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ADS-6

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```

insert(int k)
if (root is null)
    root = new node(t);
    root->keys[0] = k;
    root->n = 1;
else
    if (root->n == 2 * t - 1)
        s = new node(t);
        s->c[0] = root;
        s->splitchild(0, root);
        i = 0;
        if (s->keys[0] < k)
            i++;
        s->c[i] -> insertNonFull(k);
        root = s;
    else
        root->insertNonFull(k);
insertNonFull(int k)
i = n - 1;
if (leaf is true)
    while (i >= 0 && keys[i] > k)
        do keys[i+1] = keys[i];
        i--;
    keys[i+1] = k;
    n = n + 1;
else
    while (i > 0 && keys[i] > k)
        do i--;
    if (c[i+1] -> n == 2 * t - 1)
        splitchild(i+1, c[i+1]);
    if (keys[i+1] < k)
        i++;
    c[i+1] -> insertNonFull(k);
    
```

```

NODE splitchild(int i, Node *y)
    z = new node(y->t);
    z->n = t - 1;
    for (int j = 0; j < t - 1; j++)
        z->keys[j] = y->keys[j+t];
    if (y->leaf is false)
        for (int j = 0; j < t; j++)
            z->c[j] = y->c[j+t];
    y->n = t - 1;
    for (j = n; j >= i + 1; j--)
        c[j+1] = c[j];
    c[j+1] = c[j];
    c[i+1] = z;
    for (j = n - 1; j >= i; j--)
        keys[j+1] = keys[j];
    keys[i] = y->keys[t-1];
    n = n + 1;
    
```

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