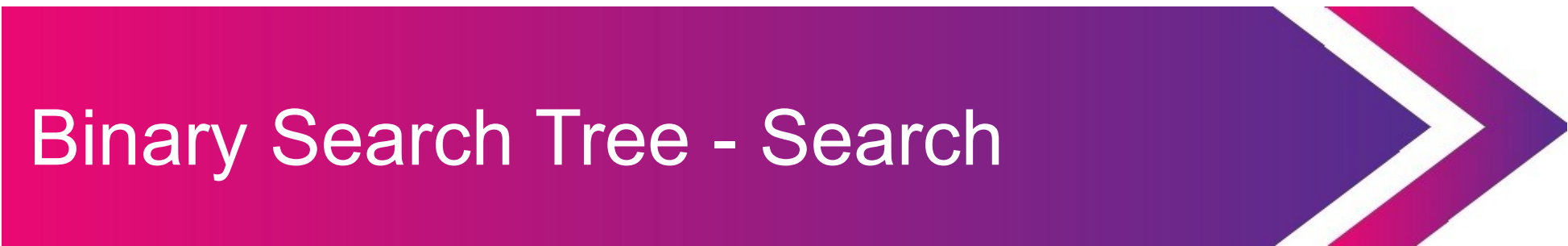


# Data Structures

## Tree – Binary Search Tree

Team Emertxe





# Binary Search Tree - Search

# Algorithm



**bst\_search(root,key)**

**Input Specification:**

root : Pointer that contains address of structure pointer (tree\_t)  
key : Item to be searched

# Algorithm



**bst\_search(root,key)**

**Input Specification:**

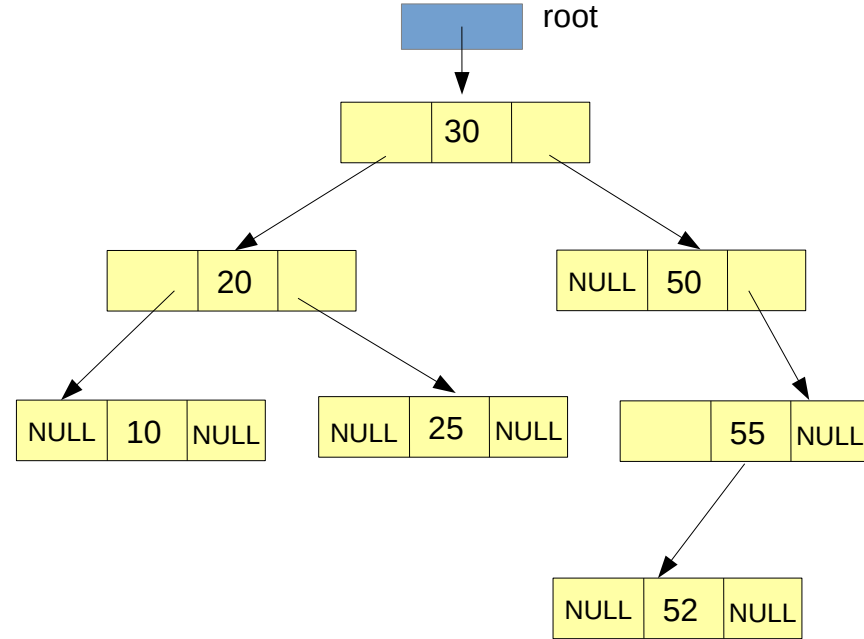
root : Pointer that contains address of structure pointer (tree\_t)

key : Item to be searched

**Output Specification:**

Status : e\_true / e\_false

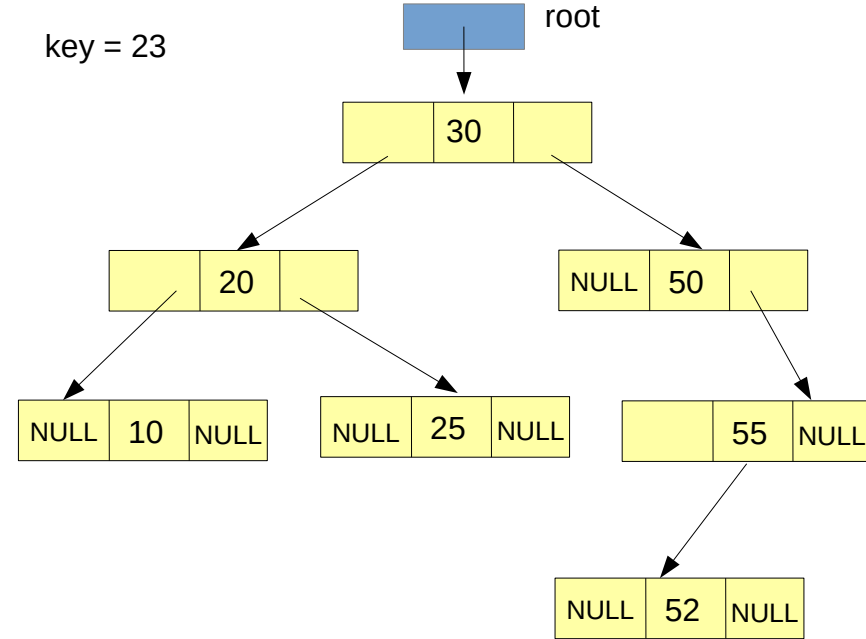
# bst\_search(root,key)



## bst\_search(root, key)

```
if(root = NULL)
    return e_false
temp = root
while( temp != NULL)
    If ( key < temp -> data )
        temp = temp -> LC
    Elseif ( key > temp -> data )
        temp = temp -> RC
    Else
        return e_true
return e_false
```

key = 23



## bst\_search(root, key)

```
if(root = NULL)
```

```
    return e_false
```

```
temp = root
```

```
while( temp != NULL)
```

```
    If ( key < temp -> data )
```

```
        temp = temp -> LC
```

```
    Elseif ( key > temp -> data )
```

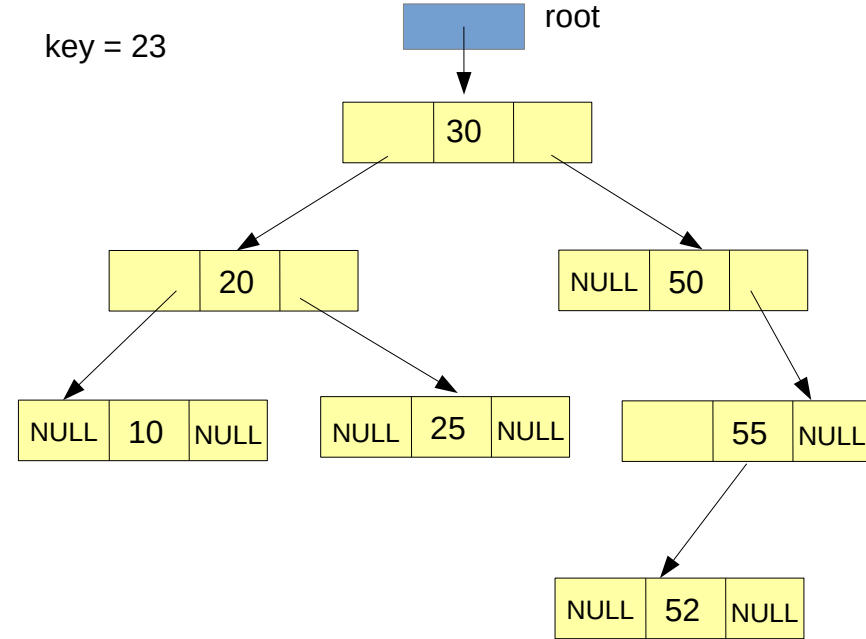
```
        temp = temp -> RC
```

```
    Else
```

```
        return e_true
```

