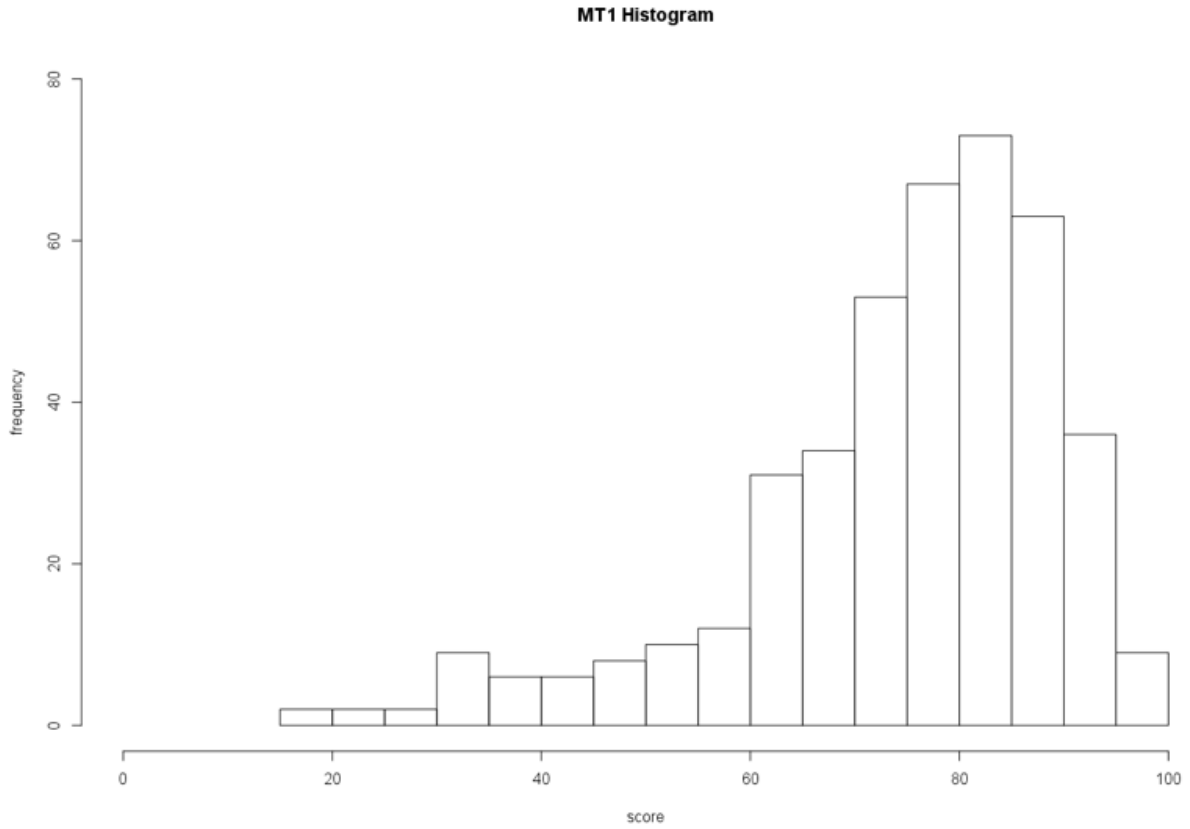
Announcements

MP4 available, due 3/8, 11:59p. EC due 3/1, 11:59p.

