1. Please add all question in this doc with heading- “ Company name, College Name , Date”
2. Please group questions of same company together.
3. Please try to add screenshots.
4. Please try to add link of question (if possible)

All The Best to everyone.

Companies you can search:-

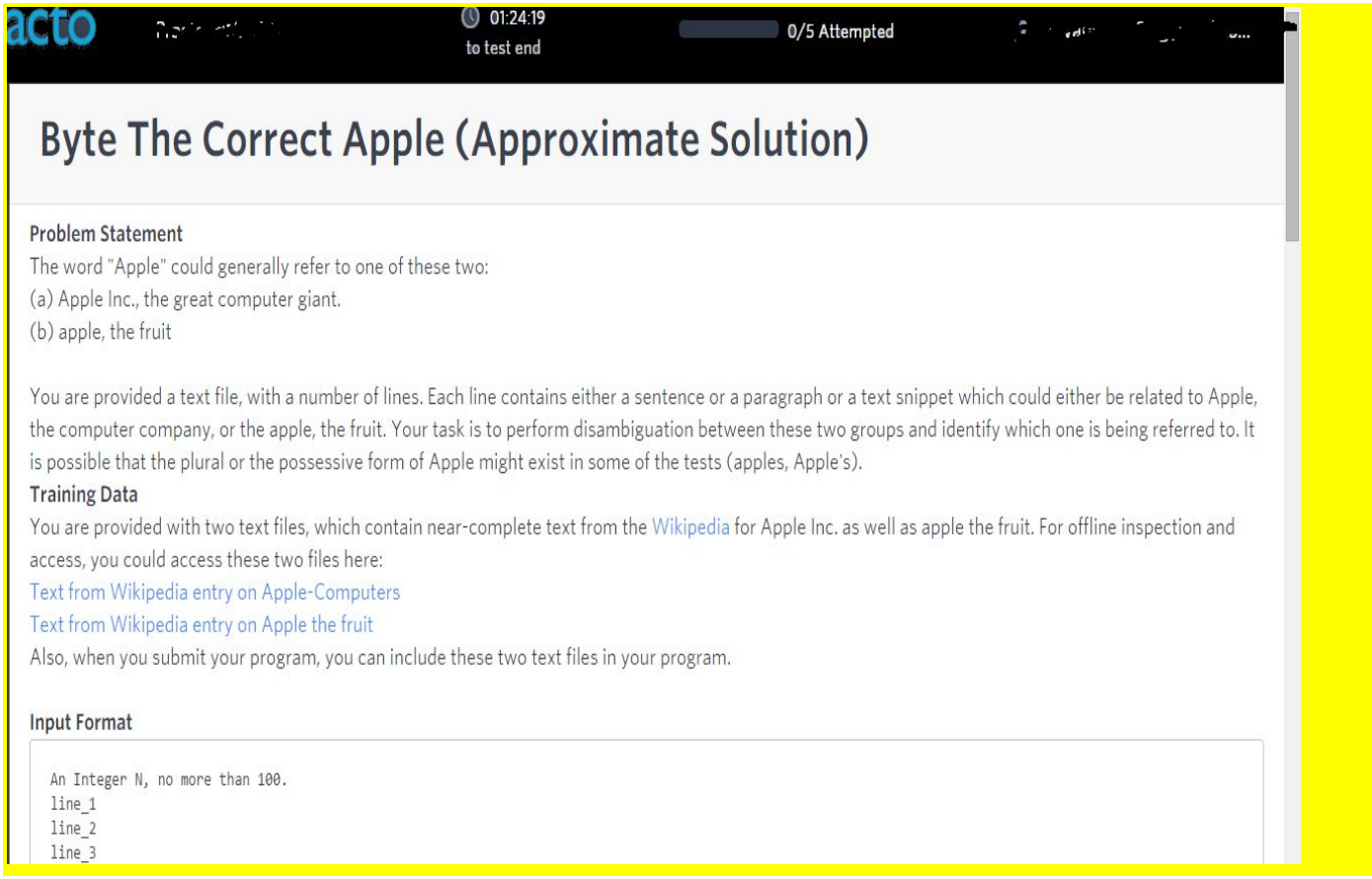
Practo, Unicommerce, Ola, CodeNation, Vedantu , Oracle, PayPal,Goldman Sachs, Yodlee, Infosys, Nutanix, TinyOwl, Sprinklr, InMobi, Snapdeal, Juspay

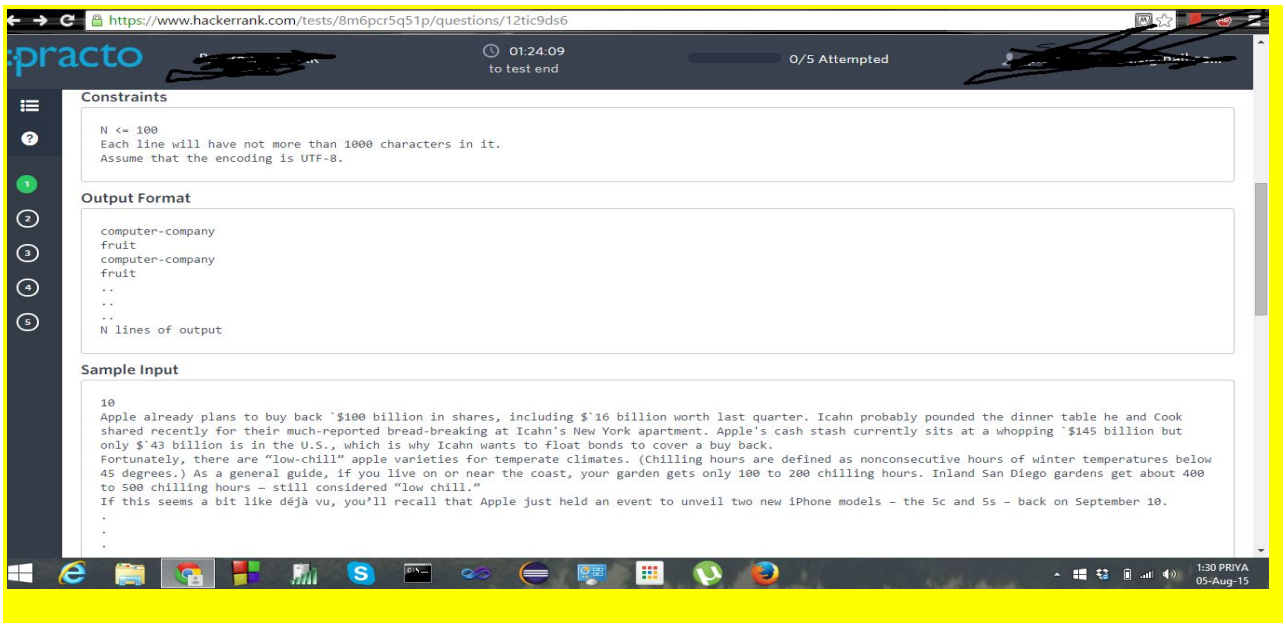
Queries: comment the filled queries

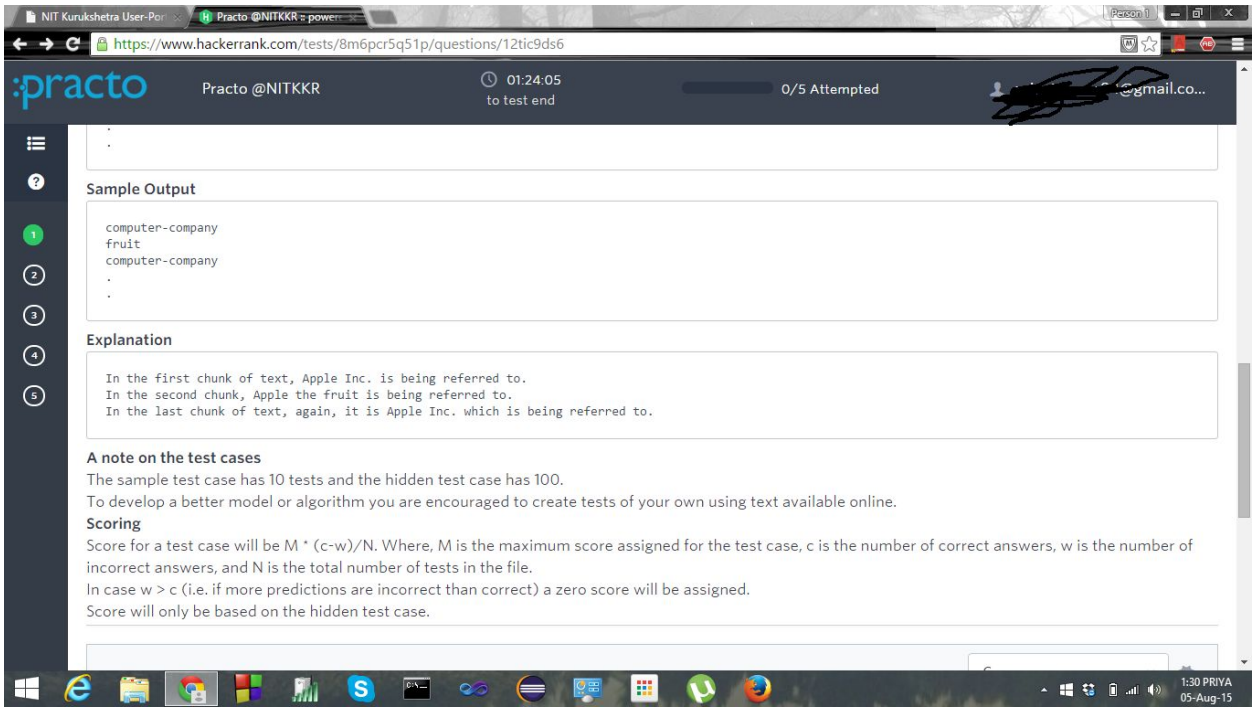
Did vmware visit any IIT other than KGP??
SASKEN COMMUNICATION???
TEJAS NETWORK???
CODENATION, UBER?
symantec coding questions??
ORACLE IIT-R Questions Coding Round ???
OLA-no coding or cs questions asked??
Amazon ??
CREDIT SUISSE anyone??
Ola? Urbanclap? Clicklab ?
adobe Coupon Dunia ?? Zoomcar ?
Infosys IITM, IITD Questions ?? Inshorts?? IRage ??
CapOne Questions? Informatica? Axtria ? Yodlee?
Flipkart data science??

PayPal IITBHU ? Carwale ?
Barclays Questions ? Vmock ?? Silverleaf ??
Paytm Questions Hq Capital ?? Instamojo ??
Loylty Rewardz ?? twitter ?? Shop101 ??
EXL ? Ziffi ?? Indeed ?? Grabhouse ??
General Motor? Steelwedge? Target Corp ??
TATA STEEL??? Saavan ?? Smartprix??
VMWARE ?? Fractal??

PRACTO (NIT KKR)







HOW ARE WE SUPPOSED TO DO IT !!!

Group (Coding)

On a farm divided into a grid of cells, every cell either has grass on it or is empty.
If two adjacent cells have grass, they will belong to a common field. The common field extends in all directions to all adjacent cells with grass. So, if cell ***A*** is adjacent to cell ***B*** and cell ***B*** is adjacent to cell ***C***, and all three have grass, then they all lie in the same field. If a cell with grass has no adjacent cell with grass, then it will be a field 1-cell field.

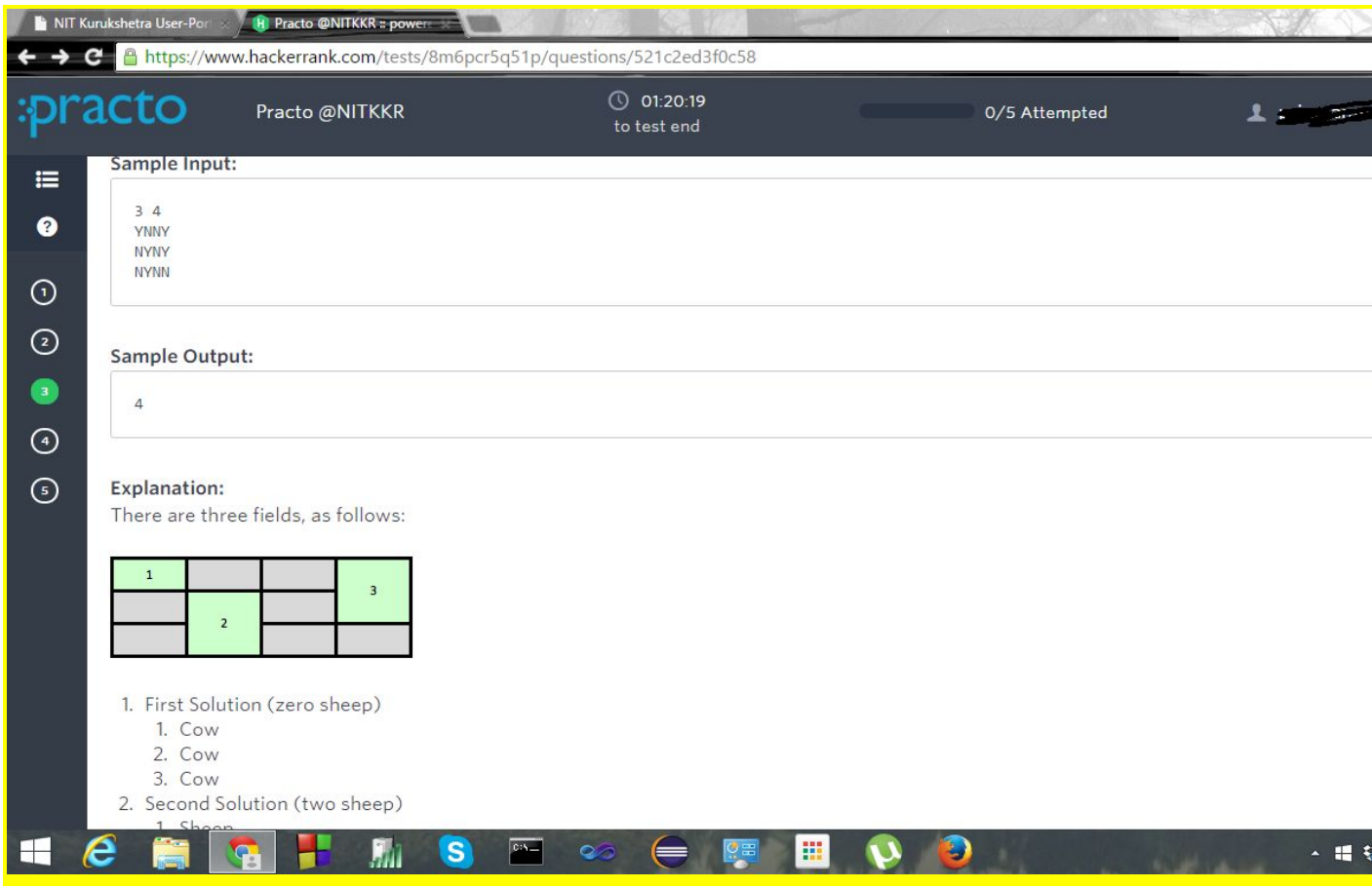
Every field must feed one sheep or one cow. Each field of grass cannot be shared between cows and sheep. If each field can have one sheep or one cow and never both, how many possible unique arrangements can you make such that, there are even number of sheep in the grid farm?

