### Data Structures

# Linear Search - Algorithm





## Linear Search - Algorithm

#### Data Structure - Linear Search

### Algorithm

#### Linear\_search(arr, key)

#### **Input Specification:**

arr : Array to hold the elements

key : Item to be searched

#### **Output Specification:**

pos : Positon of key element

-1 : Key is not found



### Linear\_search(arr,key)

arr[SIZE]

SIZE = 10

$$key = 6$$

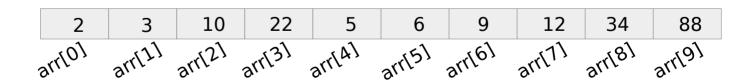
	2	3	10	22	5	6	9	12	34	88
7	arr[0]	arr[1]	arr[2]	arr[3]	arr[4]	arr[5]	arr[6]	arr[7]	arr[8]	arr[9]



```
pos = 0
while ( pos < SIZE)

If (arr[pos] == key )
    return pos
pos++
return -1</pre>
```

```
arr[SIZE] SIZE = 10 key = 6
```

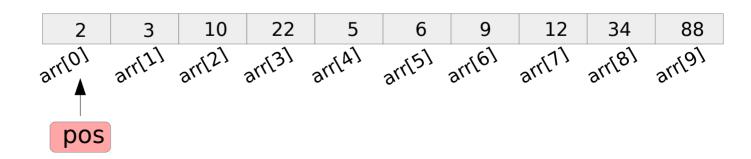




```
pos = 0
while ( pos < SIZE)

If (arr[pos] == key )
    return pos
    pos++
return -1</pre>
```

```
arr[SIZE] SIZE = 10 key = 6
```

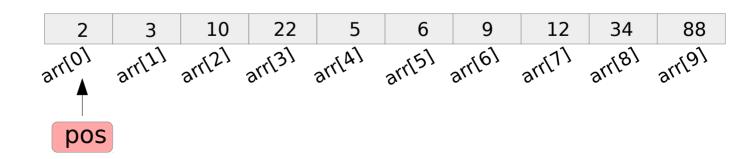




```
pos = 0
while ( pos < SIZE)

If (arr[pos] == key )
    return pos
    pos++
return -1</pre>
```

```
arr[SIZE] SIZE = 10 key = 6
```



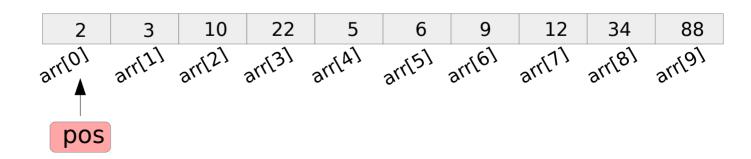


### Linear\_search(arr,key)

```
pos = 0
while ( pos < SIZE)

If (arr[pos] == key )
   return pos
  pos++
return -1</pre>
```

arr[SIZE] SIZE = 10 key = 6





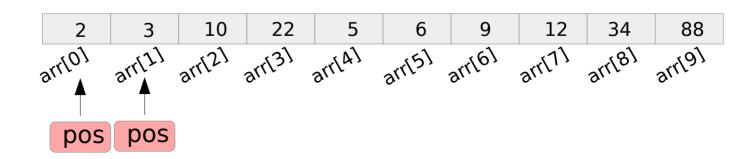
### Linear\_search(arr,key)

```
pos = 0
while ( pos < SIZE)

If (arr[pos] == key )
    return pos

pos++
return -1</pre>
```

arr[SIZE] SIZE = 10 key = 6

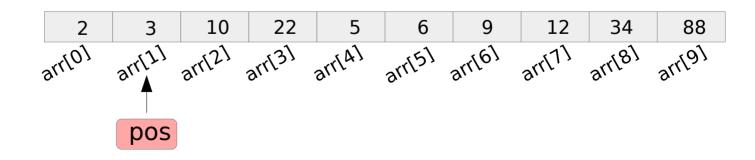




```
pos = 0
while ( pos < SIZE)

If (arr[pos] == key )
    return pos
    pos++
return -1</pre>
```

```
arr[SIZE] SIZE = 10 key = 6
```

