#include "stdio.h"

#include "stdlib.h"

#define MAX 200

int interpolation\_search(int a[], int bottom, int top, int item) {

 int mid;

 while (bottom <= top) {

  mid = bottom + (top - bottom)

    \* ((item - a[bottom]) / (a[top] - a[bottom]));

  if (item == a[mid])

   return mid + 1;

  if (item < a[mid])

   top = mid - 1;

  else

   bottom = mid + 1;

 }

 return -1;

}

int main() {

 int arr[MAX];

 int i, num;

 int item, pos;

 printf("\nEnter total elements (num< %d) : ", MAX);

 scanf("%d", &num);

 printf("Enter %d Elements : ", num);

 for (i = 0; i < num; i++)

  scanf("%d", &arr[i]);

 printf("\nELEMENTS ARE\n: ");

 for (i = 0; i < num; i++)

  printf("%d\t", arr[i]);

 printf("\nSearch For : ");

 scanf("%d", &item);

 pos = interpolation\_search(&arr[0], 0, num, item);

 if (pos == -1)

  printf("\nElement %d not found\n", item);

 else

  printf("\nElement %d found at position %d\n", item, pos);

 return 0;

}