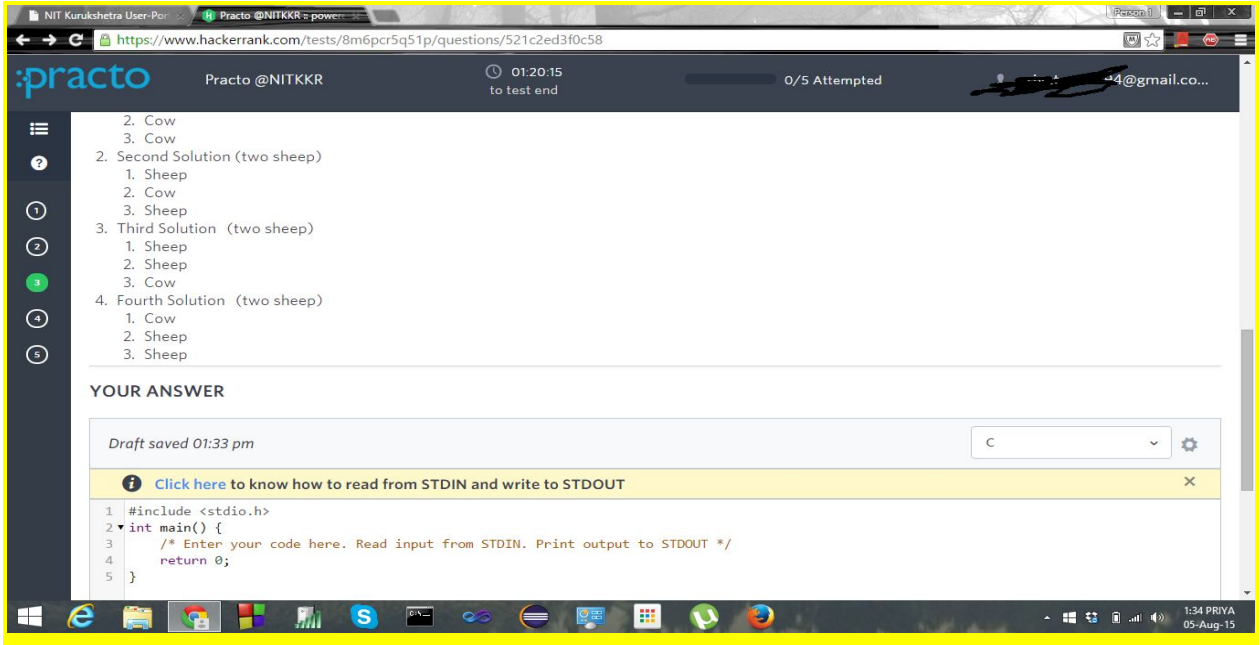
Input:
The first line contains ***R*** (number of rows) and ***C*** (number of columns), separated by a space.
Each of the next ***R*** lines contains a string with length equal to ***C***, with no spaces. The string has the character ***Y*** to denote a cell with grass and ***N*** to denote a cell with no grass.

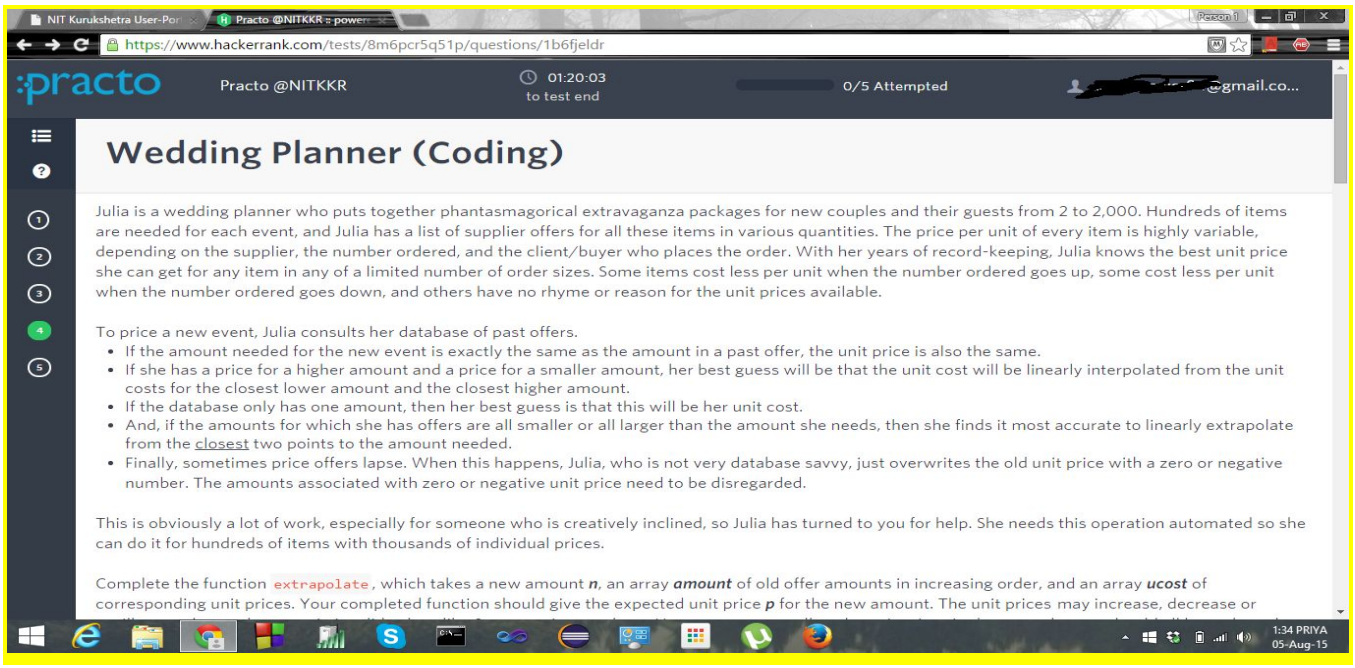
Output:
S, an integer that contains the number of arrangements possible, modulo 1,000,000,007.

Constraint:
$1 \leq R, C \leq 5000$

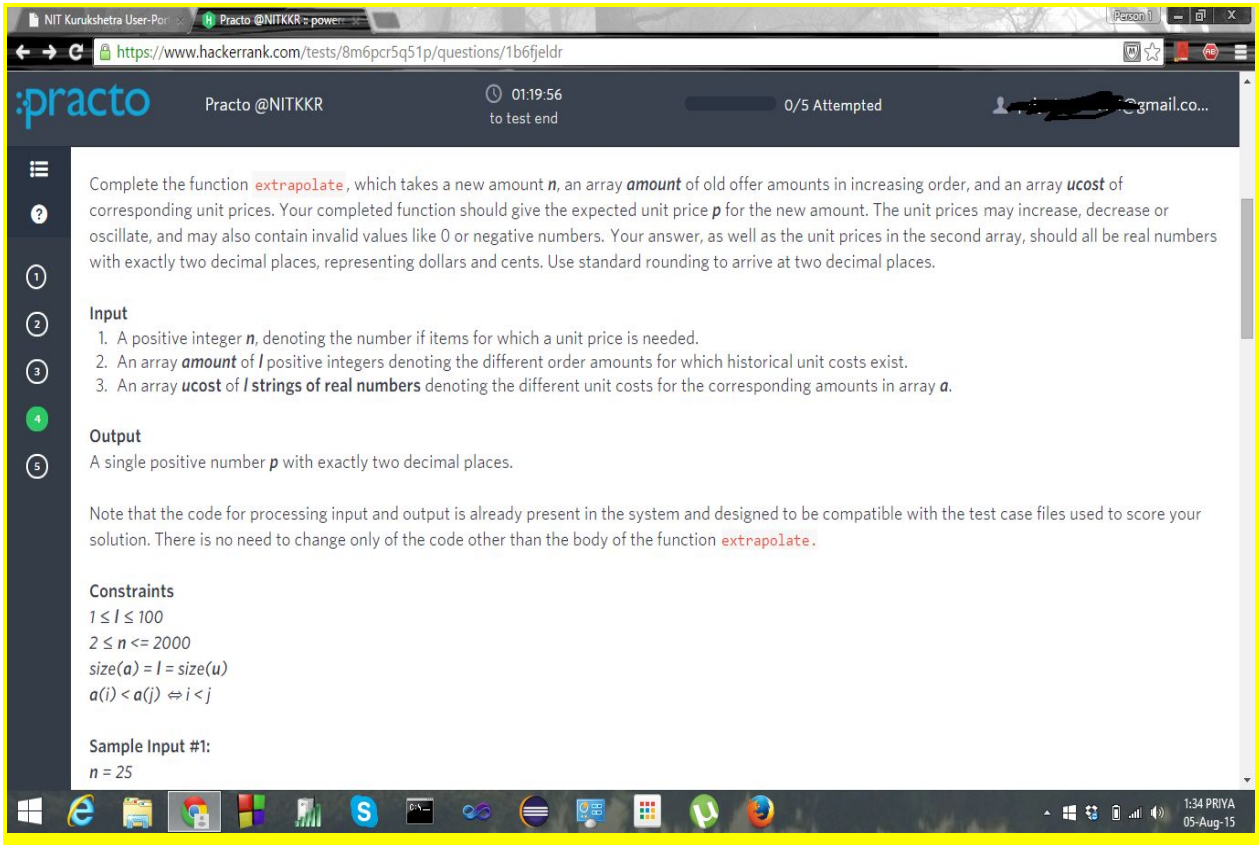
Sample Input:

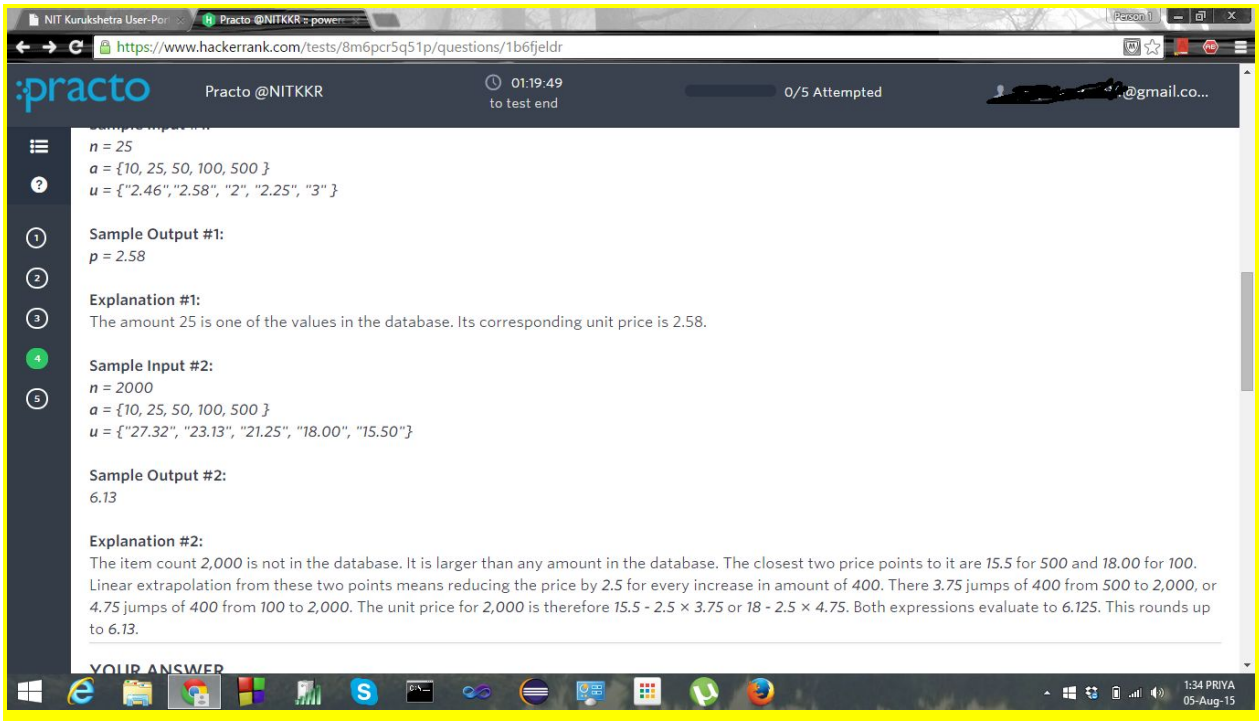

https://www.hackerrank.com/tests/8m6pcr5q51p/questions/521c2ed3f0c58
:practo
Practo @NITKKR
01:20:19
to test end
0/5 Attempted
Sample Input:
3 4
YNNY
NYNY
NYNN
Sample Output:
4
Explanation:
There are three fields, as follows:
1
2
3
1. First Solution (zero sheep)
1. Cow
2. Cow
3. Cow
2. Second Solution (two sheep)


https://www.hackerrank.com/tests/8m6pcr5q51p/questions/521c2ed3f0c58
:practo
Practo @NITKKR
01:20:15
to test end
0/5 Attempted
2. Cow
3. Cow
2. Second Solution (two sheep)
1. Sheep
2. Cow
3. Sheep
3. Third Solution (two sheep)
1. Sheep
2. Sheep
3. Cow
4. Fourth Solution (two sheep)
1. Cow
2. Sheep
3. Sheep
YOUR ANSWER
Draft saved 01:33 pm
C
Click here to know how to read from STDIN and write to STDOUT
#include <stdio.h>
int main() {
/* Enter your code here. Read input from STDIN. Print output to STDOUT */
return 0;
}
1:34 PRIYA
05-Aug-15



In wedding planner question, unit-cost was given as a vector of string of float values. So take care that you have to first convert string value to float value. (Took a very long time to observe this for me).


https://www.hackerrank.com/tests/8m6pcr5q51p/questions/1b6fjeldr
:practo
Practo @NITKKR
01:19:56
to test end
0/5 Attempted
Complete the function extrapolate, which takes a new amount n, an array amount of old offer amounts in increasing order, and an array ucost of corresponding unit prices. Your completed function should give the expected unit price p for the new amount. The unit prices may increase, decrease or oscillate, and may also contain invalid values like 0 or negative numbers. Your answer, as well as the unit prices in the second array, should all be real numbers with exactly two decimal places, representing dollars and cents. Use standard rounding to arrive at two decimal places.
Input
1. A positive integer n, denoting the number if items for which a unit price is needed.
2. An array amount of l positive integers denoting the different order amounts for which historical unit costs exist.
3. An array ucost of l strings of real numbers denoting the different unit costs for the corresponding amounts in array a.
Output
A single positive number p with exactly two decimal places.
Note that the code for processing input and output is already present in the system and designed to be compatible with the test case files used to score your solution. There is no need to change only of the code other than the body of the function extrapolate.
Constraints
1 ≤ l ≤ 100
2 ≤ n <= 2000
size(a) = l = size(u)
a(i) < a(j) ⇔ i < j
Sample Input #1:
n = 25
1:34 PRIYA
05-Aug-15


https://www.hackerrank.com/tests/8m6pcr5q51p/questions/1b6fjeldr
:practo
Practo @NITKKR
01:19:49
to test end
0/5 Attempted
n = 25
a = {10, 25, 50, 100, 500 }
u = {"2.46","2.58", "2", "2.25", "3" }
Sample Output #1:
p = 2.58
Explanation #1:
The amount 25 is one of the values in the database. Its corresponding unit price is 2.58.
Sample Input #2:
n = 2000
a = {10, 25, 50, 100, 500 }
u = {"27.32", "23.13", "21.25", "18.00", "15.50"}
Sample Output #2:
6.13
Explanation #2:
The item count 2,000 is not in the database. It is larger than any amount in the database. The closest two price points to it are 15.5 for 500 and 18.00 for 100. Linear extrapolation from these two points means reducing the price by 2.5 for every increase in amount of 400. There 3.75 jumps of 400 from 500 to 2,000, or 4.75 jumps of 400 from 100 to 2,000. The unit price for 2,000 is therefore 15.5 - 2.5 × 3.75 or 18 - 2.5 × 4.75. Both expressions evaluate to 6.125. This rounds up to 6.13.
YOUR ANSWER
1:34 PRIYA
05-Aug-15

PRACTO (IITM)

Can you predict the missing grade?

