Inter IIT Placement 2017-2018

Important Instructions:

- Add all your queries to the **QUERIES**
- Add the new companies to the **COMPANY LIST PAGE .**
- Apply **HEADING-1** style for new company name, to show in outline.
- Enable outline for Company Shortcuts **Tools → Document Outline**
- Page edit history will be maintained in **History Page .**
- Make use of this sheet for **CTC Details** : https://goo.gl/Zyf3ZY
- Mention whether the company is open for M.Tech or not.

Companies List

You can search the questions of the following companies.

(Anyone solving the questions, is requested to share the solution and approach)

Walmart	Zendrive	Elastic Run	Indeed	Flock (Directi)	Flock(Media.Net)
IBM	Samsung	Oracle	Deutsche Bank	Flipkart	Optiver
Qualcomm	VMWare	Futures first	iManage	J P Morgan	EXL
ISRO	PayPal	Alphonso.tv	HSBC	American Express	Mercari
SAP Labs	MathWorks	Microsoft	Capital One	Next Education	Societe General
RazorPay	Saavn	Fidelity	Tesco	Texas	Goldman Sachs

				Instruments	
Yodlee	Nutanix	CISCO	CITI(Bank)	Symantec	Cohesity
Rakuten	Deloitte	V Mock	AXTRIA	Tower Research	Adobe
Exxonmobil	Nasdaq	Sprinklr	Credit Suisse	Mentor Graphics	Yahoo Japan
Blackrock	Smartprix	Myntra	Axis	DE Shaw	Schlumberger
Mahindra	Bajaj	Dr Reddy	Apple	Nvidia	oyo

History of Companies

Date	Company + College
09/10/17	Indeed US (IITK), Optiver (IITK)
10/10/17	Qualcomm (IITG), Flipkart (IITD)
11/10/17	Futures first (IITG), Walmart (IITH), Flipkart SDE (IITR)
12/10/17	Flipkart APM (IITG), Flipkart (IITM)
13/10/17	Mathworks PPT (IITG), VMWare(IIT BHU)
14/10/17	Samsung Bang(IIT Bhu), iManage (IITM), JP Morgan (IITG)
14/10/17	EXL Services (IITR), ISRO (IITG)
15/10/17	Indeed IITM, Alphonso.tv (IITB, IITK), PayPal (IITR) , Mercari(IITB)
17/10/17	HSBC(IITM)
18/10/17	Mercari(IITB), Flipkart (IITR), HSBC(IITK)
20/10/17	Paypal (IITBhu), Directi(IITG), SAP (IITG, IIT Bhu)
21/10/17	Mathworks Test Que(IITG),Microsoft (IITM)
22/10/17	Directi Skype(IITG)
23/10/17	Walmart(IITG), Next Education(IITD),microsoft (IITR)
24/10/17	Microsoft(IITB, IITG, IITK) , Flipkart(IITG), Oracle(IITKGP)
25/10/17	IBM(IITKGP), SamsungDelhi (IITG), Razorpay (IITM), Saavn(IITB)
26/10/17	VmWare(IITG), IBM(IITR), Qualcomm(IITR), Tesco(IIT BHU)
27/10/17	Fidelity(IITG), Texa(IITD), SRI-B(IITR), Tesco(IITH), Microsoft(IITKgp), EXL(IITK)
28/10/17	JPMorgan(IIT Kgp), Mercari(IITR), PayPal(IITB), Goldman Sachs

29/10/17	Nutanix(IITG, IITK), CISCO(IITK), Yodlee(IITK), Citicorp(IIT Bhu), SAP(IITK), Symantec(IITG), Cohesity(IITK)
30/10/17	Oracle(IITG, IITKgp), Rakuten(IITB), Alphonso(IITD), Deutsche(IITR), Tesco(IITG), VMWare(IITK), Flipkart(IITB), CISCO(IIT Bhu)
31/10/17	Samsung Bang(IITG, IITM, IITD), Deloitte(IIT Kgp), Razor Pay(IITR), VmWare(IITR), V mock(IITR), AXTRIA(IIT Bhu),Rakuten(IITH)
01/11/17	Capital One(IITD), Mercari(IITB), Texas(IIT Kgp), Tower(IITD), Yahoo Japan (IITH)
02/11/17	Paypal(IIT Kgp), IBM(IITK), JP Morgan(IITR),Adobe(IITD)
03/11/17	Nasdaq(IITB), CISCO(IITG), Adobe(IITR), ISRO(IITK), Mentor Graphics(IITH), Exxonmobil(IITK), Samsung(IITB)
04/11/17	SmartPrix(IITG, IITH,IITM), Yahoo(IITD), IIT KGP(Samsung, Oracle, Blackrock, Sprinkler, Tower Research), Tower(IITK)
5/11/17	Walmart (IITKGP, IITK), Credit Suisse(IITK), American Express, Citi Corp (IIT Kgp), Smartprix (IITG), ExxonMobil (IITM), Visa(IITB)
6/11/17	Axis(IITK), Tower (IIT Bhu), Myntra (IITR), ISRO (IIT Kgp), Deutsche Bank (IITG), Cohesity(IITR)
7/11/17	Samsung Delhi(IITM), Cohesity(IITD), Yodlee(IITD
8/11/17	VMWare , Qualcomm (IIT KGP), Uber(IITR)
9/11/17	Flipkart (IIT KGP), Indeed(IIT KGP)
10/11/17	Myntra (IIT KGP, IITG), DE Shaw(IITG)
11/11/17	
12/11/17	Visa (IIT KGP), Bidgely (IIT KGP), Oracle(IITG)
13/11/17	Uber (IIT KGP)
14/11/17	AppDynamics(IITKGP), Cohesity(IITKGP), Dr Reddy's Lab (IIT KGP)
17/11/17	Schlumberger(IITH), HSBC(IIT KGP)
18/11/17	Apple(IIT KGP)
25/11/17	Honeywell (IITH), Microsoft(IITH)
25/11/17	IITB(Apple, Nvidia, IBM, Societe Generale)
26/11/17	Uber(IITB)
28/11/17	Toppr(IITD)
	KINDLY ADD ENTRY HERE, ONLY IF QUES ARE ADDED IN DOC

Guys,where are the CTC Details this link opens to test schedule **https://goo.gl/Zyf3ZY**

Guys, what's the link for FB group as mentioned in other G-Doc?

https://www.facebook.com/groups/1540488506008368

This link isn't working :(pls share correct link. **(Privacy changed, check the same link now.)**

Please don't edit or add in heading 1 or heading 2 style , it screws up the outline and makes the document look chaotic.
@Subash pl revert changes if possible
I might not be avail all the time, please help yourself. Some students are making the above mistakes. Everyone have edit access, hence I welcome everyone to correct the mistakes.

Thanks for the co-operation.

Answered Queries

The Flipkart case was to be out in IITG on 16th (today). Could someone share the case here?
https://docs.google.com/presentation/d/1zOVS63rO-POvXI4Y_fHMxXQpdnN1XHMqafgHBDzeUsU/edit#slide=id.gd1a4321ff_2_23

-1) **Please make Separate page/sheet(inserted) for CTC, Cash-in-hand, Joining bonus, Service Bond, Job Profile, Location**
Please add CGPA criteria also(added, btw this doc is editable. You could have added it)
Make use of this sheet: https://goo.gl/Zyf3ZY
This sheet is not editable. - Now ?

