





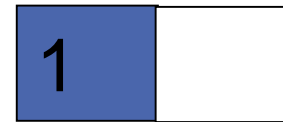
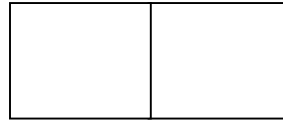
CSE3103 : Database

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Insertions

- Assume a tree where each node can contain three pointers . Enter the values 1,2,3,4,5,6,7.
- Here branching factor $M=3$, so that each node will contain $M-1 = 2$ keys maximum and minimum $(M-1)/2=1$.

- Step 1: Inserting 1



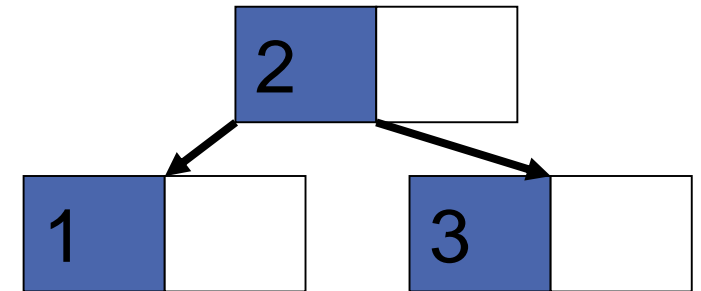
- Step 2: Inserting 2



- Step 3: Inserting 3

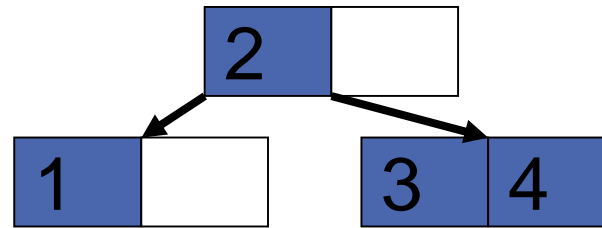


- Split node in middle

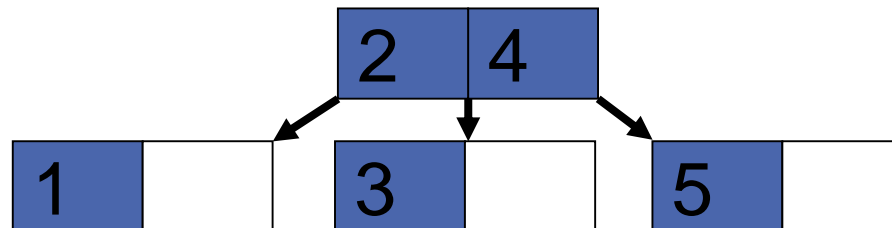
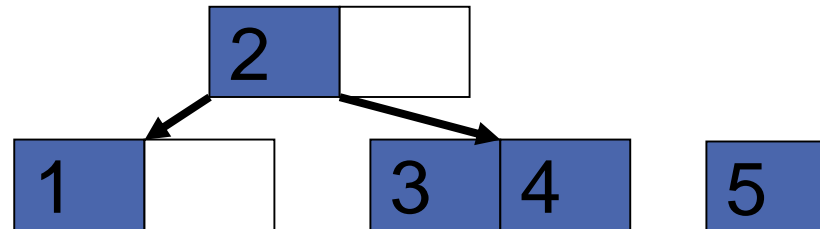