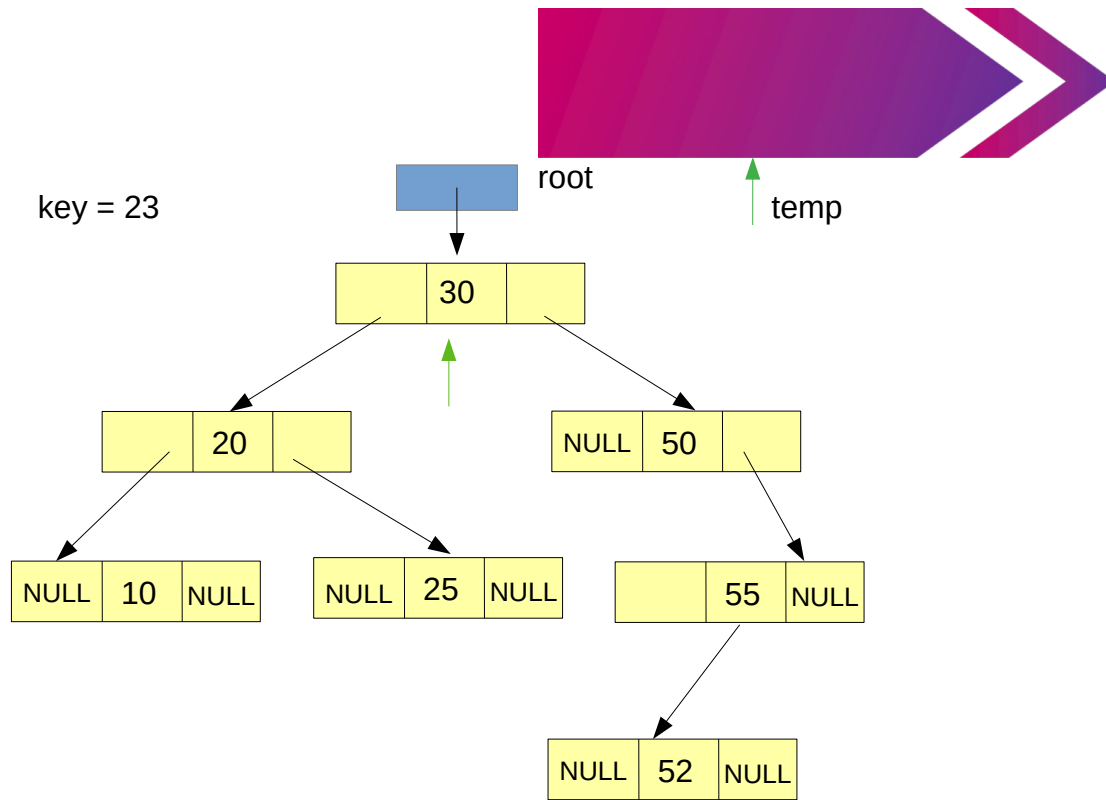
```
return e_false
```

key = 23



## bst\_search(root, key)

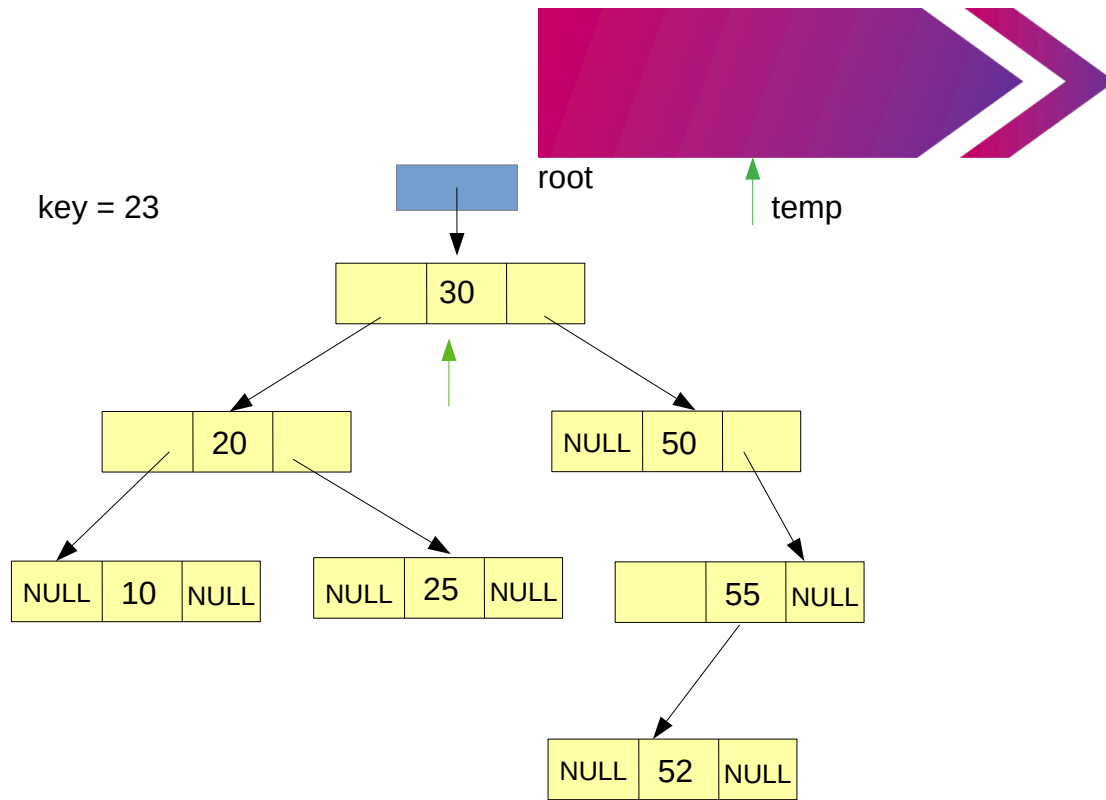
```
if(root = NULL)
    return e_false
temp = root
while( temp != NULL)
    If ( key < temp -> data )
        temp = temp -> LC
    Elseif ( key > temp -> data )
        temp = temp -> RC
    Else
        return e_true
return e_false
```





## bst\_search(root, key)

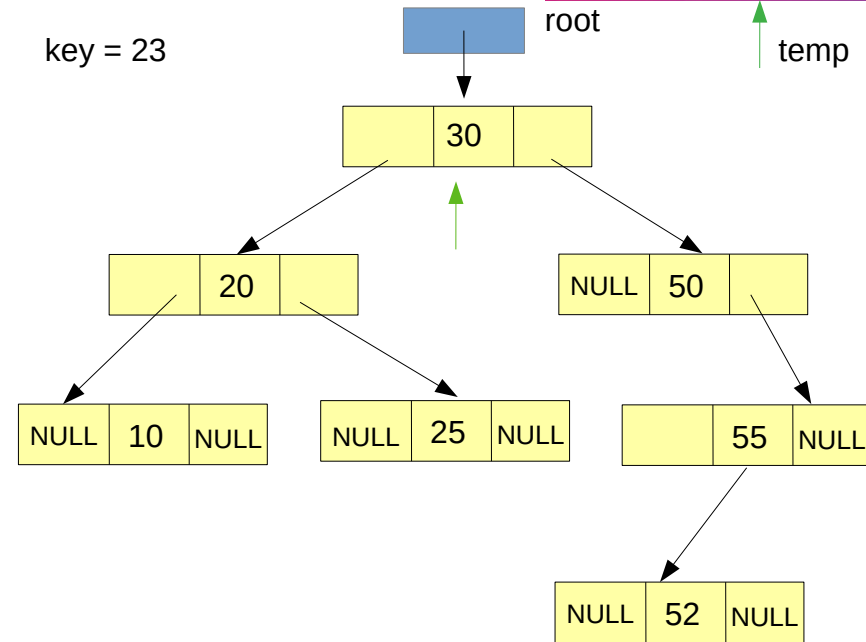
```
if(root = NULL)
    return e_false
temp = root
while( temp != NULL)
    If ( key < temp -> data )
        temp = temp -> LC
    Elseif ( key > temp -> data )
        temp = temp -> RC
    Else
        return e_true
return e_false
```



## bst\_search(root, key)

```
if(root = NULL)
    return e_false
temp = root
while( temp != NULL)
    If ( key < temp -> data )
        temp = temp -> LC
    Elseif ( key > temp -> data )
        temp = temp -> RC
    Else
        return e_true
return e_false
```