1) Has Flipkart visited any IIT?
2)
IITK -Yes
IIIT H- Yes
IITR -Yes, PPT and Test on 11th October
IITD - Yes, SDE and DS, Test on 10th October i Was DS profile open for MTech?Yes
IITG -(Workshop was conducted on 12th October where we were told about the duties and responsibilities of an APM at Flipkart. Now we are supposed to register on a platform on 16th October, where we will be given a business case question. We have to solve the case and submit it by 23rd October. First round of shortlisting will be done based on this.Total number of people
that will be hired for the role across all IIT's and BITS is 7-8.)
Case study is given individually or group? Any update on what the question is???

IIT BHU - Workshop for APM on 12th October
IIT Roorkee- Workshop for APM on 17th October
Was Python allowed in the coding test? Yes

2) Can Anyone give the contest link of Flock(DirectI) if available? it works during contest only. Well they will repeat the questions so just go through what is mentioned in the doc.

3) Has Visa or Goldman Sachs conducted test in any IIT? **Is there a minimum CG criteria for GS ? No**
IISc-Test is today (25th oct) - **Please post the questions!**
IITR- Test on 28th Oct (GS or Visa ????) GS
IITK - Test on 28th Oct (GS)
IITB - Test on 28th Oct (GS)
IIT BHU - Test on 28th Oct (GS)
IIT H - Test on 28th Oct (GS)
IIT M - Test on 28th Oct (GS) GS profile in IITR, IIT BHU? Same as everywhere.

4) Is Oracle open for only CS?-NO, oracle is offering three profiles 1-for CS,EE other two for cs,ee,civil,mech and some other dept

5)**When is paypal test in all IITs? Dates please.**

IIT BHU- 17th Oct (which branches are allowed? B.tech. M.Tech. both?)
Yes open for both idd and btech
IIT Roorkee 15th Oct CGPA >=7.4. please add the questions once its done asap.
IITM 28th Oct
IIT KGP - 2/11/2017

6) Has **Samsung Bangalore** conducted test in any IIT?
Ans6.) Conducted test in BHU yesterday. Look at the separate page for Samsung Bangalore.
IITD- Not yet (was scheduled on 28-sept, but later postponed)
IITK on 15th Oct!

7) Flipkart has offered only Associate Product Manager (APM) position so far in IIT Guwahati. Is Flipkart visiting for APM and SDE profile in any IIT?**IITB IITR IITK IITD IIT BH Yes both profile in IITB and IITR and IITM also**
Is it true that Flipkart won't be visiting IITG for tech roles this year?
False. Flipkart SDE just opened for CS/ECE/EEE/M&C.

8) What kind of questions are asked in Futures First test?
Futures First answers have been moved to it's page.

9) Qualcomm Anyone ??
Visiting IITG on 10th October.

11. Any idea on what questions **VMWare** is asking.(coding preferably) ??

12. Has Tower Research and Goldman Sachs conducted tests in any IIT? If yes, please post the questions especially quant part. For GS All IIT test on 28th.

13. When is microsoft visiting in campuses? FOR WHAT PROFILES??
21st October - In IITM DATA SCIENTIST + REDMOND + IDC
What were the questions????? In IITM
Please post them
23rd October - In IITD Software Engineer + UX Designer+Redmond
23rd October- In IITR Probable Test is 23rd Oct PROFILE??
24th October - In IITK PROFILE?? SW + Redmond + ML
24th October - In IITB Data scientist, UX designer, Sw engineer(US and India both)

What about IIT(BHU), IITG?? 10 Nov SW profile
IITG- Dates not avail SW profile

14. Has JP Morgan visited any IIT?
IITB -test on 23rd October.. **Qs please??**

Ans 14) Answer Moved to J P Morgan Page. Cant see JP Morgan qs??guys please update
(Some info got updated, which is moved to JP Morgan page)

15.When is Amazon Visiting in campuses?
21-oct iitk test //Postponed
25-oct ko iitd me test h (Please add questions IIT D)
28-oct tentative date for test in iitr
10-nov IIT BHU

19) Koi HSBC ka test diya? IITM/IITD ? Updates please
HSBC IITK test: two simple codes sorting and printing pattern, basic apti and english

20) Has VISA visited any IIT? Or Scheduled dates please

Ans. IITB-Software Engineer

23)Myntra conducted test in any IIT?
IITR-06/11/17
IITG-10/11/17
IIT KGP - 10/11/17

24) Anybody have idea about Goldman Sachs written test shortlisting process? Scoring more in one section is better or average in two ?
More in 1
There were even people in the top of shortlist who had entirely skipped one section

***average in 2 or most in 1 actually!**

25) Has Mercari visited any IIT?
IITD me test h 29-oct - Please post questions!
IITR me
IITB
Only three IIT's?

26) Has Mercari visited any of the IITs in any of the previous placement season ?
IITB 15th oct -- I am not asking regarding this year, I want to know previous year's record (check the docs avail in the pinned post of our Fb group) It has 2015 -16
Coming for the first time in IITB,most probably first time in any IIT. Yes, it is their first time in India.

27) IITK,M is done with HSBC, so plz tell the pattern and if any other IIT is also done with it plz tell.
Check 19

28) Is JPMC coming for analyst profile in other IITs? (They are giving CTC 16.75 in IITR open only for circuit branches)
Ans. 3 profiles in IITB including technology analyst
29) Myntra anywhere?? Not here in IITG,IITK
30) CGPA criteria of Walmart, JP Morgan, and Oracle??
Ans JPMC, no CGPA criteria in IITB
31)Has Juniper conducted test in any IIT? // it is done with IITK

32) post the questions asked in SAP Labs (IITM/IITG/anywhere they have visited.)

33) Mathworks Test in any IIT ?IITG Test on 20oct (Support profile)

34) When is the TI test scheduled in all IIT's

35) SAP Labs IIT Bhu ??

36) Inter IIT placement Group on FB ? link anyone ? https://www.facebook.com/groups/1540488506008368

37) Are there any *hidden* test cases? Like after we have submitted and clear all the test cases, do they run more and heavy testcases later? o.O

38) Please update sap labs questions?
(IITG , IITBHU, questions updated in sap labs page)

39) Tower Research Date in different IIT's?
IIT(BHU) - 29th Oct
IITD - 25th Oct
IITG - 25th Oct

Unanswered Queries

Can anyone from IITG tell what is th

e cpi cut off for shortlisting in fidelity??

Can anyone tell Yodlee CPI cut off?? IITK??

Can anyone from IITG Tell when was the result of online round declared?

Can someone add tower questions? (IIT-G , IIT-D)

40) Uber date in different IIT's? +1 (In IITB it was 4th nov but now it's not there in our placement calendar so not sure about the final date)
41) Post the questions asked by Capital One quant analyst during internships. The placements test is going to be the same.
- Are you sure? They may change the questions...

42)Microsoft in any IIT?? If yes post the questions. IITR-23oct, IIT BHU-3rd Nov

43.What's the profile of Deutsche Bank in IIT BHU??

