B-Tree Nonleaf Node

- The Ks are keys
- The Ps are pointers to subtrees.

\[ x \leq K[1] \quad K[i-1] < y \leq K[i] \quad K[q-1] < z \]
Inserting a New Key in a B-Tree of Order M

Insert(ElementType K, Btree B)
{
    find the leaf node LB of B in which K belongs;
    if notfull(LB) insert K into LB;
    else
        { split LB into two nodes LB and LB2 with
          \[ j = \left\lceil \frac{M+1}{2} \right\rceil \]
          keys in LB and the rest in LB2;
          
          if ( IsNull(Parent(LB)) )
             CreateNewRoot(LB, K[j], LB2);
          else
             InsertInternal(Parent(LB), K[j], LB2);
        }
}