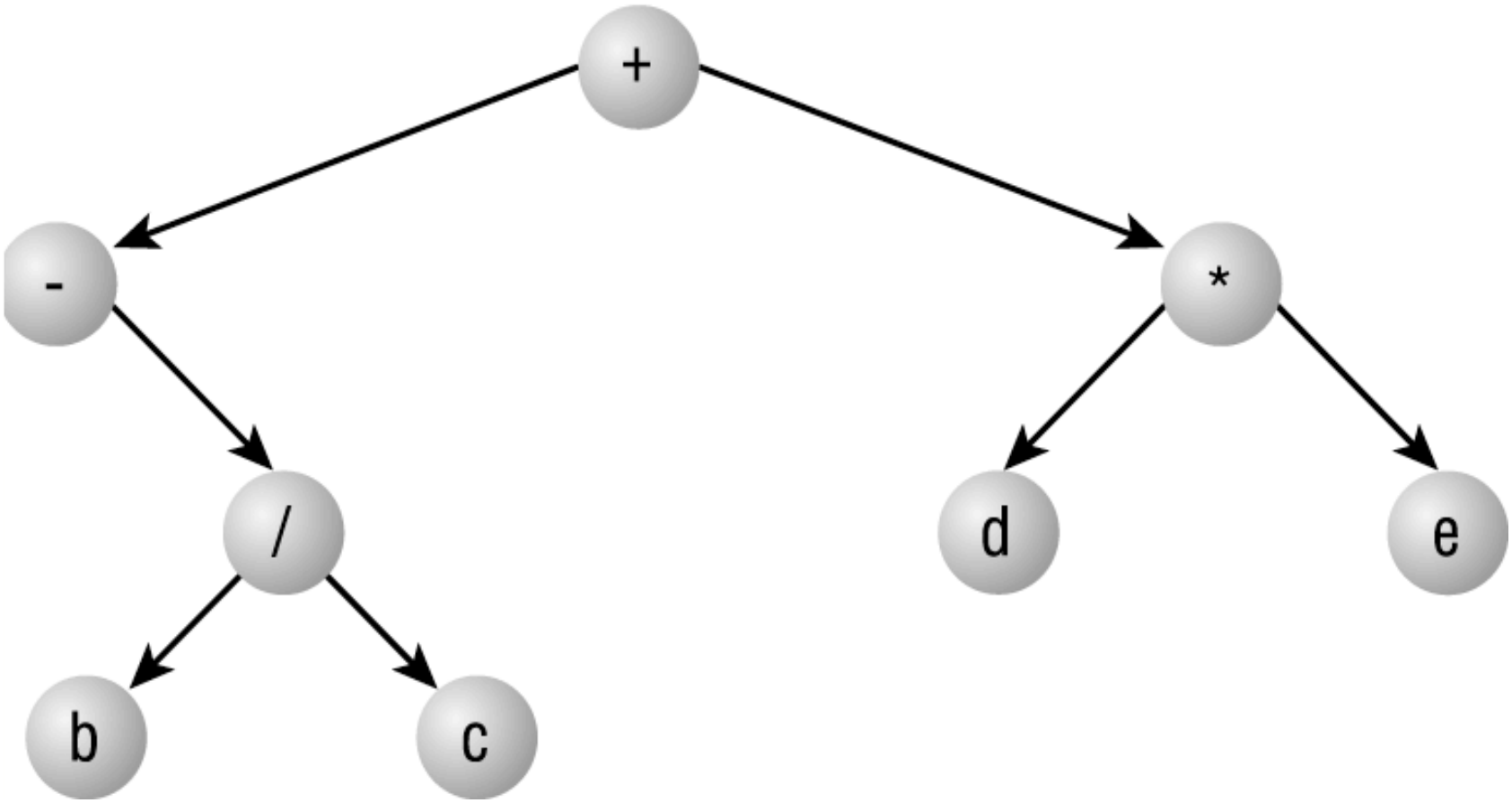
Code Challenge #2: 3/6, 9p, Siebel 0224.

Exam Visitation: 3/4, 7:30p, Siebel 0216.

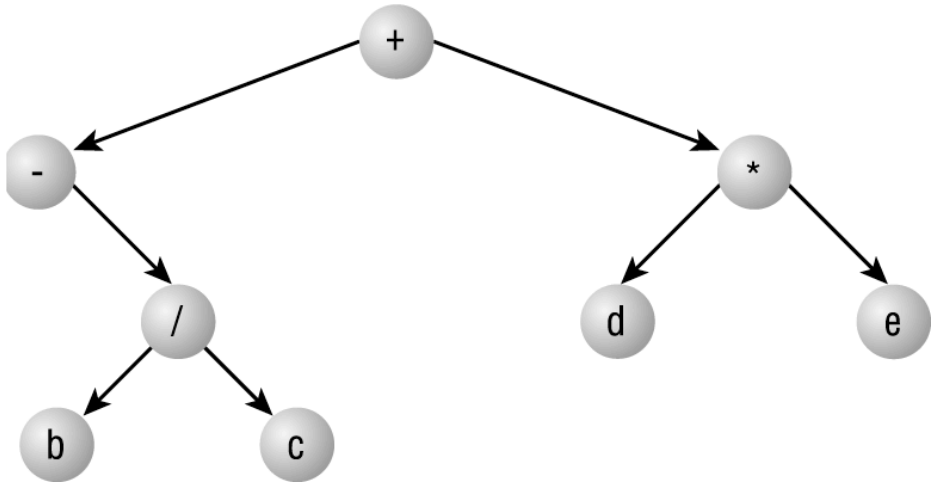
TODAY: tree traversals



Traversal – scheme for visiting every node.



