# QUICK SORT

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       /****    Program to Sort an Array using Quick Sort    ****/

#include <stdio.h>

void quick_sort(int [], int, int);
int partition(int [], int, int);

main()
{
     int a[50], n, i;

     printf("\nEnter size of an array: ");
     scanf("%d", &n);

     printf("\nEnter elements of an array:\n");
     for(i=0; i<n; i++)
          scanf("%d", &a[i]);

     quick_sort(a, 0, n-1);

     printf("\n\nAfter sorting:\n");
     for(i=0; i<n; i++)
          printf("\n%d", a[i]);

     getch();
}

void quick_sort(int a[], int beg, int end)
{
    int x;

    if (beg < end)
    {
         x = partition(a, beg, end);

         quick_sort(a, beg, x-1);
         quick_sort(a, x+1, end);
    }
}
```

```
int partition(int a[], int beg, int end)
{
     int loc = beg, temp;
     while (1)
     {
          while (a[loc]<=a[end] && loc!=end)      /* Scan from right to
                                                     left */
               end--;

          if (loc == end)
               return loc;

          temp = a[loc];
          a[loc] = a[end];
          a[end] = temp;

          loc = end;

          while (a[loc]>=a[beg] && loc!=beg)     /* Scan from left to
                                                     right */
               beg++;

          if (loc == beg)
               return loc;

          temp = a[loc];
          a[loc] = a[beg];
          a[beg] = temp;

          loc = beg;
     }
}
```