

1. Linear Search

Theory -

- Here the given data is a linear array with N elements and item is a given item of information.
- If the element in array matches with the search element then return index value, otherwise return '-1'.

Algorithm -

This algorithm finds the location LOC of item in data or sets $LOC=0$ if the search is unsuccessful.

1. [Insert ITEM at the end of DATA] set $DATA[N+1]=ITEM$
2. [Initialize Counter] set $LOC=1$
3. [Search for ITEM]
Repeat while $DATA[LOC] \neq ITEM$
Set $LOC=LOC+1$
[END LOOP]
4. [Successful] If $LOC=N+1$, then set $LOC=0$
5. Exit

Process -

- * Let us take an array of 5 elements = {23, 45, 12, 78, 8}
- * Suppose the user want to find element 12 in the array. (p=12)
- * First iteration of loop -

$a[0] == p$

i.e. $23 == 12$

Not true

- * Second iteration of loop -

$a[1] == p$

i.e. $45 == 12$

Not true

- * Third iteration of loop -

$a[2] == p$

i.e. $12 == 12$

True

Hence we will get the elements as found and loop breaks

Code -

```
my_list = [1, 5, 8, 18, 25, 37]
```

```
pivot = int(input("Enter a number"))
```

```
for i in my_list:
```

```
    if pivot == i:
```

```
        flag = 1
```

```
        break
```

```
    else:
```

```
        flag = 0
```

```
if flag == 1:
```

```
    flag
```


OUTPUT -

Enter a number 35
ele not found

else:

Print("Element found")
Print("Ele not found")