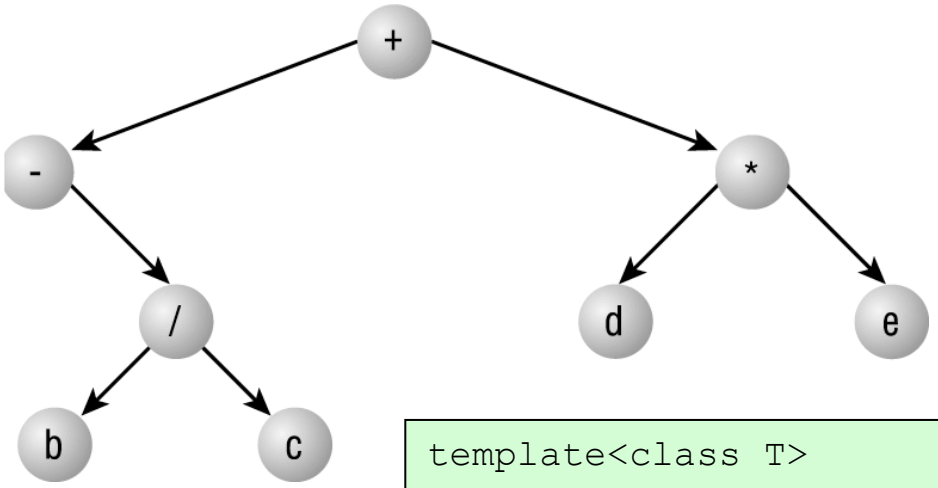
Traversal – scheme for visiting every node.



- At each node, two choices for direction (left, right)
- After both subtrees of a node are complete, move back up tree
- Each node is “visited” 3 times in a traversal.
- Each of those visit times corresponds to a particular kind of traversal.

http://nova.umuc.edu/~jarc/idsv/lesson1.html

Traversals:



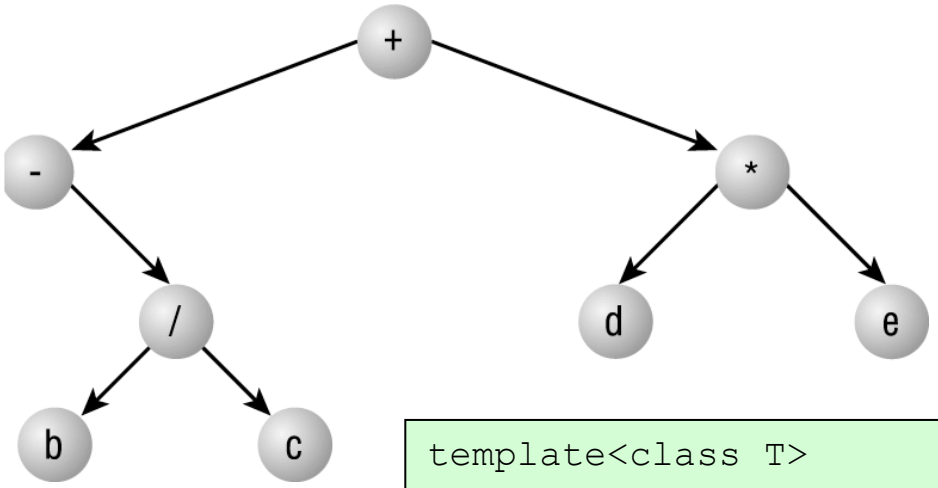

```
template<class T>
void binaryTree<T>::_______Order(treeNode * croot){
     if (croot != null){


          ________Order(croot->left);


          ________Order(croot->right);


     }
}
```

Traversals:

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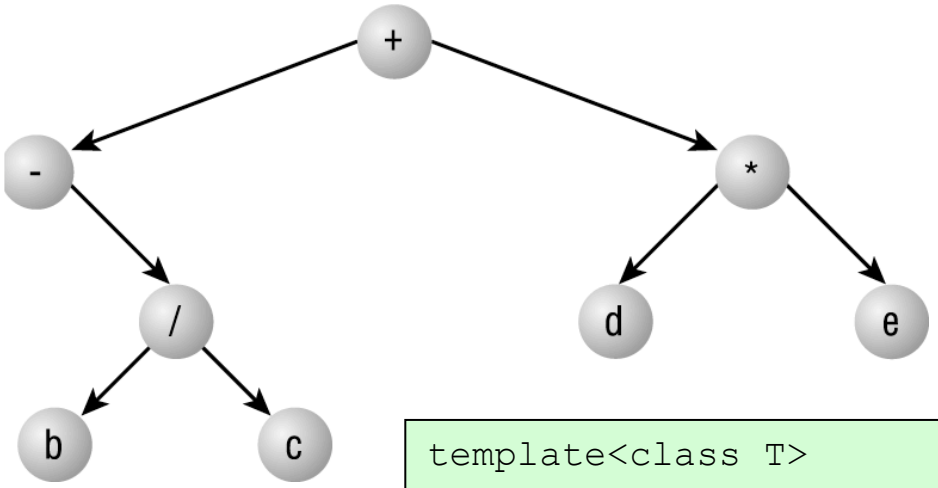
Traversals:




```
template<class T>
void binaryTree<T>::_______Order(treeNode * croot){
     if (croot != null){


          ________Order(croot->left);


          ________Order(croot->right);


     }
}
```

