Quiz Questions

In delete operation of BST, we need inorder successor (or predecessor) of a node when the node to be deleted has both left and right child as non-empty. Which of the following is true about inorder successor needed in delete operation? *

/

2

Inorder Successor is always a leaf node

Inorder successor is always either a leaf node or a node with empty left child

Inorder successor may be an ancestor of the node

Inorder successor is always either a leaf node or a node with empty right child

Add individual feedback

What does the following piece of code do? public void func(Tree root){ func(root.left()); func(root.right()); System.out.println(root.data());}

/

2

Preorder traversal

Inorder traversal

Postorder traversal

Level order traversal

Add individual feedback

How will you find the minimum element in a binary search tree? *

/

2

while(root.left() != null){root = root.right();}

while(root.left() != null){root = root.left();}

while(root.right() != null){root = root.left();}

Add individual feedback

A linear list of elements in which deletion can be done from one end (front) and insertion can take place only at the other end (rear) is known as a ?

/

2

Queue

Stack
Tree
Linked list

Add individual feedback

Let the following circular queue can accommodate maximum six elements with the following datafront = 2 rear = 4queue = _____; L, M, N, ___, ___What will happen after ADD O operation takes place?

/

2

front = 2 rear = 5

front = 3 rear = 5
front = 3 rear = 4
front = 2 rear = 4

Add individual feedback

If the elements “A”, “B”, “C” and “D” are placed in a queue and are deleted one at a time, in what order will they be removed?

