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| --- | --- |
|  | /\* Description : Implementation of Binary Search |
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|  | \*Created on : 14th september 2017 |
|  | \*/ |
|  |  |
|  |  |
|  | #include<stdio.h> |
|  |  |
|  | #define MAX 100 |
|  |  |
|  | int binary\_search(int a[],int n,int x) |
|  | { |
|  | int mid = n/2; |
|  | int high = n-1,low=0; |
|  |  |
|  | while(high>=low) |
|  | { |
|  | if(a[mid]==x) |
|  | return mid; |
|  | if(x>a[mid]) |
|  | low = mid+1; |
|  | else |
|  | high = mid-1; |
|  |  |
|  | mid = (low+high)/2; |
|  | } |
|  | return -1; |
|  |  |
|  | } |
|  |  |
|  | int main() |
|  | { |
|  | int a[MAX],n,x,c,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]); |
|  | } |
|  | for(i=0;i<n;i++) |
|  | { |
|  | printf("%d\t",a[i]); |
|  | } |
|  |  |
|  | } |
|  | printf("\nENTER ELEMENT TO BE SEARCHED\n"); |
|  | scanf("%d",&x); |
|  | c = binary\_search(a,n,x); |
|  | if(c==-1){ |
|  | printf("ELEMENT CANNOT BE FOUND\n"); |
|  | } |
|  | else |
|  | printf("Element found at position : %d\n ",c); |
|  |  |
|  | return 0; |
|  |  |
|  | } |
|  |  |
|  | /\*Enter the number of elements for array. |
|  | 6 |
|  | Enter elements of array |
|  | 16 |
|  | 25 |
|  | 36 |
|  | 49 |
|  | 72 |
|  | 85 |
|  | 16 25 36 49 72 85 |
|  | ENTER ELEMENT TO BE SEARCHED |
|  | 49 |
|  | Element found at position : 3 |
|  |  |
|  | ------------------ |
|  | (program exited with code: 0) |
|  | Press return to continue |
|  |  |
|  | Enter the number of elements for array. |
|  | 6 |
|  | Enter elements of array |
|  | 12 |
|  | 26 |
|  | 34 |
|  | 49 |
|  | 57 |
|  | 89 |
|  | 12 26 34 49 57 89 |
|  | ENTER ELEMENT TO BE SEARCHED |
|  | 81 |
|  | ELEMENT CANNOT BE FOUND |
|  |  |
|  |  |
|  | ------------------ |
|  | (program exited with code: 0) |
|  | Press return to continue |
|  |  |
|  |  |
|  |  |
|  | \*/ |