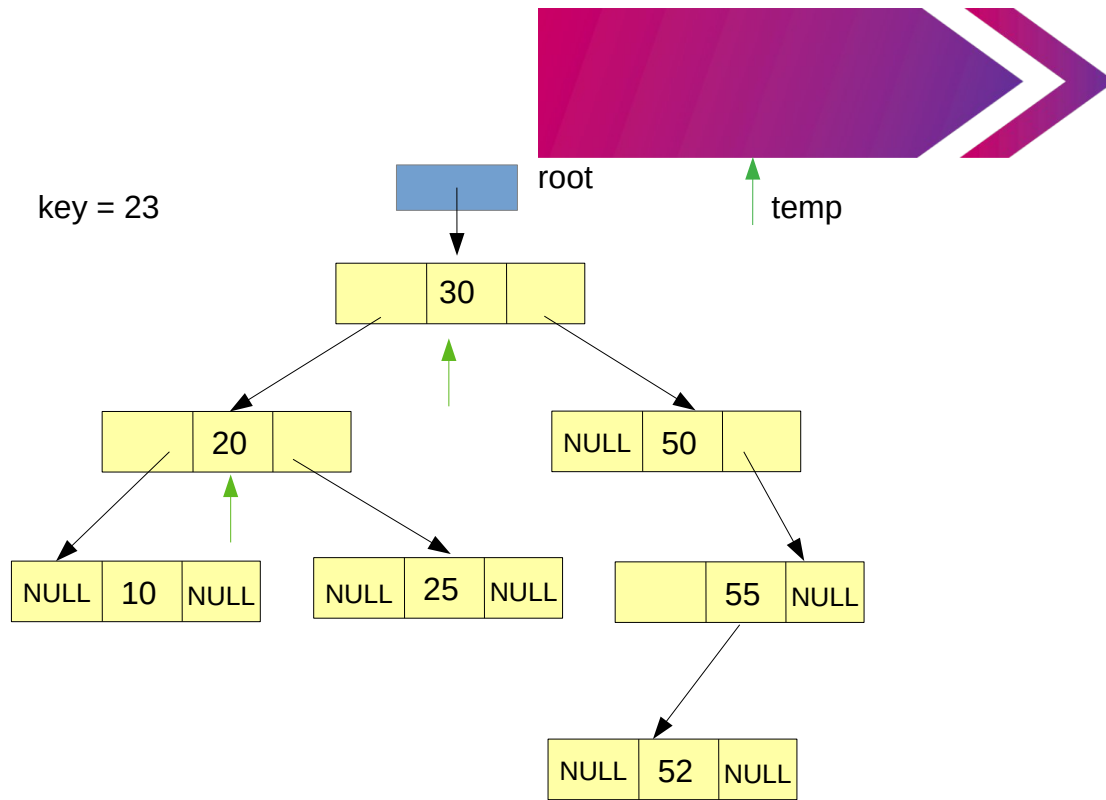
key = 23



## Data Structure – Binary search Tree

# bst\_search(root, key)

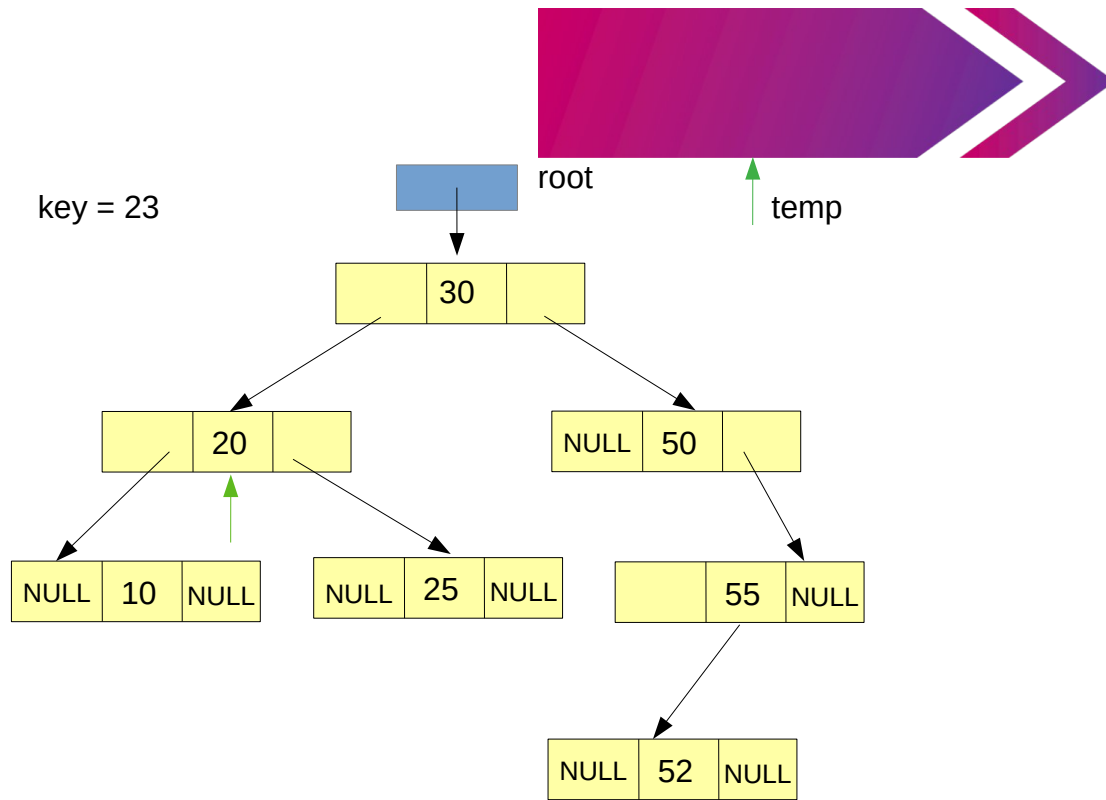
```
if(root = NULL)
    return e_false
temp = root
while( temp != NULL)
    If ( key < temp -> data )
        temp = temp -> LC
    Elseif ( key > temp -> data )
        temp = temp -> RC
    Else
        return e_true
return e_false
```



## Data Structure – Binary search Tree

# bst\_search(root, key)

```
if(root = NULL)
    return e_false
temp = root
while( temp != NULL)
    If ( key < temp -> data )
        temp = temp -> LC
    Elseif ( key > temp -> data )
        temp = temp -> RC
    Else
        return e_true
return e_false
```

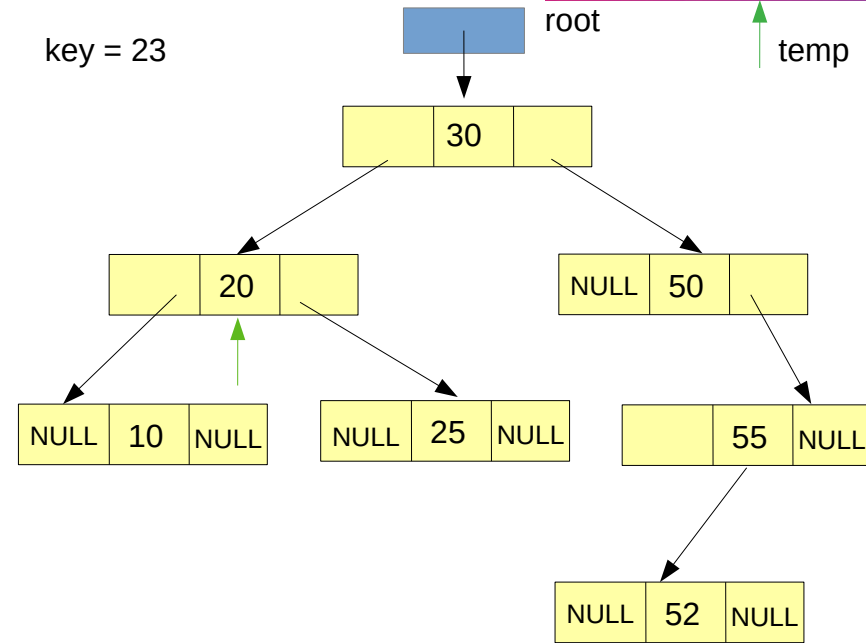


## Data Structure – Binary search Tree

# bst\_search(root, key)

```
if(root = NULL)
    return e_false
temp = root
while( temp != NULL)
    If ( key < temp -> data )
        temp = temp -> LC
    Elseif ( key > temp -> data )
        temp = temp -> RC
    Else
        return e_true
return e_false
```

key = 23

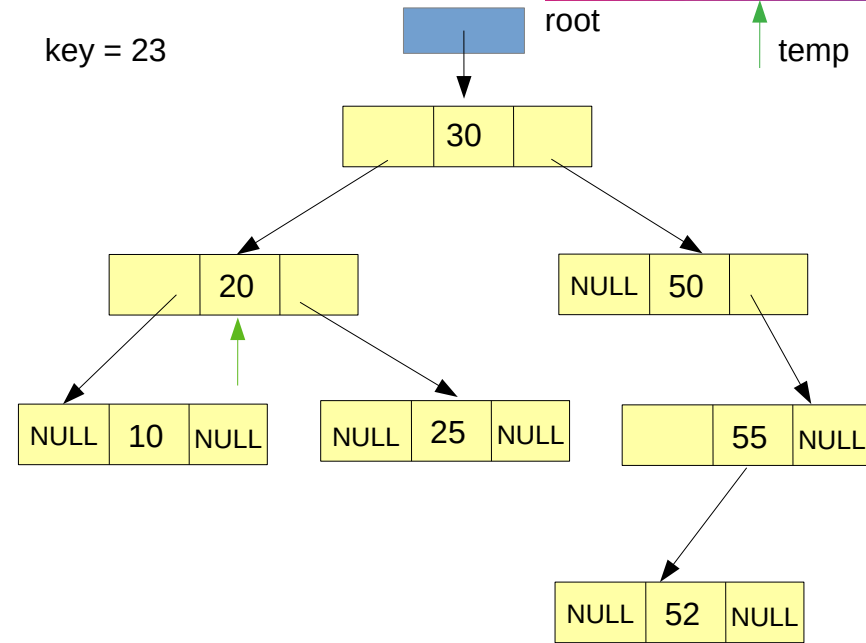


## Data Structure – Binary search Tree

# bst\_search(root, key)

```
if(root = NULL)
    return e_false
temp = root
while( temp != NULL)
    If ( key < temp -> data )
        temp = temp -> LC
    Elseif ( key > temp -> data )
        temp = temp -> RC
    Else
        return e_true
return e_false
```

