**UBER OT**

Date: 26 july 2021

Time: 8 am to 9 am

Eligibility criteria: None

Platform: Codesignal

Instructions: Camera was off. Tabs werent tracked. Completely unproctored test. We could visit any question that we wanted to solve within 60 minutes.

3 questions (100+300+300)

**Q1)** A binary number is given in a bool vector. Convert it into base6 number. Return the result in a vector. Note: input is given in reverse order and output has to be in reverse order also.

I/P: [0,0,1,1]

o/p: [0,2]

Explanation: The binary number is 1100 (and not 0011) and when converted into base6 it is 20 so output will be revesed like the input so o/p is [0,2].

Solution: Convert the binary number to decimal and convert the decimal number into base6. Use long long int instead of just int.

**Q2)**There can be 3 types of floors in a building: Residential(R), cafeteria(C), official(O). Given the number of floors, return the total possible number of ways to create a building according to the owner’s wishes. Wishes: 1) There cannot be more than one cafeteria in the entire building 2) There can not be more than 2 consecutive official floors in the entire building. Since the answer can be long, modulo it 10^9+7.

Constraints: 1<=f<=10^5

I/P: 2

O/P: 8

Explanation: Possible ways are RR,RO,OR,RC,CR,OC,CO,OO

I/P: 3

O/P: 19

Remarks: 3D DP or PnC I guess

**Q3)** Count the number of ways to form an array having integers in a given range such that total sum is divisible by 3. The below link contains the solution when total sum is divisible by 2 but in OT divisble by 3 was asked.

Reference:<https://www.geeksforgeeks.org/ways-to-form-an-array-having-integers-in-given-range-such-that-total-sum-is-divisible-by-2/>

**DE SHAW OT**

Date: 26 july 2021

Time: 11 am to 12:35 pm

Eligibility criteria: 7/10

Platform: hackerrank

Instructions: Camera was on. Tabs were tracked. Completely proctored test. We couldn’t go back to the previous question and if we solve a question early and submitted then the remaining time wasn’t rolled over.

3 Questions(25 mins+35 mins+35mins)

Q1) Simple question that could have been solved using brute force.

Q2) This question was exactly similar to what was asked in uber ot few hours ago. In uber OT instead of divisible by 2, it was divisible by 3. Question:

<https://www.geeksforgeeks.org/ways-to-form-an-array-having-integers-in-given-range-such-that-total-sum-is-divisible-by-2/>

or

<https://www.geeksforgeeks.org/count-of-permutations-such-that-sum-of-k-numbers-from-given-range-is-even/>

Both these questions are different in statements but I think they are doing the same work.

Q3)  The third question was similar to<https://www.hackerrank.com/challenges/crush/problem>

It wasn’t exactly the same tho. The extra thing given was “p” number of operations. Try to solve the question in the above link and you will have a fair idea of logic.

Given

vectors: lines,x,L,R

int: p(number of operations) and q(size of x,L,R) and n(size of lines)

I/P:

Lines={2,15,6,5}

x={-5,-10,5,7,-8}

L={2,0,0,1,2}

R={2,1,3,3,3}

p=1(p is number of operations)

size of x,r,l is q and size of lines is n

O/P Explanation: L[i] and R[i] represent the inclusive index in lines array. Take all groups of {x[i],L[i],R[i]}. Total sum of lines: 28

First take -5,2,2. This means take lines[2] and add -5 to it. **Total sum of lines: 28-5=23**.This is one operation.

Next take -10,0,1. This means take lines[0] to lines[1] and add -10 to them. **Total sum of lines: 28-20=8**. This is another operation.

Next take 5,0,3. This means take lines[0],lines[1],lines[2],lines[3] and add 5 to them. **Total sum of lines: 28+20=48**. This is another operation.

Another operation: 7,1,3. This means take lines[1],lines[2],lines[3] and add 7 to them. **Total sum of lines: 28+21=49**.

Another operation: -8,2,3. This means take lines[2] and lines[3] and add -8 to them. **Total sum of lines: 28-16=12**.

You can see from above explanation that the max total number of lines is 49 and min number of lines is 8. So the answer will be => return {49,9}. Since p was 1 here so we just performed 1 operation q times without updating the lines array and got the max and min.

If p is given greater than 1, then we have to update our lines array also.

Suppose p is 2 then from x,L,R we can take 7,1,3. This means take lines[1],lines[2],lines[3] and add 7 to them. **Total sum of lines: 28+21=49**.

The old lines array: {2,15,6,5} and updated lines array: {2,22,13,12}.

Now from x,L,R we can take 5,0,3. This means take lines[0],lines[1],lines[2],lines[3] and add 5 to them. **Total** **sum of lines array: 49+20=69**.