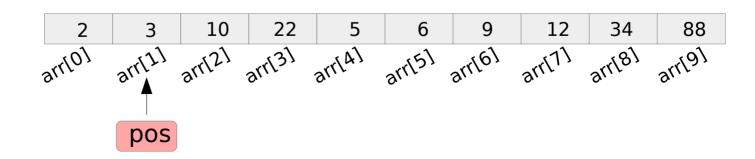




```
pos = 0
while ( pos < SIZE)

If (arr[pos] == key )
   return pos
  pos++
return -1</pre>
```

```
arr[SIZE] SIZE = 10 key = 6
```



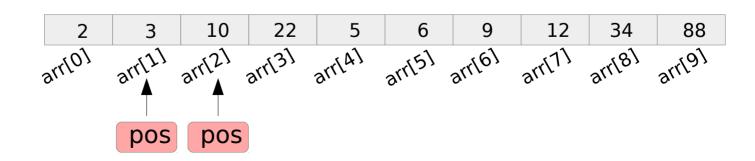


```
pos = 0
while ( pos < SIZE)

If (arr[pos] == key )
    return pos

pos++
return -1</pre>
```

```
arr[SIZE] SIZE = 10 key = 6
```

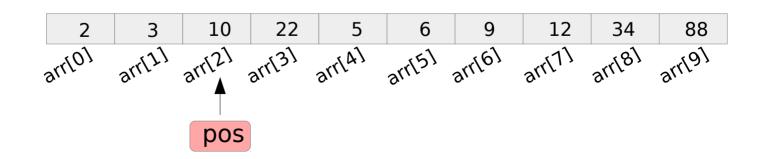




```
pos = 0
while ( pos < SIZE)

If (arr[pos] == key )
    return pos
    pos++
return -1</pre>
```

```
arr[SIZE] SIZE = 10 key = 6
```

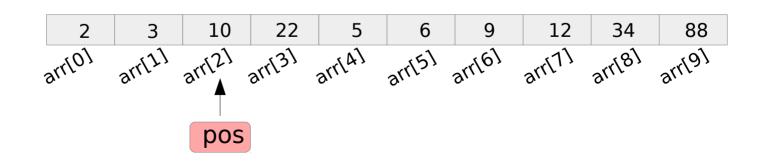




```
pos = 0
while ( pos < SIZE)

If (arr[pos] == key )
   return pos
  pos++
return -1</pre>
```

```
arr[SIZE] SIZE = 10 key = 6
```



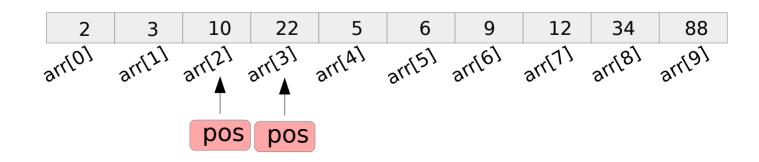


```
pos = 0
while ( pos < SIZE)

If (arr[pos] == key )
    return pos

pos++
return -1</pre>
```

```
arr[SIZE] SIZE = 10 key = 6
```

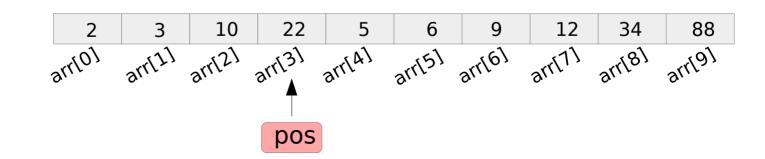




```
pos = 0
while ( pos < SIZE)

If (arr[pos] == key )
    return pos
    pos++
return -1</pre>
```

```
arr[SIZE] SIZE = 10 key = 6
```

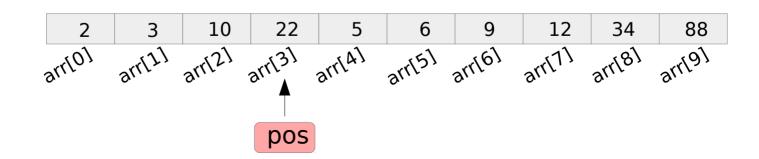




```
pos = 0
while ( pos < SIZE)

If (arr[pos] == key )
   return pos
  pos++
return -1</pre>
```

```
arr[SIZE] SIZE = 10 key = 6
```



