simple binary search

In [ ]:
```
ls = [1,2,4,5,45,22,87,27,64,0,32]
```

In [2]:
```
sorted_ls = ls.sort()
```

In [3]:
```
print(ls)
```

```
[0, 1, 2, 4, 5, 22, 27, 32, 45, 64, 87]
```

In [8]:
```
ele = 4
start = 0
end = len(ls)-1
```

In [9]:
```
print(ls[start])
```

```
0
```

In [12]:
```
print(ls[end])
```

```
5
```

In [13]:
```
while start <= end:
    mid = (start + end )//2

    if ls[mid] < ele:
        start = mid + 1

    elif ls[mid] > ele:
        end = mid - 1
    else:
        print("Element found at index",mid)
        break

else:
    print("Element not found")
```

```
Element found at index 3
```

In [16]:
```
9//2
```

Out[16]: 4

In [18]:
```
13//2
```

Out[18]: 6

In [ ]:
```

```

function in binary search

In [19]:
```
ls = [1,2,4,5,45,22,87,27,64,0,32]
```

In [20]:
```
sorted_ls = ls.sort()
```

In [21]:
```
print(ls)
```

```
[0, 1, 2, 4, 5, 22, 27, 32, 45, 64, 87]
```

In [22]:
```
ele = 27
start = 0
end = len(ls)-1
```

In [24]:
```
def binary_search(start,end):
    while start <= end:
        mid = (start + end )//2
        if ls[mid] < ele:
            start = mid + 1
        elif ls[mid] > ele:
            end = mid - 1
        else:
            print("Element found at index",mid)
            break
    else:
        print("Element not found")
```

In [25]:
```
binary_search(start,end)
```

```
Element found at index 6
```