These were the two operations and we have the max answer as 69. Similarly perform 2 operations on the original lines array and find the min answer. Return {min,max}

Note: If min becomes less than 0 then make it 0 and that will be the answer because lines can never be negative. Also take the mod of the all the results and remember that the mod of negative number shouldn’t by negative.

**ARCESIUM OT**

Date: 29 july 2021

Eligibily criteria: 7 or more CGPA for MCA. They shortlisted students with cgpa>=8.2

Platform: Hackerank

Time: 12:30PM to 13:50PM (80 minutes)

Instructions: Camera wasn’t on but tabs were tracked. Test was partially proctored.

SECTION A had questions based on reasoning and quant(like profit loss,work time, find age etc)

SECTION B had questions on OOP,OS,SQL,output etc (java and c++ based)

SECTION C had two EASY questions

Q1) Just the statement was a little bit different but the question was exactly this:<https://www.hackerearth.com/practice/data-structures/trees/heapspriority-queues/practice-problems/algorithm/monk-and-champions-league/>

Screenshot just in case the link is broken now:

Q2) Similar but not exact question here(section 3 q1):<https://www.geeksforgeeks.org/arcesium-interview-experience-for-software-engineer-internship-2/>

Solution of the question asked in OT:

int main(){

  // day 1 answer=0

  // day 2 answer=0

  // day 3 answer=1

  // day 4

  // day 5 to day 7 answer=3

  // day 8

  // day 9 to day 15 answer=7

  // day 16

  // day 17 to day 31 answer=15

  // day 32

  // day 33 to day 63 answer=31

  int day; cin>>day;

  int p=log2(day);

  if(day==pow(2,p)) p--;

  cout<<pow(2,p)-1;

}

**MICROSOFT OT**

Date: 28 july 2021

Eligibily criteria: 9 or more CGPA for MCA

Platform: Codility

Time: 6:50PM to 7:50PM

Two questions in OT to be done in 60 minutes. Camera wasn’t on and tabs weren’t tracked. Test was not proctored.

Q1)<https://leetcode.com/discuss/interview-question/1165018/Microsoft-or-OA-or-India/910820> (Based on overlapping intervals)

Q2) This question was a variation of coin change.

You have just rolled a dice several times. The N roll results that you remember are described by an array A. However, there are F rolls whose results you have forgotten. The arithmetic mean of all of the roll results (the sum of all the roll results divided by the number of rolls) equals M. What are the possible results of the missing rolls? Write a function that, given an array A of length N, an integer F and an integer M, returns an array containing possible results of the missed rolls. The returned array should contain F integers from 1 to 6 (valid dice rolls). If such an array does not exist then the function should return [0].

Example: Given A=[3, 2, 4, 3], F=2, M=4, your function should return [6, 6]. The arithmetic mean of all the rolls is (3+2+4+3+6+6)/6=24/6=4

Example: Given A=[1,5,6], F=4, M=3, your function may return [2,1,2,4] or [6,1,1,1] (among others)

Example: Giyen A[6,1], F=1, M=1, your function should return[0]. It is not possible to obtain such a mean.

Constraints:  N and F are integers within the range [1,100000]

Each element of array A is an integer within the range [1,6]

M is an integer within the range [1,6].

Partial sol: A little tricky part is to find the array and return it. Check the solution and notice how the ans vector is being calculated.

int n=A.size(),s=0;

  for(int x:A) s+=x;

  int sum=(n+F)\*M-s;

  if(F>sum || sum>6\*F) return {0};

  vector<int>ans;

  for(int i=F;i>=0;i-=1){

ans.push\_back(sum/i);

sum-=sum/i;

  }

return ans;

**CODENATION OT**

Date: 29 july 2021

Eligibily criteria: None

Platform: InterviewBit

Time: 4:00PM to 5:30PM (90 minutes)

Instructions: Camera wasn’t on and tabs werent tracked. Test was unproctored.

Process Structure:

1) Online Coding Test (90 minutes)

2) Online Cognitive Test (15 minutes)

All questions can be found here: <https://www.youtube.com/watch?v=adNuHe1Z0cE&t=415s>

**GS OT**

Date: 5 august 2021

Time: 10 am to 12:15 pm (135 mins)

Eligibility criteria: None

Platform: Hackerrank

Instructions: Camera was on. Test was proctored. Switching between the sections was allowed but whenever you switch to one section, the timer of that section starts and the same timer of the other section was paused. Once you finish and submit one section, you cannot visit it again.

Section 1 (Coding section – 2 questions – 30 mins)

Q1) In this question we had to traverse the 2d array in zigzag manner and  do a very basic thing. So if you can do zig zag traversal on 2d array then you can easily solve this question.