44) Will Mckinsey visit campuses this time or one will have to apply off campus ?

45) Saavn test questions?
46) Has Tesco visited any IIT ? or scheduled dates ?
IITH-26th Oct IITG-30th Oct.cpi cutoff? 6 in IITG
47) Any one up for mock interviews as it goes on interviewbit. We can use skype or hangout for that. For co-ordination a Whatsapp group will do. Opinions ??? I guess you can do it among your campus mates.

48(a) ORACLE? Platform for coding and Is python allowed?
ANS: Oracle's own proaptitude platform. Python not allowed, C, C++, Java
Don't forget to switch to C++ using dropdown, no copy paste
48(b) Kab hai Oracle ka coding round?

49) Bhai Texas Instruments ke dates batado na

50) Anybody has any idea about the type of questions(topic-wise/ difficulty level) asked in razorpay?

51) When is Exl visiting other IITs? please update the dates
Also, IIT ROORKEE guys, someone please provide the questions.
Can anyone from IITR and IITK provide more questions and topics on EXL??

53) Any idea about citicorp(bangalore) questions and test pattern?
54) Morgan Stanley test dates ??

55) IITM guys can anyone provide simplified solution to the Knapsack, (Directi) IITR have its test at 4:30 ????????? urgent

56. Does Direct i also take our codechef profile into account?

57. Estee Advisors and Voltaire Capital test anywhere except IITD? If done please post questions

58. Exl Verbal Section questions please?

Comprehension based 3 questions. Don't remember the passage. Others simple fill in the blanks(use of would, have/had, prepositions and articles), one/two synonym/ antonym questions(detest-> admire).

59. Please update with UBER dates ?

60. Oracle aptitude and logical questions tough/lengthy/easy? Give some examples for dbms and os questions?
See Oracle section

61) When is cisco test scheduled across IITs? 3rd November IITG

62) Has AXTRIA visited an
y of the IIT till now? If yesPlease post the attern and questions.

63)Rakuten questions and what is the duration,platform for the test
See Rakuten section

64) IITM / IITB Samsung Bangalore Question !! Please !!! IN IITB Test was postponed

65) IIT BHU guys, Can anyone provide the solution(CODE) to Panda Xor problem of Walmart. There is a lot of discussion but none of them ends in a discrete answer.
Thank you.
66) IITK guys please post Juniper Networks questions and pattern

67) Axis Bank questions?

68)Has Black Rock conducted its test in any IIT Already? Incase yes, please give an overview of the type of questions and the difficulty level.
(IITK): Aptitude test (20 ques in 20 minutes)+reading comprehension+reasoning
Apti was easy. You had to be fast though. RC was slightly tough (2 passages in 20 mins).
(IIT KGP) 20 questions 1 hour(+1, -1). Puzzles type question, probability, permutation, number system.

69) Smartprix test questions?(Any iit)
70) Any iit which took oracle test recently ,Please give some examples on OS,DBMS,OOPS questions?

71) Has sprinklr visited any IIT ?(+1) Yes. KGP.

72) Walmart stats profile questions??

73) Any idea on ISRO ? Any additional benefits other than the basic pay of 9.60 lpa ?

74) Has Credit Suisse conducted its test in any IIT?? If yes, questions and topic please. Do make a separate page and add it there. :)

Solution :

Moved to Credit Suisse Page

75) JP Morgan Chase anyone?? Any place??

76) Where is Vedanta/Cairn India visiting ?

77) May anyone share the placement paper of GEneral electric ? I suppose GE has conducted its exam in IITM. Please post the questions. (+1)

78) Any shortlist released yet ?

79) Since Placements started late this time, many companies haven't visited yet. When will Rivigo SDE, Hotstar .. visit the IITs?

80) Paytm questions anyone?

81) Is 74 a good score in Goldman Sachs quant to get shortlisted for interviews? Score in ML = 0 and Coding = 30 Please reply.

82) JPMC- Senior Analyst anyone??? Pattern and some questions if u can remember????

83) Have Mettl Conducted test in any IIT?

84) IITH guys, what was the platform used by Schlumberger? Was STL allowed??
85) Anything on Toppr???IITK???
Since we are organising the sheet by companies, it became necessary to update [History of companies added].

Thanks for co-operation.

Check History Page **for new company additions.**

Goldman Sachs

IIT XYZ - 28th (Common to all)

3 sections : CS/ML/Quant

Note about test - held on Hackerrank, you are allowed to switch between sections. Each section has a separate timer, which will stop when you switch. One strategy could be to sacrifice some section (ML, since it was shit) and use that time for the other questions. Two sections can be done fully if you have some luck and you manage your time properly. Also note, GS will not use the entire test result to shortlist. Different teams will look at different things, so if you do really well in one section or two sections, you have a good shot at interview.

CS - 60 minutes, 5 MCQs, 2 coding questions. Each MCQ was +10/-3, Coding questions were +20, +30 with partial marking (although it wasn't specified how much, and Hackerrank does show how many test cases passed)

Coding questions :
(30)
You are given a list of n tourist bookings (start date, duration), and the total number of tourists that can simultaneously be in the country. When processing bookings, you have to check if the current number of tourists existing are more than number allowed, and if so, deny the booking. O(n^2) was obviously giving TLE, it is possible to do it in O(nlogn)
Similar : https://www.interviewbit.com/problems/hotel-bookings-possible/
Can someone explain how to do this ??
What i did -->

1. created an array of size 1000

2.If A[start] < threshold then add 1 from start till end(of that particular tourist). And do num++.
3.At last return num.) what was wrong with my approach ?? It passed sample input but not even 1 test case :(!!! please help.

^^^This logic would fail if the immigration requests come in following order:
1-10
1-5
6-10
Your logic would give ans 1 whereas the actual answer is 2.
There was slight ambiguity in question. The actual objective was to maximise the number of immigrants in case more than 1 arrive on the same day.

Did all test cases run?
(20)
You are given a number (in the form of a string) and an integer k. You have to output the maximum palindromic number that can be formed from the given number and by using at most k changes to the number (replacing digits is the only allowed operations). Output -1 if it is not possible to get a palindrome.

MCQs :

1) You are given a BST (filled with some 6-7 values), and the question was that how many input orders could be given such that you end up with the same BST. (As in, you are given a stream of input and you make a BST out of them normally without balancing etc, how many streams will give same BST) Ans: 48 - Shouldn't the answer be 96 ? The answer was 96. How? It was 48 only..The tree was 5(root),3(left),8(right),1(left to 3),4(right to 3),0(left to 1),2(right to 1).First 5 comes,then 8 can be placed in any 6 positions,then 3 would be the only next number possible,then 4 can occur in any 4 positions,then 1 will be the only next number,now 2 & 0 can occur in any order.6 & 7 can occur in any order in the last.So,6*4*2*2=96. 6 & 7 kidhar se tapak gaye?

The answer is 48. I wrote a brute force checker and it returned 48.
The link for the checker : https://ideone.com/3pzEFZ
You haven't used 6 & 7 . The question was given a stream of integers from 0-8 , how m any permutations of them would result in such a tree . So 6 & 7 need to occur in the last & in any order.
But then won't we have more nodes than there were in the original tree? Maybe it was a printing error and they meant how many streams of the inputs already present in the tree will give the same structure?
No,why would they then give such stream of integers.After this tree structure would be formed 6 & 7 can occur in the last only. But then that is not the same "structure" as the original tree, is it?

