partition(int arr[] ,int start , int end){
    int pivot = arr[end];
    int g = start-1;

    for(int i=start ; i<=end;i++){

        if(arr[i] <= pivot){
            g++;
            swap(arr,i,g);
        }

    }
    return g;
}
```

```
void quicksort(int arr[] , int start , int end){

    for(int i=0;i<800;i++)
    {
        for(int i=0;i<400;i++)
        {

        }
    }
    if(start>=end)
```

```

        return;

    int boundary = partition(arr, start , end);
    quicksort(arr ,start ,boundary-1);
    quicksort(arr ,boundary+1,end);

}

void printArray(int arr[], int n)
{
    int i;
    for (i = 0; i < n; i++)
        printf("%d ", arr[i]);
    printf("\n");
}

int main()
{
    time_t start, end;
    int n;
    srand(time(0));
    printf("Enter the no of elements \n");
    scanf("%d", &n);

    for (int i = 0; i < n; i++)
    {
        arr[i] = rand();
    }

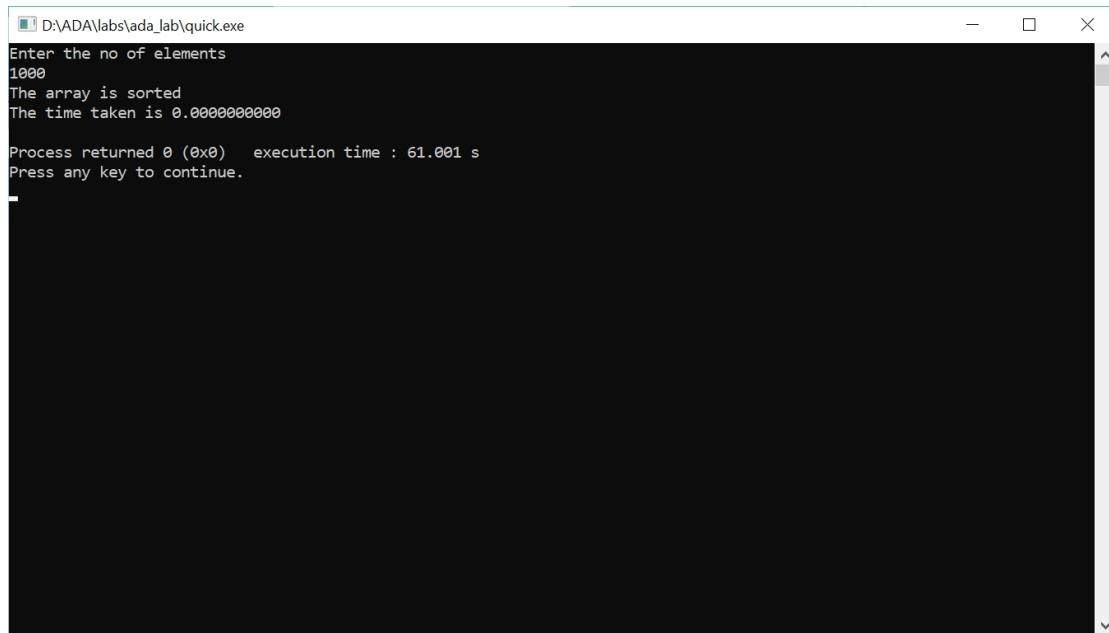
    start = time(NULL);
    quicksort(arr,0,n-1);
    end = time(NULL);

    printf("The array is sorted\n");
    // printf("The sorted array is: \n");
    // printArray(arr, n);

    printf("The time taken is %.10f\n", difftime(end, start) /
CLOCKS_PER_SEC);

```

```
    return 0;  
}
```



A screenshot of a Windows command prompt window. The title bar shows the file path "D:\ADA\labs\ada\_lab\quick.exe". The window contains the following text: "Enter the no of elements", "1000", "The array is sorted", "The time taken is 0.000000000", "Process returned 0 (0x0) execution time : 61.001 s", and "Press any key to continue.". The text is displayed in a monospaced font on a black background.

```
D:\ADA\labs\ada_lab\quick.exe  
Enter the no of elements  
1000  
The array is sorted  
The time taken is 0.000000000  
Process returned 0 (0x0) execution time : 61.001 s  
Press any key to continue.
```