Reference:<https://www.geeksforgeeks.org/print-matrix-zag-zag-fashion/>

Q2)<https://www.geeksforgeeks.org/check-number-can-written-sum-k-prime-numbers/>

Section 2 (Problem solving MCQ section – 8 questions – 25 mins)

Q1) This question was on Area under the curve(It wasn’t super simple but could have been solved)

Q2) Find the number of solutions of the given trignometric equation in the interval 0 to 2\*pi

Q3) An easy question on set theory

Q4) Find sum of eigen values in the given 3x3 matrix

Q5) what is the max value of ab+bc+cd if a+b+c+d is 63 and a,b,c are natural numbers

Q6) Two distinct non negative numbers are selected in such a way that the average of twice the first number and the second number is 60. Find the possible numbers of x and y.

Q7) Given: Log4a(1/2)-loga(1/8)-loga/2(2)=1/4. Find a.

Q8) I don’t remember it. Might be really easy.

Section 3 (Advanced section  - 1 question – 45 mins)

Q1)<https://www.geeksforgeeks.org/find-all-occurrences-of-the-word-in-a-matrix/>

Section 4: (Subjective section – 2 questions – 15 mins)

Q1) If you are working on some project and you are about to finish it on time but suddenly your partner is not able to continue further due to personal reasons than in this case what will you do.

Q2) Any instance when you were very excited and determined to do something and you ended up with better results than your expectations.

Section 5 (CS MCQ section – 7 questions – 20 mins)

Q1) Given an unsorted array: Arr[]={8,9,4,1,10,6,5}. Find number of passes required so that the element 8 is placed at it’s correct position if we sort the array using quick sort. Note: pivot is always the last element.

One question was based on string output

Two questions were on java OOP output

One question on TCP/IP

One Ethernet numerical

One question was on semaphore:  What will happen when the process executed the wait() operation and find the semaphore value is not positive.

**ORACLE OT**

Date: 9 august 2021

Eligibily criteria: 7 CGPA and above with no active backlogs

Profiles: We had to select our preferences

1) Server Technology

2) Application development

Platform: Their own platform

Time: Could have started anywhere between 6:00PM to 6:45PM and total test was of 107 minutes.

Instructions: Camera was on. Test was proctored. The OT was MCQ based only.

4 sections

Section 1: Contextual communication 20 questions 20 minutes

Section 2: Coding skills 16 questions 25 minutes

Section 3: Computer Science knowledge 17 questions 15 minutes

Section 4: Software Engineering Aptitude 36 questions 47 minutes

**MORGAN STANLEY OT**

Date: 15 August 2021

Eligibily criteria:  CGPA 7.5 and above with No Active Backlogs

Platform: amcat global aspiring minds

Time: Started at 9:00 AM. Test was of 100 minutes

Instructions: Camera wasn’t on

Section A: 10 questions in 20 minutes. This section was based on reasoning and quant.

Section B: 7 questions in 20 minutes. Here we had to correct some logical or syntactical errors in the given code and run it. For some questions, we had to add a couple of lines of code in the already given code and run it. The questions were easy.

Section C: 3 questions in 60 minutes

Q1) The MNC Compsoft system has a list of N processes to be executed. The list consists of the priority of the processes referred to as '0’ and '1' and each process is identified by a unique ID from 0 to N-1. 0 signifies low priority processes and '1' signifies high priority processes. To increase the efficiency of computation the developers have decided to assign high priority to one of the low priority processes in the list. The low priority process present at the maximum interval from the high priority process in the list will be assigned the high priority. The developers wish to know the maximum interval of a low priority process from the high priority process in the process list which will be updated to high priority.

Write an algorithm to print the maximum interval of the low priority process from the closest high priority process which will be updated to high priority.

Input: The first line of input consists of an integer  - numberProcess representing the number of processes(N). The second line of input consists of N space-separated integers, representing the priority of the processes in the list. Constraints: 2<=numberProcess <=2\*10000

Example input:

7

1 0 0 0 1 0 0

Output: 2

Solution: Only one ts was failing

#include <bits/stdc++.h>

using namespace std;

int main() {

int n;

cin >> n;

vector<int> arr(n);

for(int i=0; i<n; i++) cin >> arr[i];

vector<int> left(n), right(n);

int id = INT\_MIN;

for(int i=0; i<n; i++) {

     if(arr[i]==1) id = i;

     else left[i] = i-id;

}

id = INT\_MAX;

for(int i=n-1; i>=0; i--) {

     if(arr[i]==1) id = i;

     else right[i] = id-i;

}

for(int i=0; i<n; i++) {

     left[i] = min(left[i], right[i]);

}

int min = \*(max\_element(left.begin(), left.end()));

cout << min;

return 0;

}

Q2) It was boundary traversal on a tree but the input was given in integers.