Insertions

- Step 4: Inserting 4

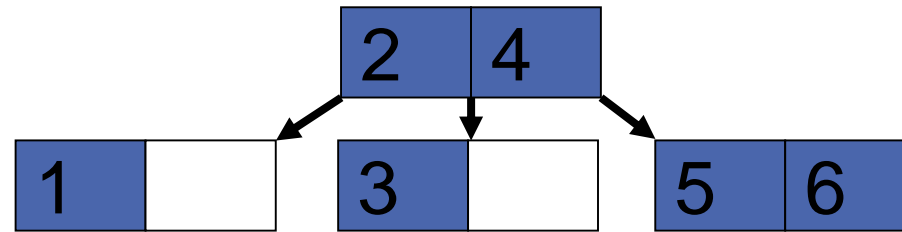


- Step 5: Inserting 5
 - Split
 - Move up

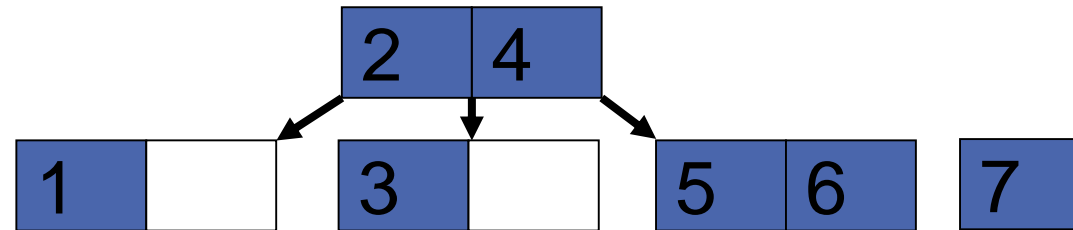


Insertions

- Step 6: Inserting 6



- Step 7: Inserting 7



Two Basic Operations

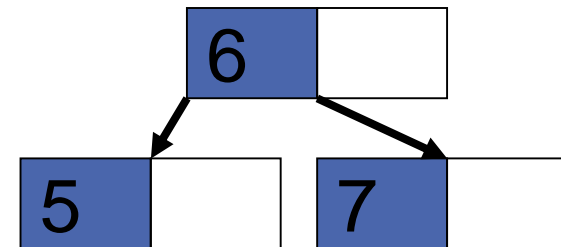
- **Split:**

- When trying to add to a full node
- Split node at central value



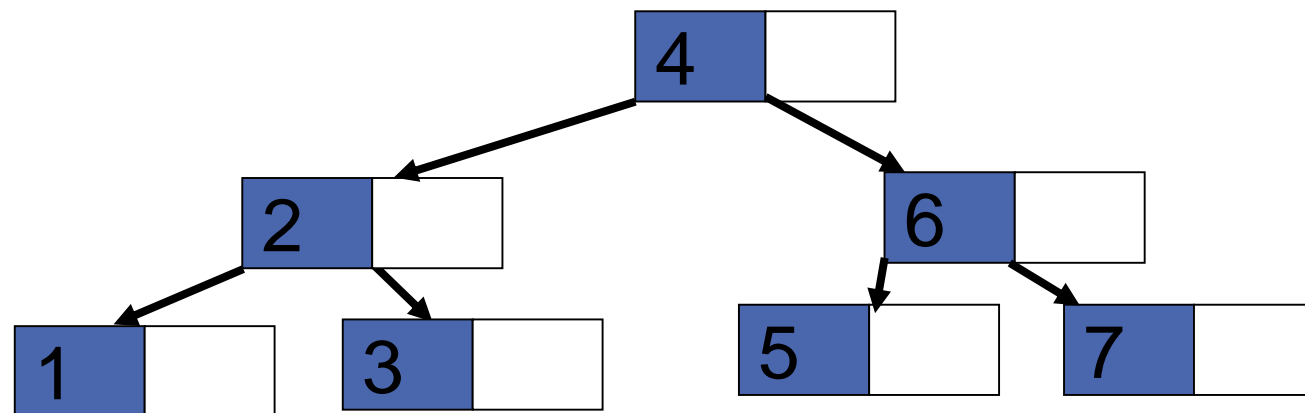
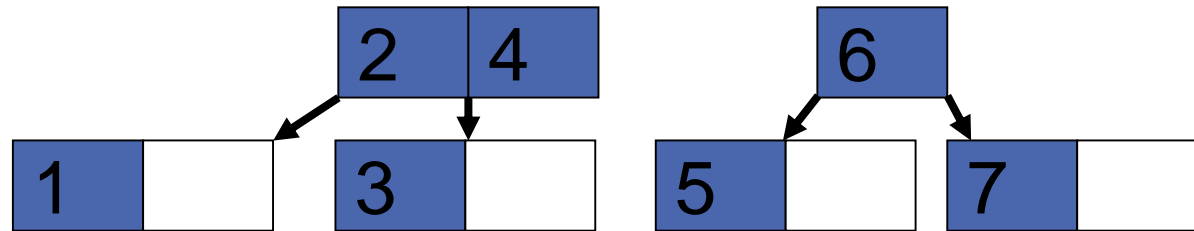
- **Promote:**

- Must insert root of split node higher up
- May require a new split



Step 7 continued

- Split and Promotion



Practice Problem

- Assume a tree where each node can contain three pointers . Enter the values

S W A E C T M L P Y X Q B

