Truminds Interview Experience by Abhishek Gupta MCA 2021-24

Round 1 : Online Assessment

Platform : HackerEarth

Time : 1 hr 15 min

MCQ Questions : 16

Based on C# , Java Programming, OS, LINUX Terminal Commands, DSA, Machine Learning, Time Complexity Questions, Data Interpretation (Basics) and Aptitude (Basics).

Some of Questions are :

1. In Computer Organization and Design, you are given a stream of data that must be uploaded into a register. The register can hold a maximum of 3 data units at a time. You have to perform this task by using the LRU algorithm that is used for replacement in cache and cache management. Determine the number of Data Read operations that are performed to satisfy the data request from the following stream:
   Start- AEBECEDECEAEBECEDE - End
2. In Computer Organization and Design, which of the following Linux commands or signals inherently implements interprocess communication.
3. Which of the following statements about abstract classes in Java are true:
   a. An abstract class can contain only abstract methods.
   b. An abstract method cannot be declared static.
   c. An abstract method in a class can override an abstract method in its superclass without providing an implementation.
   d. You can declare a class as abstract even though it does not have any abstract methods.
4. Bob is working on a problem using the greedy algorithm. Which of the following is correct about the greedy algorithm?
   Statements:
   1. It always gives the globally optimal solution.
   2. One can schedule the work using this algorithm,
   3. It can identify overlapping sub-problems.
   4. It mostly has lower time complexities compared to other algorithms.
5. Ben needs to implement a data structure that can efficiently answer range queries (queries that ask for information about a range of elements, such as the sum or average of all elements within a range. Which data structure would be best suited for his needs? a. Heap
   b. Linked List
   c. Tree
6. Given an array of integers and an integer target, which of the following algorithm is best suited to find two elements in the array whose sum is equal to the target?
   a. Merge sort algorithm
   b. Binary search algorithm
   c. Breadth first search algorithm
   d. Two-pointer algorithm
7. McNemar formula to find value of test static
8. Lisa wants to determine if there is a significant difference in the performance of two different machine learning algorithms (Algorithm A and Algorithm B) on a binary classification task.
   She collects data from 100 samples and counts the number of correct and incorrect predictions made by each algorithm.

The results are as follows:
Algorithm A
Correct Predictions: 70
Incorrect Predictions: 30
Algorithm B
Correct Predictions: 60
Incorrect Predictions: 40
Using McNemar's formula, find the value of the test statistic.

9. Tickets numbered from 51 to 100 are mixed and one ticket is randomly drawn. What is the probability that the selected ticket contains a number which is a multiple of 5 or 11? a. 9/25
b. 9/50
c. 7/25
d. 3/10

10. Find Output of following Psuedocode :

```
func hackLen(int hack[], int n)
    int m = 1;

    for i = 0 to n - 2
        Set S
        insert(hack[i]) into S
        mn = hack[i]
        mx = hack[i]

        for j = i + 1 to n - 1
            if (S.find(hack[j]) != S.end())
                break;

            insert(hack[j]) into S
            mn = minimum of (mn, hack[j])
            mx = maximum of (mx, hack[j])

            if (mx - mn == j - i)
                m = maximum of (m, mx - mn + 1)

    return m

int hack[] = {2, 2, 2, 6, 6, 11, 2};
int n = 7;
int result = hackLen(hack, n);
```

11. Find time complexity of below code , if we called hacker(3).

```
int hackSetBits(int i)
        unsigned int c = 0
        while(i)
                i &= (i - 1)
                c++
        return c
int hackconvert(int j)
        int count = 0
        j--
        while(j > 0)
                j = j >> 1
                count++
        return count
```

```
bool hacker(int n)
        for (int x = n-hackconvert(n); x < n; x++)
                if (x + hackSetBits(x) == n)
                        return false
        return true
```

12. B is facing west when he/she turns 45 in the clockwise direction and then 90 in the same direction. B finally turns 190" anti-clockwise. Which direction is B facing now?
13. Give Output of C# code :

```
using System;

class Hackster
{
    static void Main(string[] args)
    {
        hack3 h3 = new hack3();
        Hack h4 = h3;

        h4.hack1();
        h3.hack1();
        h3.hack2();
    }
}

abstract class Hack
{
    public virtual void hack1()
    {
        Console.WriteLine("Hi");
    }

    public void hack2()
    {
        Console.WriteLine("Hi from Hackerearth");
    }
}

class hack3 : Hack
{
    public override void hack1()
    {
        Console.WriteLine("Hello from Hackerearth");
    }
}
```

