DAA Assignment 1

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***Linear Search***

1. ***Algorithm***

**Step**1 Start.

**Step** 2: Input array elements.

**Step** 3: Input Key to be searched.

**Step** 4: Set i to 0.

**Step** 5: if a[i] = key go to **step** 8.

**Step** 6: Increment i (i++).

**Step** 7: if i<=len of array, go to **step** 5 else go to **step** 9.

**Step** 8: Print element found at location i+1 go to **step**10.

**Step** 9: Print element not found.

**Step** 10: Exit.

2. ***Time Complexity***

> Best Case : O(1) (if element found in first iteration)

> Worst Case : O(n) (if element found in last iteration/ not found)

3. ***Space Complexity : O(1)***

4. ***Code Implementation :***

#include<iostream>

using namespace std;

int main()

{

int n,x;

cout<<"Array Size: ";

cin>>n;

int a[n];

for(int i=0;i<n;i++)

cin>>a[i];

cout<<"Element to Search: ";

cin>>x;

for(int i=0;i<n;i++)

{

if(a[i]==x)

{

cout<<"Element found at position "<<i+1<<endl;

return 0;

}

}

cout<<"Element not found"<<endl;

return 0;

}

***Output:***