/

2

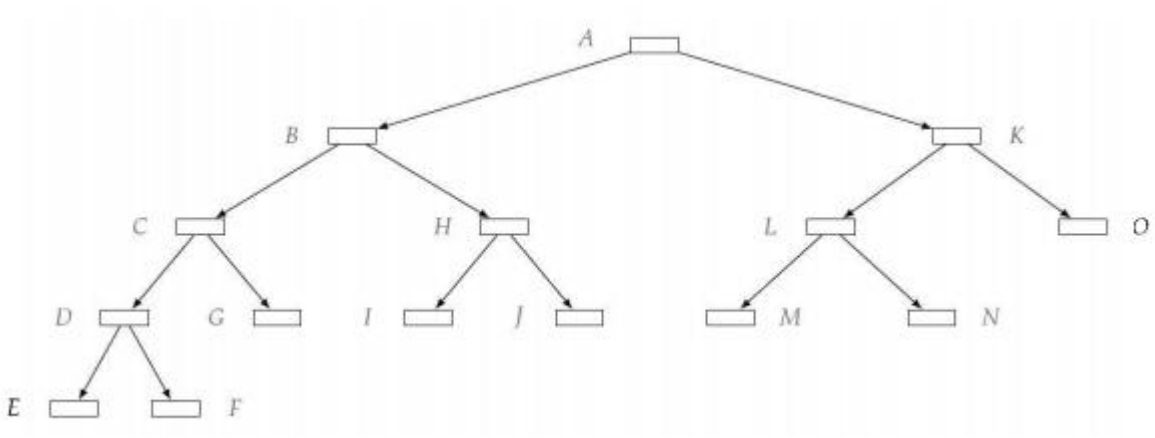
ABCD

DCBA
DCAB
Option 4

Add individual feedback

Check whether the tree is height balanced

/
2



true

false

Add individual feedback

in the above tree find the height of the tree

/
2

3
4

5
2

Add individual feedback

What is the code that find the height of a node

/
2

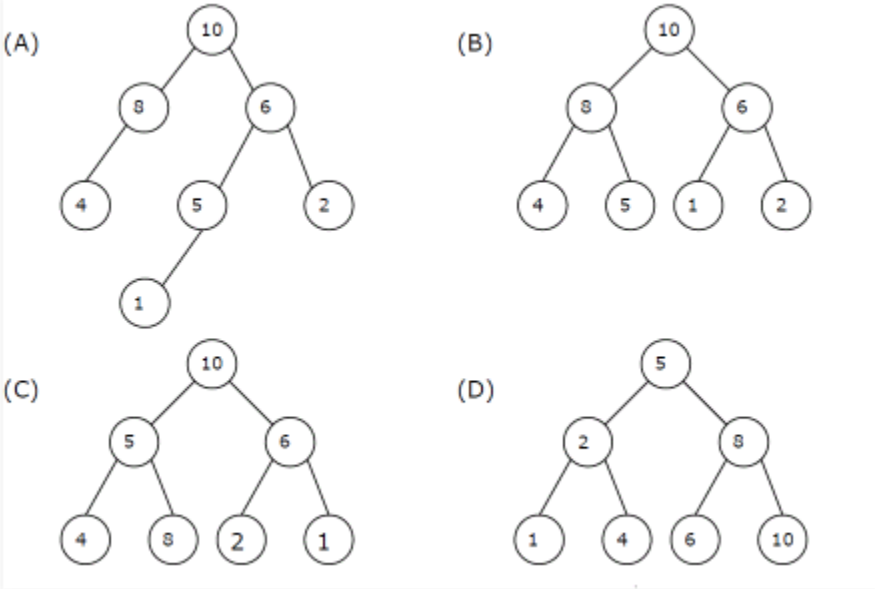
int height = Math.max(leftResult.height , rightResult.height) + 1;

int height = Math.max(leftResult.height , rightResult.height) - 1;
int height = Math.min(leftResult.height , rightResult.height) + 1;
int height = Math.min(leftResult.height , rightResult.height) - 1;

Quiz Questions

A max-heap is a heap where the value of each parent is greater than or equal to the values of its children. Which of the following is a max-heap? *

/
2



A
B

C
D

Add individual feedback

What is the complexity of adding an element to the heap?

/
2

O(log n)
O(log h)
O(h)
Both A and C

Add individual feedback

Heap can be used as _____

/
2

Priority queue

Stack
A decreasing order array
ArrayList

Add individual feedback

An array consists of n elements. We want to create a heap using the elements. The time complexity of building a heap will be in order of

/
2

O(n*n*logn)
O(n*logn)

O(n*n)
O(n *logn *logn)

Add individual feedback

Which one of the following array elements represents a binary min heap?

/
2

12 ,10 ,8 ,25 ,14, 17
8 ,10, 12 ,25, 14, 17

25 ,17, 14 ,12, 10, 8
14 ,17, 25, 10, 12, 8

Add individual feedback

Suppose k=4, String [] s={"aaa","ab","abcca","aacddeg"} minHeap.poll() will return which string?

/
2

```
public static List<String> topK(int k, Iterator<String> iter) {
  PriorityQueue<String> minHeap
      = new PriorityQueue<>(k, new Comparator<String>() {
          public int compare(String s1, String s2) {
            return Integer.compare(s1.length(), s2.length());
          }
        });
  while (iter.hasNext()) {
    minHeap.add(iter.next());
```

aaa
ab

abcca
aacddeg

Add individual feedback

Each string is processed in _____time, which is the time to add and to remove the minimum element from the heap.

/
2

O(log k)

O(nlogk)
O(n)
O(n*n)

Add individual feedback

How would you compute the k stars which are closest to Earth?

/
2

Opublic int compare(ArrayEntry ol , ArrayEntry o2) {return Integer.compare(ol.value , o2.value);}
public int compareTo(Star rhs) {return Double.compare(this.distance(), rhs.distance());}

public int compareTo(Star rhs){ return Double.compare(this.star(), rhs.star());

Add individual feedback

Construct a min heap from A[ ]={120, 140, 40, 50, 80, 70, 60, 90, 20, 100} After deleting a root element, what will be the post order traversal of the heap?

/

2

140 90 100 50 80 40 120 60 70
140 100 80 90 120 70 50 60 40
140 100 90 80 50 120 70 60 40

140 100 90 80 120 70 50 60 40

Correct answer

140 100 80 90 120 70 50 60 40

Add individual feedback

Heap is an example of ..... *

/

2

complete binary tree

spanning tree
sparse tree
binary search tree

Quiz Questions

11&~(11-1) *

/

2

2
1

10
4

Add individual feedback

The parity of (11010111) is *

/

2

```
public static short parity(long x) {
  x ^= x >>> 32;
  x ^= x >>> 16;
  x ^= x >>> 8;
  x ^= x >>> 4;
  x ^= x >>> 2;
  x ^= x >>> 1;
```

```
  return (short)(x & 0x1);
}
```

1
0

5
2

Add individual feedback

Extract the i-th and j-th bits of x, and see if they differ,what is the correct statement.

