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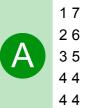
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Question 1

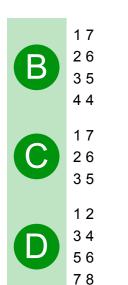
What is the output of following program?

```
#include <stdio.h>
void print(int n, int j)
   if (j >= n)
      return;
   if (n-j > 0 \&\& n-j >= j)
       printf("%d %d\n", j, n-j);
   print(n, j+1);
int main()
    int n = 8;
    print(n, 1);
       17
```









Discuss it

Question 2

Which of the following is correct recurrence for worst case of Binary Search?



$$T(n) = 2T(n/2) + O(1)$$
 and $T(1) = T(0) = O(1)$



$$T(n) = T(n-1) + O(1)$$
 and $T(1) = T(0) = O(1)$



$$T(n) = T(n/2) + O(1)$$
 and $T(1) = T(0) = O(1)$



$$T(n) = T(n-2) + O(1)$$
 and $T(1) = T(0) = O(1)$

Discuss it

Question 3

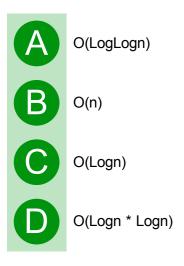
Given a sorted array of integers, what can be the minimum worst case time complexity to find ceiling of a number x in given array? Ceiling of an element x is the

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smallest element present in array which is greater than or equal to x. Ceiling is not present if x is greater than the maximum element present in array. For example, if the given array is $\{12, 67, 90, 100, 300, 399\}$ and x = 95, then output should be 100.



Discuss it

Question 4

Consider the following C program that attempts to locate an element x in an array Y[] using binary search. The program is erroneous. (GATE CS 2008)

```
f(int Y[10], int x) {
       int i, j, k;
       i = 0; j = 9;
       do {
5.
                k = (i + j) /2;
               if (Y[k] < x) i = k; else j = k;
6.
7.
           } while (Y[k] != x && i < j);</pre>
       if(Y[k] == x) printf ("x is in the array");
8.
       else printf (" x is not in the array ") ;
9.
10. }
```

On which of the following contents of Y and x does the program fail?



Y is [1 2 3 4 5 6 7 8 9 10] and x < 10



Recent Discussions

Sumit Khatri this is the sorting technique which can work...

Insertion Sort 7 hours ago

Sumit Khatri no, quick sort requires more swaps than...

Selection Sort · 7 hours ago

Sumit Khatri yes, it is the only sorting technique which...

Selection Sort · 7 hours ago



Y is [1 3 5 7 9 11 13 15 17 19] and x < 1



Y is [2 2 2 2 2 2 2 2 2 2] and x > 2



Y is [2 4 6 8 10 12 14 16 18 20] and 2 < x < 20 and x is even

Discuss it

Question 5

In the above question, the correction needed in the program to make it work properly is (GATE CS 2008)



Change line 6 to: if (Y[k] < x) i = k + 1; else j = k-1;



Change line 6 to: if (Y[k] < x) i = k - 1; else j = k+1;



Change line 6 to: if $(Y[k] \le x) i = k$; else j = k;



Change line 7 to: $\}$ while ((Y[k] == x) && (i < j));

Discuss it

Question 6

You are given a list of 5 integers and these integers are in the range from 1 to 6. There are no duplicates in list. One of the integers is missing in the list. Which of the following expression would give the missing number. ^ is bitwise XOR operator. ~ is bitwise NOT operator. Let elements of list can be accessed as list[0], list[1], list[2], list[3], list[4]

Sudhakar Mishra I think it should be 2n + 1

Data Structures | Binary Trees | Question 12 · 7 hours ago

Sudhakar Mishra (2n)!/((n+1)!*n!)

Data Structures | Binary Trees | Question 6 · 1 day ago

Sudhakar Mishra Always Y will be more than one because after...

Data Structures | Stack | Question 7 · 1 day ago

AdChoices D

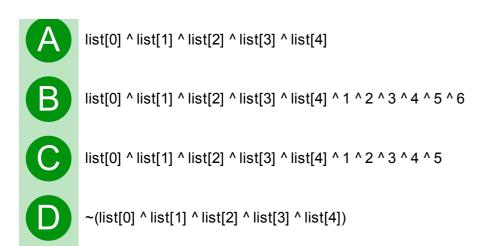
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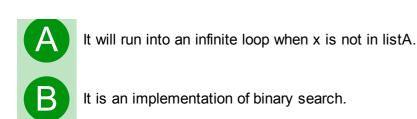
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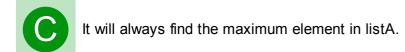
Question 7

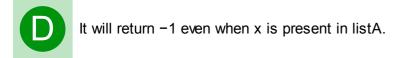
Consider the C function given below. Assume that the array listA contains n (> 0) elements, sorted in ascending order.

```
int ProcessArray(int *listA, int x, int n)
    int i, j, k;
    i = 0;
    j = n-1;
    do
        k = (i+j)/2;
        if (x <= listA[k])</pre>
             j = k-1;
        if (listA[k] \le x)
             i = k+1;
    while (i <= j);
    if (listA[k] == x)
        return(k);
    else
        return -1;
```

Which one of the following statements about the function ProcessArray is **CORRECT?**







Discuss it

There are 7 questions to complete.

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