Problem Statement

Introduction

The CBSE Class 12 examination, is taken by Indian high school students at the end of K-12 school education. The scores or grades in this examination form the basis of their entry to the College or University system, for an undergraduate program. At the K-12 level, students appear for examination in five subjects. These five subjects generally include one language; three elective subjects oriented towards Science, Commerce or Humanities; and any elective of their choice as a fifth subject.

The Challenge

This challenge is based on real school data of the CBSE Class 12 examination conducted in the year 2013. You are given the grades obtained by students with specific but popular combinations of subjects (and all these students had opted for Mathematics). Their grades in four subjects are known to you. However their grade in Mathematics (i.e, the fifth subject) is hidden.

The records provided to you are the grades obtained by students who had opted for the following combinations of subjects or courses **and obtained a passing grade in each subject**. The individual subjects in the data are:
English, Physics, Chemistry, Mathematics, Computer Science, Biology, Physical Education, Economics, Accountancy and Business Studies.

The most dominant subject combinations, account for approximately 99% of the data are:

```
English, Physics, Chemistry, Mathematics, Computer Science
English, Physics, Chemistry, Mathematics, Physical Education
English, Physics, Chemistry, Mathematics, Economics
English, Physics, Chemistry, Mathematics, Biology
English, Economics, Accountancy, Mathematics, Business Studies
```

The grades of students in four subjects (other than Mathematics) are provided to you. Can you predict what grade they had obtained in Mathematics?

To help you build a prediction engine, we will provide you with a training file, containing the grade points obtained by students with the above subject combinations, in all five subjects.

Notes about the Grading System

The student is first assessed on a scale of 100. (S)He needs a score of at least 33% to pass in the subject. Among those who pass:

```
Grade 1 is assigned to the top one-eighth of students who pass the course.
Grade 2 is assigned to the next one-eighth of students who pass the course.
.....
Grade 8 is assigned to the last one-eighth of students who pass the course.
```

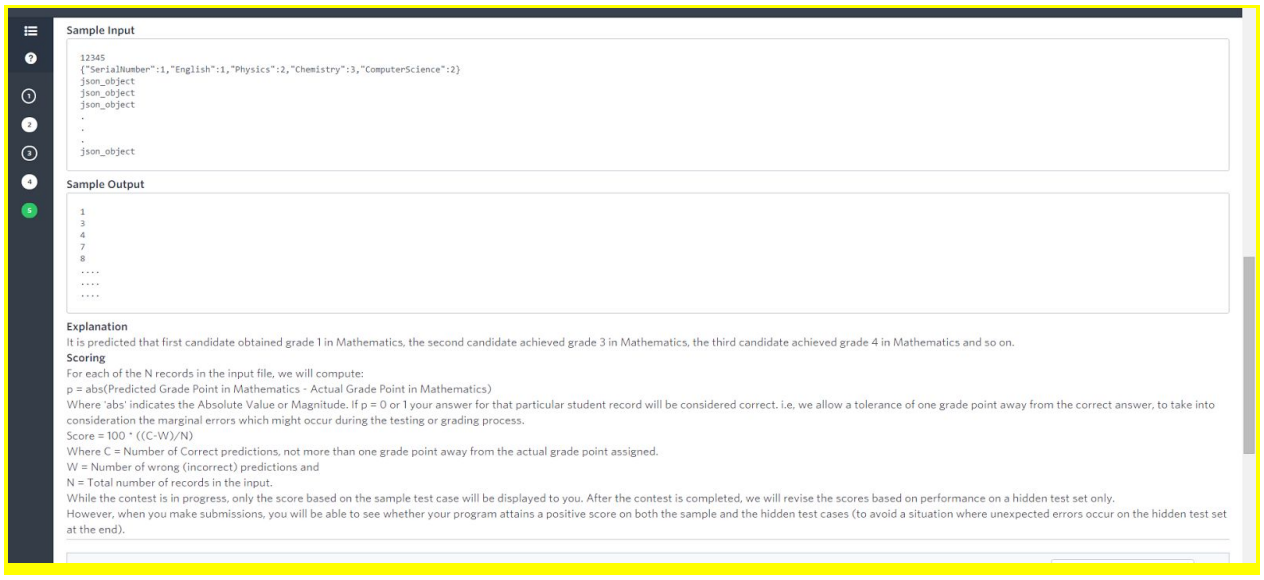
If more than 1 student share the same score and lie in the margin, they share the higher grade.

Input Format

The first line will be an integer N. N lines follow each line being a valid JSON object. The following fields of raw data are given in json.

```
SerialNumber (Numeric): The identifier of the student record. This is provided just for identification purposes and does not have any direct use
```

What is the expected complexity?



Sample Input

```
12345
{"SerialNumber":1,"English":1,"Physics":2,"Chemistry":3,"ComputerScience":2}
json_object
json_object
json_object
.
.
.
json_object
```

Sample Output

```
1
3
4
7
8
....
....
....
```

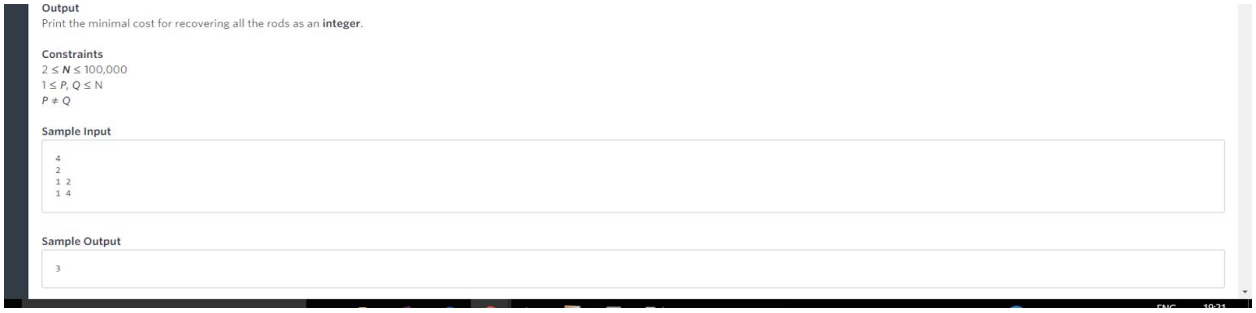
Explanation

It is predicted that first candidate obtained grade 1 in Mathematics, the second candidate achieved grade 3 in Mathematics, the third candidate achieved grade 4 in Mathematics and so on.

Scoring

For each of the N records in the input file, we will compute:
p = abs(Predicted Grade Point in Mathematics - Actual Grade Point in Mathematics)
Where 'abs' indicates the Absolute Value or Magnitude. If p = 0 or 1 your answer for that particular student record will be considered correct. i.e, we allow a tolerance of one grade point away from the correct answer, to take into consideration the marginal errors which might occur during the testing or grading process.
Score = 100 * ((C-W)/N)
Where C = Number of Correct predictions, not more than one grade point away from the actual grade point assigned.
W = Number of wrong (incorrect) predictions and
N = Total number of records in the input.
While the contest is in progress, only the score based on the sample test case will be displayed to you. After the contest is completed, we will revise the scores based on performance on a hidden test set only.
However, when you make submissions, you will be able to see whether your program attains a positive score on both the sample and the hidden test cases (to avoid a situation where unexpected errors occur on the hidden test set at the end).

PRACTO (IIT-BHU)



Output

Print the minimal cost for recovering all the rods as an **integer**.

Constraints

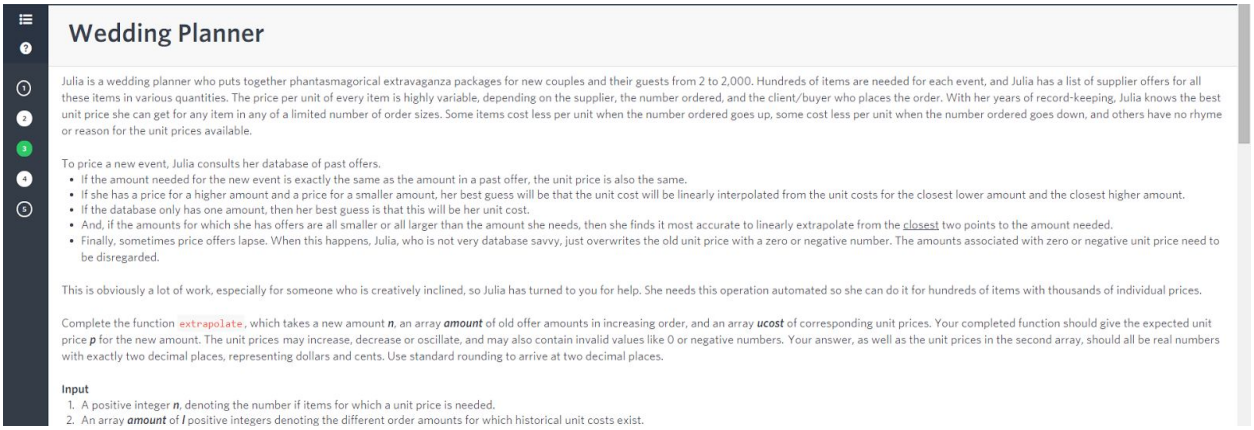
$2 \leq N \leq 100,000$
$1 \leq P, Q \leq N$
$P \neq Q$

Sample Input

```
4
2
1 2
1 4
```

Sample Output

```
3
```



Wedding Planner

Julia is a wedding planner who puts together phantasmagorical extravaganza packages for new couples and their guests from 2 to 2,000. Hundreds of items are needed for each event, and Julia has a list of supplier offers for all these items in various quantities. The price per unit of every item is highly variable, depending on the supplier, the number ordered, and the client/buyer who places the order. With her years of record-keeping, Julia knows the best unit price she can get for any item in any of a limited number of order sizes. Some items cost less per unit when the number ordered goes up, some cost less per unit when the number ordered goes down, and others have no rhyme or reason for the unit prices available.

To price a new event, Julia consults her database of past offers.

- If the amount needed for the new event is exactly the same as the amount in a past offer, the unit price is also the same.
- If she has a price for a higher amount and a price for a smaller amount, her best guess will be that the unit cost will be linearly interpolated from the unit costs for the closest lower amount and the closest higher amount.
- If the database only has one amount, then her best guess is that this will be her unit cost.
- And, if the amounts for which she has offers are all smaller or all larger than the amount she needs, then she finds it most accurate to linearly extrapolate from the closest two points to the amount needed.
- Finally, sometimes price offers lapse. When this happens, Julia, who is not very database savvy, just overwrites the old unit price with a zero or negative number. The amounts associated with zero or negative unit price need to be disregarded.

This is obviously a lot of work, especially for someone who is creatively inclined, so Julia has turned to you for help. She needs this operation automated so she can do it for hundreds of items with thousands of individual prices.

Complete the function `extrapolate`, which takes a new amount ***n***, an array ***amount*** of old offer amounts in increasing order, and an array ***ucost*** of corresponding unit prices. Your completed function should give the expected unit price ***p*** for the new amount. The unit prices may increase, decrease or oscillate, and may also contain invalid values like 0 or negative numbers. Your answer, as well as the unit prices in the second array, should all be real numbers with exactly two decimal places, representing dollars and cents. Use standard rounding to arrive at two decimal places.

Input

1. A positive integer ***n***, denoting the number if items for which a unit price is needed.
2. An array ***amount*** of ***l*** positive integers denoting the different order amounts for which historical unit costs exist.

There were 2 slots. Both slots had some common questions and some different. I am mentioning which i remember

1. **Wedding planner**
2. **Strong relation**
3. **String Chain**
4. **Nuclear rods 5 long question like which i didn't even read.**

Unicommerce (in general)

https://www.quora.com/What-type-of-questions-are-asked-in-the-Unicommerce-written-tes
https://bitimage.wordpress.com/2015/06/03/unicommerce-interview/
http://careerdump.blogspot.in/2013/07/unicommerce-interview.html

Ola @IIT-B

Software (Data Scientist)

1st papers:Aptitude(no options given)
14 questions in 40 minutes
few of questions were:

1. **similar to http://geeksquiz.com/puzzle-16-100-doors/**
2. **Horse races needed http://geeksquiz.com/aptitude-puzzles-question-1/**

CodeNation IIT Delhi

4 questions 1.5 hours

Q1. Anagrams. Find the number of anagrams in the given list. and report the lexicographically smallest anagram of all.

