main.c

```c
#include<stdio.h>
#include<stdlib.h>
#include<conio.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)
```

main.c

```
{
printf("\n1:For entering manually 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]);
    quicksort(number,0,count-1);
    end=clock();
    tu=((double)(end-start))/CLOCKS_PER_SEC;
    printf("Order of Sorted elements: ");
    for(i=0;i<count;i++)
        printf(" %d",number[i]);
     printf("\nTime used %lfs",tu);
break;
case 2:
count=500;
while(count<=14500) {
for(i=0;i<count;i++)
{
number[i]=count-i;
}
start=clock();
```

main.c

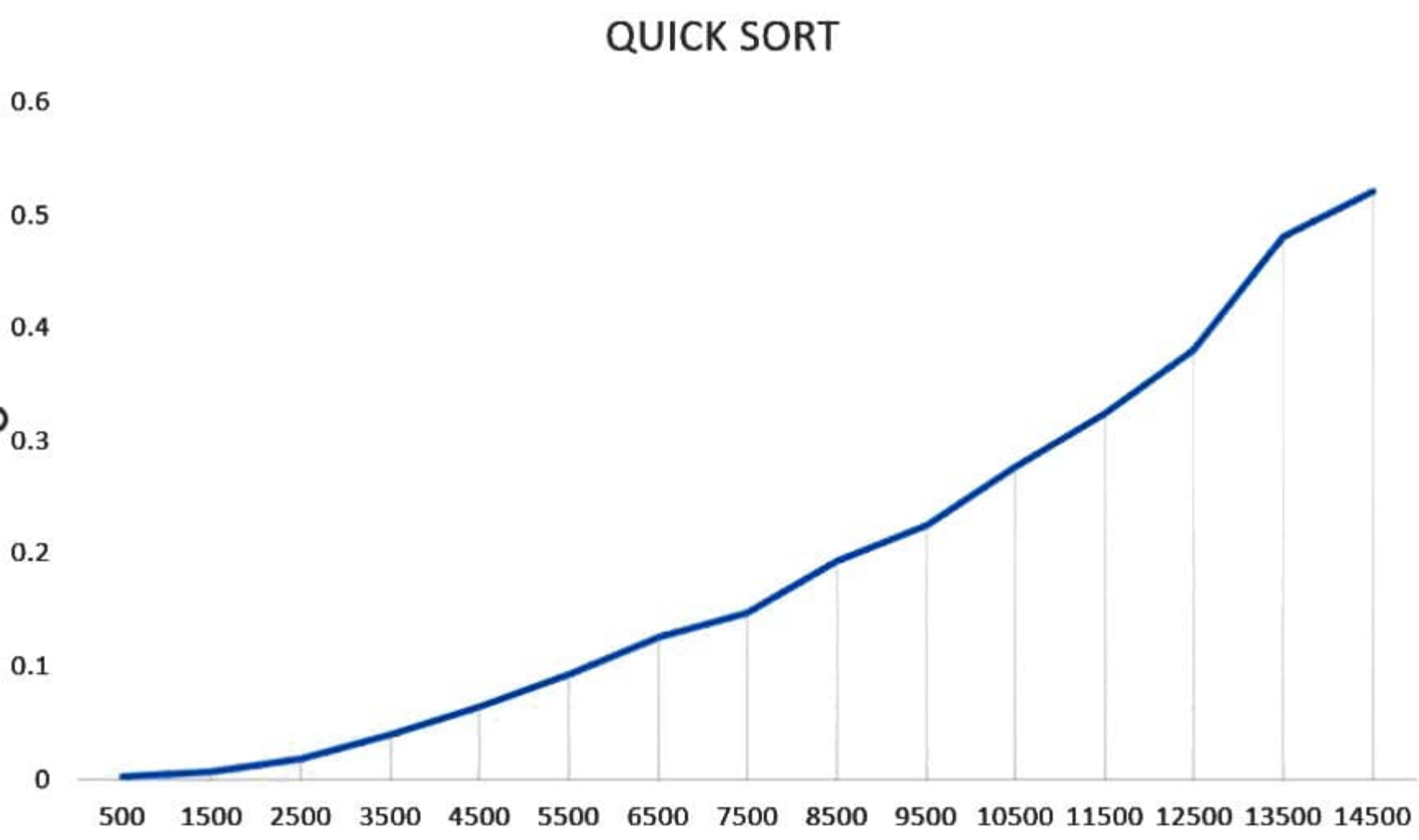
```
45      quicksort(number,0,count-1);
46      end=clock();
47      tu=((double)(end-start))/CLOCKS_PER_SEC;
48      printf("Order of Sorted elements: ");
49      for(i=0;i<count;i++)
50          printf(" %d",number[i]);
51       printf("\nTime used %lfs",tu);
52  break;
53  case 2:
54  count=500;
55  while(count<=14500) {
56  for(i=0;i<count;i++)
57  {
58  number[i]=count-i;
59  }
60  start=clock();
61  quicksort(number,0,count-1);
62  //Dummy loop to create delay
63  for(j=0;j<145000;j++){ temp=38/600;}
64  end=clock();
65  printf("\n Time taken to sort %d numbers is %f Secs",count, (((double)(end-start))/CLOCKS_PER_SEC));
66  count=count+500;
67  }
68  break;
69  case 3: exit(0);
70  }
71  getchar();
72  }
73  return 0;
74  }
```

input

```
48      printf("Order of Sorted elements: ");
```

input

```
1:For entering manually 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: 2
5
3
6
4
Order of Sorted elements:  2 3 4 5 6
Time used 0.000121s
1:For entering manually 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:
```


QUICK SORT
0.6
0.5
0.4
0.3
0.2
0.1
0
500
1500
2500
3500
4500
5500
6500
7500
8500
9500
10500
11500
12500
13500
14500