/
2

(((x >>> i) & 1) != ((x>>> j) & 1))

(((x << i) & 1) != ((x<< j) & 1))
(((x >>> i) & 1) == ((x>>> j) & 1))

Add individual feedback

reverse(-314) is

/
2

```
public static long reverse(int x) {
  long result = 0;
  long xRemaining = Math.abs(x);
  while (xRemaining != 0) {
    result = result * 10 + xRemaining % 10;
    xRemaining /= 10;
  }
  return x < 0 ? -result : result;
}
```

413
-413

312
567

Add individual feedback

what is the output :plusOne(1,9,9)

/

2

```
public static List<Integer> plusOne(List<Integer> A) {
  int n = A.size() - 1;
  A.set(n, A.get(n) + 1);
  for (int i = n; i > 0 && A.get(i) == 10; --i) {
    A.set(i, 0);
    A.set(i - 1, A.get(i - 1) + 1);
  }
  if (A.get(0) == 10) {
    // Need additional digit as the most significant digit (i.e., A.get(0))
    // has a carry-out.
    A.set(0, 0);
    A.add(0, 1);
  }
  return A;
}
```

2,0,0

1,9,9
1,0,0

Add individual feedback

, if A = (3,3,1,0,2,0,1), we iteratively compute the furthest we can advance to as we can advance to and i + A[i].What is the arraylist of the resultant furthest arraylist

/

2

0,3,4,4,4,6,6,7,

0,3,3,4,4,6,6,7,
0,3,3,3,4,6,6,7,

Add individual feedback

consider the following sequence ofstock prices: (310,315, 275, 295, 260, 270, 290, 230, 255, 250).Find the maximum profit for buy and sell once

/

2

20
30

10
25

Add individual feedback

suppose the input array is (12,11,13,9,12,8,14,13,15).the maximum profit for buy and sell twice

/

2

7
8
9
10

Add individual feedback

the permutation (2,0,1,3} applied to A = (a,b,c,d} yields the array A after operation

/

2

(b,c,a,d).

(c,b,a,d).
(b,c,d,a).

Add individual feedback

if the input is (1,0,3, 2) compute the next permutation

/

2

(1, 2,0,3)

(1, 2,3,0)
(3, 2,0,1).
(1, 0,2,3).

Add individual feedback

Quiz Questions

Find the output for String s="-123" for (int i = s.charAt(0) =='-' ? 1 : 0; i < s.length(); ++i) {final int digit = s.charAt(i) - ’0’;result = result + digit; return s.charAt(0) =='-' ? -result : result; *

/

2

-123
-6

6
123

Add individual feedback

for the string is "615", b1 =7 and b2 = 13, then the integer value, expressed in decimal, is

/

2

312
245
306

Add individual feedback

If String col="ZZ" find the result return from the function

/

2

```
public static int ssDecodeColID(final String col) {
  int result = 0;
  for (int i = 0; i < col.length(); i++) {
    char c = col.charAt(i);
    result = result * 26 + c - 'A' + 1;
  }
  return result;
}
```

670
702

777
701

Add individual feedback

The look-and-say sequence starts with 1. Find the 5th sequence is

/

2

312211

132211
312111
312212

Add individual feedback

Which of these method of String class can be used to test to strings for equality?

/

2

isequal()
isequals()
equal()
equals()

Add individual feedback

Consider a class List that implements an unordered list. Suppose it has as its representationa singly linked list with a head and tail pointer (i.e., pointers to the first and last nodes in thelist). Given that representation, which of the following operations could be implemented in O(1)time? I. Insert item at the front of the list II. Insert item at the rear of the list III. Delete front item from list IV. Delete rear item from list

/
2

I and II
I and III
I, II, and III

I, II, and IV

Add individual feedback

void fun1(Node head){ if(head == NULL) return; fun1(head.next); System.out.println(head.data);}

/
2

Prints all nodes of linked lists
Prints all nodes of linked list in reverse order

Prints alternate nodes of Linked List
Prints alternate nodes in reverse order

Add individual feedback

Assume that reference of head of following doubly linked list is passed to above function 1 <--> 2 <--> 3 <--> 4 <--> 5 <-->6. What should be the modified linked list after the function call?

