TITLE 18

Write a C program for Binary search

OBJECTIVE:

Implementation of the binary search

PROBLEM STATEMENT:

To find the elements in an array using binary search

Enter the numbers:

Once input data is collected and sorted, the elements are stored in an array

ALGORITHM:

START

Define variables: First,i,Last,middle,n,search.

INPUT: input from user.

COMPUTATION: All the elements are entered and an array is formed

DISPLAY: Printing the elements and its index position.

STOP

PROGRAM:

#include <stdio.h>

int main()  
{  
  int i, First, Last, middle, n, search, array[100];

  printf("Enter number of elements:\n");  
  scanf("%d", &n);

  printf("Enter the %d numbers\n", n);

  for (i = 0; c < n; i++)  
    scanf("%d", &array[i]);

  printf("Enter value to find\n");  
  scanf("%d", &search);

  First = 0;  
  Last = n - 1;  
  middle = (First+Last)/2;

  while (First <= Last) {  
    if (array[middle] < search)  
      First = middle + 1;  
    else if (array[middle] == search) {  
      printf("%d found at location %d.\n", search, middle+1);  
      break;  
    }  
    else  
      Last = middle - 1;

    middle = (First + Last)/2;  
  }  
  if (First > Last)  
    printf("Not found! %d isn't present in the list.\n", search);

  return 0;  
}

CONCLUSION:

Simple algorithm to find the element using binary search helps me to understand the algorithms and their implementation.

OUTPUT:

Enter number of elements:

4

Enter the numbers:

1

10

3

2

Enter value to find

10

10 is at index 1