Traversals: A few mechanical questions…

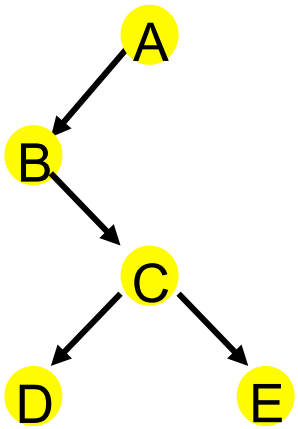
What is the 2nd letter printed in an inOrder traversal of this tree?

In what position is C printed in a postOrder traversal of this tree?

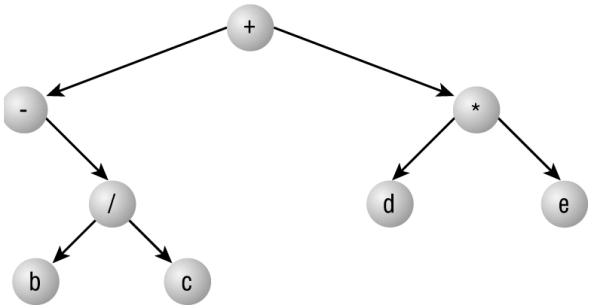
Which traversal prints the data of the tree in ABC order?

Draw and label a tree containing 8 integers so that an inOrder traversal of the tree prints the numbers in order.

Draw and label a tree containing 8 integers so that a preOrder traversal of the tree prints the numbers in order.



Traversals: A few discussion questions…



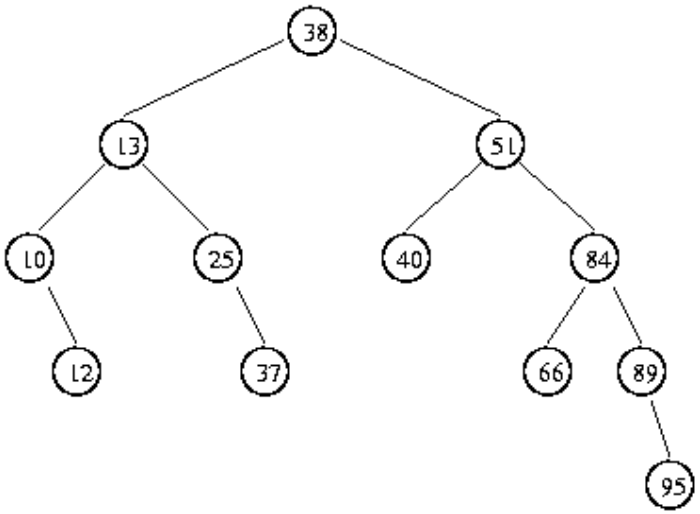

```
template<class T>
void binaryTree<T>::preOrder(treeNode * croot){
     if (croot != null){
          yell(croot->data);
          preOrder(croot->left);
          preOrder(croot->right);
     }
}
```

What is running time?

Is preOrder public or private?

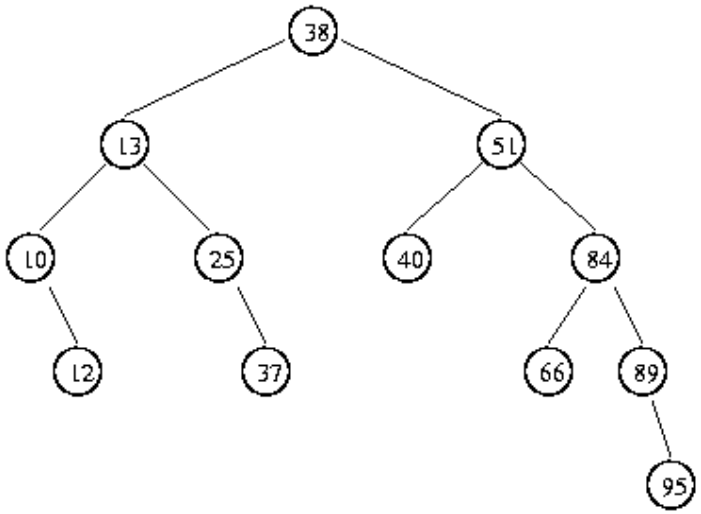
How could we make this function employ a different function upon a visit?

Traversals: a broader view…




```
template<class T>
treeNode * binaryTree<T>::copy(treeNode * croot){









}
```

Traversals: another broader view…




```
template<class T>
void binaryTree<T>::clear(treeNode * croot){









}
```