14. In below java code, which marked line is wrong

```
public abstract class Parent // line 1
{
        public abstract void A(); // line 2
        public void D() //line 3
        { }
        protected void E() // line 4
        { }
        private void F() // line 5
        { }
}
public class Child: Parent // line 6
{
```

```
        public override void A() // line 7
        { }
        public void B() // line 8
        {
                D(); // line 9
                E(); // line 10
                F();// line 11
        }
}
public class SubChild // line 12
{
        public static void C() // line 13
        {
                Parent obj = new Parent (); // line 14
                Child obj1= new Child (); // line 15
                obj1.A(); // line 16
                obj1.B(); // line 17
                obj1.D(); // line 18
        }
}
```

One very simple DI Question and one C# output question was also there.

Coding Question :

No of Question = 1

Given a string s of length N that consists of lowercase Latin letters. Each lowercase Latin letter ("a"-"z") is colored with either black or white. You can perform the following operation any number of times (possibly, zero) on the string:
You can swap any two adjacent characters of the string s if the letters that you are swapping are colored differently.
Find the lexicographically smallest possible string s after applying any number of operations (possibly, zero).

Notes :

- A string *a* is lexicographically smaller than a string *b* if and only if one of the following holds:
  - *a* is a prefix of *b* but ,
    a ≠ b
  - In the first position where *a* and *b* differ, the string *a* has a letter that appears earlier in the alphabet than the corresponding letter in b.
- Assume 1 based indexing

E.g,
I/P : N = 4, s = "ahag" , color = "BWBB"
O/P : s = "aagh"

Explanation :
Operation 1 :
s = ahag -> aahg
color = "BWBB" -> "BBWB"
Operation 2 :
s = aahg -> aagh
color = "BBWB" -> "BBBW"

29 Students were shortlisted after this round

Round 2 : Technical Interview

This round was conducted by the Company's CTO and Co-Founder, Mr. Sanjeev Kapur. Initially, I introduced myself, and he then inquired about any projects or internships I had undertaken. I proceeded to describe my project, and we

engaged in a discussion about it for approximately 25-30 minutes. Following this, Mr. Kapur posed several questions related to computer networks:

1. What is the difference between IP and MAC address.
2. Which layer has TCP and IP protocol implemented.
3. How does IP address allotted (using DHCP protocol)
4. 1 DSA problem of reversing order of words in a string
   e.g, I/P : "My name is Abhishek"
   O/P : "Abhishek is name My"
   I first gave him naive approach. He seems to be satisfied with it and skipped to the next question instead of asking me to code it.
5. He asked me when we compile our C code, what are the steps compiler take.
6. He asked me the syntax of dynamic declaration of variables in c and c++ both.
7. He asked me what is Stack and Queue. Give Real life example.
8. Then He asked me my family background , my schooling, my grad and 12th marks etc.
9. He also asked me about cloud computing.
10. He Asked me what OS I use. I told him Ubuntu. Then he asked me to tell him some Ubuntu terminal commands. He asked me what does *sudo* do.
11. In the end, He asked if I have questions for him. So, I asked him a question about a project that He explained at the time or pre-placement talk. We had a 5-10 minute discussion on that.

Round 3 : Managerial Round

Since, My first round was with CTO himself and he is very impressed with my interview. So, I got directly selected on the basis of my round 1 performance only.

Result :

8 Students were eliminated after round 1.
7 Students were selected directly after their round 1 only (I am one of them) and 15 were moved to round 2.
8 (out of 15) Students were selected after round 2.

In total 15 students (8 from MCA and 7 from MSc) were offered 6 month internship + FTE

Some Tips for upcoming batch

First of all don't loose hope after facing rejection. I know it is very hard to move on. But you have to. You will feel that your interview was very good, then why did you get rejected. Believe me, if it was really good you were already got selected. Their is always some mistakes that we do in our interview which are very hard to recognise. But the on who recognise them earlier will be the one who will improve first and got hired in the next one. So, keep analysing your interviews. Try to find every small mistake that you had done. So that you won't repeat them again.

You can reach out to me anytime for any kind of help on
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All the best aspirants