Ex: [“abc”,”cab”,”def”,”bhg”,”ghb”] Ans: 4 “abc”

```
//solution
#include <iostream>
#include<bits/stdc++.h>
using namespace std;
void print(vector<string> vs)
{
	map<int, string>m;
	map<int, string>::iterator mit;
	map<string, vector<int>> vm;
	map<string, vector<int>>::iterator vmit;
	vector<string> inter;
	int i=0 , j , k=1;

	for(vector<string>::iterator it= vs.begin(); it!= vs.end(); it++)
	{
		string s = *it;
		m[i] = *it;

		  i++;
	}
	for(mit = m.begin(); mit!=m.end(); mit++)
	{
```

```
    sort(mit->second.begin(), mit->second.end());
    vm[mit->second].push_back(mit->first);
  }
  int cnt=0;
  set<string>ans;
  for(vmit=vm.begin(); vmit!=vm.end();vmit++)
  {
      int size = vmit->second.size();
      if(size>1)
      cnt+=size;
      for(i=0;i<size;i++)
      {
          int indx= vmit->second[i];
          ans.insert(vs[indx]);
      }
  }
  set<string>::iterator sit;
  sit= ans.begin();
  cout<<cnt<<"\n"<<*sit;
  sit=ans.end();



}
int main() {
    int n , i , j;
```

```
 vector<string> vs;
 scanf("%d", &n);
 string s;
 for(i=0;i<n;i++)
 {
      cin>>s;
      vs.push_back(s);
 }
 print(vs);
 return 0;
}
```

Q2. Bogosort. Time Complexity is O(T(N)) where T(N) is a function of N (N is the length of the input). Find T(A)/T(B) modulo "10^9+7" where A and B are given.solution(please check) taking the screenshot present below in consideration -
the avg running time of bogosort is O(n.n!)
so find this value for A & B and take their mod by the 10^9+7
please tell fast

Q3. Vertex Coloring Problem. N students, Q sets of questions, seating plan of N students given. Find if it is possible to distribute Q sets of questions papers among N students such that adjacent students does not get the same set of paper
** If anyone solved this please put some pseudo code.

//Isnt this an NP hard problem?
We had to just find out whether N students can be given Q sets or not(Graph with n vertices can be colored with m colors or not) Just do this - http://www.geeksforgeeks.org/backttracking-set-5-m-coloring-problem/

Q4. A long question. Unable to explain here as it was explained with circle diagrams.
It involved having intervals where you have to make buckets of intervals contained inside other interval and then going level wise. The question was straightforward but required a lot of coding.
https://www.hackerrank.com/contests/womenscup/challenges/coding-camp-for-girls
//provide solution please

Codenation @ (IIT Madras)

Help her to find out whether N question papers out of Q sets of question papers distributed such that no two adjacent students have same question paper.
If its not possible then exam will have to be postponed.

Constraints:
- 1 ≤ T ≤ 20
- 1 ≤ N ≤ 100
- 0 ≤ M ≤ 1000
- 1 ≤ Q ≤ 7

Input Format:
First line contains T, the number of test case.
Each test case contains N, M and Q where N is the number of students, M is the number of adjacent pairs of students and Q is set of question papers.
The next M lines will contain x1 x2 where x1 and x2 form an adjacent pair.

Output Format:
Output T lines.For each test case print "Yes" if its possible otherwise "Exam must be postponed" without quotes.

Sample Input #00:
```
1
3 3 2
1 2
2 3
3 1
```

Sample Output #00:
```
Exam must be postponed
```

Explanation #00:
If set 1 is given to 1, set 2 is given to 2, either 3 and 1 will have same question paper, or 3 and 2 will have same question paper.
You can try different combinations, at the end any two of the students will receive same question paper.
Hence Exam must be postponed.

Sample Input #01:
```
1
4 4 4
1 2
2 4
3 4
1 4
1 3
```

Sample Output #01:
```
Yes
```

Explanation #01:
set 1 can be given to 1, set 2 can be given to 2, set 2 can be given to 3 and set 3 can be given to 4.

// how in first case such big number is coming ?? :O please tell

answer needed asap

Vedantu IIT Roorkee 20-25L 1/11/2015

4 Questions in 2 hrs. Hackerrank
CTC 20-25L

Q1. No. of Islands http://www.geeksforgeeks.org/find-number-of-islands/.

Q2. We have n persons sitting on a round table. Any person can do a handshake with any other person. In how many ways these n people can make handshakes so that no two handshakes crosses each other.
Answer: `f(n) = sum( f(i-2) + f(n-i) for i in range(2, n))`

Q3. Count no of bits which are different in two numbers.Count no of bits which are different in two numbers.

Q4.
The sadists who design problems for ACM programming contests often like to include the abbre- viation "ACM" somewhere in their problem descriptions. Thus, in years past, the World Finals has had problems involving "Apartment Construction Management," the "Atheneum of Culture and Movies," the "Association of Cover Manufacturers," "ACM Airlines," the "Association for Computa- tional Marine life," and even an insect named "Amelia Cheese Mite." However, the number of word combinations beginning with A, C, and M that make sense is finite and the problem writers are starting to run out of ideas (it's hard to think of problems about "Antidisestablishmentarianistic Chthonian Metalinguistics"). Fortunately, modern culture allows more flexibility in designing abbreviations — consider, for example:

```
GDB — Gnu DeBugger
LINUX — either "LINus's UniX" or "LINUs's miniX" or "Linux Is Not UniX"
SNOBOL — StriNg Oriented symBOlic Language
```

SPITBOL — SPeedy ImplemenTation of snoBOL

The rules used in these examples seem to be:

- **Insignificant words (such as “of”, “a”, “the”, etc.) are ignored.**
- **The letters of the abbreviation must appear, in the correct order, as an ordered sublist of the letters in the significant words of the phrase to be abbreviated.**
- **At least one letter of the abbreviation must come from every significant word (multiple occurrences of a letter are, of course, treated as distinct).**

Of course these rules are often broken in real life. For instance, RADAR is an abbreviation for “RAdio Detecting And Ranging”. Under our rules (assuming that “and” is an insignificant word), this would not be a valid abbreviation (however, RADR or RADRAN or DODGING would be valid). You have been asked to take a list of insignificant words and a list of abbreviations and phrases and to determine in how many ways each abbreviation can be formed from the corresponding phrase according to the rules above.

Input

The input file consists of multiple scenarios. Each scenario begins with an integer 100 >= *n* >= 1 followed by *n* insignificant words, all in lower case, one per line with no extra white space. (A line containing 0 indicates end of input.) Following this are one or more test cases for this scenario, one per line, followed by a line containing the phrase “LAST CASE”. Each line containing a test case begins with an abbreviation (uppercase letters only) followed by a phrase (lowercase letters and spaces only). The abbreviation has length at least 1 and the phrase contains at least one significant word. No input line (including abbreviation, phrase, and spaces) will contain more than 150 characters. Within these limits, however, abbreviations and phrase words may be any length.

Output

For each test case, output the abbreviation followed by either

is not a valid abbreviation

or

can be formed in i ways

where *i* is the number of different ways in which the letters of the abbreviation may be assigned to the letters in the phrase according to the rules above. The value of *i* will not exceed the range of a 32-bit signed integer.

Example

Input:

2 and of ACM academy of computer makers

RADAR radio detection and ranging

LAST CASE 2 a an

APPLY an apple a day

LAST CASE

0

Output:

ACM can be formed in 2 ways

RADAR is not a valid abbreviation

APPLY can be formed in 1 ways

PRACTO @ IIT(MADRAS)

Date- 1-10-2015

CTC plz : 20

StringChain

You are given a library with ***n*** words (***w[0], w[1], ..., w[n - 1]***). You choose a word from it, and in each step, remove one letter from this word only if doing so yields a another word in the library. What is the longest possible chain of these removal steps?

Constraints:

- $1 \leq n \leq 50000$
- $1 \leq$ the length of each string in $w \leq 50$
- Each string composed of lowercase ascii letters only.

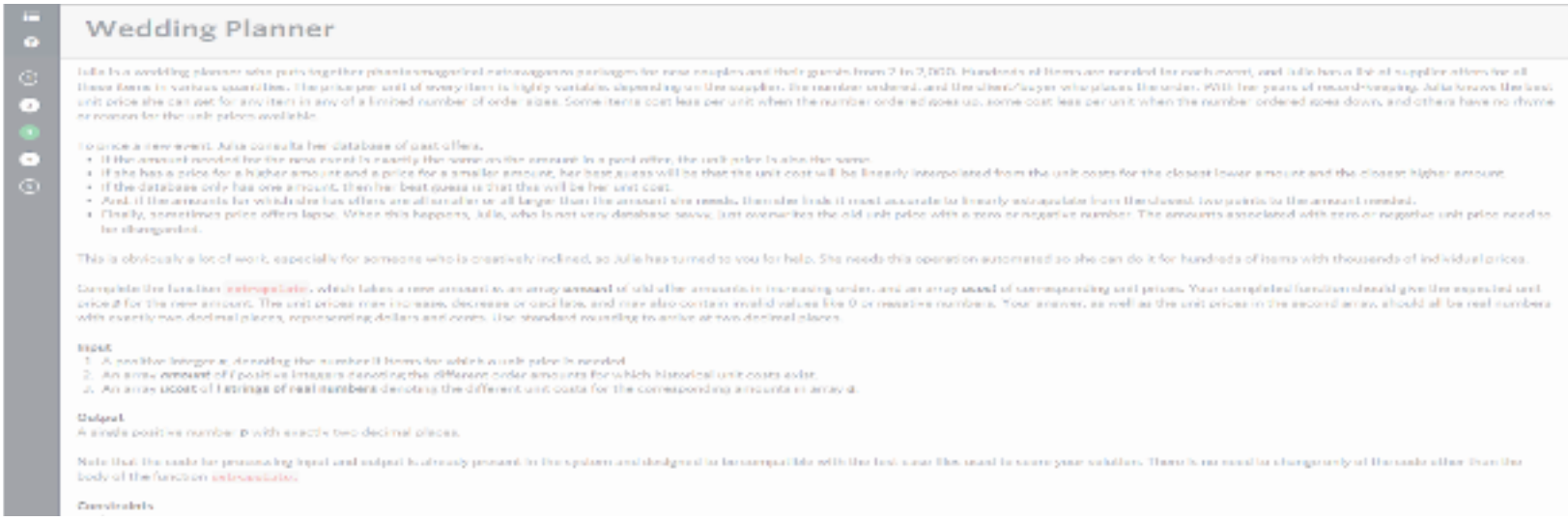
Input Format:
Complete the function "*longest_chain*" which contains an array of strings "*w*" as its argument.

Output Format:
Return a single integer that represents the length of the longest chain of character removals possible.

Sample Input #00:
6
a
b
ba
bca
bda
bdca
Sample Output #00:
4

Explanation #00:
The length of chain: "bdca" -> "bca" -> "ba" -> "a" is 4. For a better answer to exists, the length of the selected first word should be greater than 4. In our test case, such a word does not exist. Hence, the answer is 4.

YOUR ANSWER



Wedding Planner

Julia is a wedding planner who puts together private unsupervised extravaganza packages for new couples and their guests from 2 to 2,000. Hundreds of items are needed for each event, and Julia has a list of supplier sellers for all these items in various quantities. The price per unit of every item is highly variable, depending on the supplier, the number ordered, and the client/buyer who places the order. With her years of misunderstanding, Julia knows the best unit price she can get for any item is any of a limited number of order sizes. Some items cost less per unit when the number ordered goes up, some cost less per unit when the number ordered goes down, and others have no rhyme or reason for the unit prices available.

For a new event, Julia consults her database of past sellers.

- If the amount needed for the new event is exactly the same as the amount in a past order, the unit price is also the same.
- If she has a price for a higher amount and a price for a smaller amount, her best guess will be that the unit cost will be linearly interpolated from the unit costs for the closest lower amount and the closest higher amount.
- If the database only has one amount, then her best guess is that this will be her unit cost.
- And, if the amounts for which she has offers are all greater than the amount she needs, then she finds it most accurate to linearly extrapolate from the closest two points to the amount needed.
- Finally, sometimes price offers lapse. When this happens, Julia, who is not very database savvy, just overwrites the old unit price with a new negative number. The amounts associated with zero or negative unit price needs to be disregarded.

This is obviously a lot of work, especially for someone who is creatively inclined, so Julia has turned to you for help. She needs this operation automated so she can do it for hundreds of items with thousands of individual prices.

Complete the function **interpolate**, which takes a new amount **n**, an array **amount** of old seller amounts in increasing order, and an array **unit** of corresponding unit prices. Your completed function should give the expected unit price **p** for the new amount. The unit prices may stay the same, decrease or oscillate, and may also contain invalid values like 0 or negative numbers. Your answer, as well as the unit prices in the second array, should all be real numbers with exactly two decimal places, representing dollars and cents. Use standard rounding to arrive at two decimal places.

Input

1. A positive integer **n**, denoting the number of items for which a unit price is needed.
2. An array **amount** of **l** positive integers denoting the different order amounts for which historical unit costs exist.
3. An array **ucost** of **l** **strings of real numbers** denoting the different unit costs for the corresponding amounts in array **a**.

Output
A single positive number **p** with exactly two decimal places.

Note that the code for processing input and output is already present in the system and designed to be compatible with the test cases that will be used to score your solution. There is no need to change any of the code other than the body of the function **interpolate**.

Constraints

2hr time

There can be two types of output:

i. If the fly land on a white square, print "After 'n' jumps the fly lands at (x, y), where 'n' is the number of jumps, and (x, y) is the location of the whi
ii. If the fly never can land on a white square, print "The fly cannot escape from black squares"

Example Input	Example Output
407 1270 1323 1 1	After 306 jumps the fly lands at (1576, 1629)
18 72 6 18 6	The fly cannot escape from black squares
407 1270 1170 100 114	After 0 jumps the fly lands at (1270, 1170)

Note: Output should be exactly the way as shown in the example above to ensure correct auto checking

YOUR ANSWER

Java

Click here to know how to read from STDIN and write to STDOUT

```
1  import java.io.*;
2  import java.util.*;
3  public class Solution {
4      public static void main(String args[] ) throws Exception {
5          ArrayList<Integer> odd = new ArrayList<Integer>();
6          odd.add(1);
```

Nuclear Rods

A core meltdown has occurred at the Fubaru nuclear plant. There are ***n*** nuclear fuel rods that are damaged and need to be removed using specialized radiation-hardened robotic equipment with solid-lead isolation chambers. Remote imaging has already uniquely identified every damaged fuel rod and assigned it a number between ***1*** and ***n***. The imaging data also records which fuel rods were fused to each other during the meltdown. Every recovery sortie by the robot can pick up one set of nuclear fuel rods that are directly or indirectly fused to each other.

