Quick Sort

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

int partition(int A[], int si, int ei)
{
   int i, j, pivot, temp;
   i = si + 1;
   pivot = A[si];
   j = ei;

   while (i <= j)
   {
      while (A[i] <= pivot)
         i++;
      while (A[j] > pivot)
         j--;

      if (i < j)
      {
         temp = A[i];
         A[i] = A[j];
         A[j] = temp;
      }
   }

   temp = A[si];
   A[si] = A[j];
   A[j] = temp;
   return j;
}

void quickSort(int A[], int si, int ei)
{
   int mid;
   if (si < ei)
   {
      mid = partition(A, si, ei);
      quickSort(A, si, mid - 1);
      quickSort(A, mid + 1, ei);
   }
}
```

```
int main()
{
    int n;
    int A[10];
    printf("\nEnter the number of elements: ");
    scanf("%d", &n);
    printf("\nEnter array elements\n");
    for (int i = 0; i < n; i++)
    {
        scanf("%d", &A[i]);
    }

    quickSort(A, 0, n - 1);
    for (int i = 0; i < n; i++)
    {
        printf("%d ", A[i]);
    }
}
```

```
Enter the number of elements: 5

Enter array elements
40
25
12
15
20
12 15 20 25 40
Process returned 0 (0x0)   execution time : 25.563 s
Press any key to continue.
```