/
2

```
void fun(Node head_ref){
  Node temp = NULL;   Node current = head_ref;
  while (current != NULL)  {
    temp = current.prev;
    current.prev  = current.next;
    current.next = temp;
    current = current.prev;   }
  if(temp != NULL )
    head_ref = temp.prev;
}
```

2 <--> 1 <--> 4 <--> 3 <--> 6 <-->5
5 <--> 4 <--> 3 <--> 2 <--> 1 <-->6.
6 <--> 5 <--> 4 <--> 3 <--> 2 <--> 1.

Add individual feedback

What is the output of following function for start pointing to first node of following linked list? 1->2->3->4->5->6

/
2

```
void fun(struct node* start){
 if(start == NULL)   return;
 System.out.println( start.data);
 if(start.next != NULL )
  fun(start.next.next);
 System.out.println( start.data);
}
```

1 4 6 6 4 1
1 3 5 1 3 5
1 2 3 5
1 3 5 5 3 1

Add individual feedback

Find the output of the following prefix expression. *+2-2 1/-4 2+-5 3 1

/

2

2

12
10
4

Add individual feedback

Suppose a circular queue of capacity (n – 1) elements is implemented with an array of n elements. Assume that the insertion and deletion operation are carried out using REAR and FRONT as array index variables, respectively. Initially, REAR = FRONT= 0. The conditions to detect queue full and queue empty are

/

2

Full: (REAR+1) mod n == FRONT, empty: REAR == FRONT

Full: (REAR+1) mod n == FRONT, empty: (FRONT+1) mod n == REAR
Full: REAR == FRONT, empty: (REAR+1) mod n == FRONT
Full: (FRONT+1) mod n == REAR, empty: REAR == FRONT

Add individual feedback

Consider the usual algorithm for determining whether a sequence of parentheses isbalanced. What is the maximum number of parentheses that will appear on the stack AT ANY ONE TIME when the algorithm analyzes: (()(()))(()))

/

2

4
3

2
6

Add individual feedback

If the characters 'D', 'C', 'B', 'A' are placed in a queue (in that order), and then removed one at a time, in what order will they be removed?

/

2

ABCD
ABDC
DCAB
DCBA

Add individual feedback

What data structure is used to perform recursion?

/

2

Stack

Queue
Linked List
Arrays

Add individual feedback

Which is/are the application(s) of stack?

/

2

Function calls
Parentheses check
Evaluation of arithmetic expressions
All of the above

Add individual feedback

Quiz Questions

What is the maximum number of children that a binary tree node can have? *

/

2

0
1
2

3

Add individual feedback

Consider a node in a binary tree is stored at data[i] then its right child is at

/

2

data[i+1]
data[2i+1]

data[2i+2]
data[i+2]

Correct answer

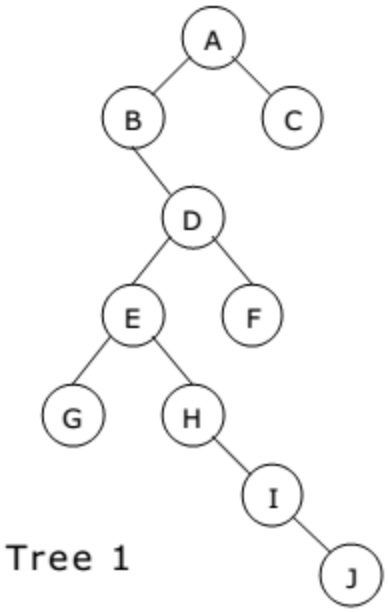
data[2i+2]

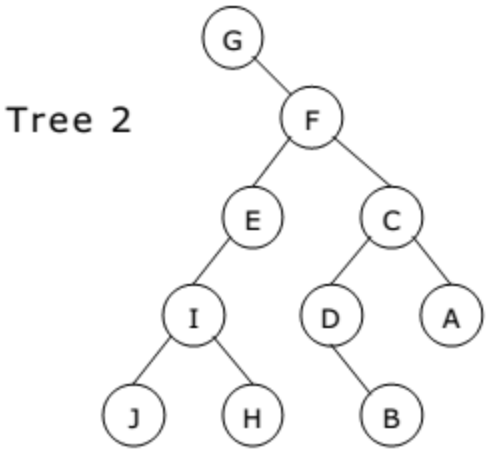
Add individual feedback

which traversal will have same sequence for tree1 and tree2?

