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| --- |
| /\* Description : Implementation of Quick Sort |
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|  | \*Created on : 14th september 2017 |
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|  |  |
|  | #include<stdio.h> |
|  | #define MAX 100 |
|  |  |
|  |  |
|  |  |
|  | int split(int arr[],int lower,int upper) |
|  | { |
|  | int pivot = lower,temp; |
|  | int a = pivot+1,b = upper; |
|  |  |
|  | while(b>=a) |
|  | { |
|  | while(arr[a] < arr[pivot]) |
|  | a++; |
|  | while(arr[b] > arr[pivot]) |
|  | b--; |
|  |  |
|  | if(b>a) |
|  | { |
|  | temp = arr[a]; |
|  | arr[a] = arr[b]; |
|  | arr[b] = temp; |
|  | } |
|  | } |
|  | temp = arr[b]; |
|  | arr[b] = arr[pivot]; |
|  | arr[pivot]=temp; |
|  |  |
|  |  |
|  | return b; |
|  | } |
|  |  |
|  | void Quick\_sort(int arr[],int lower,int upper) |
|  | { |
|  | int i; |
|  | if(upper>lower){ |
|  | i = split(arr,lower,upper); |
|  | Quick\_sort(arr,lower,i-1); |
|  | Quick\_sort(arr,i+1,upper); |
|  | } |
|  | } |
|  |  |
|  | int main() |
|  | { |
|  | int a[MAX],n,i; |
|  |  |
|  | printf("\nEnter the number of elements for array.\n"); |
|  | scanf("%d",&n); |
|  | if(n>100) |
|  | printf("SORRY.\nNumber of elements should be less than 100\n"); |
|  | else { |
|  | printf("Enter elements of array\n"); |
|  | for(i=0;i<n;i++) |
|  | { |
|  | scanf("%d",&a[i]); |
|  | } |
|  | printf("Entered array is:\n"); |
|  |  |
|  | for(i=0;i<n;i++) |
|  | { |
|  |  |
|  | printf("%d\t",a[i]); |
|  | } |
|  | printf("\n\n\n"); |
|  | Quick\_sort(a,0,n-1); |
|  | printf("Sorted array is:\n"); |
|  |  |
|  |  |
|  | for(i=0;i<n;i++){ |
|  |  |
|  | printf("%d\t",a[i]); |
|  | } |
|  | } |
|  | return 0; |
|  | } |
|  |  |
|  | /\* |
|  | Enter the number of elements for array. |
|  | 7 |
|  | Enter elements of array |
|  | 12 |
|  | 96 |
|  | 74 |
|  | 1 |
|  | 3 |
|  | 56 |
|  | 44 |
|  | Entered array is: |
|  | 12 96 74 1 3 56 44 |
|  |  |
|  |  |
|  | Sorted array is: |
|  | 1 3 12 44 56 74 96 |
|  |  |
|  | ------------------ |
|  | (program exited with code: 0) |
|  | Press return to continue |
|  |  |
|  |  |
|  |  |
|  | Enter the number of elements for array. |
|  | 101 |
|  | SORRY. |
|  | Number of elements should be less than 100 |
|  |  |
|  |  |
|  | ------------------ |
|  | (program exited with code: 0) |
|  | Press return to continue |
|  |  |
|  |  |
|  | \*/ |