2) We wish to solve Sudoku filling using graph coloring, by putting edge between nodes that can't have the same number. What is the minimum number of nodes in this graph? Ans: 810
3) Given a number (n bit long), what is the complexity of finding if the number is a power of 2? Ans - **O(n)**

4) What is the extra space complexity for maintaining next min element in a stack.http://www.geeksforgeeks.org/design-a-stack-that-supports-getmin-in-o1-time-and-o1-extra-space/ Ans O(1)
5) What is a possible output for n |= n>>1, n|= n>>2, n|= n>>4, ... n|= n>>16, cout<<(n>>1) Ans: 127

ML - 10 questions, all MCQs, each +10/-3. Duration was 30 minutes

Notes : They were not ML, mostly statistics type. Went pretty shit for anyone who knew only CS type ML. Majak tha ML wala section. <- as in kisi ka nahi hua, not ki sabka ho gaya majak tha.

1) X1 ~ N(0,1), X2 ~ N(2, 4), what is KL (X1||X2)?Ans: ⅛ +log2
2) Let w be an unbiased estimator for theta parameter in Unif(0,theta). Given n samples, what is an unbiased estimator for variance of w?Ans:(theta^2)/(n*3)
3) X ~ N(0,1). Let p denote cdf of x. Define y is random variable, y = s(log(p) - log(1-p)). What is cdf of y? Ans: 1/(1+e^(-y/s))
4) Given n samples of a vector (X,Y), what is an unbiased estimator for cov(X,Y). The options were in terms of H, defined as the covariance of the sample.Ans: n*H/(n-1)
5) 3 people Alice, Bob and Charlie. Alice can shoot with probability 0.2, Bob with 0.5 and Charlie with 1. What is the probability of Bob surviving if they all were shooting in cyclic order. Ans: 13/30
6) What kind of normalisation(mean, min-max) is applied before cosine similarity of word vectors. Ans - nothing, as it would lead to information loss (tentative answer)
7) In time series, which method is used for testing? Window method, Shuffling method or k-fold cross validation. Ans - should be window I think, because everything else will destroy sequential nature of dat
8) Another question on cosine similarity. Matrix of MxN. Whether the similarity would lie between [0,1] or [0,1) based on whether the rank of matrix was N and M>N. -
9) Given that there are two coins of bias p and q, you define "event" as choosing a random coin among the two, and then tossing them thrice. Given outcomes as {HTT} and {TTH}, do expectation maximization once to find values of p, q. Start with p = 0.4, q = 0.8

Quant - 10 questfility based. Make sure you practice linearity of expectation and random variables. Otherwise a bit of revision of 11th/12th JEE type questions.

1) Straws weigh a random amount in unif(0,1). A camel can take a total weight of 1 before its back breaks. What is the expected weight of the last straw that breaks the camel's back.
Ans : 2-2/e = 0.64
2) What is the expected number of straws that can be placed before the camel's back is broken Ans : e
3) Geometry question, obtuse triangle ABC was given (B being the obtuse angle). D was midpoint of BC. Angle ADB = 45, Angle ACB = 30. Find tan B Ans: -2-sqrt(3)
4) Matrix was given, entries in first row were cos 1, cos 2, cos 3, ... and so on, for n^2 entries. What is the limit as n tends to infinity of the determinant. Ans:
0 https://math.stackexchange.com/questions/1003453/a-limit-determinant-question
5) x^2 + 2bx +c = 0 - what is the probability that this has real roots, given that b, c are drawn uniformly randomly from [-1, 1]. (Real distribution) Ans - 2/3
6) M, N are drawn from unif(1,100) integers. What is the probability that 7^m + 7^n is divisible by 5. Ans : 0.25
7) What is the probability that the first toss was heads given that r heads were observed in n tosses of a fair coin Ans : its r/n
8) A and B play a game with each other. P(A wins) = 2/3. The loser of each round gives the winner 1$. What is the expected number of rounds they will play if A starts with 1$ and B starts with 2$. Ans : 15/7
9) Another determinant simplification problem, you had to do basic R1 -> R1 - R2 type operations and extract common elements. Ans : You had to get a simplified form, of the kind of expressions in the determinant ANs: 7

The matrix was

(1+a^2-b^2)	-2ab	-2b
2ab	(1+a^2+b^2)	2a
2b	-2a	(1+a^2-b^2)

Its determinant value is (1+a^x+b^y)^z. What is x+y+z?. Ans:7

10) Number of minimum length of set such that there exists a subset that has sum divisible by 11. Ans : 11 https://math.stackexchange.com/questions/1939620/prove-that-there-is-at-least-one-subset-of-11-numbers-whose-sum-is-divisible-by
11) x^2 + 2bx +c = 0 - what is the probability that this has real roots, given that b, c are drawn uniformly randomly from [-1, 1]. (Real distribution) Ans - 2/3

Test in all IITs to be held on 28th.
Atleast post solutions for sample test.

Is 74 a good score in quant to get shortlisted for interviews? Please reply.

There is a 16x16 matrix with all entries +1. At each step, a player can invert the sign of exactly one entry in the matrix. After n steps, each entry will be either +1 or −1. Let C_i be the sum of all entries in the I^{th} column and R_i be the sum of all entries in the I^{th} row. What can be a possible value of $\sum C_i + \sum R_i$

Pick one of the choices

- 42
- 44
- 45
- None of these

Ans to this question????? 44 ?? Kaise kiya??
Simple Hai !!
Solution: Basically it is asking 2*(sum of all element of array which is initially 256), Whenever you do any sign change, you either increase the sum by 2 or decrease the sum by 2 i.e. sum will always be even. This means , 2*sum will be divisible by 4.

Aaj ML me wo time series wale ka kya ans tha?

Window ya both cross validation and window :

What about that normalisation question? Z normalisation or mean normalisation?

I think they are both ambiguous questions with no exact right answer.
For time series refer here:
https://machinelearningmastery.com/backtest-machine-learning-models-time-series-forecasting/
Which says no direct method of applying cross validation.
- It should be sliding window because all the other methods would destroy the sequential nature of data.

For normalisation these two can be referred, but again it is ambiguous:
https://www.quora.com/How-can-I-use-cosine-similarity-in-clustering-For-example-K-means-clustering
https://stackoverflow.com/questions/5841282/clustering-from-the-cosine-similarity-values/
Most likely ans is No normalisation should be applied

Can someone explain suduko question?
In Su-Doku, each row and each column have distinct numbers and also each 3x3 grid
Thus, 9*(9C2)+9*(9c2) + 9*(9C2) (for each row, column and grid)
This number is something in 900s and since there are few overlapping cases if you think about it . Thus the only logical answer was 810 as the rest were more than the answer with overlapping cases.
https://ideone.com/6shrps
https://brilliant.org/problems/sudoku-graph/#!/solution-comments/

Also share nLogn approach of booking coding question.

Was anyone else facing Wrong answers in Tourist Booking question with brute force solution?

Do solving these questions help for GS interview ?