The recovery costs per sortie are proportional to the square root of the number of fused rods recovered. So the cost is ***K*** to recover K^2 rods. Isolation chambers are available for all positive integer costs ***(1, 2, 3, ...)***. An isolation chamber can be used multiple times, and each use will incur the same cost. The robot can also recover a lower number of rods than a chamber's capacity on a sortie.

Find the minimal cost to recover all the radioactive rods by completing the given function.

Input
The first parameter integer ***n*** specifies the number of rods. The second parameter ***pairs*** is an array of pairs of rods that are fused together. Each item in the array contains exactly two integers, ***P*** and ***Q*** separated by a space (" "), which means that the rod numbered ***P*** is fused to the rod numbered ***Q***. ***Note** - Each item in the array is a string which needs to be parsed to ***P*** and ***Q***

Output
Print the minimal cost for recovering all the rods as an **integer**.

Constraints
$2 \leq N \leq 100,000$
$1 \leq P, Q \leq N$
$P \neq Q$

Sample Input

```
4
2
1 2
1 4
```

Sample Output

```
3
```

Can you predict the missing grade?

Problem Statement
Introduction
The CBSE Class 12 examination, is taken by Indian high school students at the end of K-12 school education. The scores or grades in this examination form the basis of their entry to the College or University system, for an undergraduate program. At the K-12 level, students appear for examination in five subjects. These five subjects generally include one language; three elective subjects oriented towards Science, Commerce or Humanities; and any elective of their choice as a fifth subject.

The Challenge
This challenge is based on real school data of the CBSE Class 12 examination conducted in the year 2013. You are given the grades obtained by students with specific but popular combinations of subjects (and all these students had opted for Mathematics). Their grades in four subjects are known to you. However their grade in Mathematics (i.e, the fifth subject) is hidden.
The records provided to you are the grades obtained by students who had opted for the following combinations of subjects or courses **and obtained a passing grade in each subject**. The individual subjects in the data are: English, Physics, Chemistry, Mathematics, Computer Science, Biology, Physical Education, Economics, Accountancy and Business Studies.
The most dominant subject combinations, account for approximately 99% of the data are:

```
English, Physics, Chemistry, Mathematics, Computer Science
English, Physics, Chemistry, Mathematics, Physical Education
English, Physics, Chemistry, Mathematics, Economics
English, Physics, Chemistry, Mathematics, Biology
English, Economics, Accountancy, Mathematics, Business Studies
```

The grades of students in four subjects (other than Mathematics) are provided to you. Can you predict what grade they had obtained in Mathematics?
To help you build a prediction engine, we will provide you with a training file, containing the grade points obtained by students with the above subject combinations, in all five subjects.
Notes about the Grading System
The student is first assessed on a scale of 100. (S)He needs a score of at least 33% to pass in the subject. Among those who pass:

```
Grade 1 is assigned to the top one-eighth of students who pass the course.
Grade 2 is assigned to the next one-eighth of students who pass the course.
```

Strong relation group

Oracle Coding Round @ IIT BHU

Time : 1 hour
2 questions

HOW TO SOLVE? WHAT ARE VALUES OF N AND M???
Q1. Given a graph in terms of adjacency matrix and m colours, print whether it is possible to colour the graph in such a way that no two adjacent vertices share the same colour. Also, print the number of minimum colour required.

Input format : First line contains n,m where n is the no. of vertices and m is the no. of colours provided, Next n lines contains n integers each together representing the adjacency matrix.

Output Format : two space separated integers, first is 0 or 1 denoting whether it is possible to colour it in m colour. Second denoting the no. of minimum colour required.

Q2. Prince has to save princess. She is in the cell (a,b) of a rectangular grid of size (m,n). He starts from (1,1) and moves to the princess moving right, left , down or up. When he enters some cell he has to kill all the guards in the cell before leaving the cell. This killing takes some amount of time depending on the cell. Let us say, it takes c[i,j] amount of time to do so. There is a bomb that blow the princess in some time say t. Print whether or not there exists a path from (1,1) to (a,b) such that he saves the princess before the bomb goes of. If there exists such path, print the maximum amount of time he can spare with princess before the bomb explodes.

Oracle Coding Round @ IITG

Q1. You are given some strings and asked to identify the repeated strings.
eg. a b c a b d
so answer is 2 since at 4th and 5th place a and b is repeated once.
(Simply by the use of Map)

Q2.You are given one start string and one end string and a dictionary of strings. You have to tell in how many steps you can transform start string to end string using intermediate strings(dictionary ones). constraint is that for any step you can change only one letter of the existing string.
eg.`
start = abc
end = xyz
dict = abz axz pxz pyz xyz
so in the above case transformation is abc=>abz=>axz=>pxz=>pyz=>xyz at every step string is changing by one letter only..
So answer will be 6 in this case..
Platform was like shit. no c++14 support. Only two test case was there, i don't know whether code will be checked after those two stupid test cases or not.

REMEMBER:-Change language of the solution(if you use c++ or JAVA) before solving each question because default language is C and you can not "paste" the solution.*(go through graph dfs and bfs questions especially those on interview bit) //must have been hell if someone forgot to

Oracle (All Profiles) @ IIT Roorkee

18-10-2015 (120 min) [same in IIT-Guwahati.]

The question paper consisted of only multiple choice questions. Paper was divided into 4 parts-

a. **Computer Science - Mostly questions from DS, SQL, OS, DBMS, predict the output etc.**
b. **Software Aptitude - Questions on Flowchart analysis, Code Analysis**
c. **Aptitude - Quantitative, Data Interpretation, Logical Reasoning**
d. **Communication - Reading, Writing, Grammar etc.**

All had almost equal weightage although Software aptitude had the highest among these. Number of questions were large for the given time.

ORACLE CODING ROUND IITR (8-nov-2015) ??

Paypal @ IITK 11-10-2015

CTC - 25L
Aptitude questions - 45mins
1 Coding question - 30min // what was the editor like? Was it comfortable?
Ans: HackerEarth
Q) Find the length of the longest palindrome in a string . //substring or sub sequence?(it's substring)
O(N^3) solution got accepted.

Can you please mention aptitude topics PayPal covered??
Topics in aptitude were Time and Speed , Direction , DI , arrangements , P&C , coding Decoding (Total 20 questions = 15 apti + 5 Technical)

P.S. in case you're stuck in taking input in the form of strings in each line just do while(cin>>s) where s is your string. (cool bey)

//Technical MCQs??

//Yes, Can anybody tell the technical MCQs asked? It would be a great help!!
OS theoretical questions, some c output questions

Paypal @ IITR IITM IITD 20-10-2015

same as iitk -seriously!! wow!

Paypal @ IIT BHU 29-10-2015, @IITH 9-11-2015

CTC - 25L
Aptitude questions - 45mins
1 Coding question - 30min
Q) A man has a bucket with a hole. He can walk m Miles with 2 lit of water. He can refill the the bucket at a station.He has to cross n stations. Given distance of each station from starting point, find the minimum stops he has to take to cross the stations.
#Note: Input Format was exactly as mentioned as below. You need to parse or split it to make it as distance array
input ***output***

(1,3,6,9,13,16,18,19) , 5 6 /// Can anybody explain the i/p o/p mentioned

distance of each station , m
(shouldn't the output be 5?NO it is 6 - {3,6,9,13,18}) as (1) first time stop at 3 and fill water now he can go upto 8 mile but not upto 9 mile
(2) fill water at 6 , now can go upto 11

(3) fill water at 9, now can go upto 14

(4) fill water at 13, now can go upto 18 but not up to 19

(5) fill at 18, and can cross the stations

i think they assume 1 extra for first time filling of water (starting point). so total 6.

// why will he stop at 19?

(yeah, ans must be 5

!! can somebody clarify)

since they haven't mentioned whether the bucket was full initially , so the man needs to fill the bucket at position 0. so answer is 6

Paypal @ IIT KGP 04-11-2015

CTC - 25L

Aptitude questions - 45mins

1 Coding question - 30min [Hacker Earth]

Q) Length of the longest common substring of two strings

input	output
abade aaade	3

Paypal @ IITD

Aptitude questions - 45mins

1 Coding question - 30min [Hacker Earth]

Q) Maximum length of palindromic substring/subsequence(I don't remember exactly) in a given string.

Paypal @ IITG

1 coding question : same problem (find longest palindromic substring 9/10 test cases passed using geeksforgeeks solution..some sources say :P so there is equal chance that the actual question meant to be the longest subsequence(palindromic). // or, may be a O(n) solution might have worked.

G.S @ IITK // (Goldman Sachs)

Objective: 3 sections: CS, Quant and Data Science, each had 10 questions (+3, -1)
Time: ? 90 min.

CS: regular expressions, nuts and bolts problem (2 questions), 1 que described 4 graphs in terms of no. of vertices, edges and connected component codes. we had to choose the graph which was feasible, what does (i,j)th element of nth power of adjacency matrix represent(if A is an n x n matrix and B = A^2 then the entries $b_{i,j}$ of B 222are obtained as

$$b_{ij} = \sum_{k=1}^{n} a_{ik} a_{kj}$$

.

Therefore $b_{i,j}$ = 1 if and only if there is a vertex k with $a_{i,k}$ = 1 and $a_{k,j}$ = 1. Well this is the same as saying that there is a path of length 2 from vertex i to vertex j. So we can conclude that $b_{i,j}$ is the number of paths of length 2 from i to j. (If i = j then you just get the degree of the vertex))?, is http persistent/non-persistent/both
Quant:
1) bayes theorem simple application
2) sides of rectangle chosen independently from uniform distribution. What is probability that area of rectangle is greater than 0.5? (ans. (1-ln2)/2)

explain pls?? if the sides are x and y, double integral of 1*dy*dx as y varies between ½*x and 1 and x varies from ½ to 1. (or vice versa)
3) trace(A) = 4, trace(A*A) = 16, det(A) = 27, trace(A*A*A) =? (ans: 145) // Whether this answer is correct ? Answer is indeed 145!!
ans=4*16+3*27 =145 after solving the three equations
a + b + c = 4
a^2+ b^2 + c^2 = 16
a*b*c = 27

//I think the answer should be 145 by the following method
how is it 91?? explain pls! // I think we can do it as below
trace(A)=sum of eigen values of A=4
l1+l2+l3=4
trace(A*A)=sum of eigen values of A*A=16
l1*l1+l2*l2+l3*l3=16
det(A)=27 => l1*l2*l3=27 from these three equation, find l1^3+l2^3+l3^3

Doubt:- Was the dimension of the square matrix A given in the question?
Yes 3x3
4) f = A*sin(x) + B*cos(x) is a vector space. L = f + f ' with basis {sinx, cosx}. Matrix representation of L? (ans: [1 -1; 1 1])
can someone explain how? //basic linear algebra problem
Every linear function has a corresponding matrix representation. Any function with basis (phi1,ph2 etc.) can be written as f = A1*phi1 + A2*phi2 +... Here, L(f) = (A-B) sinx + (A+B) cosx. So L transforms (A,B) to (A-B,A+B) . huh So does the matrix [1 -1; 1 1] because [1 -1; 1 1]*[A;B] = [A-B;A+B].Hence that matrix is represents the given function.

5) how many integers x are there, such that x^2- 3*x - 19 is divisible by 289? (ans: 0)
6) largest area of trapezoid in semicircle of radius 2 with diameter as one side? (ans: 3*root(3))
7),8),9),10) were quite long

Data Science: 1) how does adaboost improve classifier accuracy?
2) you have 10000 fair coins. P(getting more than 5100 heads) ? // Ans using normal approximation.
3) one question on hypothesis testing (nothing to solve, remember the terms)

4) some questions on details of Nearest neighbour, SVM, naive bayes and other classifiers

Subjective: 2-3 question in each section. (time = 90 min) marking scheme? different for different parts of different questions
CS: 1) 1 standard question on mutex and semaphores. Too long, don't remember
2) prove or disprove given implementation of quicksort partition is stable or not

Quant:
1) P(head) = p, expected no. of tosses to get first 2 consecutive heads? (ans: (1+p)/p^2)how???// shouldn't the ans be {(1+p)/p^2 - 1 }nope // plz explain https://www.quora.com/What-is-the-expected-number-of-coin-flips-until-you-get-two-heads-in-a-row //Thanks was missing 2*p^2
n Cars with velocities in a random permutation are leaving a place. As a faster car approaches a slower car ahead of itself, the two cars start moving at slower car's speed, forming a group. Groups keep merging this way along an infinite road. Expected no. of groups? Ans: (is n/2 correct?) (I don't think so. I read somewhere it's 1 + ½ + ⅓ + … 1/n)
Let the slowest car is at i th .
Then 0...i will form one group and, from i +1 to n it is problem of the same kind .
i can go from 1 to n .
What is n here? number of cars with speeds from 1 to n, and ans is 1+½+⅓+...1/n
///how???use induction
not necessary let the slowest car be at position 3
ex 231 . You can see 231 does not form one group. bcoz car 2 can not reach car 3
hence there are two groups
{ but 2 can reach 1 , first 1&3 will meet and f

2) Present value (PV) of an amount c paid after n years compounded annually = c / F(1+r)^n. If a person pays c forever, every year, find the relation between PV and r (sum of infinite GP. PV = c/r)
Is PV vs. r graph convex? Will PV's 3rd order taylor expansion underestimate or overestimate actual PV? Expression for PV if the compounded interest is taken k times a year? What is the limit as k-> inf. (remember expression for e in limit terms)

3) Two people A and B are playing a game of filling elements of an empty matrix one by one. A starts and wins only if the determinant of the final (completely filled) matrix is non-zero, otherwise B wins. Is there a strategy for A to win? any standard prob it is?
2nd part was to evaluate determinant of a nxn matrix containing all cos terms. Don't remember exact entries of the matrix. what was the approach? anybody!

Data Science:

1) Classification problem described. which classifier will you choose? what preprocessing will you do? feature selection etc.
2) what will be the solution to following problems in a linear regression problem? (poor performance on training set, poor performance on training set, multicollinearity in data)

Doubt : Quant Subjective 3 : For the part when PV is compounded k times a year . Do we have to consider c amount is paid every year or its a one time payment after n years?
Ans. paid every year like in 1st case

G.S @ IITM // (Goldman Sachs)

same as iitk -seriously! I would say they will have same questions for exam on same day , but a different one for different days.

