CSE3103 : Database
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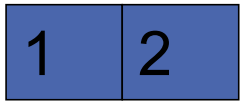
Insertions

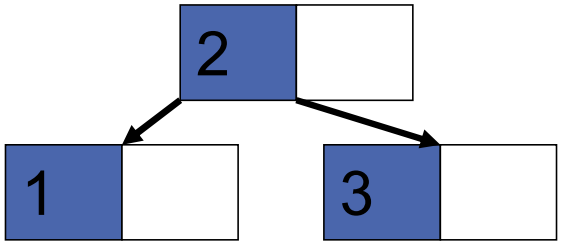
- Assume a tree where each node can contain three pointers . Enter the values 1,2,3,4,5,6,7.
- Here branching factor M=3 , so that each node will contain M-1 = 2 keys maximum and minimum (M-1)/2=1 .

- Step 1: Inserting 1

- Step 2: Inserting 2



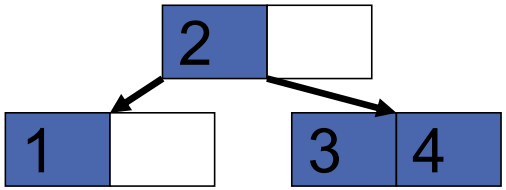
- Step 3: Inserting 3



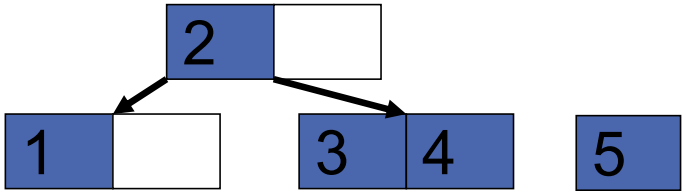
  - Split node in middle

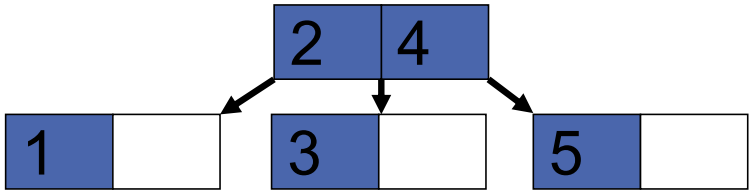
Insertions

- Step 4: Inserting 4



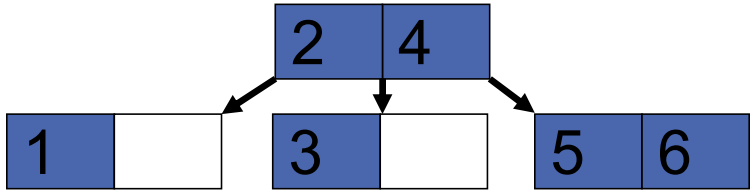
- Step 5: Inserting 5
  - Split
  - Move up



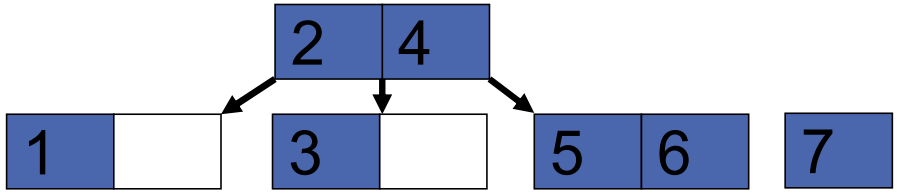


Insertions

- Step 6: Inserting 6

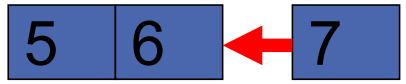


- Step 7: Inserting 7

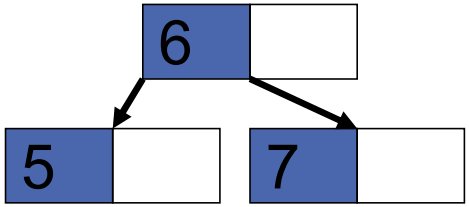


Two Basic Operations

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

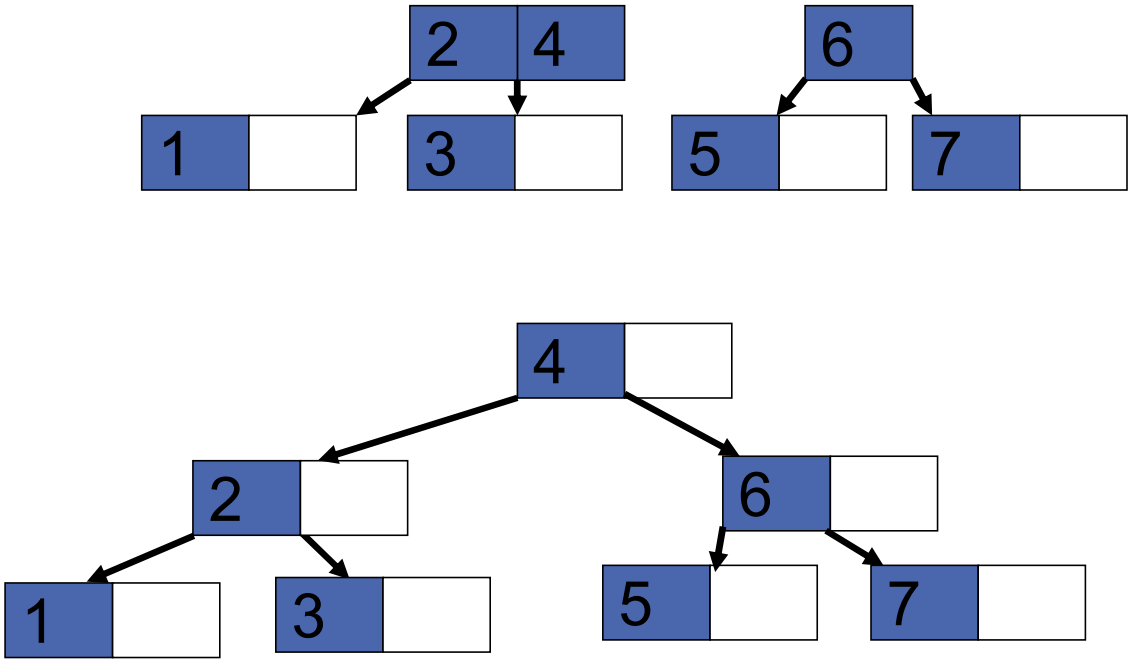


- ***Promote:***
  - Must insert root of split node higher up
  - May require a new split



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

DBMS
data
database
distributed
shared
parallel
system
architecture
Distributed
DDBMS
DBMSs
memory
network
processing
performance
processors
access
centralized
systems
multiple
sites
site
single
one
processor
Parallel
nothing
Shared
applications
application
computers
computer
disk
require
physically
users
within
fragments
typically
may
major
sometimes
local
decentralized
provide
technology
bottleneck
interconnection
Figure
nodes
definition
development
logical
control
scalability
approach
improve
distinction
transparent
management
organizational
administered
logically
stored
global
associated
large
islands
resources
remote
defined
controlled
based
disks
directly
split
order
scalable
architectures
referred
computing
communication
distribution
eliminates
reliability
replicated
make
also
many
discuss
often
number
user
Database
Management
consists
least
used
must
System
capable
collection
provides
structure
incompatible
operational
Date
way
like
machines
across
fact