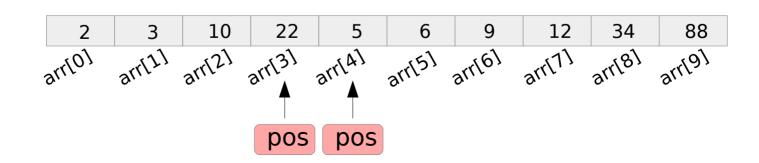


```
pos = 0
while ( pos < SIZE)

If (arr[pos] == key )
    return pos

pos++
return -1</pre>
```

```
arr[SIZE] SIZE = 10 key = 6
```

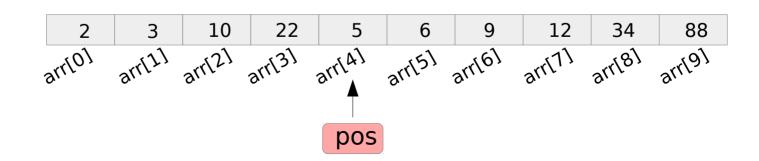




```
pos = 0
while ( pos < SIZE)

If (arr[pos] == key )
    return pos
    pos++
return -1</pre>
```

```
arr[SIZE] SIZE = 10 key = 6
```

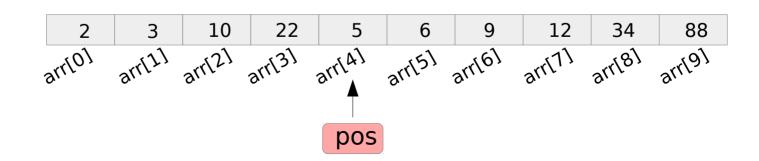




```
pos = 0
while ( pos < SIZE)

If (arr[pos] == key )
   return pos
  pos++
return -1</pre>
```

```
arr[SIZE] SIZE = 10 key = 6
```

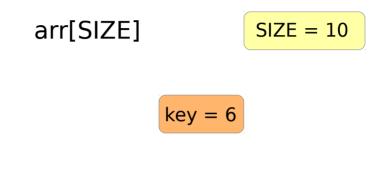


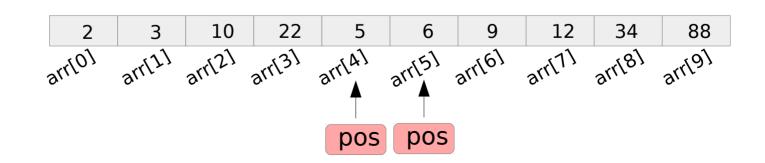


```
pos = 0
while ( pos < SIZE)

If (arr[pos] == key )
    return pos

pos++
return -1</pre>
```



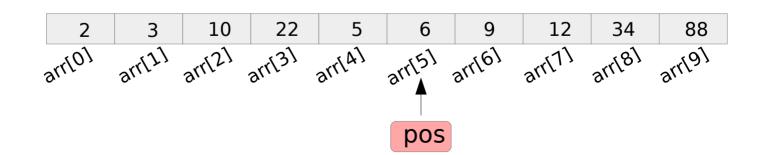




```
pos = 0
while ( pos < SIZE)

If (arr[pos] == key )
    return pos
    pos++
return -1</pre>
```

```
arr[SIZE] SIZE = 10 key = 6
```

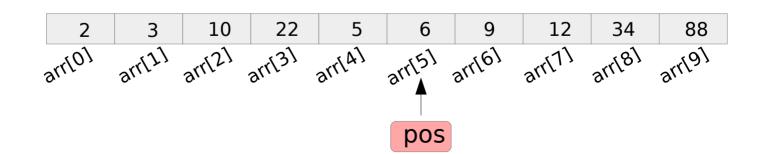




```
pos = 0
while ( pos < SIZE)

If (arr[pos] == key )
   return pos
  pos++
return -1</pre>
```

```
arr[SIZE] SIZE = 10 key = 6
```

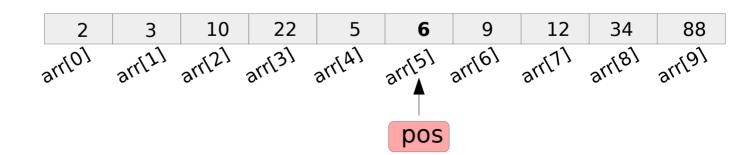




```
pos = 0
while ( pos < SIZE)

If (arr[pos] == key )
    return pos
    pos++
return -1</pre>
```

```
arr[SIZE] SIZE = 10
key = 6
pos = 5
```







### Code - Linear Search