key = 23

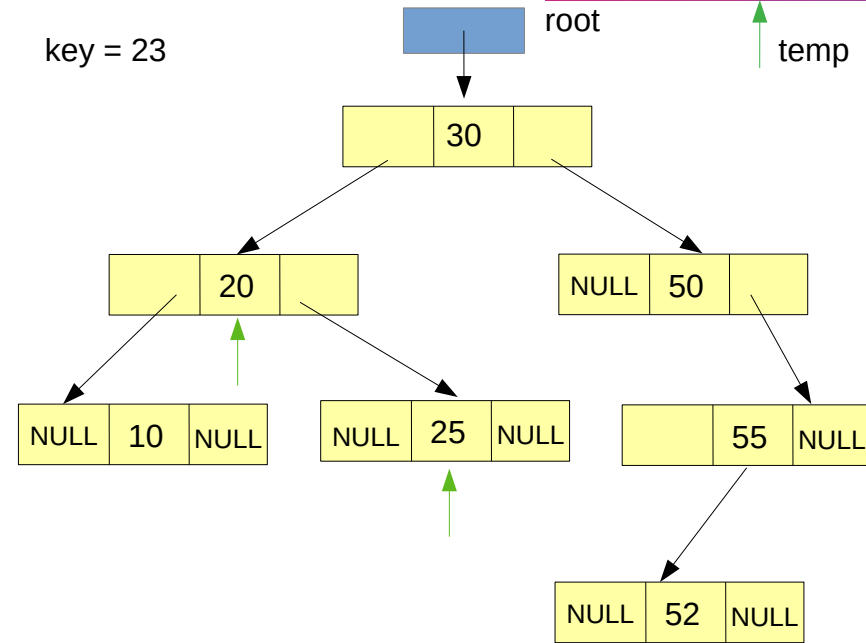


## Data Structure – Binary search Tree

# bst\_search(root, key)

```
if(root = NULL)
    return e_false
temp = root
while( temp != NULL)
    If ( key < temp -> data )
        temp = temp -> LC
    Elseif ( key > temp -> data )
        temp = temp -> RC
    Else
        return e_true
return e_false
```

key = 23

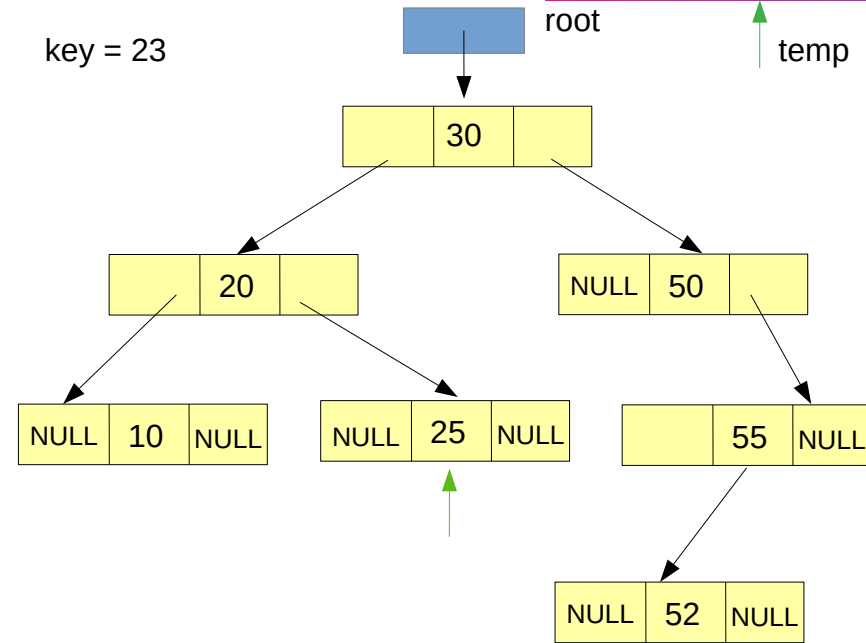


## Data Structure – Binary search Tree

# bst\_search(root, key)

```
if(root = NULL)
    return e_false
temp = root
while( temp != NULL)
    If ( key < temp -> data )
        temp = temp -> LC
    Elseif ( key > temp -> data )
        temp = temp -> RC
    Else
        return e_true
return e_false
```

key = 23

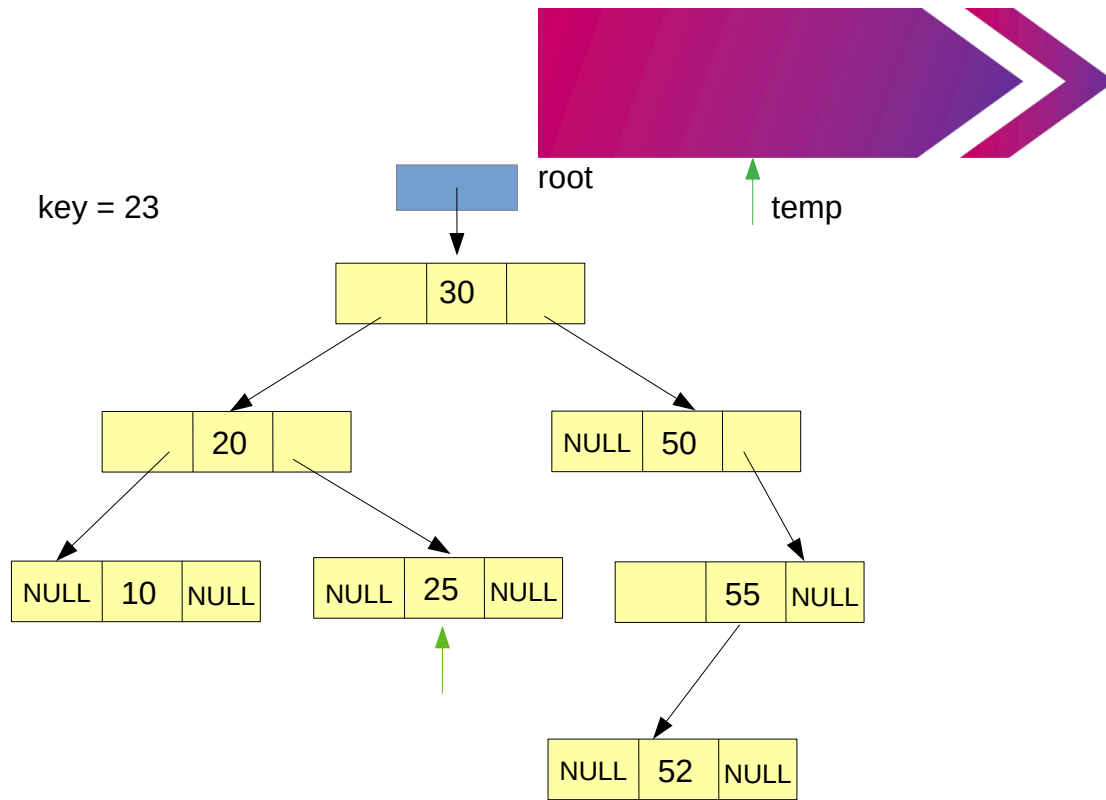




## Data Structure – Binary search Tree

# bst\_search(root, key)

```
if(root = NULL)
    return e_false
temp = root
while( temp != NULL)
    If ( key < temp -> data )
        temp = temp -> LC
    Elseif ( key > temp -> data )
        temp = temp -> RC
    Else
        return e_true
return e_false
```



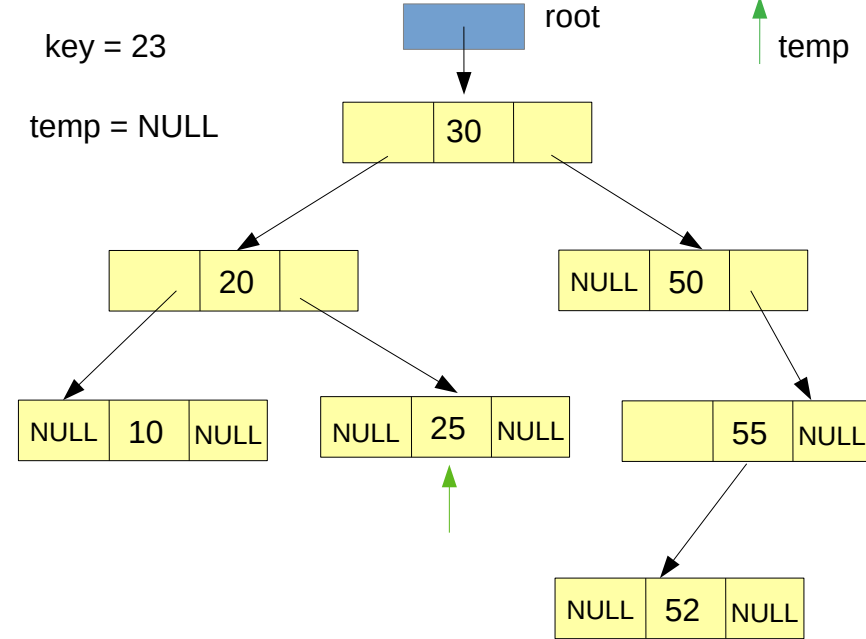
## Data Structure – Binary search Tree

# bst\_search(root, key)

```
if(root = NULL)
    return e_false
temp = root
while( temp != NULL)
    If ( key < temp -> data )
        temp = temp -> LC
    Elseif ( key > temp -> data )
        temp = temp -> RC
    Else
        return e_true
return e_false
```