Walmart Labs

Platform? Anyone?
Hackerearth

IIT BHU (27/08/2017)

Q1. **Sum of Sub-Array**

Given an array of size n and an integer k. Find the maximum possible sum of
Length of all the contiguous subarrays formed such that k is the maximum element in that sub array and none of the subarrays are overlapping .k
Solution: https://ideone.com/ZwxIRn

Short Solution: http://ide.geeksforgeeks.org/RFZTCS
http://www.geeksforgeeks.org/maximum-sum-lengths-non-overlapping-subarrays-k-max-element/
30 Marks

Q2. PANDA XOR
given the size of an array n and an integer x and each element in the array is defined as
A[i]=x+2*i-2 .Find the xor o f all the elements .
(Soln anyone?)+6
http://ide.geeksforgeeks.org/qgeUD9 (is it working?) NO

Working Solution : http://ide.geeksforgeeks.org/bK1icn

Please provide solution for any <O(n) complexity. This can be done in O(1).
Let say , x = 3, n = 5. A = {1,3,5,7,9} (shouldn't it be {-1,1,3,5,7})??? NO => A[i] = {x+(2*i)-2}
Xor(A) = Xor(Xor(1,2,....,9), 2*Xor(1,2,3,4)) (This will give the correct answer) (what is the logic behind this? … k*xor(p) We are expecting O(1) solution, so this hint doesn't matter. Read sol below.
is not equal to xor(k*p) right?)
Xor(2,4,6,8) = 2 * Xor(1,2,3,4) Check this. This will come true. I have checked this for some cases. (does this have some formula (i mean a generalization) or is i
t just working in this problem?) Check below full solution (yeah i understood what u are doing … but why is 2* xor(1,2,..n)= xor(2,4,....2*n) … does this have a basis or was this intuition (a pattern u found)?) Just an intuition -

It will hold for 2 (idk about other numbers) coz in way u are just right shifting by 1 bit each no in xor(2,4,..,2*n) then taking xor and in 2*xor(1,2,..,n) u are taking xor and then right shifting by 1 bit and so it won't cause any change in result.

Solution:
a = xor(1,2,.....,A[n])
b = xor(1,2,.....,A[0]-1)
c = xor(1,2,....,n)
Final ans = xor(a,b,2*c)
Its not giving correct answer??

I.e we compute xor of all number from 1 to n, and again xor with even numbers in that range.
Xor(A … B) , i.e xor of elements in range A to B can be computed in O(1). Please google.

If A contains even terms, then set A[i] = A[i]++, we just add 1 to LSB side, so it won't affect the answer.

Solution Logic: O(1) solution (x>1 or x>0 is required for this solution to work)
There are four cases for the first element which is A[0]=x-2, depending upon (x-2)%4
Case 1: remainder is 0 i.e. last two bits of x-2 is 00
In this case, the last two bits of second number(A[i]) will be 10 and all the other bits will be same. Again, third and fourth will have all bits same except last two bits which is again 00 and 10 respectively. This means, xor of first two number will be 10 i.e. 2 and next two will be again 2. In other words, first four number will have xor zero and it will repeat in cycle of four numbers starting.
So, in this case , answer will be= xor of last n%4 numbers
Doubt - if x = 12, then x-2 = 10 , x = 10 , x+2 = 14 ie nos will be
10,12,14,16 ….. So yes xor of (10,12) = 2 but xor(14,16) != 2
So xor(10,12,14,16) != 0

Case 2: remainder is 1 i.e. last two bits of x-2 is 01
In this case, the last two bits of second number(A[i]) will be 11 and all the other bits will be same. Again, third and fourth will have all bits same except last two bits which is again 01 and 11 respectively. This means, xor of first two number will be 10 i.e. 2 and next two will be again 2. In other words, first four number will have xor zero and it will repeat in cycle of four numbers starting.
So, in this case as well, answer will be= xor of last n%4 numbers
Case 3: remainder is 2 i.e. last two bits of x-2 is 10
____In this case, exclude the first number and the last two bits of second number(A[i]) will be 00 So, starting from second number this case will be same as first one
So, in this case as well, answer will be= xor of last (n-1)%4 numbers and first number (as we excluded this number)
Case 4: remainder is 3 i.e. last two bits of x-2 is 11
____In this case, exclude the first number and the last two bits of second number(A[i]) will be 01 So, starting from second number this case will be same as second one
So, in this case as well, answer will be= xor of last (n-1)%4 numbers and first number (as we excluded this number)

30 marks

Q3. Total Cost

An area is formed by enclosing N logs. The x,y coordinates of each log is given. There are houses to be constructed on all the integral points lying in the area. The construction cost of each house is 25. Find the total cost of all the houses constructed.

solution: Use pick's theorem , shoe-lace formula and number of integer points between two points you will find the number of integer points inside the polygon

Are the coordinates given here ordered in some manner (clockwise or counterclockwise) to get the area of the polygon? (if u take the absolute value the order doesn't matter) . But it has to be provided in some manner obviously?

If it is not given in some definite order (either clockwise or anti), then it is impossible to calculate.

Can someone suggest some test cases please?

40 Marks

IIT HYD (11/10/2017)

CGPA criteria is 8 .

3 Coding Questions on Hackerearth (90 mins)

Question 1 : (30 Marks)

Given a number N, find the Nth binary palindrome. (N can be a very huge number)

Can someone explain the logic (other than that on GfG)?

Solution :

www.geeksforgeeks.org/find-n-th-number-whose-binary-representation-palindrome

Brute force won't work.

Geek for geek solution is O(1), but hard to understand,

https://ideone.com/Kx7Ahz easier O(logn) solution using binary search. Please test and comment if I missed any case?

https://www.codeproject.com/Articles/1162038/Finding-nth-Binary-Palindrome-in-Csharp

Question 2 : King's Land Sale(30 Marks)

The ruler of byteland is selling the land of the kingdom.

Given the N number of rectangular coordinates (a,b) , (c,d) which are diagonally opposite, the rectangular area is in accordance with the rectangular axes.

Two area can overlap each other. Find the total area that KIng can sell.

1<=N<=20

-10000<=a,b,c,d<=10000

Example :

Input :

First line contains N and then following N lines contains values of a,b,c,d

2

0 0 2 2

1 1 3 3

Output :

7

Explanation : Total Area is : 4+4 = 8

Common Area is : 1 (between (1,1) and (2,2))

Answer = 8-1 = 7

Was line-sweep algorithm required or a less optimal one was passing? Sweep-line algo not required, less optimal was passing (Please share your solution +2)

Solution :

https://www.hackerearth.com/practice/basic-programming/implementation/basics-of-implementation/practice-problems/algorithm/area-of-union-of-rectangles/

(Almost similar to this, just be careful with the negative coordinates)

How to adjust the hackerearth code to get correct answer from negative coordinates as well?

// shift the coordinates? You know what I mean

// sweep line algo https://pastebin.com/jmd9FG9 can we find the convex hull and find area of that ??

// solution anyone ? Java Solution using normal array (all test cases passed with accuracy 0.7152) http://ide.geeksforgeeks.org/1bQw5V how ----did u find test cases??q link of hackerearth??plz post yes (https://www.hackerearth.com/practice/basic-programming/implementation/basics-of-implementation/practice-problems/algorithm/area-of-union-of-rectangles/) thanks shubham
// Is there a method to find the area if we know all the points lying on the boundary and inside the combined area ??

