BINARY SEARCH:

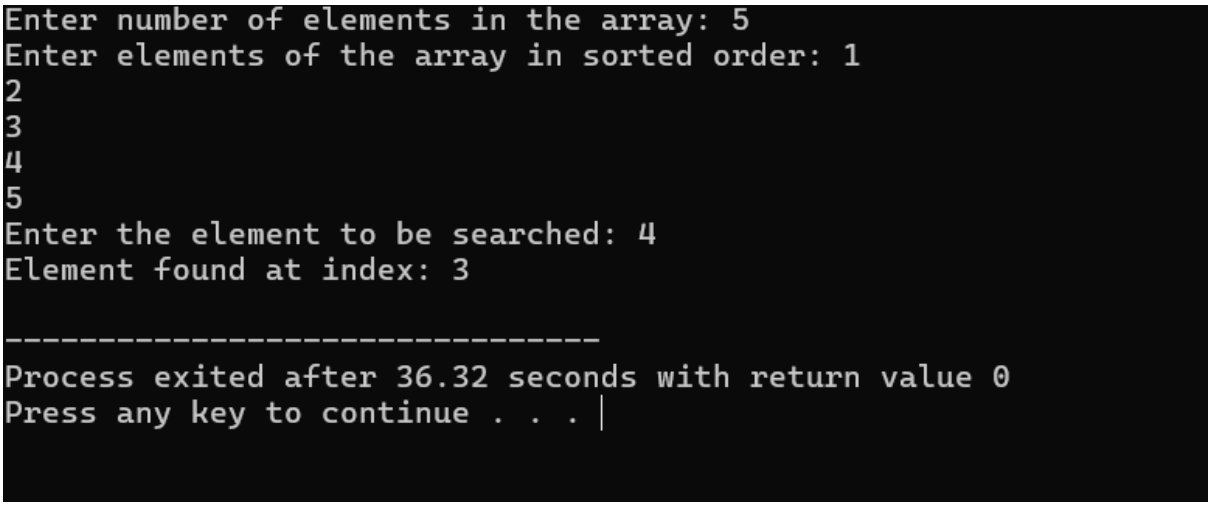
```
#include <stdio.h>

int binary(int a, int arr[], int n) {
   int M = 0, N = n - 1, mid;
   while (M <= N) {
      mid = M + (N - M) / 2;
      if (arr[mid] == a) {
         return mid;
      } else if (arr[mid] < a) {
         M = mid + 1;
      } else {
         N = mid - 1;
      }
   }
   return -1;
}

int main() {
   int n, x;
   printf("Enter number of elements in the array: ");
   scanf("%d", &n);
   int arr[n];
   printf("Enter elements of the array in sorted order: ");
   for (int i = 0; i < n; i++) {
      scanf("%d", &arr[i]);
   }
   printf("Enter the element to be searched: ");
   scanf("%d", &x);
   int z = binary(x, arr, n);
   if (z != -1)
```

```
        printf("Element found at index: %d\n", z);
    else
        printf("Element not found\n");
    return 0;
}
```

OUTPUT :

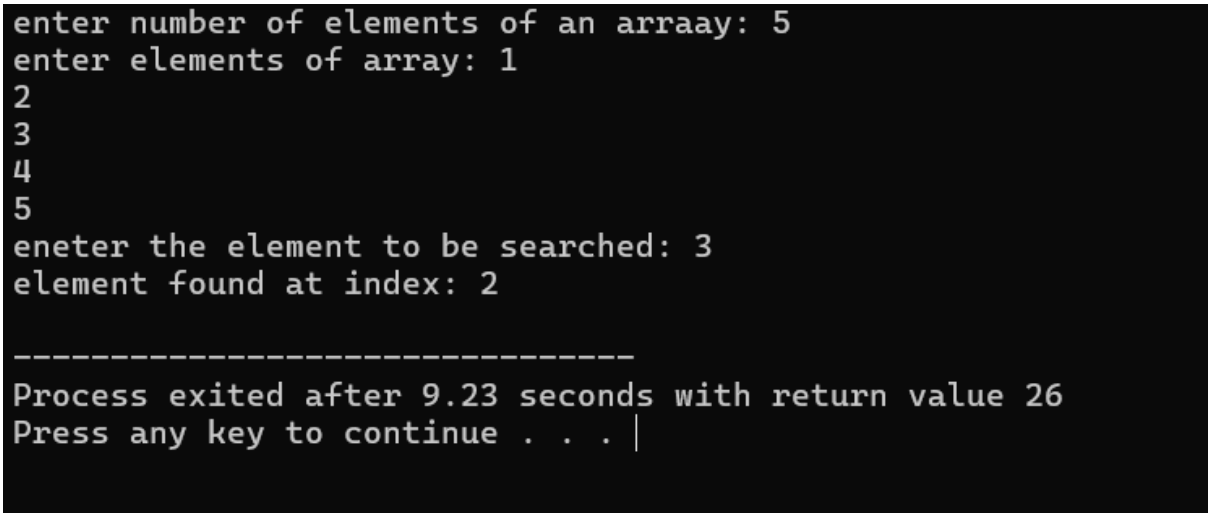


LINEAR SEARCH:

```
#include<stdio.h>


int linear( int arr[],int a, int n){
   for(int i = 0; i < n; i++){
      if(arr[i] == a){
         return i;
      }
   }
   return -1;
}
int main(){
   int n;
   printf("enter number of elements of an arraay: ");
   scanf("%d", &n);
   int arr[n];
   printf("enter elements of array: ");
   for(int i = 0; i < n; i++){
      scanf("%d", &arr[i]);
   }
   printf("eneter the element to be searched: ");
   int a;
   scanf("%d", &a);
   int z=linear(arr, a, n);
   if(z != -1) {
      return printf("element found at index: %d\n", z);
   } else {
      return printf("element not found\n");
   }
}
```

OUTPUT:


enter number of elements of an arraay: 5
enter elements of array: 1
2
3
4
5
eneter the element to be searched: 3
element found at index: 2

Process exited after 9.23 seconds with return value 26
Press any key to continue . . .