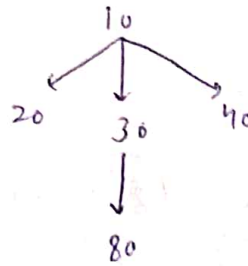
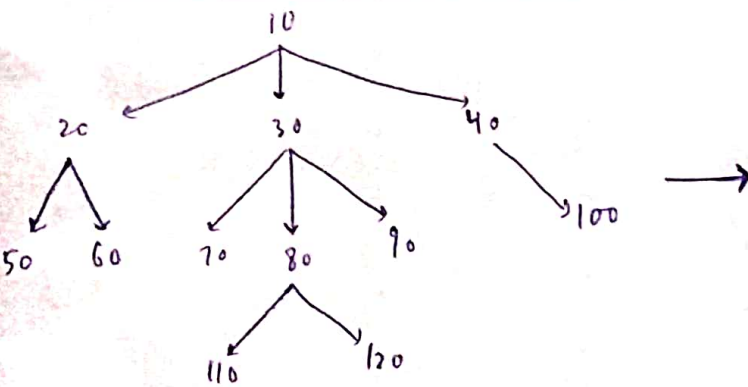


REMOVE LEAVES OF A GENERIC TREE

← Hum leaf node
udaar deni hai
← leaf node is a node
which has no children.
i.e size of children
array is 0.
There will be atleast
one child of a root
node, i.e root node
will not be a leaf
node.



Code

```
public static void removeleaves(Node node)
```

```
{
    for (Node child : node.children) {
        removeleaves(child);
    }
}
```

→ isse (10), (30) aur (40)
ke saare leaf udd
jayenge

```
for (Node child : node.children)
{
    if (child.children.size() == 0)
    {
        node.children.remove(child);
    }
}
```

→ error Concurrent
Modification
Exception

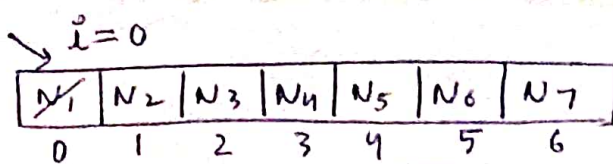
ussii arraylist pe loop
laga rahi ho ussime
se remove krey ho!
Toh nahi chalega

replaced by

```
for (int i = 0; i < node.children.size(); i++)
{
    Node child = node.children.get(i);
    if (child.children.size() == 0)
    {
        node.children.remove(child);
    }
}
```

→ isme LOGICAL
ERROR hai!

→ ERROR



phile (N1) check hua (i=0) pe,
uske koi child nahi mila
Toh (N1) delete hojayege!

array {N1, N2, ..., N7}

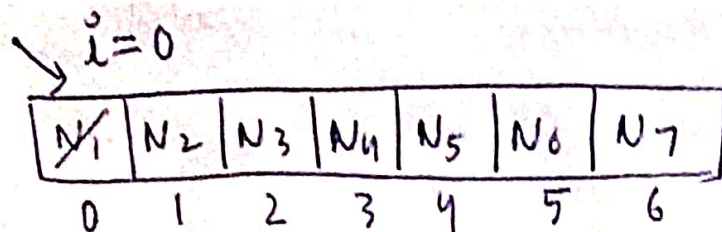
↓
children array of a
root node

★ N1 aur N2 ke children
nahi hai baki ke
hai


```

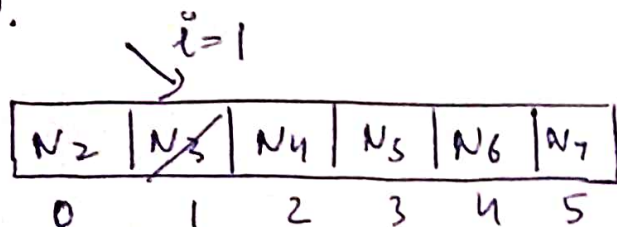
    node.children.remove(child);
}
}

```



Phere (N₁) check hua ($i=0$) pe,
uske koi child nahi mila
Toh (N₁) delete hojayege!

∴ (N₁) ke removal ke baad remaining
array age shift hojayege due to
($i++$).



Aab pointer ($i=1$) (N₃) pe hai,
kuki (i) toh badega hi!

Point to Grasp: (N₂) kabhi

visit hua hi nahi aur
iske wajah se hum
saari leaf nodes remove
nahi kr payengey!

SOLUTION

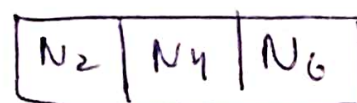
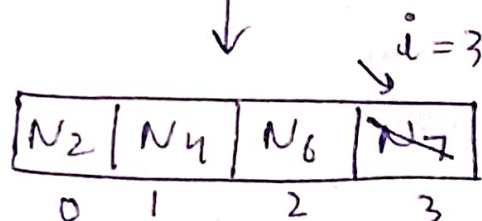
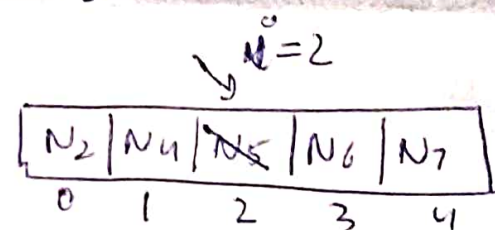
Iska solution hai hume LOOP ulta chalana hoga!
ulta chalty hi koi bhi dikkat nahi ayege!

ERROR

array {N₁, N₂, ..., N₇}

children array of a
root node.

★ N₁ aur N₂ ke children
nahi hai baki ke
hai



Yeh visit nahi hua

code

```
public static void removeLeaves(Node node)
{
    for (Node child : node.children)
        removeLeaves(child);
}
```

```
for (int i = node.children.size() - 1; i >= 0; i--)
{
    Node child = node.children.get(i);
    if (child.children.size() == 0)
        node.children.remove(child);
}
```

isme abhi bhi error hai! kuki humne phle recursion call lagai hai removeLeaves wali phir ~~phir~~ children ko udda rahi hai! yeh post order me hoga hai toh aiktar dega! post order me yeh jo leaf node hai nahi unhe bhi udda dega!

FINAL CODE

```
public static void removeLeaves(Node node)
```

```
{ for(int i = node.children.size()-1; i >= 0; i--)
```

```
{ Node child = node.children.get(i);
```

```
  if (child.children.size() == 0)
```

```
  { node.children.remove(child);
```

```
  }
```

```
}
```

```
for (Node child : node.children)
```

```
{
```

```
  removeLeaves(child);
```

```
}
```

```
}
```

} bache huay
logo pe
removeLeave
call kro!

} phere
children
udha le
fir