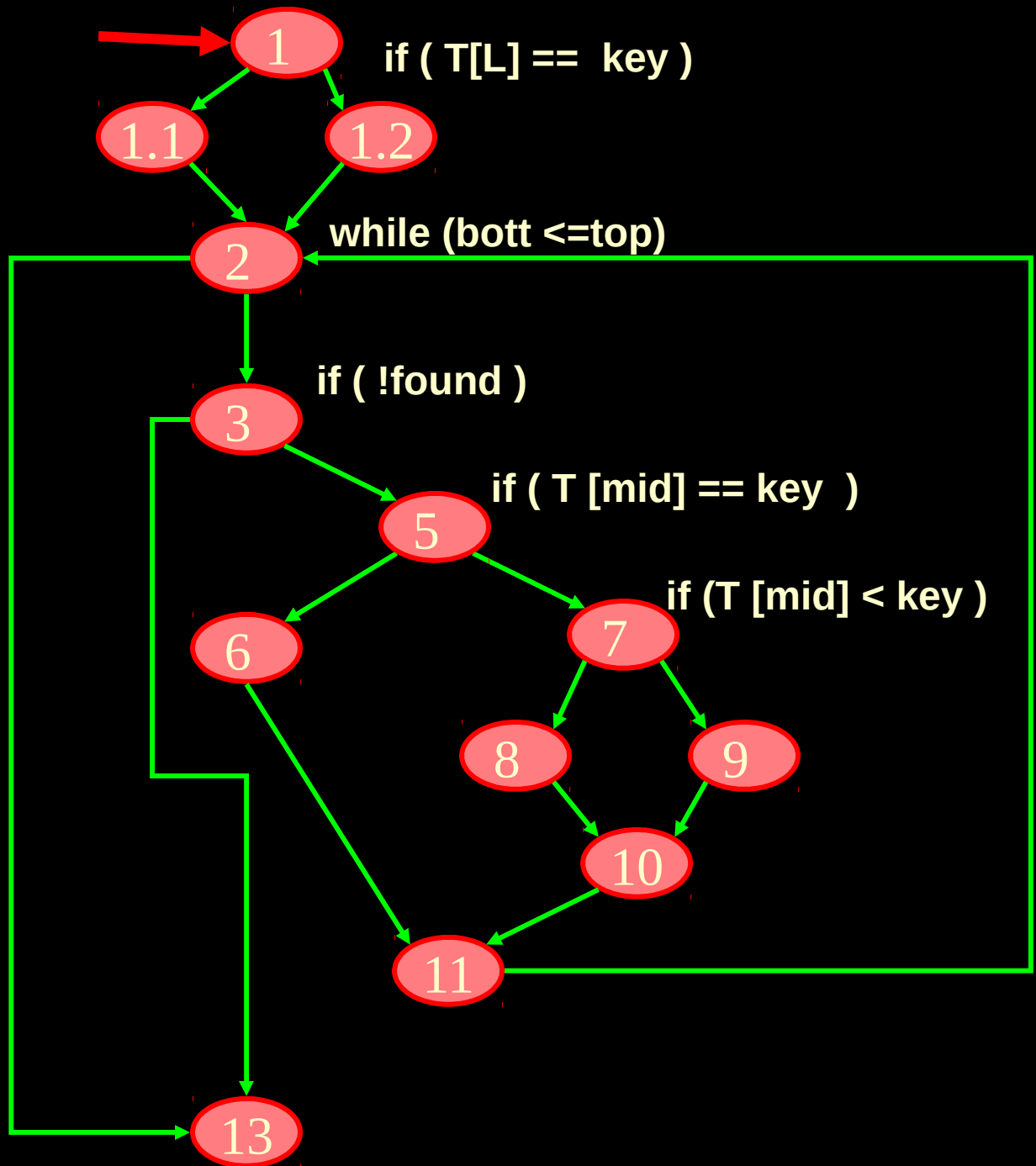# *Binary Search (C++)*

```cpp
void Binary_search (elem key, elem* T, int  size,
                         boolean &found, int &L)
{
    int bott, top, mid ;
    bott = 0 ; top = size -1 ;
    L = ( top + bott ) / 2 ;
    if (T[L] ==  key)
        found = true ;
    else
        found = false ;
    while (bott <=top && !found)
    {
        mid = top + bott / 2 ;
        if ( T [mid] == key  )
        {
            found = true;
            L = mid ;
        }
        else if (T [mid] < key )
            bott = mid + 1 ;
        else
            top = mid-1 ;
    } // while
} //binary_search
```

Binary Search Flow Graph

if (T[L] == key)

while (bott <=top)

if (!found)

if (T [mid] == key)

if (T [mid] < key)

Binary Search Flow Graph

```
int bott, top, mid ;
bott = 0 ; top = size -1 ;
L = ( top + bott ) / 2 ;
```

if (T[L] == key) —False→ found = false;

True

found = true ;

while (bott <=top && !found)

True

mid = top + bott / 2 ;

if (T [mid] == key) —False→ if (T [mid] < key) —False→ top = mid-1 ;

True

found = true;
L = mid ;

True

bott = mid + 1 ;

False

return;