CS302 Quiz 2

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VU Stars WhatsApp: 03066295623

For Paid quizzes

Whatsapp Group:https://chat.whatsapp.com/BEliqpKfBH1CNShjqxSkb4

If the height of perfect binary tree is 4, what willbe the total number of nodes in it?

31

Suppose there are set of fruits and the set ofvegetables, both sets are_____sets.

Disjoint

A binary relation R over S is called an equivalencerelation if it has following property(s)

All of Above

Heap can be used to implement

Priority queue

If a tree has 20 edges/links, then the total numberof nodes in the tree will be:

21

If there are 100 elements in an equivalence class,then we will have_sets initially.

100

Given the values are the array representation of heap; 12 23 26 31 34 44 56 64 78 100 What is the5th smallest element in the given heap?

34

A solution is said to be efficient if it solves theproblem within its resource constraints i.e. hardware and time.

True

Which one of the following is known as "Last-In,First-Out" or LIFO Data Structure?

Stack

What will be postfix expression of the followinginfix expression? infix Expression: a+b*c-d

abc*+d-

For compiler a postfix expression is easier toevaluate than infix expression?

True

Consider the following pseudo code declare astack of characters while (there are more characters in the word to read)

{

read a character

push the character on the stack

}

while (the stack is not empty)

{

pop a character off the stack write the character to the screen

}

What is written to the screen for the input"apples"?

selppa

A binary tree of N nodes has .

Log2 N levels

The easiest case of deleting a node from BST isthe case in which the node to be deleted .

Is a leaf node

If there are N elements in an array then the numberof maximum steps needed to find an element usingBinary Search is .

log2N

Merge sort and quick sort both fall into the samecategory of sorting algorithms. What is this category?

None of the given options.

If one pointer of the node in a binary tree is NULLthen it will be a/an .

External node

We convert the _ pointers of binary to threads inthreaded binary tree.

NULL

If the bottom level of a binary tree is NOT completely filled, depicts that the tree is NOT

complete Binary tree

What is the best definition of a collision in a hashtable?

Two entries with different keys have the sameexact hash value.

Suppose that a selection sort of 100 items has completed 42 iterations of the main loop. How many items are now guaranteed to be in their finalspot (never to be moved again)

42

Suppose you implement a Min heap (with the smallest element on top) in an array. Consider thedifferent arrays below; determine the one that cannot possibly be a heap:

16, 24, 20, 30, 28, 18, 22

Do you see any problem in the code ofnextInOrder

below: TreeNode * nextInorder(TreeNode * p)

```
{
if(p->RTH == thread)return( p->R );
else {
p = p->R;

while(p->LTH == child)p = p->R;
return p;

}

}
```

The function has logical problem, therefore, it willnot work properly.

Here is an array of ten integers: 5 3 8 9 1 7 0 2 6 4The array after the FIRST iteration of the large loop in a selection sort (sorting from smallest to largest).

0 3 8 9 1 7 5 2 6 4

Which one of the following operations returns topvalue of the stack?

Top

Which one of the following is NOT true regardingthe skip list?

List Sh contains only the n special keys.

By using we avoid the recursive method of traversing a Tree, which makes use of stacks andconsumes a lot of memory and time.

Threaded binary tree

What is the best definition of a collision in a hashtable?

Two entries with different keys have the sameexact hash value.

Which formula is the best approximation for thedepth of a heap with n nodes?

log (base 2) of n

which of the following is not true regarding themaze generation?

Remove a randomly chosen wall if the cells itseparates are already in the same set.

Which of the given option is NOT a factor inUnion by Size:

Make the larger tree, the subtree of the smallerone.

when we have declared the size of the array, it is not possible to increase or decrease it during the ofthe program.

Execution

it will be efficient to place stack elements at the start of the list because insertion and removal taketime.

Constant

is the stack characteristic but was implementedbecause of the size limitation of the array.

isEmpty() , isFull()

What kind of list is best to answer questions suchas "What is the item at position n?"

Lists implemented with an array.Each node in doubly link list has,

2 pointers

If there are 56 internal nodes in a binary tree thenhow many external nodes this binary tree will have?

57

A simple sorting algorithm like selection sort or bubble sort has a worst-case of O(n2) time becausesorting 1 element takes O(n) time - After 1 pass through the list, either of these

algorithms can guarantee that 1 element is sorted.

Merge sort and quick sort both fall into the samecategory of sorting algorithms. What is this category?

None of the given options.

Huffman encoding uses tree to develop codes of varying lengths for the letters used in the originalmessage.

Binary tree

Consider a min heap, represented by the followingarray: 10,30,20,70,40,50,80,60 Afer inserting a node with value 31.Which of the following is the updated min heap?

10,30,20,31,40,50,80,60,70

Consider a min heap, represented by the followingarray: 11,22,33,44,55 After inserting a node with value 66.Which of the following is the updated min heap?

11,22,33,44,55,66

Suppose that a selection sort of 100 items has completed 42 iterations of the main loop. How many items are now guaranteed to be in their finalspot (never to be moved again)?

42

Is a data structure that can grow easily dynamically at run time without having to copy existing elements.

Both of these

A complete binary tree of height has nodesbetween 16 to 31 .

4

Which of the given option is NOT a factor inUnion by Size:

Make the larger tree, the subtree of the smallerone.

Here is an array of ten integers:

5 3 8 9 1 7 0 2 6 4

The array after the FIRST iteration of the large loop in a selection sort (sorting from smallest tolargest).

0 3 8 9 1 7 5 2 6 4

Suppose A is an array containing numbers in increasing order, but some numbers occur more than once when using a binary search for a value,the binary search always finds

the first occurrence of a value.

A binary tree with 24 internal nodes has externalnodes. 22

25

77.it will be efficient to place stack elements at thestart of the list because insertion and removal take time.

Constant

“+” is a operator.

Binary

A kind of expressions where the operator is present between two operands called expressions.

Infix

Here is a small function definition:void f(int i, int &k)

{

i = 1;

k = 2;

}

Suppose that a main program has two integer variables x and y, which are given the value 0. Then the main program calls f(x,y); What are thevalues of x and y after the function f finishes?

x is still 0, but y is now 2.

A binary tree with N internal nodes has links, linksto internal nodes and links to external nodes

2N, N-1, N+1

Each node in doubly link list has,

2 pointers

If you know the size of the data structure in advance, i.e., at compile time, which one of thefollowing is a good data structure to use.

Both of these

Which one is a self-referential data type?Link list

There is/are case/s for rotation in an AVL tree,

4

Which of the following can be the inclusioncriteria for pixels in image segmentation.

All of the given options

In a perfectly balanced tree the insertion of a nodeneeds .

One rotation

If there are N elements in an array then the number of maximum steps needed to find anelement using Binary Search is .

log2N

Which of the following is NOT a correct statementabout Table ADT?

A table consists of several columns, known asentities.

Suppose we are sorting an array of eight integers using quick sort, and we have just finished the first partitioning with the array looking like this:

2 5 1 7 9 12 11 10

Which statement is correct?

The pivot could be either the 7 or the 9

What is the best definition of a collision in a hashtable?

Two entries with different keys have the sameexact hash value.