key = 23

temp = NULL

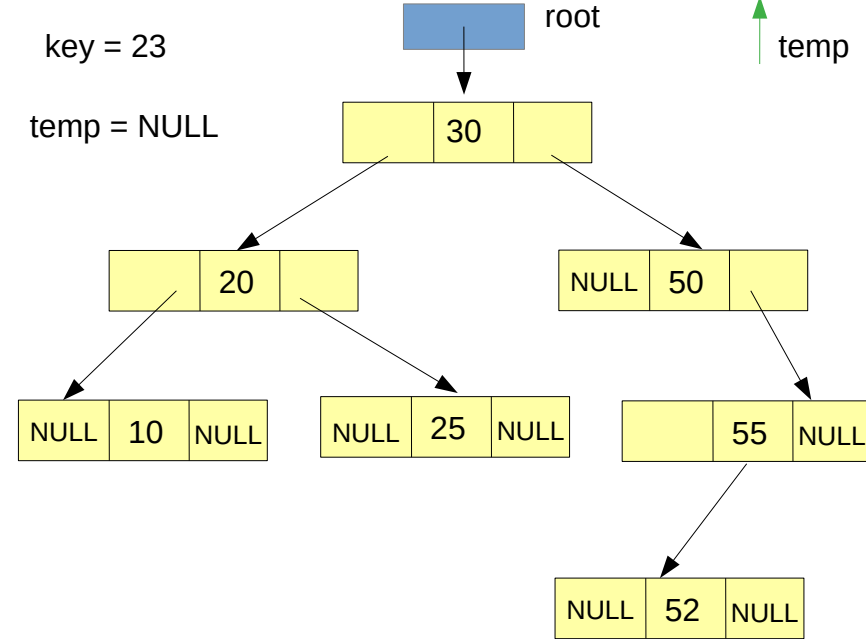


## bst\_search(root, key)

```
if(root = NULL)
    return e_false
temp = root
while( temp != NULL)
    If ( key < temp -> data )
        temp = temp -> LC
    Elseif ( key > temp -> data )
        temp = temp -> RC
    Else
        return e_true
return e_false
```

key = 23

temp = NULL

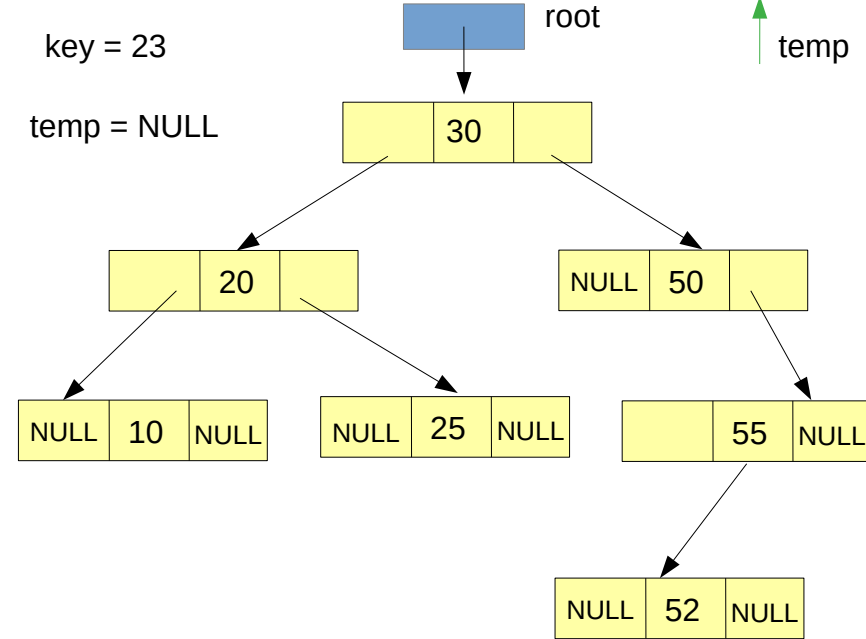


## bst\_search(root, key)

```
if(root = NULL)
    return e_false
temp = root
while( temp != NULL)
    If ( key < temp -> data )
        temp = temp -> LC
    Elseif ( key > temp -> data )
        temp = temp -> RC
    Else
        return e_true
return e_false
```

key = 23

temp = NULL



## bst\_search(root, key)

```
if(root = NULL)
```

```
    return e_false
```

```
temp = root
```

```
while( temp != NULL)
```

```
    If ( key < temp -> data )
```

```
        temp = temp -> LC
```

```
    Elseif ( key > temp -> data )
```

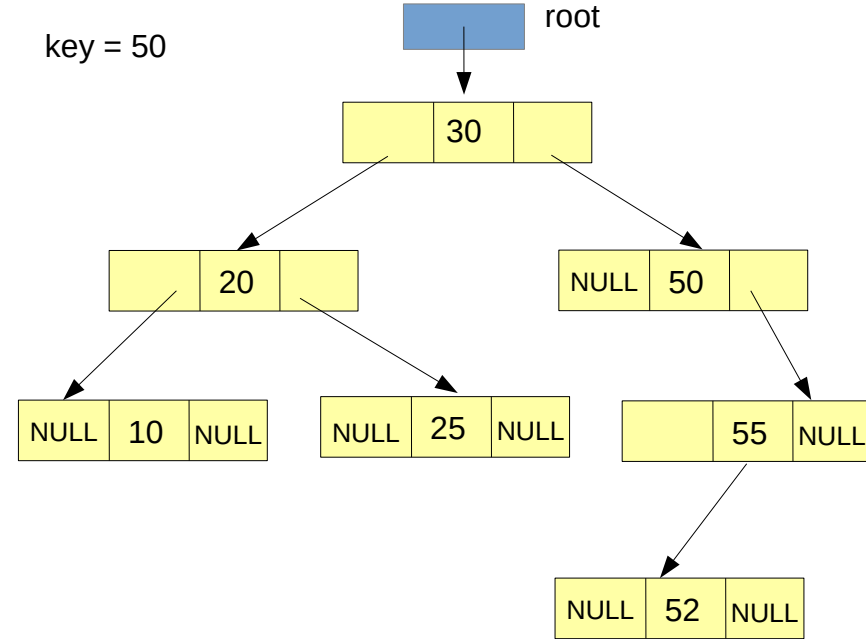
```
        temp = temp -> RC
```

```
    Else
```

```
        return e_true
```