Time: 90min Objective and 90min Subjective.

some extra questions adding to above list:

Objective:

Quant:

10) Two friends A and B have 5 music cd's. they have a particular preference order(without knowing to each other). Then A will separate its last 2 preference from the 5 cd's and then B would separate his last 2

preferences from the remaining 3 left with one CD which they will play.Now what is the prob that neither of them listen to their first preference.
ans) 3/20? correct me if I am wrong.
shouldn't it be (2/3)*(2/5)?(yes) How?
It is (4C1/5c2)*(2c1/3c2)... same as above

Descriptive:
CS:
3) You have a continuous stream of different integers and write code to generate k random numbers from the stream such that selecting an integer from the stream is with equal prob (prove it and also that every integer is selected, for +5 marks) You cannot afford to store the integers, but you should generate k random integers at any time instant while you are processing (while taking stream as input or something like that).(marks 5 and another 5 for proving.)
*you have access to Random(i) function which will return a random number from 1 to i-1 with equal prob. or random() function which returns a random float less than one.
// Anyone @IITM / @IITK , correct the framing of this question please!! don't remember properly.
Data Science related : logistic regression, parameters in bayesian, adaboost, SVMs, probability in case of biased coin, KNN, ANN, linear regression.(these are objective)
Subjective : How will you handle heteroscedasticity and multi collinearity in linear regression. What if model is not working well on training data and testing data, you will do in each case?
Some information about a machine learning classifier was given which was modeled using MAP estimate. Which model is this?
One more was there, i dont remember exactly!

Thanks guys for making the efforts! => :) (y) gud nyt..

Goldman Sachs @IITG @ IITR and IIT KGP (IIT-BHU, IIT Delhi too) 31/10/2015

Nothing was repeated from IITM and IITK.

Objective Questions :

1. **OS paging question**
2. **How to find path length of 3 between two vertices i and j using adjacency matrix(Ans-A^3)**
3. **What if instead of linear search, we apply binary search for inserting elements while doing insertion sort. What will be the time complexity?**
4. **If n strings each of length n is to be sorted lexicographically using merge sort, then worst case time complexity?**
5. **A regular expression was given and we had to find regular grammar for it.**
6. **To implement 2 stacks in an array efficiently, relation between top1 and top2 (Geeksquiz question)**
7. **Find min rank of matrix I - cJ where I is n*n matrix and J is n*n matrix**
8. **6 distinct numbers are chosen from uniform distribution (0,1). first three chosen numbers are marked green and next three numbers are marked red and plotted of number line . What is the probability that all adjacent points are of different colour?**
9. **Dice is thrown untill sum of all throws is multiple of 6 . Find expected number of tosses**

10. 5 numbers are chosen from 1 to 100 . What is probability that there exist pair that their difference is multiple of 4.
11. Adam has n children . Each child is male with probabiltiy p and female with probabiity 1-p Now each of these n children have nchildren each with same probability distribution of children. And the process goes on . What is probability that patriarchial name of Adam will eventually die?

12. There are 'n' empty urns . We put balls in the urn one by one and randomly till there is atleast one urn left empty. After thet we stop. What is expected number of total number of balls used.

13. What is mininmum number n . Such that if we choose any set of size n of distinct positve numbers that there always exist a pair that sum of those is multiple of 100 or there difference is multiple of 100.

Subjective Questions:

1. Given two data structure TreeMap[k,v] and HashMap[k,v]. Use them to make a new data structure which supports (on Values now):
    a. extract-min(logn)
    b. delete(logn)
    c. insert(logn)
    d. contains(O(1))
2. Make new packing algo to transfer everything in a single strings. Example if we want to transfer ['a', 'ab', abc'] we can put length of the string as the prefix of the string and concatenate all the strings.

so it becomes ['1a2ab3abc']. So in new string we have 9 characters total. Compare your algo with this example algo.

3. A survey was conducted to ask people if they would watch the movie The Martian or not.

Total People: 50

Will Not watch: 13

Will watch: 14

No response: 23

so the % of people who will not watch is (13/(14+13))%. But it turned out 54.4% did not watch the movie. What went wrong in the estimation?

4. Prove that in a circular wire with temp proportional to length of wire. There are two points diametrically opposite which have same temp.

5. There were two columns and we had to match them. Column I contained entries like - caching web pages, assembling and de-assembling large packets, converting URL to Ip address, request for re-transmission of packet. Column II contained the layers at which these tasks are handled like TCP,IP,DNS,HTTP or none of these.

6. There are two teams at GS one using table A and other using table B. A third team uses table C which is join of A and B over a common column "Entity". An employee accidently deleted this common column for the month of October. Now help him find table C for third team by using data of last 9 months(which we have).

7.

a. Prove that trace remains same in a cyclic permutation ie tr(ABC) = tr(BCA) = tr(CAB).

b. Prove that there exist no 3x3 matrix pair A and B such that AB-BA = I3 where I3 is the identity matrix.

c. Prove that there does not exist polynomials p1(x),q1(y),p2(x),q2(y) such that p1q1+p2q2 = 1+xy+(xy)^2

d. Given that x,y,z are real numbers s.t x+y+z<=1. then find the maximum value of function (x^2*y+y^2*z+z^2*x)

has anyone solved this?

8.Prove that summation(nCr)^2 =2nCn

9.Let temperature of the ring be a continuous function. Prove that there are two diametrically opposite points that have the same temperature.
10. Some question on bidding etc.. one part was weird . rest seemed okayish..

Yodlee Infotech private Limited @ IITB

Date: 25/10/2015
Package - 16.61 LPA (Gross)
Assessment taken by- FirstNaukri
Exam Pattern -
4 sections - 1) General Aptitude - 20 questions (25 mins)
2) Technical Aptitude - 10 questions (10 mins)
-{*C,C++,Java,SQL,OS*}
3) Code Snippet Outputs - 10 questions (20 mins)
4) Programming - 1 question (25 mins)
Program - There are M test cases.For every test case you are given an integer i. Find out a smallest positive integer such that their multiplication (i *j) is a number containing only 4s followed by 0s. (Pattern "4+0*"). If 'P' is number of 4s and 'Q' is number of 0s then for each i, output 2*P + Q
Eg. Input -
2 - *Number of test cases*
5
9
Output -
3
18
Explanation - 5 * 8 = 40 -> P = 1, Q = 1 -> Output = 2 * 1 + 1 = 3
9 * 49382716 = 444444444 -> P = 9, Q = 0 → Output = 2 * 9 = 18
How to do this?
Approach from answer :
Check 4 ;

if not 4 : check 40 , 44
Basically for current check : current *10+4 , and current*10
Any Idea is Welcomed
Solution: http://ideone.com/EuX4d3

Infosys (17 LPA) @ IIT Roorkee

17-10-2015 (90 min).

2 coding questions on hackerrank
1) Given two arrays of number of stocks and their prices, output the minimum sum of product of terms of these two arrays.
Question is very simple. The main problem most guys faced was to convert string to int and vice versa because the input was given in string "1 2 3#4 5 6" where 1 2 3 represents the first array and 4 5 6 the second one. the string was passed to a function and we were allowed to make changes only in that function.
//are the numbers single digit??
//^ No.

2) There are N employee sitting in consecutive cubicles , we have to send a few of them to onsite , but each time we send one employee on site , his cubicle becomes empty , now the other employees from both side of that empty cubicle stops working until they are given a gift .
the gifts are given in both sides of the empty cubicle until we reach the end or find
another *empty* cubicle,

Input – number of cubicle , and index numbers of people to be sent
output- min number of gifts needed

Can some one better explain the question? What do you mean by until we reach end or found other cubicle? There is always an other cubicle other than at ends !!

It's *empty* cubicle. I have edited the question. I think your doubt must have cleared now.

Hint: we have to find the order in which we will sent the people on site , find the index that's in the middle or near about middle and send him out ,

keep doing the same for left and right subarray (Divide and Conquer) , there are many other ways of doing this by using binary trees .
For both the questions, input and output were in string format.

Can somebody explain any one test case properly??

4 2 1
1 1 1

output
2
there are 2 paths from 0,0 to 2,2
0,0 -> 0,2 ->2,2
0,0 ->2,0 ->2,1 ->2,2
minimum is 3 // In this case minimum should be 2 because we have gone only in 2 blocks can somebody explain ques properly

2,4
1 2 3 4
2 1 2 3

output
0
no path exists
0,0 -> 0,1 ->0,3
0,0 -> 0,1
0,0 ->1,0 ->1,2

Infosys(17 LPA) @ IIT GHY 5-11-2015(90 Min)

logic?????

adding fishes of size n-1 each time will work?////(YES, check when the count

Hungry Fish

An evil scientist has developed an injection that induces insatiable hunger in a fish. On giving this injection, a fish of size **x** can eat another fish of *smaller* size **y** (y < x) and become a fish of size **x + y** retaining this hunger. An aquarium has a number of fishes of various sizes. The scientist introduces an injected fish into this aquarium with an objective that eventually only 1 fish remains. In order to achieve this, the scientist is allowed only two types of moves: either add a normal fish of any size or remove an existing normal fish from the aquarium. Given the sizes of other fishes in the aquarium and the size of injected fish, write a program to determine the *minimum* number of moves needed by the scientist to achieve his objective.
For example, suppose there are 5 fishes in the aquarium, the injected fish is of size 10 and the other fishes are of sizes 9, 20, 25, and 100. To ensure that only 1 fish remains in the aquarium the scientist needs to remove the fish of size 100 and add a fish of size 3. So the output is 2. The sequence of steps is shown below. The sizes of fishes in the aquarium at each step are shown in curly braces. The highlighted number is the size of the injected fish.

Step-0: initial state -> {**10**,9,20,25,100}
Step-1: eats 9 -> {**19**,20,25,100}
Step-2: add normal fish of size 3 -> {**19**,3,20,25,100} [1st move]
Step-3: eats 3 -> {**22**,20,25,100}
Step-4: eats 20 -> {**42**,25,100}
Step-5: eats 25 -> {**67**,100}
Step-6: remove fish of size 100 -> {**67**} [2nd move]

Alternatively the scientist can also choose to introduce any fish of size 2 to size 18 in step 2 instead of the fish of size 3 to achieve the same objective. Similarly, adding a fish of size 36 in step 6 instead of removing fish of size 100 is also a valid solution. In all these solutions 2 moves are required.

Constraints

The sizes of the fishes in the tank can range from 1 to 1000000. No credit will be given if the problem is solved using brute force.

becomes greater than the original no. of fishes then return the original count)

Tile Exchange

hackerrank.com is now fullscreen.
Press ESC at any time to exit.

Michael purchased N square tiles having lengths A_1 to A_N (in inches) to remodel his office floor of area M inches square. Unfortunately, he finds that summing the area of individual tiles does not add up to the area of his office floor. Thankfully the store has an exchange policy; a tile of side length A_i can be exchanged for a new tile of side length B_i for a cost of Rs |A_i-B_i|*|A_i-B_i|. However, this exchange policy only applies to previously-purchased tiles i.e. Michael is not allowed to exchange a tile that he has already obtained via exchanging some other tile.
Given M and the lengths of the tiles previously purchased as input determine the minimum amount of money required to exchange tiles so that the sum of the areas of the tiles becomes M.
Example: Say M is 6 inches square and Michael had bought previously 3 tiles of lengths 3, 3 and 1 inches.
The answer is 5. One of the 3 inch length tile can be exchanged for a 2 inch length tile, and another 3 inch length tile for a 1 inch length tile. This gives the desired area of 2*2+1*1+1*1=6 and costs (3-2)(3-2) + (3-1)(3-1) = 1 + 4 = 5.

Input

Input is a string containing two parts separated by '#'. The first part is an integer representing M, the total area that needs to be covered. The second part is a sequence of integers separated by space representing the lengths of the tiles previously purchased by Michael. The input to the above example would be represented as: 6#3 3 1

Output

An integer representing the minimum cost of exchanging tiles to obtain M square inches of total area, or -1 if this is impossible.

Sample Input & Output

6#3 3 1	5
8041#59 84 25 3 44 34 76	2698

YOUR ANSWER

C++

```
1 #include <map>
2 #include <set>
3 #include <list>
4 #include <cmath>
```

logic????

Infosys(17 LPA) @ IIT Kanpur
5-11-2015(90 Min)

1. **Find the minimum number of switches required to verify mails when a person cannot verify his own mail.**
   Input: A, B,C,D#A,B,C,D,A
   Output: 1

2. A person takes a photo of cars in interval i j, each photo he examines has exactly one purple car, find the maximum number of purple cars that can exist, in case it is not possible then display -1.

Input:5#1 4,2 5,3 4

Output:1

Link to this question :

http://stackoverflow.com/questions/33562067/find-the-maximum-number-of-purple-cars-possible-in-the-given-sequence-of-n-cars

Nutanix @ IIT Delhi

Date- 13-10-2015

2 coding questions 70 minutes

1. **given array of non-negative integers and a target integer, find the number of ways you can make the target integer using all the integers from the array and in the same sequence. you are only allowed to use + or - operator between two elements . (1<= n <= 50,000) n is the size of array**
   How to solve this??
   ##what were the constraints for this question? , some test cases at least ?
   Is there any polynomial solution for this problem ???

   Input:
   Array: 1 2 1
   Sum : 2
   Output:
   2

Explanation:

-1+2+1=2

+1+2-1=2

So, there are 2 ways to bring sum as 2 by adding/subtracting all the elements from {1, 2, 1}

2. given an array 0 1 2 3 find min number of ways to convert it into 1 0 2 3. Allowed operations are, you can only swap an element with the 0 element.
   -- Question not clear. Someone please restate

NUTANIX @ IIT Guwahati

Date-05/10/15
60min on hackerrank
Q.1 Given Array of N integers and Q queries(pair(i,j) such that 1<=i<j<=n) give minimum value between index i and j (i and j included). You have also given integer k such that k<=j-i+1<=2*k. Indexing will be 1 based.
INPUT Format :
N K Q
A1...AN
i1 j1
.
.
iQ jQ
eg.
Input
6 2 3
4 2 1 6 5 3
1 3
2 5
4 6
Output
1
1
3
##what is k in this sample test case?can you elaborate it?

Will segment tree work? [segment tree or bruteforce both will work]

Q.2 characters(ea Given a string(all characters are a-z) , you have to remove repeated ch character can occur only once) while preserving ordering. Resulted string should be lexicographically smallest.
eg.
Input :-
abcbc
jsabj
jsabjs

Output:-
abc
jsab
abjs
Solution : Use Stack
(http://www.careercup.com/question?id=5758790009880576)

Solution : simple hashing using array. complexity O(n)

```
#include<iostream>
#include<cstring>
using namespace std;
int main()
{
    char str[100], res[100];
    int count[26] = {0}, j = 0;

    cin>>str;
    for(int i = 0; i < strlen(str);i++)
    {
      count[str[i]-'a']++;
    }
    for(int i = 0; i < strlen(str);i++)
    {
      if(count[str[i]-'a'] > 0)
      {
          if(count[str[i]-'a'] == 1)
          {
              res[j++] = str[i];
```

```
                count[str[i]-'a'] = 0;
            }
            else if(i < strlen(str) && str[i] < str[i+1])
            {
                count[str[i]-'a'] = 0;
                res[j++] = str[i];
            }
            else
            {
                count[str[i]-'a']--;
            }
        }
    }
    res[j++] = '\0';
    cout<<res<<"\n";
}
```

Above code won't work for all cases. Only 6/9 test cases were passing. Stack solution is correct.