Example: First line contains(n number of nodes and e number of edges). Then we have e lines representing edges.

10 9 (n=10 and e=9)

1 2

1 3

2 4

2 5

3 6

3 7

4 8

4 9

5 10

Q3) <https://www.geeksforgeeks.org/count-of-sub-strings-with-equal-consecutive-0s-and-1s/>

**SAP OT**

Date: 15 August 2021

Eligibily criteria:  CGPA 7 and above. In Standard 10th – 12th: 60% and above

Platform: talent central shl

Time: 12:30PM to 1:15PM. Test was of 45 minutes

Instructions: Camera wasn’t on but tabs were tracked. Test was partially proctored.

Two easy questions were to be solved in 45 minutes. Questions were different for different students. They were in sets.

Q1) Count the number of consonants in the given character array and print the count.

Q2) Given n,k and an integer array of size n. Print first k elements of the array in ascending order and remaining n-k elements in descending order.

Input:

8 3

11 7 5 10 46 23 16 8

Output: 5 7 11 46 23 16 10 8

**CISCO OT**

Date: 17 august 2021

Time: Login anytime between 7 am and 8 am. Test was of 60 minutes.

Eligibility criteria: CGPA 7.0 and above with No Active Backlogs

Platform: hackerrank

Instructions: Test was proctored.

17 questions(15 mcq+2 coding). MCQs were based on computer networks and quant and a couple of questions were off-topic.

Q1)<https://leetcode.com/problems/expressive-words/>

Q2) Not exactly same but similar question:

<https://leetcode.com/problems/reconstruct-original-digits-from-english/>

or

<https://www.geeksforgeeks.org/digits-whose-alphabetic-representations-are-jumbled-in-a-given-string/>

**BNY MELLON OT**

Date: 24 August 2021

Eligibily criteria:  CGPA above 6, no active backlogs

Platform: hackerrank

Time: 7:00PM to 8:30PM. Test was of 90 minutes

Instructions: Test was proctored.

4 questions were to be solved in 90 minutes. Questions were different for different students. They were in sets.

Q1) This questions was to be solved using python only.

Given a list of points each represented by x,y coordinates. Write a python program using numpy to find nearest of those points to a given input point. If there is a tie then return one closer to the origin.

I/P

2

1 1

4 4

2 2

O/P

1 1 (1,1 is closer to 2,2)

I/P

2

1 1

3 3

2 2

O/P

1 1 (1,1, is closer to 2,2, as well as it is close to the origin)

Q2)<https://www.geeksforgeeks.org/count-minimum-number-of-fountains-to-be-activated-to-cover-the-entire-garden/>

Q3)<https://www.geeksforgeeks.org/minimum-steps-reach-target-knight/>

Q4)<https://www.geeksforgeeks.org/unique-paths-in-a-grid-with-obstacles/>

ADOBE OT

Q1) Billy is testing an experimental slot machine that has unequal spinning wheels that shift positions at random. A wheel can have any number of stops from 1 to 9. If it has f stops, then its stops are numbered from 1 to f. After every spin, every wheel will show one stop number in the slot machine's window, but the order of the wheels at the window will be random. On any spin, each stop of a wheel has the same probability of stopping at the window as every other stop on that wheel. Billy runs a series of up to 50 test spins and writes down all the digits visible in the window.

Given the list of all the test results, find the minimum possible total number of stops on all the wheels inside the machine that could have given rise to that series of results.

Format:

The code to parse the input and print the output is already provided. You are to complete the function slotGame in the language chosen, which takes an array of strings of digits and returns an integer.

Constraints:

The test results will contain between 1 and 50 spin notes, inclusive.

Each spin note will contain between 1 and 50 digits, inclusive.

All notes contain the same number of characters.

Each digit in each element will be one of '1'-'9'.

Sample Input #00:

4

137

364

115

724

Sample Output #00:

14

Explanation #00:

The numbers showing are:

1, 3 and 7 in the first spin

3, 6 and 4 in the second spin

1, 1 and 5 in the third spin

7, 2 and 4 in the fourth spin.

The three wheels may have 3, 4 and 7 stops giving a total of 14 faces. Any fewer stops would have failed to give the results in the input.

Sample Input #01:

4

1112

1111

1211

1111

Sample Output #01:

5

Explanation #01:

Three wheels with one stop each one with two stops could have produced the results.

Q2) <https://www.geeksforgeeks.org/find-maximum-meetings-in-one-room/>

AMAZON

Q1)  <https://leetcode.com/discuss/interview-question/356960>

Q2)  https://leetcode.com/discuss/interview-question/1092472/amazon-oa-highest-profit