/

2





postorder postorder
postorder inorder

inorder postorder
inorder inorder

Add individual feedback

The height of a BST is given as h. Consider the height of the tree as the no. of edges in the longest path from root to the leaf. The maximum no. of nodes possible in the tree is?

/

2

math.pow(2,h-1)-1
math.pow(2,h+1)-1

math.pow(2,h)-1
math.pow(2,h+1)+1

Add individual feedback

Suppose a binary tree is constructed with n nodes, such that each node has exactly either zero or two children. The maximum height of the tree will be?

/

2

(n+1)/2
(n-1)/2

n/2 -1
(n+1)/2 -1

Add individual feedback

Level of a node is distance from root to that node. For example, level of root is 1 and levels of left and right children of root is 2. The maximum number of nodes on level i of a binary tree is In the following answers, the operator '^' indicates power

/
2

2^i-1

2^i
2^i+1
2^(i+1/2)

Add individual feedback

if level is 3 then there will be maximum how many nodes in the binary tree

/
2

3
5
7

4

Add individual feedback

A full binary tree is a tree in which every node in the tree has either 0 or 2 children. Suppose root is at height 0 then minimum no of node in full binary tree of height 3 will be

/
2

7

5
4
8

Add individual feedback

In a full binary tree, every internal node has exactly two children. A full binary tree with 2n+1 nodes contains

/
2

n leaf node
n internal nodes

n-1 leaf nodes
n-1 internal nodes

Add individual feedback

Which traversal reach root at last?

/
2

inorder
postorder

preorder
none ofthese

Add individual feedback

The balance factor of a node in a binary tree is defined as _____

/
2

addition of heights of left and right subtrees
height of right subtree minus height of left subtree
height of left subtree minus height of right subtree

height of right subtree minus one

Add individual feedback

A binary tree stored using linked representation can be converted to its mirror image by traversing it in_____.

/

2

In order.
Preorder

Post order.
Any order.

Add individual feedback

A full binary tree with ‘n’ non-leaf nodes contains _____ nodes.