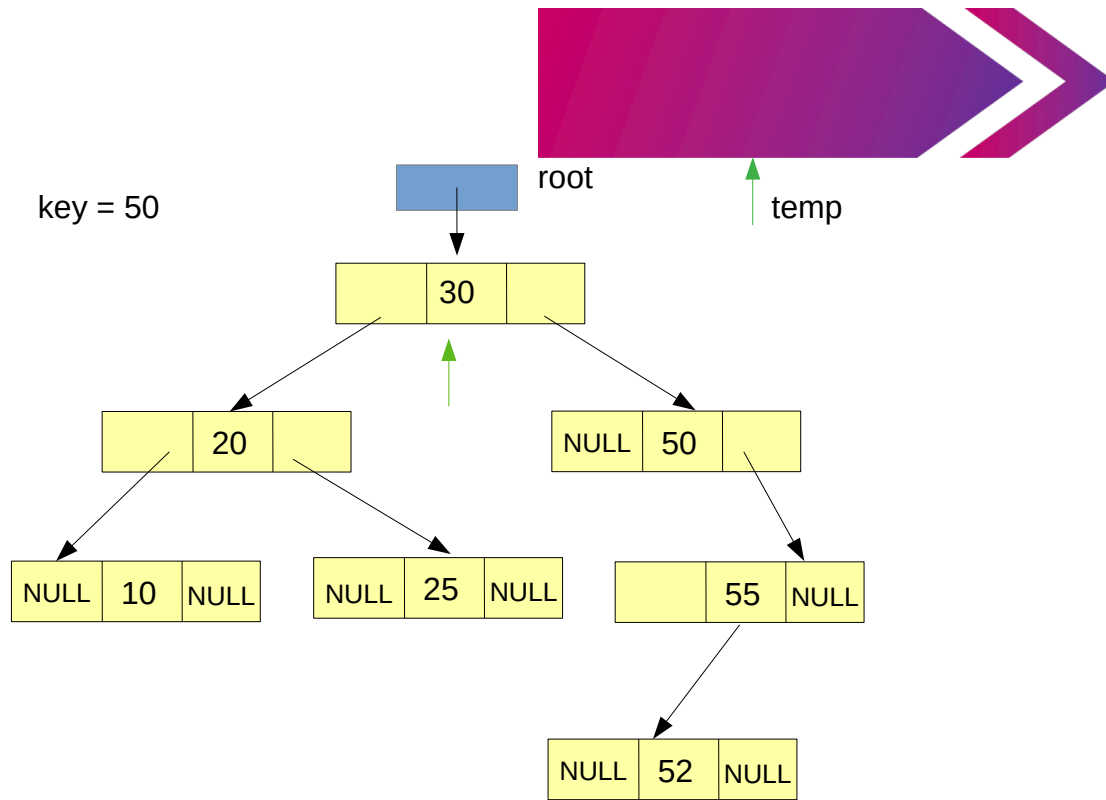
```
return e_false
```

key = 50



## bst\_search(root, key)

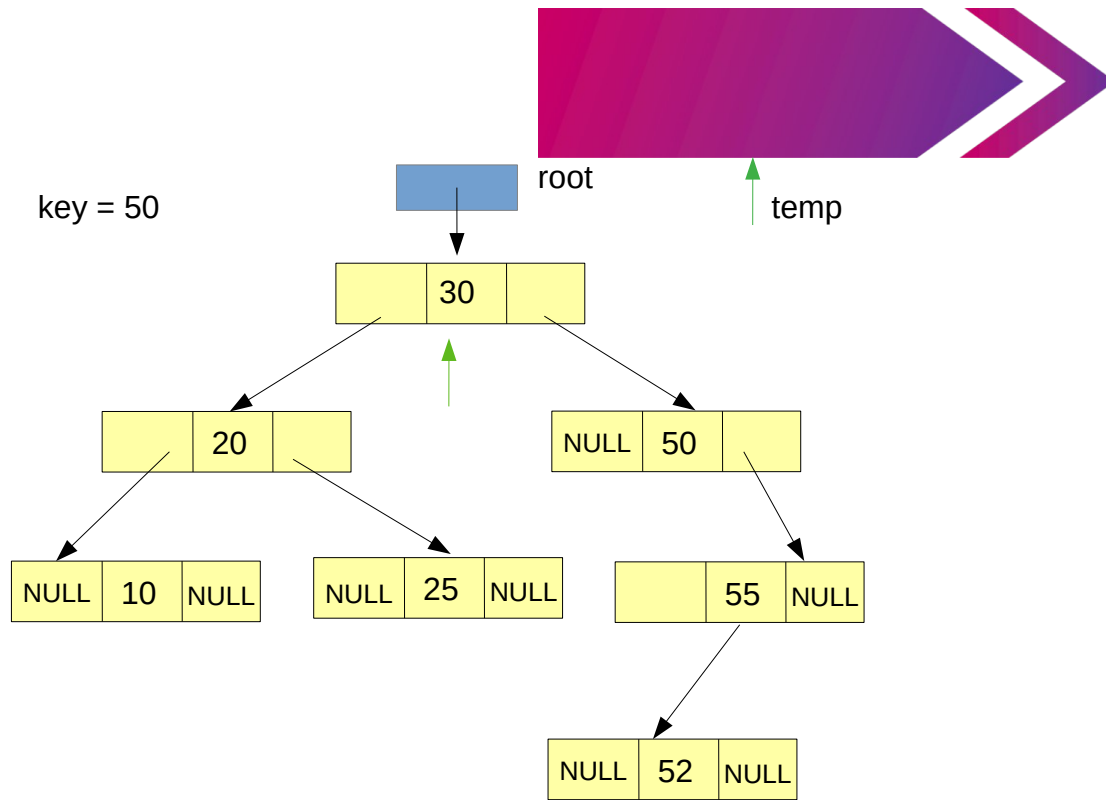
```
if(root = NULL)
    return e_false
temp = root
while( temp != NULL)
    If ( key < temp -> data )
        temp = temp -> LC
    Elseif ( key > temp -> data )
        temp = temp -> RC
    Else
        return e_true
return e_false
```



## Data Structure – Binary search Tree

# bst\_search(root, key)

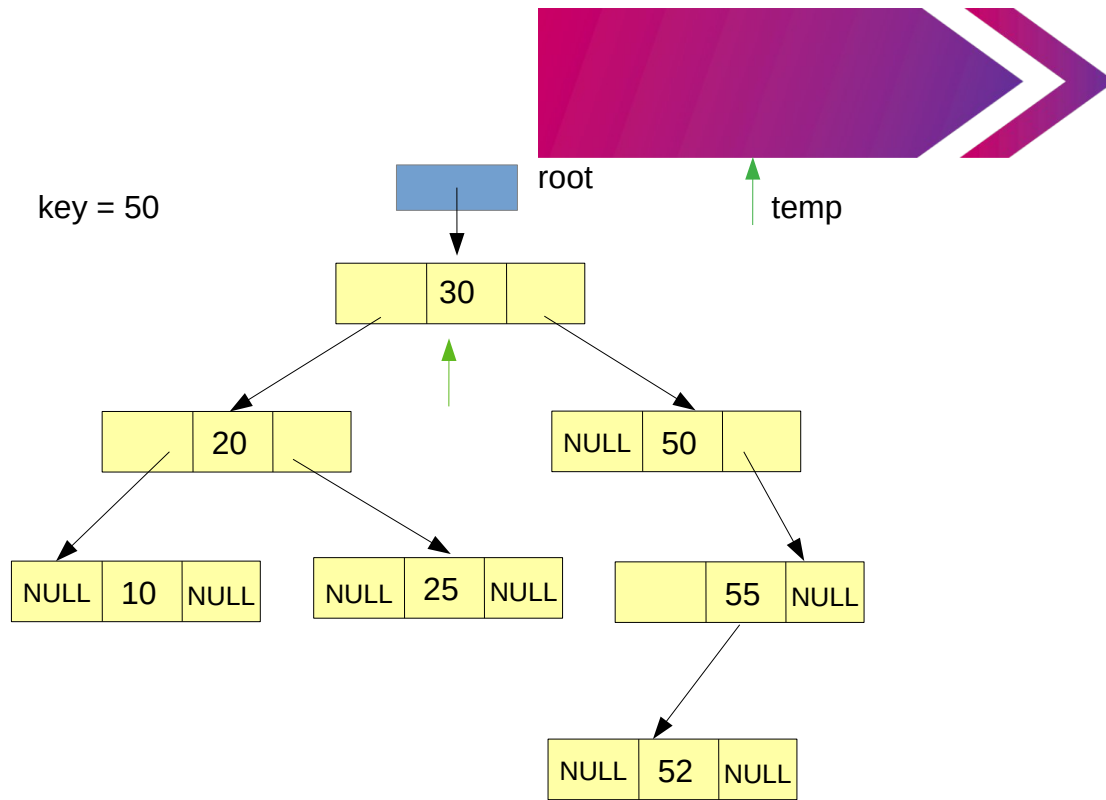
```
if(root = NULL)
    return e_false
temp = root
while( temp != NULL)
    If ( key < temp -> data )
        temp = temp -> LC
    Elseif ( key > temp -> data )
        temp = temp -> RC
    Else
        return e_true
return e_false
```



## Data Structure – Binary search Tree

# bst\_search(root, key)

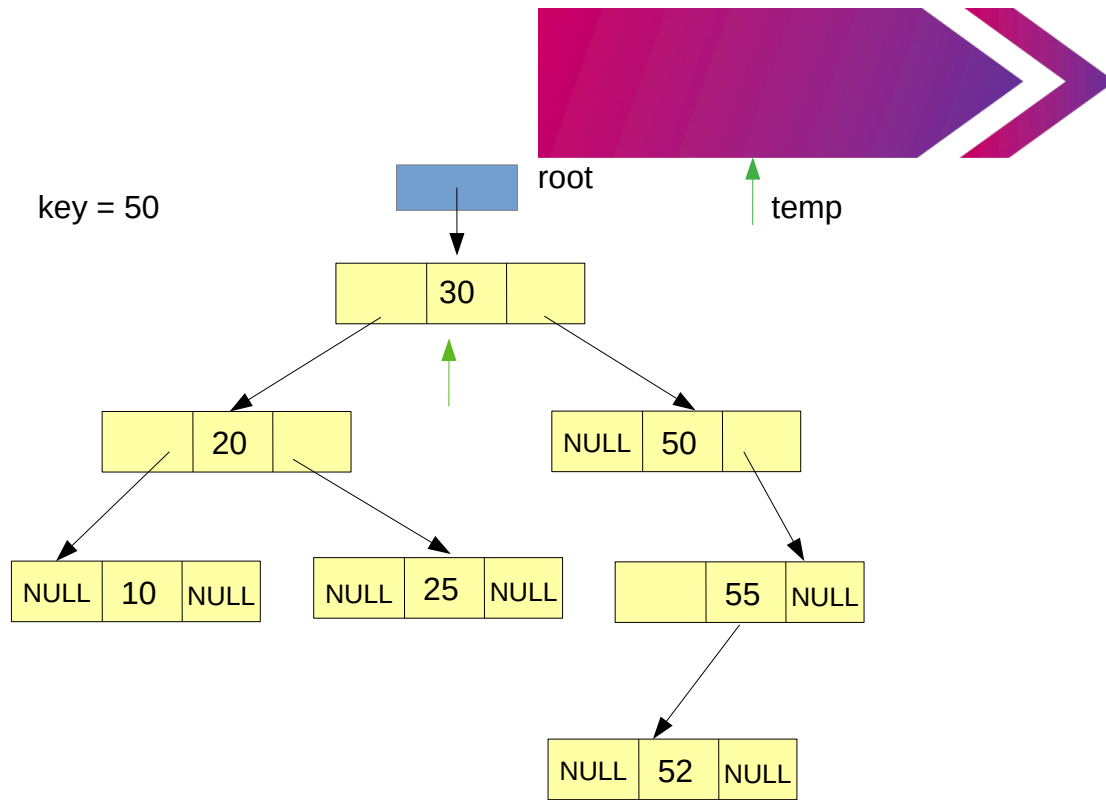
```
if(root = NULL)
    return e_false
temp = root
while( temp != NULL)
    If ( key < temp -> data )
        temp = temp -> LC
    Elseif ( key > temp -> data )
        temp = temp -> RC
    Else
        return e_true
return e_false
```