Question 3 : Max 1's (40 marks)
Given a matrix NXM, containing only 0's and 1's, only one operation is allowed in the matrix that is to swap the columns. We have to find the largest size of rectangular submatrix containing only 1's.
Output the number of 1's in the largest rectangular submatrix and the minimum number of swap operations required to get that.

Solution :
http://www.geeksforgeeks.org/find-the-largest-rectangle-of-1s-with-swapping-of-columns-allowed/
(Just a little change that you have to output number of swaps also)
How to get the minimum number of swaps?? Please answer.(+1)

For min no of swaps:
http://ide.geeksforgeeks.org/Aj90yA99
(Can you please explain your code, it takes input in the form of array. What are they?)
I will post the whole solution by tomorrow with explanation
(ANYONE HAVE EXACT SOLUTION ? FINDING AREA IS OK BUT HOW TO FIND SWAPS ??) +1i

IITG (23/10/17)

Perfect mind game and ashamed that I fell for it. They would instruct saying that, if u change/open new tabs(other than exam window) = ur session will end.
No such thing will happen, do whatever you want.

Link for the Questions:
https://goo.gl/An29eV

Problem 1 Solution : https://ideone.com/rYXReV
(Bhai itna dimag1 lagaya kesse ?? _/_)
Problem 2 Solution : http://ide.geeksforgeeks.org/HcHMAN 0-1 knapsack

All the best----------

IIT KGP (5/11/17)

1. http://www.geeksforgeeks.org/check-instance-15-puzzle-solvable/ (20 marks)
2. (30 marks)

Basically, given a number M, there are building sizes: 1,2,..M
L = number of buildings you can see from left
R = number of buildings you can see from right
Given L, R, number of possible arrangements of these building sizes satisfying L and R

See Similar: https://www.careercup.com/question?id=5638609935794176

Anybody solved this using C++/C ? the constraints allowed (98!) to be an answer and they did not mention modulo solution. If anyone solved this then do reply.

3. http://www.geeksforgeeks.org/largest-rectangular-sub-matrix-whose-sum-0/ (50 marks)

IITKGP(5/11/2017)

STATISTICAL ANALYST PROFILE

There are 20 mcq ques. 1hr. Marking Scheme(+3,-1)
HIghly theoretical statistics questions. Be thorough with the concepts. They won't ask any computational questions.
Topics-
Normal Distribution(2 ques.)
Bernoulli's distribution(1ques.)
Linear Regression & Automatics regression (cross validation error)(4 ques.)
Dual formulation(1ques)
x^2+y^2=2015 Find no. of integral sol.(Ans. 0)
Un/Supervised learning (1ques.)
Price elasticity(1ques.)
False +ve and False -ve(1ques.)
Factor analysis(1ques.)

IIT KANPUR (05/11/2017)

Same as KGP

Zendrive

CTC : 15 LPA
Base : 10 LPA

IITM (13/09/17)

Open for?

20 ques in 60 minutes. Nothing related to programming, only maths,stats and m/c learning ques. Level : super high.
cauchy distrib, classifiers, like LDA and PCA diff, poisson distrib, normal distrib, some probability ques, various other classifiers(new to us), data was given we had to tell which classifier will be best ....
all were very tough.

Elastic.

IIT BHU

https://pasteboard.co/GIUXpiw.png
https://pasteboard.co/GIUXCbS.png--how to solve this ?
https://pasteboard.co/GIUXRSH.png --solution please

Is there any better method other than brute force for the first question?
For the second question, is there any better method, other than applying bfs whenever query 2 is called?
(BFS is most efficient way to solve that !!)

Find prime factorization of N(in logn)
N = (a^p1)*(b^p2)....
p = min(p1,p2,p3...) and now if all p1, p2, p3.... Are divisible by p then we can write N = x^p.
Now if number of divisor of x is y then solution exist. (http://www.geeksforgeeks.org/count-divisors-n-on13/)

Indeed

IITD (12 - 09 - 2017)

Q1. https://www.careercup.com/question?id=6229105402970112
(Any better way than checking all possible combinations ??)
Will O(n*str_len) work?
How to handle distinct part - like not picking up "r" many times (suppose string is "rrllrlr" and x = 1 y = 2 so individual r can be taken many times, "r" ... "r" ...."r" how to make sure once picked, this won't be taken again)
(Any better solution than all combinations? Or there was a constraint in string length)

Q2. http://www.geeksforgeeks.org/find-the-maximum-of-minimums-for-every-window-size-in-a-given-array/

Q3.Given an array of prices of products . Discount on ith product is equal to the product price less than or equal to ith product and to the right(right of ith). If no such price exist then discount is zero. Give the final total price.
Eg.

Input : Prices = 5 3 3 2 4
Method : Discount = 3 3 2 0 0
Output : {5-3}+{3-3}+{3-2}+{2-0}+{4-0} = 9

This question is same as find the next smaller or equal element (very common question is find the next greater element.) Use stack to get this done.
In This question for every ith element, we just have to check (i+1)th element or all the element to its right side ?
-NO, all elements to its right.
I am not sure but I think only the immediate next one.

Can someone explain why discount for 5 (first element) is not 4 but 3. What does right of ith exactly mean do we have to take first smaller or the smallest in the right of i?

IITK

Hackerrank - 90 minutes - 4 questions

Question 1

Given a Tree in form (child parent) tuples.
Return Bracket Notation of Tree.

Also had to return different errors(if any) in the given tuples like Multiple roots,cycles, etc.

Example:
Input : (A,B) (A,C)
Output : (A(B)(C))
Anything better than O(n) ? Nay!
Solution: Construct tree, and then do preorder traversal. Correct, if there is some mistake, or in case of some better approach.

Question 2

Brute-force
Doubt : (Using BFS ???)
Given a graph, find all TRIOS. TRIO defined as triangle in Graph.
Trio ABC = Edges: AB BC CA

Was it asked to find the number of triangles?
The number of triangles is trace(A^3)/6 for undirected graphs.. So was that the answer
It will take O(n^3) time to compute A^3. Then what is it's use. You can directly do it in O(n^3).