/

2

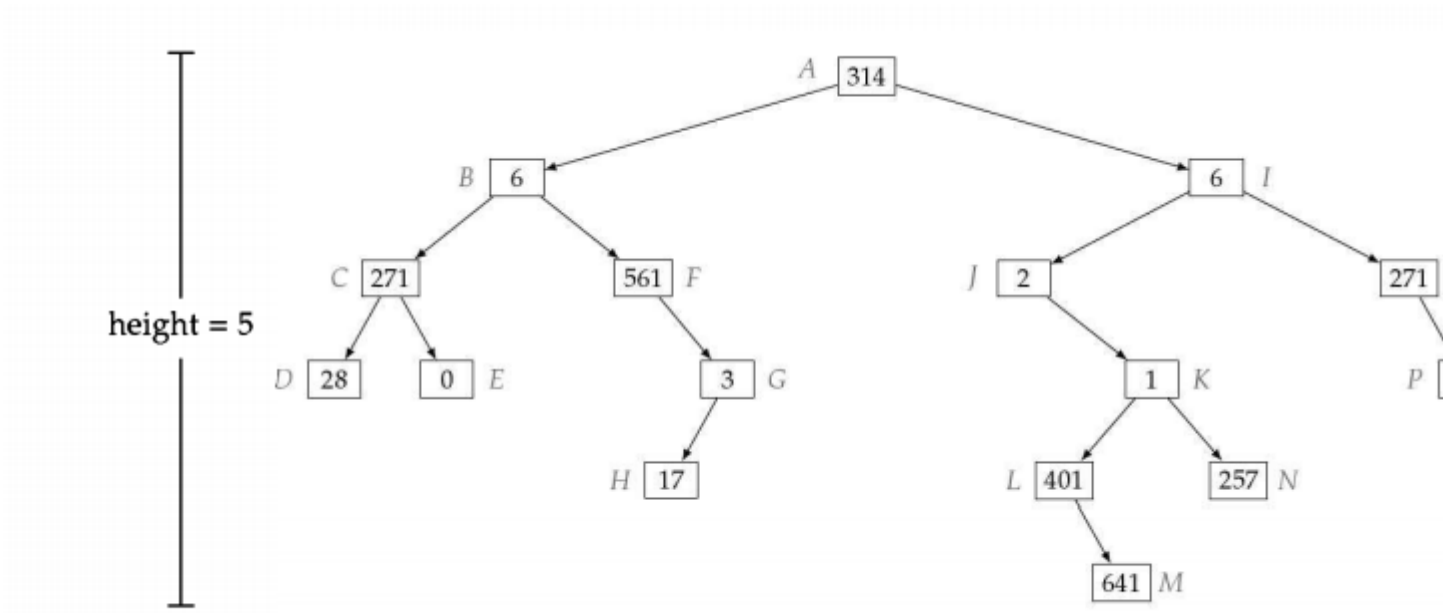
log2 n
n+1 .
2n
2n+l

Add individual feedback

Which of the following option is preorder traversal of the below tree?

/

2



(D,C,E,B, E,H, G,A,J,L, M,K,N,I,O,P).
(A,B,C,D,E, F, G,H, I,J, K,L,M,N,O,P).

(D, E,C,H,G,F,B,M,L,N,K,J, P,O,I,A)
(A B I C F J O D E G K P H L N M)

Add individual feedback

A binary tree is said to be height-balanced if for each node in the tree, the difference in the height of its left and right subtrees is

/

2

atmost zero
atmost one

atleast zero
one

Add individual feedback

Quiz Questions

The number of edges from the root to the node is called _____ of the tree. *

/

2

a)Height
b) Depth

c) Length
d) Width

Add individual feedback

The number of edges from the node to the deepest leaf is called _____ of the tree. *

/
2

a) Height

b) Depth
c) Length
d) Width

Add individual feedback

What is a full binary tree?

/
2

a) Each node has exactly zero or two children

b) Each node has exactly two children
c) All the leaves are at the same level
d) Each node has exactly one or two children

Add individual feedback

In a full binary tree if number of internal nodes is I, then number of leaves L are?

/
2

a) L = 2*I
b) L = I + 1

c) L = I – 1

d) L = 2*I – 1

Add individual feedback

In a full binary tree if there are L leaves, then total number of nodes N are?

/

2

a) N = 2*L
b) N = L + 1
c) N = L – 1
d) N = 2*L – 1

Add individual feedback

Quiz Questions

What is value of i start within for loop?What is the val of result? *

/

2

```
String s="-456";int result = 0;

for (int i = s.charAt(0) =='-' ? 1 : 0; i < s.length(); ++i)

{

final int digit = s.charAt(i) - '0';

result = result * 10 + digit; }

return s.charAt(0) == ? -result : result;
```

0 456
1 -456

0 -456
1 456

Add individual feedback

For example, if the string is "615", base b1 is 7 and convert string to base b2 is 14, then the result should be

/

2

17C

132
1A7
306

Add individual feedback

The bigger issue is the time-complexity—it takes 6 times of each 26 steps to get to "ZZZZZZ". In general, the time complexity is *

/

2

O(n)
O(26)

$O(26^n)$

Option 3

O(k)

Add individual feedback

What is the col id value for String s="AAC"? *

/

2

702
703

705

704

Add individual feedback

String s=""A man, a plan, a canal, Panama." Find the boolean value that is returned here based on the above input to s.

/

2

```
int i = 0, j = s.length() - 1;
while (i < j) {
  // i and j both skip non-alphanumeric characters.
  while (!Character.isLetterOrDigit(s.charAt(i)) && i < j) {
    ++i;
  }
  while (!Character.isLetterOrDigit(s.charAt(j)) && i < j) {
    --j;
  }
  if (Character.toLowerCase(s.charAt(i++))
      != Character.toLowerCase(s.charAt(j--))) {
    return false;
  }
}
return true;
```

true

false

Add individual feedback

What is the time complexity to reverse a set of words in a sentence?

/

2

O(n)

O(n *n)

Add individual feedback

What is the next String for look and say pattern where S="111221"?

/

3

```
private static String nextNumber(String s) {
  StringBuilder result = new StringBuilder();
  for (int i = 0; i < s.length(); ++i) {
    int count = 1;
    while (i + 1 < s.length() && s.charAt(i) == s.charAt(i + 1)) {
      ++i;
      ++count;
    }
    result.append(count);
    result.append(s.charAt(i));
  }
  return result.toString();
}
```

2112211

312211

121112

132211

Add individual feedback