ASSIGNMENT

LINEAR SEARCH

1.ALGORITHM:

Linear Search (Array A, Value X)

Step 1: Set i to 1
Step 2: if i>n then go to step 7
Step 3: if A[i] = x then go to step 6
Step 4: set i to i + 1
Step 5: Go to step 2
Step 6: Print element x is found at index i and go to step 8
Step 7: Print element not found
Step 8: Exit

2.
TIME COMPLEXITY: Worst case- O(n)
Best case- O(1)
Average- O(n)

SPACE COMPLEXITY: The space complexity of Linear Search is O(1)

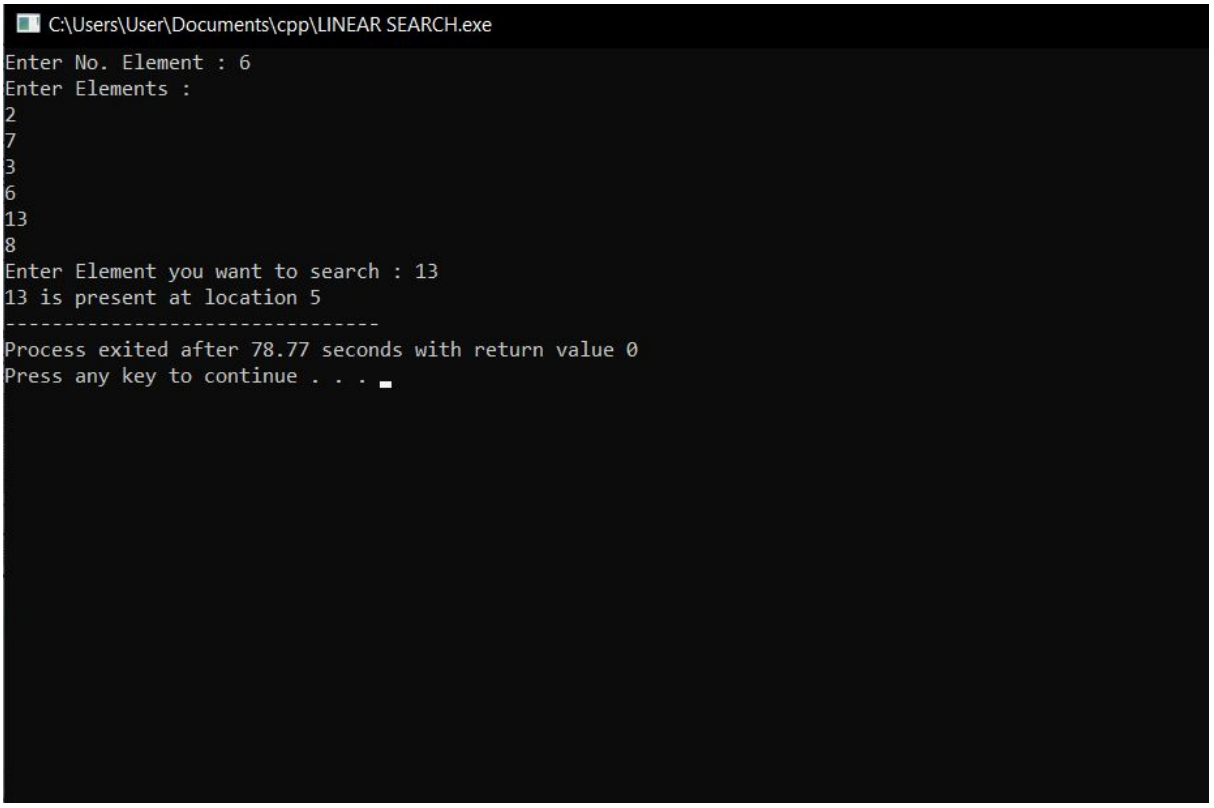
3.SOURCE CODE:

```
#include <iostream>
using namespace std;
int main() {
   int search, i, n=6;
   cout<<"Enter No. Element : ";
   cin>>n;

   int A[n];
   cout<<"Enter Elements :\n";
   for (i = 0; i < n; i++)
   {
                    cin>>A[i];
   }


  cout<<"Enter Element you want to search : ";
   cin>>search;
   for (i = 0; i < n; i++) {
      if (A[i] == search) {
         cout<<search<<" is present at location "<<i+1;
         break;
      }
   }
   if (i == n)
      cout<<"Element not found";
   return 0;
}
```

4.OUTPUT :


C:\Users\User\Documents\cpp\LINEAR SEARCH.exe
Enter No. Element : 6
Enter Elements :
2
7
3
6
13
8
Enter Element you want to search : 13
13 is present at location 5

Process exited after 78.77 seconds with return value 0
Press any key to continue . . .