Question 3

Question based on priority_queue and sliding window

Question 4

Given an array of N elements which consists all integers from 1 to N (a permutation). Return minimum number of swaps required to sort the array. (Minimum no. of SWAPS not INVERSIONS)

Seems easy, but it is not.(really ? :D)

Any tricky test case ? - NO.
Return minimum number of swaps required to sort the array. (Read again - minimum number of SWAPS not INVERSIONS)

IITM

4 Questions

1. An array A of balls with velocity Ai and position i was given . All balls start at the same time and move towards right indefinitely. A faster ball can overtake a slower ball ahead of it . this overtake creates a collision for the ball being overtaken . Given a position x, find the number of balls that overtake it or the number of balls it overtakes.
(Doubt : The collision has any effect on their velocities ??) No
(Is it simply addition of all numbers having greater velocity and on back of position x + having less velocity and in front ??) Yes
(doubt : can anyone add a test case)

2. An array having a performance score for each employee was given .
The manager selects 'x' employees the team in the following way x
(a) Manager chooses the employee with the highest score on the first 'm' among the array , or the last 'm' from the array
(b) If they scores of the person from
(c) the first m and last m are same , give preference to the shorter index
(d) After choosing, the employee is removed from the array
(e) If there are less than 'm' in the array then choose the largest score.+
Doubt-> What we are supposed to do in Q2 ? Find 'x' employees manager will select ? What time complexity is expected ?
3. A string was given, a single operation was a 1 character left rotation of the string. How many such operations are required to obtain the lexicographically smallest rotation of that string.
//what do u mean by lexicographically smallest rotation? Is it same as lexicographically smallest string that can be obtained by rotating it ? yes
Constraints ?? none explicit- ran into timeouts without using Suffix arrays

4. A grid is there with cheese scattered in random locations . Some locations in the grid are blocked and Tom cannot pass through them . Tom starts from 0,0 and has to collect all the cheese and give them to Jerry in the end who is at location (x,y) . Tom can pass through the location that holds the cheese (that location is not blocked).
//this is same as travelling salesman? What are the constraints?

IIT KGP (9/11/17)

4 Coding Questions (90 Min)

1. Same as IITM 1st question.

2. In a graph, ABC is said to be a trio if A is connected to B, B is connected to C and C is connected to A. And score for a trio is defined as number of elements(other than A,B,C) in the graph that are connected to the trio (any of A,B,C). You have to find all the trio's in the graph and calculate their scores and return the maximum score.

3. Given an array of some numbers. You can any number in the array. If you delete an element with value i then the elements with values i-1 and i+1 are also deleted and you will get i-points. Like this you have to delete elements in the array until the array is totally deleted. Find the maximum points you can earn.
Input : 1,2,3,4
Output : 6
Explanation : If we first delete 4, then 3 will also be deleted and we will get 4 points. Now if we delete 2, then 1 will also be deleted and we will get 2 more points. So our final earning will be 6.

4. Given an array of strings, you have to find the length of longest possible chain. Chain can be formed if only certain conditions are satisfied. Chain can be extended with new string which can be formed by deleting any character in the previous string and also the new string should exist in the given array of strings. Each string in the chain should exist in the given array of strings. And length of adjacent strings in chain should differ by 1.
Input : [‘a’, ‘b’, ‘ba’, ‘bca’, ‘bda’, ‘bdca’]
Output : 4
Explanation : Chains that can be formed and their lengths are :
‘a’ : 1 (No further chain is possible as empty string is not in the given array of strings)
‘b’ : 1
‘ba’ → ‘b’ : 2 (or) ‘ba’ → ‘a’ : 2
‘bca’ → ‘ba’ → ‘b’ : 3 (or) ‘bca’ → ‘ba’ → ‘a’ : 3
‘bda’ → ‘ba’ → ‘b’ : 3 (or) ‘bda’ → ‘ba’ → ‘a’ : 3
‘bdca’ → ‘bda’ → ‘ba’ → ‘b’ : 4 (or) ‘bdca’ → ‘bca’ → ‘ba’ → ‘b’ : 4 (or ba’ → ‘a’)
Longest length of the chain possible is 4 for bdca.

Flock (Directi)

IITM (16/09/2017)

Ques 1) [Variation of Knapsack]
You are given N stones, labeled from 1 to N. The i-th stone has the weight W[i]. There are M colors, labeled by integers from 1 to M. The i-th stone has the color C[i] (of course, an integer between 1 to M, inclusive).
You want to fill a Knapsack with these stones. The Knapsack can hold a total weight of X. You want to select exactly M stones; one of each color. The sum of the weights of the stones must not exceed X. Since you paid a premium for a Knapsack with capacity X (as opposed to a Knapsack with a lower capacity), you want to fill the Knapsack as much as possible.
Write a program that takes all the above values as input and calculates the best way to fill the Knapsack - that is, the way that minimizes the unused capacity. Output this unused capacity. See the explanation of the sample test cases for clarity.
Input
The first line of input contains the integer T, the number of test cases. Then follows the description of T test cases. The first line of each test case contains three integers, N, M and X, separated by single space. The next line contains N integers, W[1], W[2], W[3] ... W[N], separated by single space. The next line contains N integers C[1], C[2], C[3] ... C[N], separated by single space.
Output
An optimal way of filling the Knapsack minimizes unused capacity. There may be several optimal ways of filling the Knapsack. Output the unused capacity of the Knapsack (a single integer on a line by itself) for an optimal way. If there is no way to fill the Knapsack, output -1. Output T lines, one for each test case.
Constraints
1 ≤ T ≤ 10
1 ≤ M ≤ 100
M ≤ N ≤ 100
1 ≤ W[i] ≤ 100
1 ≤ C[i] ≤ M
1 ≤ X ≤ 10000

Sample Input
4
9 3 10
2 3 4 2 3 4 2 3 4
1 1 1 2 2 2 3 3 3
9 3 10
1 3 5 1 3 5 1 3 5
1 1 1 2 2 2 3 3 3
3 3 10

3 4 4
1 2 3
3 3 10
3 3 3
1 2 1

Sample Output
0
1
-1
-1

Explanation
In the first test case you can select stone 2, stone 5 and stone 9. The knapsack will be completely full. Of course, there are several other ways to select stones such that the knapsack is full. The unused capacity in all such ways is 0.
In the second test case you cannot select stones such that the knapsack is completely full. You can select stones {1, 4, 9}, such that the unused capacity is 10-1-1-5 = 3. But there is a better way. Select stones {2, 5, 8}. The unused capacity is 10-3-3-3 = 1. This is the optimal way. There is another way that is optimal. Select stones {1, 5, 9}. The unused capacity is 10-1-3-5 = 1.
In the third test case there is only one option. Select stones {1, 2, 3}. The total weight will be 11. This is more than what the knapsack can hold.
In the fourth test case there is no stone of color 3. Thus, there is no valid selection of stones possible. The answer will be -1.
Attention
The constraints are designed such that a brute-force solution will fail. You can apply dynamic programming, similar to the standard Knapsack problem. Hint: Consider DP[c][w], which is true, if and only if, the weight 'w' can be exactly achieved by only using stones of color 1 to 'c'.
Please put any tricky test case if any.

```
/*
can be solved using dp. The main objective in this problem is to collect all colored stones. So make a
dp[X][M] and at any point say dp[i][j] we need to find whether there are  stones to pick of color from 1-j
that weights to i.
⇒ dp[i][j] = t; where t is calculated as shown below!
t = false;
for (every stone having color j and having weight <= i)
      if(dp[ i - weight[that stone] ] [j-1] is true/possible)
      {
            Then t is true;
      }
*/
```

Can someone check if this solution is correct or not, plz? → Link (Wrong solution)

Input:
1
100 10 1000
41 67 34 0 69 24 78 58 62 64 5 45 81 27 61 91 95 42 27 36 91 4 2 53 92 82 21 16 18 95 47 26 71 38 69 12 67 99 35 94 3 11 22 33 73 64 41 11 53 68 47 44 62 57 37 59 23 41 29 78 16 35 90 42 88 6 40 42 64 48 46 5 90 29 70 50 6 1 93 48 29 23 84 54 56 40 66 76 31 8 44 39 26 23 37 38 18 82 29 41
4 6 10 9 5 1 8 7 4 7 2 6 5 3 1 10 8 4 8 3 7 1 2 7 6 8 6 5 2 3 1 1 2 5 7 1 8 2 8 8 8 8 4 4 6 10 10 9 2 9 3 7 7 1 4 9 1 2 3 6 1 10 5 8 9 4 6 2 3 1 2 7 5 1 7 2 9 10 9 5 2 5 4 10 9 9 1 9 8 8 9 4 9 4 8 2 1 8 4 5
Expected output:
104

Ques 2) [Kruskal's Algorithm] or Prim's Algo.