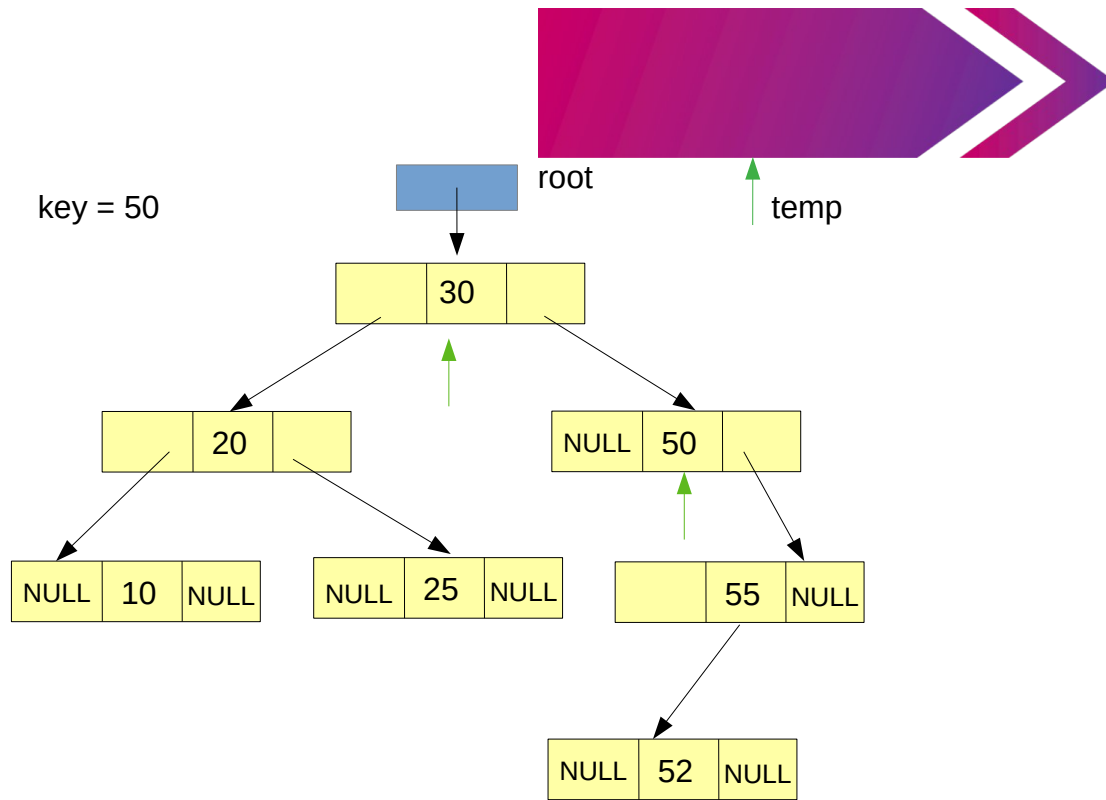
## bst\_search(root, key)

```
if(root = NULL)
    return e_false
temp = root
while( temp != NULL)
    If ( key < temp -> data )
        temp = temp -> LC
    Elseif ( key > temp -> data )
        temp = temp -> RC
    Else
        return e_true
return e_false
```



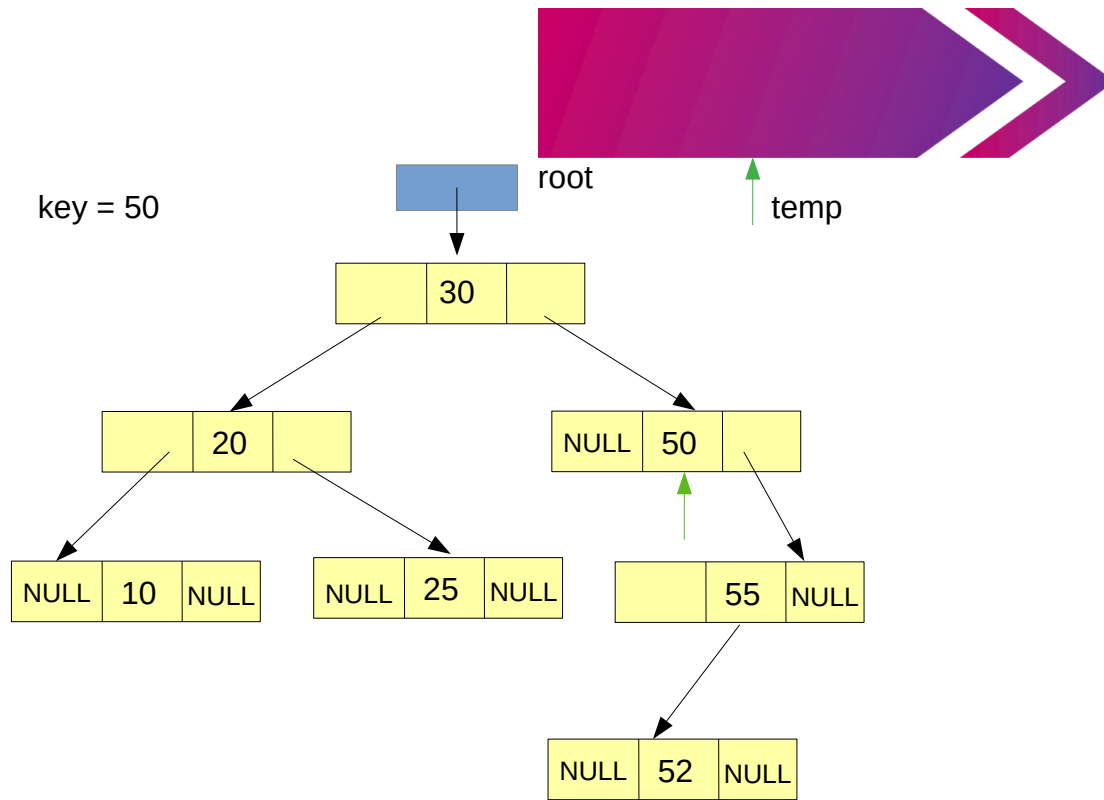
## bst\_search(root, key)

```
if(root = NULL)
    return e_false
temp = root
while( temp != NULL)
    If ( key < temp -> data )
        temp = temp -> LC
    Elseif ( key > temp -> data )
        temp = temp -> RC
    Else
        return e_true
return e_false
```



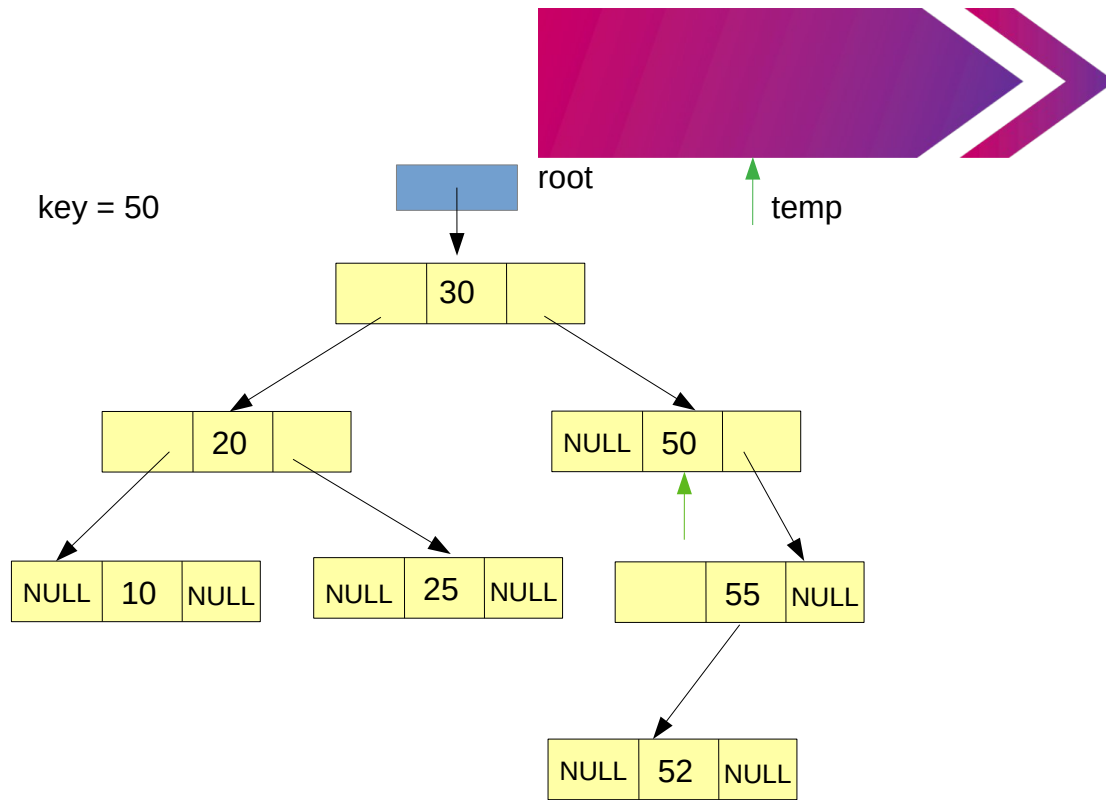
## bst\_search(root, key)

```
if(root = NULL)
    return e_false
temp = root
while( temp != NULL)
    If ( key < temp -> data )
        temp = temp -> LC
    Elseif ( key > temp -> data )
        temp = temp -> RC
    Else
        return e_true
return e_false
```



