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```
=>   def fin_insert(self, k)
          while k.parent.color == 1:
              if k.parent == k.parent.parent.right
                  u = k.parent.parent.left
                  if u.color == 1:
                      u.color = 0
                      k.parent.color = 0
                      k.parent.parent.color = 1
                      k = k.parent.parent
                  else
                      if k = k.parent.left
                          k = k.parent
                          self.right_rotate(k)
                      k.parent.color = 0
                      k.parent.parent.color = 1
                      self.left_rotate(k.parent.parent)
              else:
                  u = k.parent.parent.right
                  if u.color = 1:
                      u.color = 0
                      k.parent.color = 0
                      k.parent.parent.color = 1
                      k = k.parent.parent
                  else
                      if k = k.parent.right
                          k = k.parent
                          self.left_or_rotate(k)
```

```
k. parent. color = 0
k. parent, parent. color = d
self. right - rotate ( k. parent. parent

if ( k == self. root):
        break

self. root. color = 0
```