main.c

```c
#include<stdio.h>
#include<stdlib.h>
#include<time.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(){
clock_t start,end;double tu,t[5];
   int i,j,temp,count, number[25000];
   int ch;
   while(1)
{
printf("\n1:For manual entry of N value and array elements");
printf("\n2:To display time taken for sorting number of elements N in the range 500 to 14500");
printf("\n3:To exit");
printf("\nEnter your choice:");
scanf("%d", &ch);
switch(ch)
{
case 1:printf("Enter number of elements : ");
   scanf("%d",&count);
   printf("Enter %d elements: ", count);
   start=clock();
   for(i=0;i<count;i++)
      scanf("%d",&number[i]);
```

main.c

```
39      scanf("%d",&count);
40      printf("Enter %d elements: ", count);
41      start=clock();
42      for(i=0;i<count;i++)
43         scanf("%d",&number[i]);
44      quicksort(number,0,count-1);
45      end=clock();
46      tu=((double)(end-start))/CLOCKS_PER_SEC;
47      printf("Order of Sorted elements: ");
48      for(i=0;i<count;i++)
49         printf(" %d",number[i]);
50       printf("\nTime used %lfs",tu);
51    break;
52    case 2:
53    count=500;
54    while(count<=14500) {
55    for(i=0;i<count;i++)
56    {
57    number[i]=count-i;
58    }
59    start=clock();
60    quicksort(number,0,count-1);
61    for(j=0;j<145000;j++){ temp=38/600;}
62    end=clock();
63    printf("\n Time taken to sort %d numbers is %f Secs",count, (((double)
      (end-start))/CLOCKS_PER_SEC));
64    count=count+500;
65    }
66    break;
67    case 3: exit(0);
68    }
69    getchar();
70    }
71    return 0;
72    }
```

```
> ./main

1:For manual entry of N value and array elements
2:To display time taken for sorting number of elements N in the range 500 to 14500
3:To exit
Enter your choice:2

 Time taken to sort 500 numbers is 0.000832 Secs
 Time taken to sort 1000 numbers is 0.002114 Secs
 Time taken to sort 1500 numbers is 0.003355 Secs
 Time taken to sort 2000 numbers is 0.005612 Secs
 Time taken to sort 2500 numbers is 0.008198 Secs
 Time taken to sort 3000 numbers is 0.012018 Secs
 Time taken to sort 3500 numbers is 0.015733 Secs
 Time taken to sort 4000 numbers is 0.018926 Secs
 Time taken to sort 4500 numbers is 0.027957 Secs
 Time taken to sort 5000 numbers is 0.030553 Secs
 Time taken to sort 5500 numbers is 0.039911 Secs
 Time taken to sort 6000 numbers is 0.054334 Secs
 Time taken to sort 6500 numbers is 0.067072 Secs
 Time taken to sort 7000 numbers is 0.062993 Secs
 Time taken to sort 7500 numbers is 0.078162 Secs
 Time taken to sort 8000 numbers is 0.086576 Secs
 Time taken to sort 8500 numbers is 0.089768 Secs
 Time taken to sort 9000 numbers is 0.125848 Secs
 Time taken to sort 9500 numbers is 0.157373 Secs
 Time taken to sort 10000 numbers is 0.158882 Secs
 Time taken to sort 10500 numbers is 0.190174 Secs
 Time taken to sort 11000 numbers is 0.202810 Secs
 Time taken to sort 11500 numbers is 0.214512 Secs
 Time taken to sort 12000 numbers is 0.240538 Secs
 Time taken to sort 12500 numbers is 0.263307 Secs
 Time taken to sort 13000 numbers is 0.279305 Secs
 Time taken to sort 13500 numbers is 0.303958 Secs
 Time taken to sort 14000 numbers is 0.332165 Secs
 Time taken to sort 14500 numbers is 0.352880 Secs
1:For manual entry of N value and array elements
2:To display time taken for sorting number of elements N in the range 500 to 14500
3:To exit
Enter your choice:1
Enter number of elements : 5
Enter 5 elements: 34 12 54 43 11
Order of Sorted elements:  11 12 34 43 54
Time used 0.000047s
1:For manual entry of N value and array elements
2:To display time taken for sorting number of elements N in the range 500 to 14500
3:To exit
Enter your choice:
```