

/* 6. Write a Program to Sort a given set of elements using quick sort algorithm. Repeat the experiment for different values of n, the number of elements in the list to be sorted and plot a graph of the time taken versus n. */

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

void quicksort(int A[10],int low,int high)
{
    int j;
    if(low<high)
    {
        j=partition(A,low,high);
        quicksort(A,low,j-1);
        quicksort(A,j+1,high);
    }
}

int partition(int A[10],int low,int high)
{
    int pivot,j,temp,i;
    pivot=low;
    i=low;
    j=high;
    delay(1000);
    while(i<j)
    {
        while(i<high && A[i]<=A[pivot])
            i++;
        while(A[j]>A[pivot])
            j--;
        if(i<j)
        {
            temp=A[i];
            A[i]=A[j];
            A[j]=temp;
        }
    }
    temp=A[pivot];
    A[pivot]=A[j];
    A[j]=temp;
    return j;
}

void main()
{
    int i,n,A[10];
    clock_t st,et;
    clrscr();
    printf("Enter the number of elements of array:\n");
```

```

scanf("%d",&n);
printf("Enter the elements of the array:\n");
for(i=0;i<n;i++)
    scanf("%d",&A[i]);
st=clock();
quicksort(A,0,n-1);
et=clock();
printf("Sorted elements are:\n");
for(i=0;i<n;i++)
    printf("%d\t",A[i]);
printf("\nThe execution time is %lf milliseconds",(et-st)/CLK_TCK);
getch();
}

```

Output

```

Enter the number of elements of array:
8
Enter the elements of the array:
56 34 89 -90 23 45 78 2
Sorted elements are:
-90      2      23      34      45      56      78      89
The execution time is 5.000000 milliseconds

```