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//write a program for sorting elements by using Quik sort
#include<stdio.h>

//for displaying elements in array
void display(int a[], int n)
{
    int i;
    printf("[ ");
    for (i = 0; i < n; i++)
    {
        printf("%d ,", a[i]);
    }
    printf(" ]\n");
}

int itr = 1;
//for sorting elements in array
void quik_sort(int a[], int L,int H)
{
    int pivote,low,high,temp;
    printf("Iteration %d:\n", itr);
    itr++;
    printf("L=%d,H=%d\n", L, H);
    pivote = a[L];
    low = L+1;
    high = H;

    printf("pivote=%d,low=%d,high=%d\n", pivote, low, high);
    while (low <= high)
    {
        while (a[low] < pivote)
        {
            low++;
            if (low > high)
            {
                break;
            }
        }
        while (a[high] > pivote)
        {
            high--;
            if (high < low)
            {
                break;
            }
        }
        if (low <= high)
        {
            temp = a[low];
            a[low] = a[high];
            a[high] = temp;
            low++;
            high--;
        }
    }
    temp = a[L];
    a[L] = a[high];
    a[high] = temp;

    if (L < high)
    {
        printf("if(L<high)\n");
        printf("quik_sort(arr,%d,%d)\n", L, high - 1);
    }
}

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        printf("\n\n");
        quik_sort(a, L, high - 1);
    }
    if (high < H)
    {
        printf("if(high<H)\n");
        printf("quik_sort(arr,%d,%d)\n",high +1,H);
        printf("\n\n");
        quik_sort(a, high + 1, H);
    }
}
void main()
{
    int a[20], i, n;

    printf("Please enter the number of element you want to insert\n");
    scanf_s("%d", &n);

    printf("Enter the number of element in Array\n");
    for (i = 0; i < n; i++)
    {
        scanf_s("%d", &a[i]);
    }

    quik_sort(a, 0,n-1);

    printf("Sorted array is :\n");
    display(a, n);
}

```