## bst\_search(root, key)

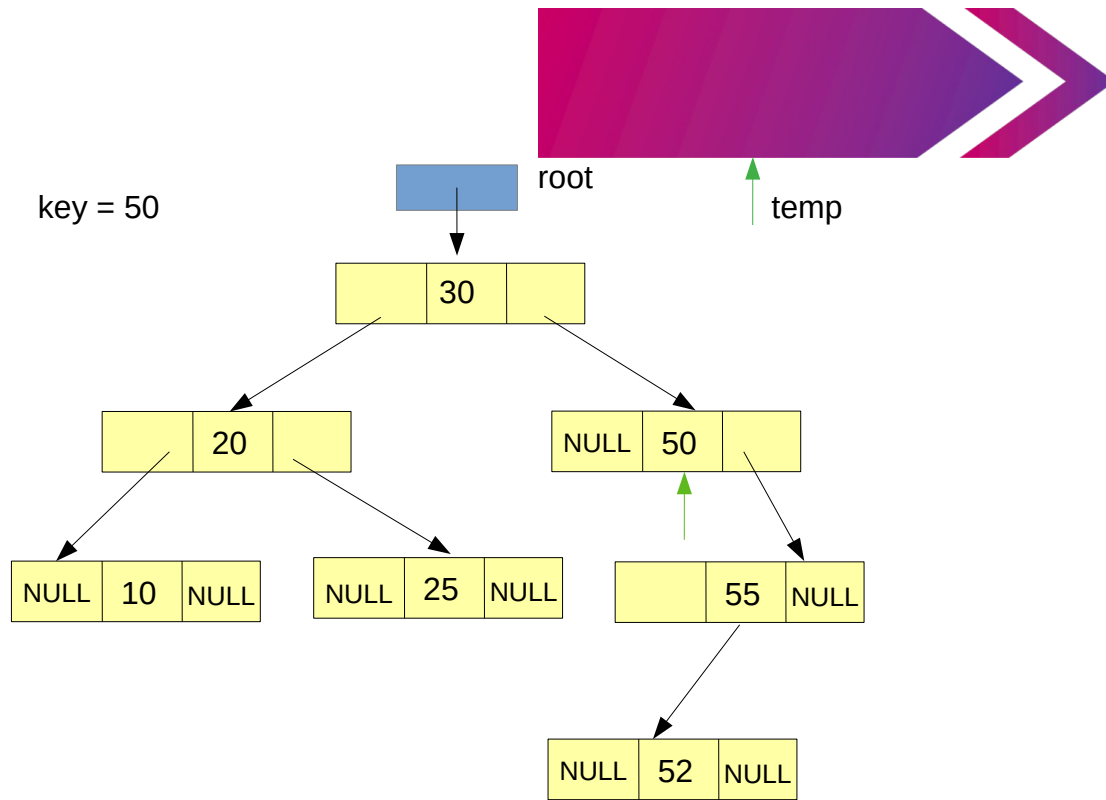
```
if(root = NULL)
    return e_false
temp = root
while( temp != NULL)
    If ( key < temp -> data )
        temp = temp -> LC
    Elseif ( key > temp -> data )
        temp = temp -> RC
    Else
        return e_true
return e_false
```



## Data Structure – Binary search Tree

# bst\_search(root, key)

```
if(root = NULL)
    return e_false
temp = root
while( temp != NULL)
    If ( key < temp -> data )
        temp = temp -> LC
    Elseif ( key > temp -> data )
        temp = temp -> RC
    Else
        return e_true
return e_false
```

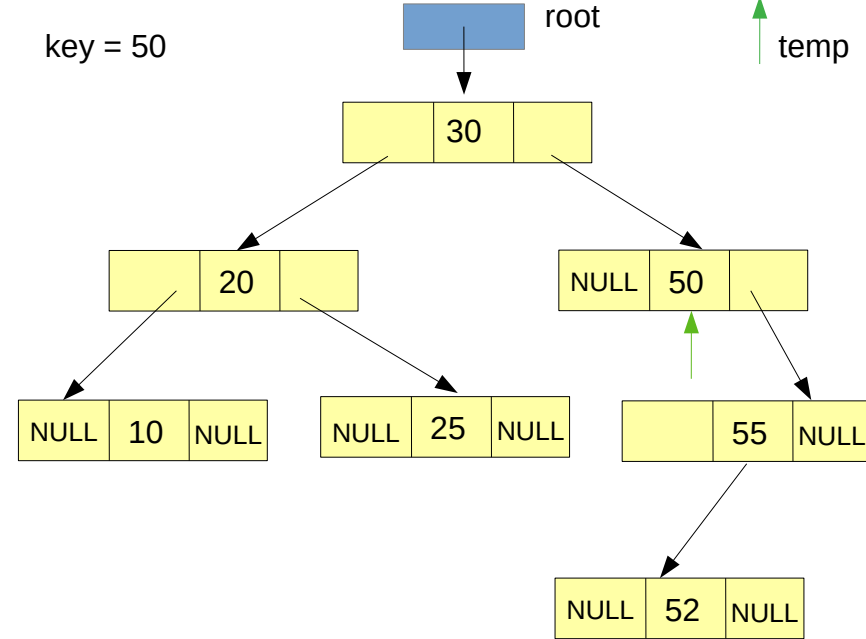


## Data Structure – Binary search Tree

# bst\_search(root, key)

```
if(root = NULL)
    return e_false
temp = root
while( temp != NULL)
    If ( key < temp -> data )
        temp = temp -> LC
    Elseif ( key > temp -> data )
        temp = temp -> RC
    Else
        return e_true
return e_false
```

key = 50

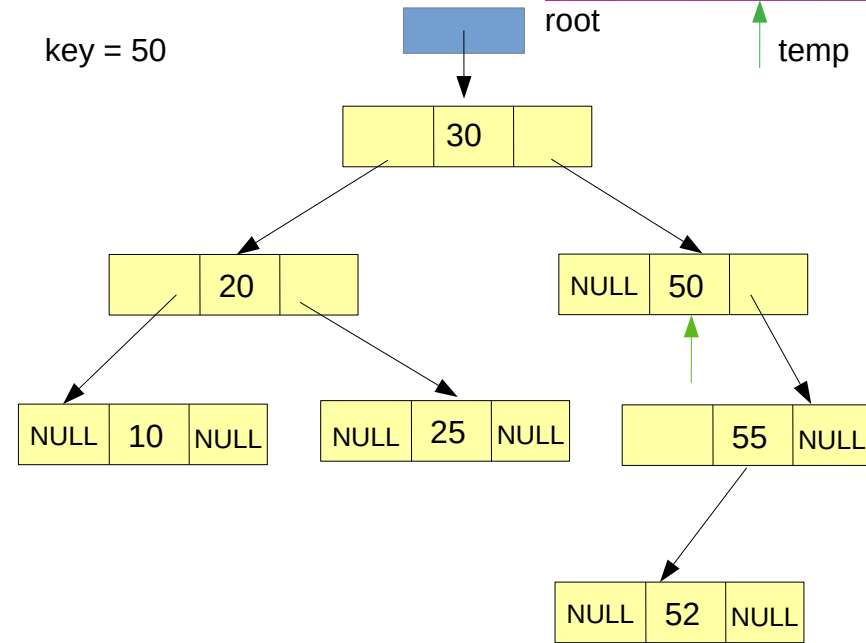


## Data Structure – Binary search Tree

# bst\_search(root,key)

```
if(root = NULL)
    return e_false
temp = root
while( temp != NULL)
    If ( key < temp -> data )
        temp = temp -> LC
    Elseif ( key > temp -> data )
        temp = temp -> RC
    Else
        return e_true
return e_false
```

key = 50



Code - bst\_search(root,key)