Tinyowl IIT Delhi

1. **MCQ - If a binary tree has K number of nodes having exactly 2 children, and L number of leaves, then what is the relation between K and L.**
2. **MCQ on performance of hash map.**

3. sql query to find the customers id for customers having maximum orders from an order table

A - select foo.A from (select id as A, count(id) as B from <given table> group by id) as foo where foo.b >= all (select count(id) from <given table> group by id);

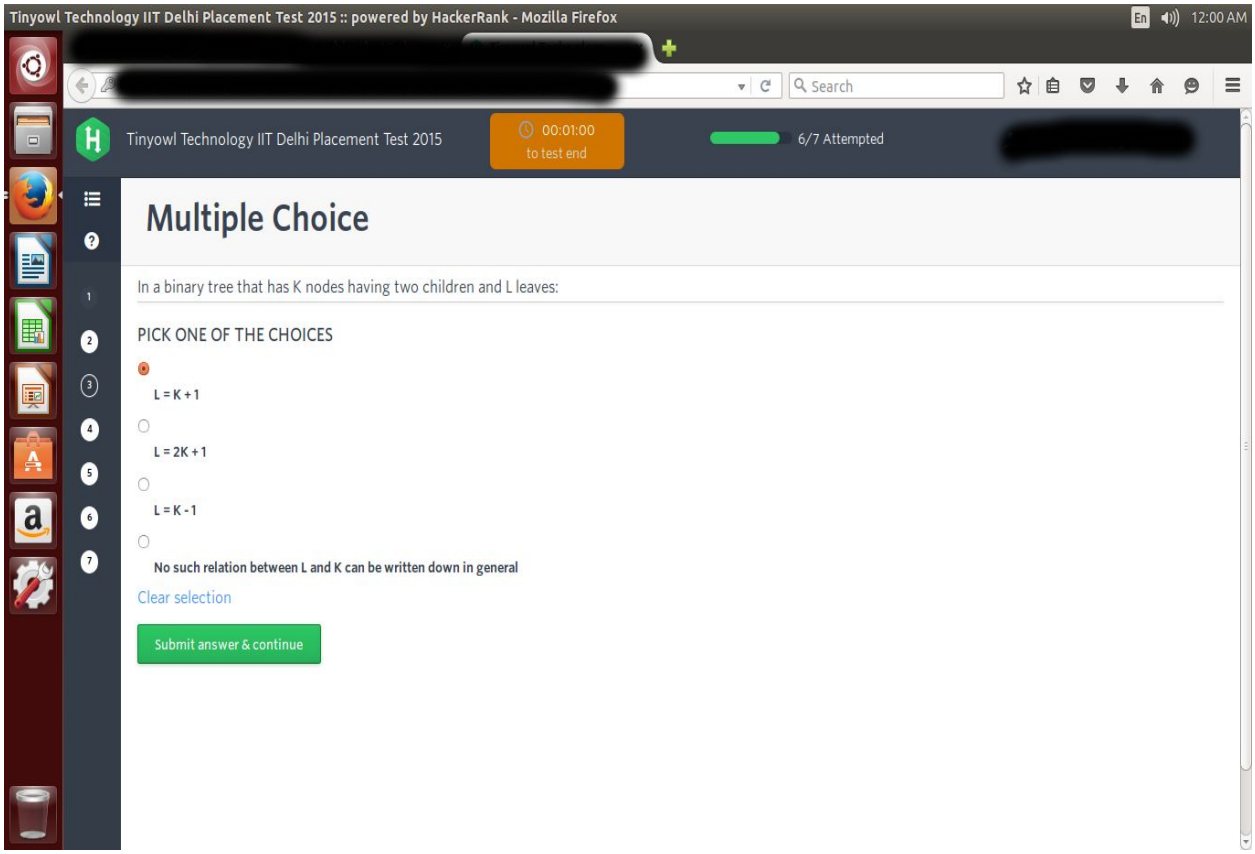
4. given a string find the next lexicographically greater string

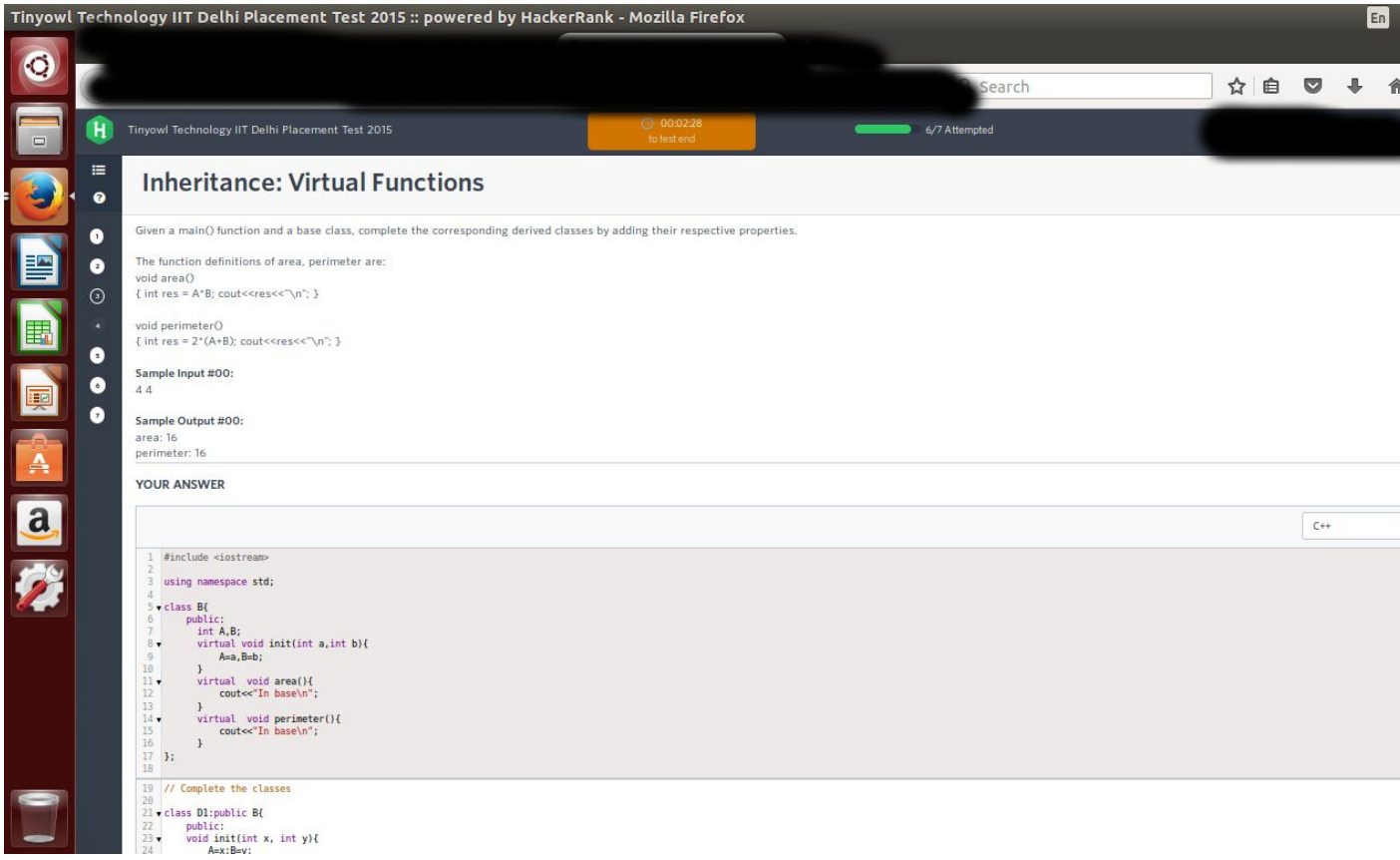
5. given an array initialised to 0. there are m queries given to add k numbers from indexes a to b. find the maximum number from array after these m operations

6. some class inheritance question

7. Given N, consider numbers from 1 to N. Given a set S of some numbers, let the numbers be S1, S2, S3 . . .Sk. If I remove all the multiples of S1 to Sk that lie in the range 1 to N, how many numbers remain?

PFA Screenshots




Tinyowl Technology IIT Delhi Placement Test 2015 :: powered by HackerRank - Mozilla Firefox
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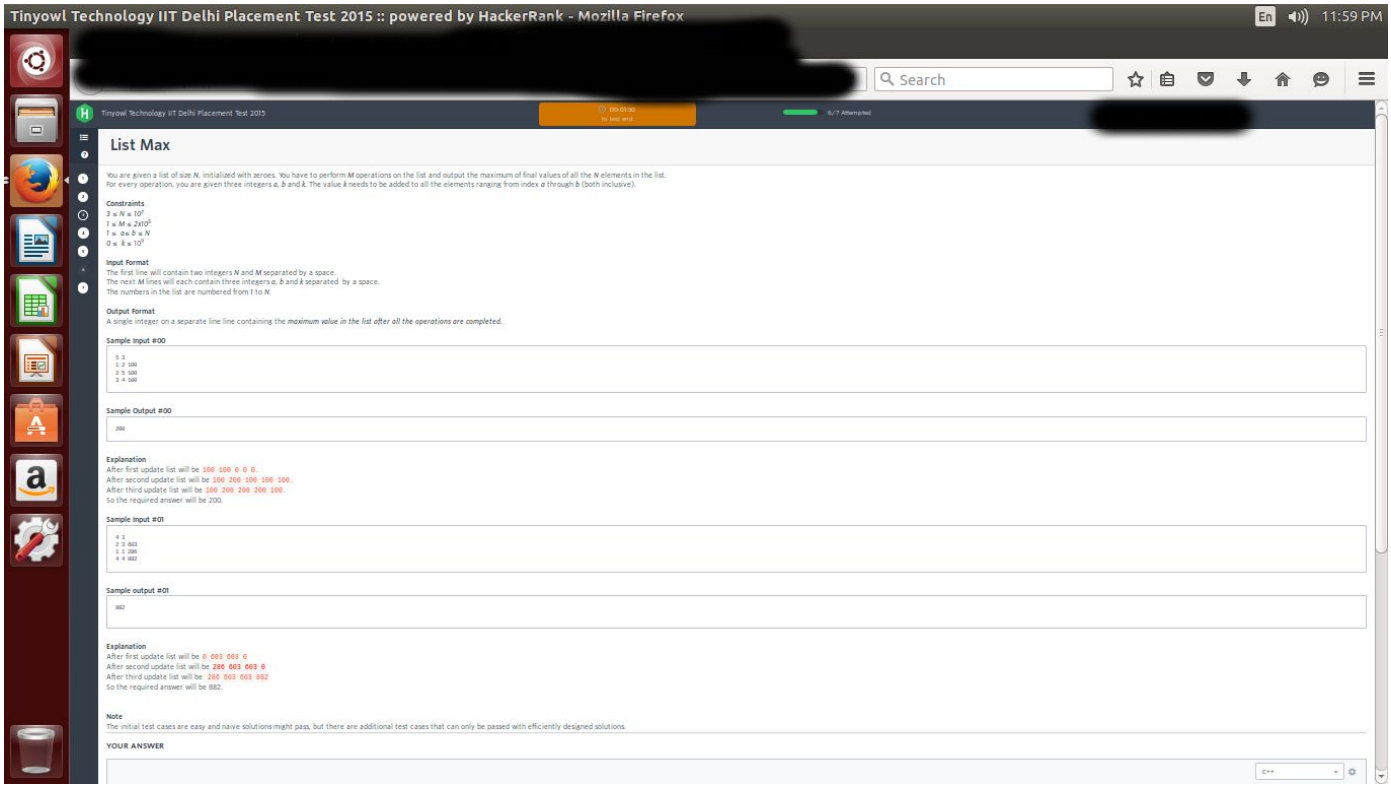
to test end
6/7 Attempted
Inheritance: Virtual Functions
Given a main() function and a base class, complete the corresponding derived classes by adding their respective properties.
The function definitions of area, perimeter are:
void area()
{ int res = A*B; cout<<res<<"\n"; }
void perimeter()
{ int res = 2*(A+B); cout<<res<<"\n"; }
Sample Input #00:
4 4
Sample Output #00:
area: 16
perimeter: 16
YOUR ANSWER
C++
#include <iostream>
using namespace std;
class B{
public:
int A,B;
virtual void init(int a,int b){
A=a,B=b;
}
virtual void area(){
cout<<"In base\n";
}
virtual void perimeter(){
cout<<"In base\n";
}
};
// Complete the classes
class D1:public B{
public:
void init(int x, int y){
A=x:B=v: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11:59 PM
List Max
You are given a list of size N, initialized with zeroes. You have to perform M operations on the list and output the maximum of final values of all the N elements in the list.
For every operation, you are given three integers a, b and k. The value k needs to be added to all the elements ranging from index a through b (both inclusive).
Constraints
Input Format
The first line will contain two integers N and M separated by a space.
The next M lines will each contain three integers a, b and k separated by a space.
The numbers in the list are numbered from 1 to N.
Output Format
A single integer on a separate line line containing the maximum value in the list after all the operations are completed.
Sample Input #00
5 3
1 2 100
2 5 100
3 4 100
Sample Output #00
200
Explanation
After first update list will be 100 100 0 0 0.
After second update list will be 100 200 100 100 100.
After third update list will be 100 200 200 200 100.
So the required answer will be 200.
Sample Input #01
4 3
2 3 603
1 1 286
4 4 882
Sample output #01
882
Explanation
After first update list will be 0 603 603 0
After second update list will be 286 603 603 0
After third update list will be 286 603 603 882
So the required answer will be 882.
Note
The initial test cases are easy and naive solutions might pass, but there are additional test cases that can only be passed with efficiently designed solutions.
YOUR ANSWER
c++

Tiny Owl @IIT Kanpur 5th October

//Time??

