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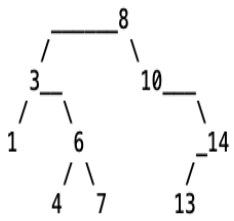
정은주 독어교육과
2014-19498

In [32]:
```
#Problem 1
(1, D) (3, J) (4, B) (5, A), (2, H), (6, L)
```

In [3]:
```
# Problem 2
from binarytree import build
values = [8,3,10,1,6,None, 14, None, None, 4, 7, None, None, 13]
root = build(values)
```

In [4]:
```
print(root)
```



In [5]:
```
def difference(root):
    tmp_right = root;
    tmp_left = root;

    while(tmp_right.right != None):
        tmp_right = tmp_right.right;

    while(tmp_left.left != None):
        tmp_left = tmp_left.left;

    difference = tmp_right.value - tmp_left.value
    return difference
```

In [6]:
```
difference(root)
```

Out[6]: 13

In [17]:
```
#Problem 3
values = [27, 17, 45]
```

In [18]:
```
root = build(values)
print(root)
```

```
  _27
 /   \
17    45
```

In [19]:
```
values = [27, 17, 45, 11, 24, 30, 58, None, 13, None, 26, None, 40, 48, None]
```

In [23]:
```
root = build(values)
print(root)
```

```
        _______27_____
       /              \
   ____17             ____45___
  /     \            /         \
 11      24         30         _58
   \       \          \       /
    13      26         40    48
```

In [27]:
```
#Problem 4
values = [20, 12, 25, 10, 18,None, None, None, None, 17, 19,
          None, None, None, None, None, None, None, None, 16]
root = build(values)
print(root)
```

```
     ____________20
    /              \
  _12_____          25
 /        \
10         _18
          /   \
        _17    19
       /
      16
```

In [31]:
```
value = [20, 16, 25, 10, 18, None, None, None, 12, 17, 19]
root = build(value)
print(root)
```

```
        _________20
       /            \
    ___16__          25
   /       \
  10        _18
    \      /   \
     12   17    19
```