1. Given a database of Employees (Id, Name, Salary), you are to write sql query to report all the pair of employees where the salary of first employee in the pair is higher than the salary of the second employee.
2. Given two classes, you are create a new class which inherits those two classes and also asked to implement a few functions and constructor for the new class.
3. Given a sequence of characters, you are to print all the subsequences in lexicographic order
4. Given an array of integers report the maximum difference between two integers where the larger number occurs after the smaller number.
5. Given a string S of length n, integer L, K, M. You are to find the most frequent should lie greater than or equal to L and less than or equal to K
6. the number of distinct characters in the substring should be less than M substring. The substring should satisfy the following criteria :
    a. length of string

SPRINKLR IIT Kanpur

4 questions, 2 hours

1. https://www.hackerrank.com/contests/test-contest-27/challenges/histogram
2. https://www.hackerrank.com/challenges/lego-blocks
3. https://www.hackerrank.com/challenges/lego-blocks
4. We have been given some pairs, {A, B}, {A, C}, {B, D}...

where {p, q} => p is parent of q. We have to print string representation of tree which is generated from these pairs.
given two strings check whether first is a permutation of second string or not.Example: {A,B}, {D,C}, {B,D}, {A,E}, {E,F}, {E,G}
Ans: (A(B(D(C)))(E(F)(G)))
In case of following errors, show error code of higher precedence.
E1 - more than 2 children
E2 - duplicate edges
E3 - multiple roots
E4 - cycle present
E5 - any other error

SPRINKLR IIT Delhi

20 MCQ questions, 25 minutes

- Questions were based on operating system concepts (spin locks, mutex, pre emptive kernel, etc), DBMS, Networks, Sharding

3 coding questions, 2 hours

1. Find number of Water Bodies over a mass of land - mass of land is represented by a graph. Graph is filled with ‘0’ and ‘1’ which represent land and water respectively. All the 1s connected by 8-connectivity problem represent a single continuous water body. Output the total number of water bodies.
   Example - following graph has 2 water bodies
   0 1 0 0
   1 0 0 0
   1 0 0 0

0 0 1 0

1. **Another question was based on Dijsktra's algorithm. It was a big question but essentially it was shortest path algorithm.**
2. **Given N intervals on a 1-D line (eg- (1,6) (4,7) (010,11) (12,25) (20,24)). Each interval is given a value (eg- 3,4,10,6,5 respectively for previous intervals). Find the maximum value that you can achieve at any point on the line (eg- max value is 11 at (20,24)).**

// in short, we need to find maximum valued overlapping interval ?

InMobi IIT ROORKEE

1.5hrs 27Q(2 Subjective, 25 Objective(+5, -1.25 Negative Marking)

Subjective:

1. https://www.hackerrank.com/challenges/missing-stock-prices

```
openssl enc -aes-256-cbc -a -salt -in qanda.tex -out qanda.enc
```

2. https://www.codechef.com/problems/IISCH05

Objective: Were very easy basic output, pointer, aptitude, probability problems. //Didn't attempt any Objective :((time shortage).

INMOBI

1.5hr time.
25 mcqs and 2 coding questions.
MCQs-10 java qons, some from ds, memory management and aptitude.
-Coding questions:
Q1. There are elections in town. Each candidate has been voted. A[1…n] is the array where A[i] denotes the the number of votes for the the ith candidate. This array A[] is sorted in descending order with ties broken by increasing indices. You can increase the votes for any candidate and also you have a desire list for the candidate. Rank[1…n] denotes the rank of the candidate that you want the candidate to be in that position where -1 denotes you don't care for him. Find the minimum number of votes added by you to get the rank of the candidates as in Rank array. ^The question is not clear. Someone please state it properly.
Eg. A[] = {10,8,6,4,3}
Rank = {0,2,1,3,-1}
Ans 3(Increase 6 to 9)
Eg. A[] = {100,40,15,15}
Rank[] = {0,1,3,2}
Ans 1 (tie breaker case).b ner

Solution Approach..

(We need to use the greedy approach for this question. make pairs of the ranks and vote array together based on increasing ranks, and then form the back side check for any possible changes like in first test case. after sorting arrays will be (0,10),(1,6),(2,8),(3,4), leaving negative case, now from back side condition will be false between 1,6 and 2,8 so i will increase 6 to 9 and done)

Any reason why from back side ???

Because we can only increase number of votes and larger rank means least votes , Therefore after sorting in increasing order of rank. back side would have largest rank => least votes.

We can't ignore -1 ranks. We have to consider it when rank array is like {-1,0,2} then we have to assign the -1 candidate rank equal to 1. Ignoring it will give wrong answer. x

Q2.Given n digit numbers in vector<string> V; 1<=V.size()<=50 . Given an array of integers of size V.size(); such that each array entry has number of hits with an another n-digit number num(which is not given in the vector V).
where hits corresponds to the number of corresponding same indexed digits matched with the resultant n-digit number(string) present in vector<string> V. find the num or state if there are multiple such numbers possible or not possible to predict the number.
Singh
this is what i understood by this question..

V=["4231","1322","5741","1234"] (vector of strings of same size)
N=[0,3,1,1] (compare the above values with actual Code Guesser number(what we need to output), at V[1]=1322, and actual number 1342 there are 3 digits same at their respective positions, same for V[2], 4 at 3rd position is matched so the N[2] is equal tox 1)

now we are given these two arrays and we have to check that whether we can generate this actual number or not..

actual value is 1342

ANYONE GOT THE SOLUTION FOR THIS PROBLEM?.. IF YES THEN PLEASE SHARE.. : I could not think of an elegant solution but a naive solution can be by recursion. Fix digits at index and then recurse on index-1 with the updated hits array. Though the worst case complexity can be exponential
Anonymous: I think above problem is similar to this and solution should be brute force.
http://www.codeabbey.com/index/task_view/code-guesser
* it checks for each possible code the andrew's answers to the guesses and checks for all the correct matches and as there is a solution guaranteed to be there and that too unique one so this approach works.
Feel free to comment and find bugs please and if there is some better approach please let everybody know ,*/
// accepted on above link :D

```
#include <iostream>
#include<bits/stdc++.h>
using namespace std;
struct combo
{
        int code;
        int andans;
};
vector<combo>guess; // to hold the input data
combo temp;   // to input the values
int clue;
void compare(int codecheck, int guessedcode)
{
        int c[4], g[4], i=0 ,j; // as only four digit code
        clue=0;
        while(codecheck>0)
        {
                c[i] = codecheck%10;
                codecheck/=10;
                i++;
        }
        i=0;
```

```
        while(guessedcode>0)
        {
                g[i] = guessedcode%10;
                guessedcode/=10;
                i++;
        }
        for(i=0;i<4;i++)
        {

                        if(c[i]==g[i])
                        clue++;
        }
}
int match(int codecheck)
{
        int s= guess.size(), i ,j;
        for(i=0;i<s;i++){
                compare(codecheck, guess[i].code);
                if(guess[i].andans!=clue)
                return 0; }
         return 1; }
int main() {
int num, i , j, ans ;
scanf("%d", &num);
for(i=0;i<num;i++){
        scanf("%d %d",&temp.code, &temp.andans);
        guess.push_back(temp); }
for(i=1000; i<=9999;i++){
        if(match(i))
        {
          ans = i;
        }}
cout<<setw(4)<<setfill('0')<<ans;
        return 0;
}
```

INMOBI IIT Kanpur

1.5 Hr paper
27 Questions 2 coding and 25 MCQ on hackerrank
MCQs on code snippets, OS, DBMS, Networks, Aptitude
Coding Questions:

How to solve this??
Music. You have N songs in your iPod and you want to create playlist of length L with repetitions. But you can add a song again only if at least K different songs have been added after the song.
input - N,K,L. 1<=N<=100, N<=L<=100, N>K. Output number of playlists possible modulo 1000000007.

2. You have been given an expression X/Y+U/V as a string, and you have to evaluate the expression and represent it in the simplest form of fraction. Eg.3/4+5/4, return 2/1 as string. (tostring and stoi both will work on hackerrank..and to concatenate string/char and integer, ofstream will come handy)

Inmobi @IITD

1.5 Hr paper
27 Questions 2 coding and 25 MCQ
MCQ- Quant and c++ code snippet.2 coding questions both on regular expression No os , cn or data structure question.Easy MCQ.

1-Detecting Valid Latitude and Longitude Pairs - link
2- Detect domain name - link

INMOBI @ (IIT Guwahati)

Hackerrank platform. 90 min test.

1. **Kth Optimal path in a matrix.**
   (http://programmers.stackexchange.com/questions/260972/kth-optimal-path-in-a-matrix)
   You can solve it here on hackerearth:-
https://www.hackerearth.com/problem/algorithm/kth-shortest-path/

   Solution: use DP. Test cases were too strict.
2. **Given an array of integers, you need to check if it's an arithmetic progression, geometric progression or fibonacci series. You then need to return the next number in the series or -999 if the given numbers does not follow any of the above series. The fibonacci series need not start with 0. A valid fibonacci series could be 8,9,17**

INMOBI @ (IIT Roorkee)

Hackerrank platform. 90 min test. 25 CS/Maths questions, 2 coding

1. **Given a string, you have to find the maximum product of the length of two palindromic subsequences of it such that the subsequences don't overlap.**
2. **Given a list of stock prices along with timestamps in format dd/mm/yyyy hh:mm:ss with some of the stock prices missing. You have to print the missing stock prices value. 2% error was allowed.**
   (https://www.hackerrank.com/challenges/missing-stock-prices)

Snapdeal @IIT MADRAS

Where to go

Given a tree with n nodes, numbered 0 to n-1. You are given the tree as int[] parent with n-1 elements. For each valid i, there is an edge between vertex (i+1) and parent[i].
Initially, you are at node 0. In a single step, you can move from its current node to any adjacent node. You are allowed to make at most N steps. Return the maximum number of nodes that you can visit during the walk. Node 0 (where the walk starts) and the node where the walk ends count as visited. Each visited node is only counted once, even if it is visited multiple times.

For example for the input , parent [0,0] and steps 2, there is an edge 0-1 and edge 0-2 in the tree. Given you have steps to take and the fact that you have to start from node 0, the maximum number of nodes that you can visit is 2. So your function should return 2.

YOUR ANSWER

Draft saved 10:08 pm

C++

```
#include <map>
#include <set>
#include <list>
#include <cmath>
#include <ctime>
```

What the string

The string "00101" is special because each character is either '0' or '1' and any non-empty prefix of the string is lexicographically less than (in a strict manner) the remaining suffix.
For example, "0" < "0101", "00" < "101", "001" < "01", and "0010" < "1". Please note, these relations hold true in the lexicographic order.
Consider the lexicographically sorted list of all special strings of length N. Given a special string of length N, you are to return the string that comes immediately in this lexicographically ordered list. If current happens to be the last string in the list, return the string "-1" instead.
For the above input "00101", your program should return "00111".

YOUR ANSWER

C++

```
#include <map>
#include <set>
#include <list>
#include <cmath>
#include <ctime>
#include <deque>
#include <queue>
```

Skyline

Write a program which helps drawing the skyline of a city, eliminating hidden lines given the locations of the rectangular buildings in the city. All the buildings are built on the flat ground(they share a common bottom) and each building Bi is represented by a triplet (li,hi,ri) where li and ri are the left and right coordinates of the ith building and hi is the height of the ith building. A skyline is a collection of rectangular strips. A rectangular strip is represented as a pair(left,ht) where left is the x coordinate of left side and ht is the height of strip.

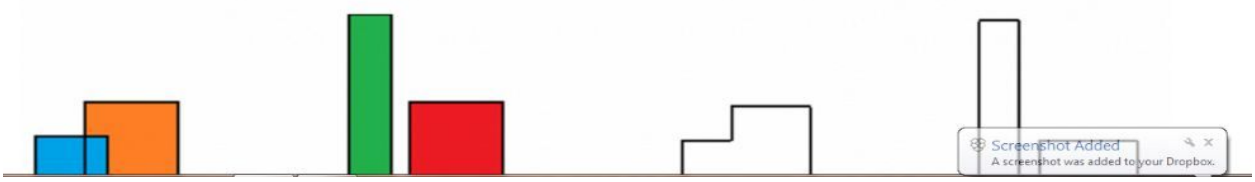
Sample Input(First line is the number of triplets(buildings) and rest of the lines denote the buildings(li,hi,ri))
8
1 11 5
2 6 7
3 13 9
12 7 16
14 3 25
19 18 22
23 13 29
24 4 28

Sample Output(Rectangular strips: first value is x coordinate and second one is height of the strip)
1 11
3 13

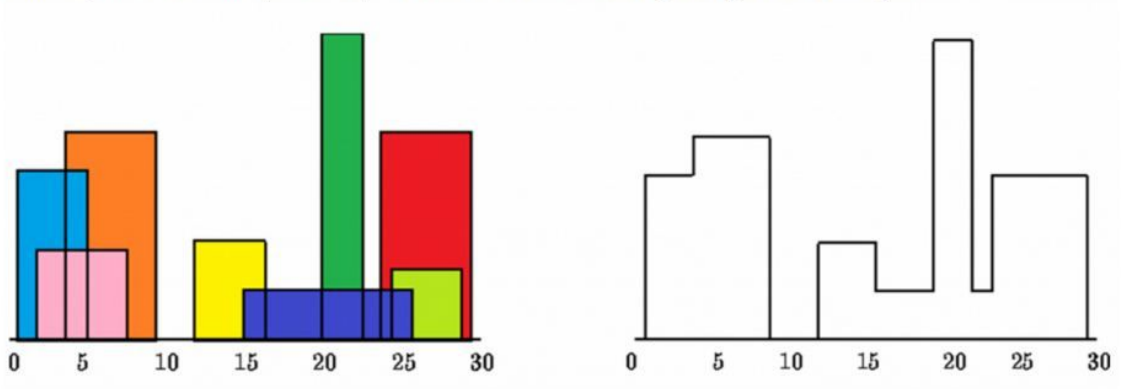
23 13 29
24 4 28

Sample Output(Rectangular strips: first value is x coordinate and second one is height of the strip)
1 11
3 13
9 0
12 7
16 3
19 18
22 3
23 13
29 0

Below diagram demonstrate input and output. The left side shows the buildings and right side shows skyline.



Below diagram demonstrate input and output. The left side shows the buildings and right side shows skyline.



Game of coins

Two players A and B play a game of coin. They put n coins in a line where n is even. Both play the game by alternating turns. In each turn a player selects either the first or last coin of the row, removes it from the row and receives the value of the coin. Assume that A goes first, write a program to compute the maximum amount of money A can win.
Note: A is as clever as B.

Sample Input(First line would be the size of the array and second line would be the elements of the array) :
5
3,2,2,3,1,2
Sample Output: 8

YOUR ANSWER

Snapdeal @ IIT (BHU) Varanasi

Same as IIT Madras

JusPay

Only 1 question Duration: 1 hr 30 min

CTC: 20L

Input: Number of Nodes (N) Eg: N=5

Edges(Given in an array): 2 4 -1 2 3

Source1:1 Source 2:4

Nodes are labeled with 0…..4

Edges: Egde[i] indicates from node i to node(Edge[i]) can be reached in 1 step. -1 denotes there is no edge from i Xerox

1) Given source1 (node) and source2 (node) , find the meeting point

It is mentioned that solve (1) , (2) in O(N) and 3) in O(logn)

Patym