In a country, the king is also low on budget. There are N cities and M bidirectional roads. Some of the roads of the country are broken and need repairing. The king of the country wants a good transportation system, so he at least one path to reach a city he wants that all the cities of the country must be connected i.e. there must from any other city. So he wants to repair the roads in such a way that the cities of the country must be connected and the cost of repairing is as minimal as possible.
You have to find the minimum cost of repairing the roads such that the cities become connected.

Input Format:
First line of each test case contains two integers N and M denoting the no. of cities and no. of bidirectional roads. Each of next M lines contains the description of a road in following format:
U V 0
OR
U V 1 X
First two integers U and V denote the cities that are getting directly connected by this road. If third integer is 0, it means the road is OK and needs no repairing. If the third integer is 1, it means the road needs repairing and the cost of repairing that road is denoted by a fourth integer X.

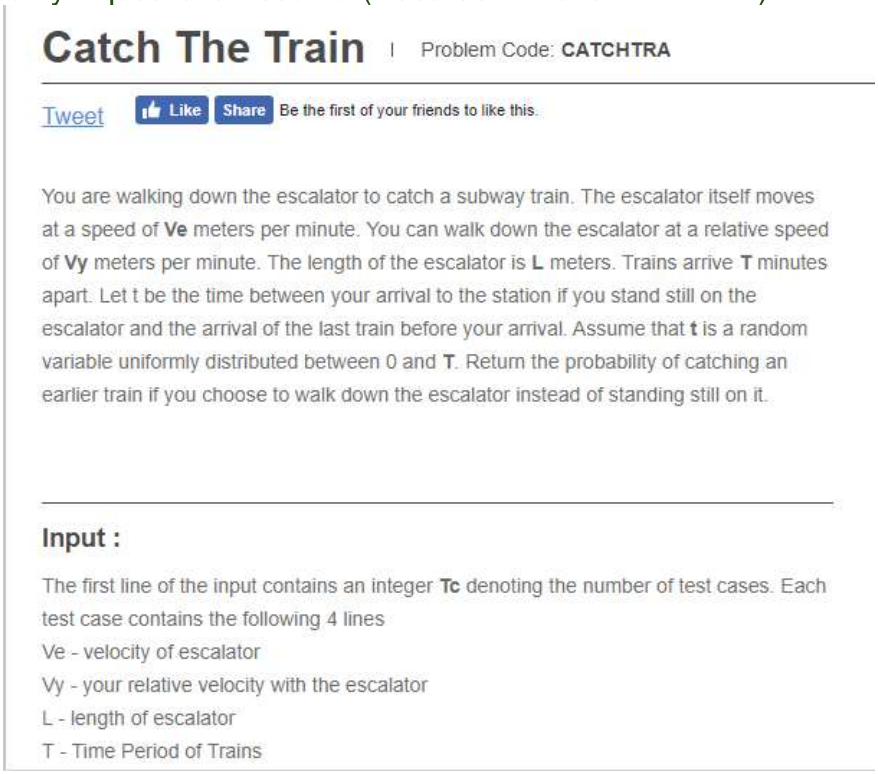
Output Format:
For each test case, output a single integer denoting the minimum cost of repairing in order to make the cities connected.
Note:
2. There is at most one road between any two distinct cities.
1. The input always guarantees that there is at least a way to make all the cities of country connected.
3. There is no road from a city to itself.

Constraints:
1 <= N <= 10000
1 <= M <= 100000
1 <= U,V <= N
1 <= X <= 1000

Examples:
Input:
4 6
1 2 0
1 3 1 4
1 4 1 1
2 3 1 2
2 4 1 5
3 4 1 3

Output:
3
Can we solve it using Minimum spanning Tree? Yes!
Can someone from IIT M give the 3rd problem ? looks repeated here.

Only 2 questions it seems. (Need Confirmation from IITM)



Catch The Train | Problem Code: CATCHTRA

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You are walking down the escalator to catch a subway train. The escalator itself moves at a speed of **Ve** meters per minute. You can walk down the escalator at a relative speed of **Vy** meters per minute. The length of the escalator is **L** meters. Trains arrive **T** minutes apart. Let t be the time between your arrival to the station if you stand still on the escalator and the arrival of the last train before your arrival. Assume that **t** is a random variable uniformly distributed between 0 and **T**. Return the probability of catching an earlier train if you choose to walk down the escalator instead of standing still on it.

Input :

The first line of the input contains an integer **Tc** denoting the number of test cases. Each test case contains the following 4 lines
Ve - velocity of escalator
Vy - your relative velocity with the escalator
L - length of escalator
T - Time Period of Trains

IIT BHU (08/10/17)

- Knapsack Problem
- Flock(Media.Net) IIT Kanpur Ques 1.
- Flock(Media.Net) IIT Kanpur Ques 2.

Flock (Media.Net)

IITM (21-09-2017)

Question 1: Lost Cake [BFS/DFS]
Our chef just started working in a huge hotel. The hotel can be thought of as a set of R rooms, numbered from 1 to R, interconnected by C connections represented as a (ri, rj) - room ri and rj are connected. To establish himself, he prepared an awesome cake for some very important 6 guests. However, the delivery boy made a mistake. Instead of delivering the cake to room D, where those important guests are staying, he delivered the cake to room S. After much searching our Chef found the cake in room S. Now, he has to know the minimum of rooms that the Chef will need to travel through, to reach room D(including the final room).
What was the input like? Did dfs/bfs pass all the test cases?

CAN SOMEONE PROVIDE SOLN OF ABOVE PROBLEM??

Question 2 : Colored Diamonds
There are N boxes placed in a row and M diamonds are distributed in these boxes such that each box contains at least 1 diamond into it. Each diamond is of certain colour and has a certain value. Formally, diamond i has

colour C_i and value V_i. Each diamond is put in a certain box denoted by B_i. Now your task is to take exactly one diamond from each box such that total value of diamonds taken is maximum and diamonds taken from two consecutive boxes are of different colours. If it is impossible to satisfy the conditions, output -1.

Will O(nm) pass all testcases ?

http://ide.geeksforgeeks.org
//did the above solution pass?

Best Solution : http://ide.geeksforgeeks.org/Es38eq

Question 3: Maximum Tree Width
You are given a preorder traversal of a binary search tree. You have to select a subset of nodes from the tree such that sum of the values of the nodes in the subset is maximized. Note that no two nodes in the selected subset should be connected directly. Two nodes are connected directly if one node is a parent of the other.

Algorithm : Get the inorder traversal by sorting preorder traversal. A unique tree can be constructed from inorder and preorder traversal. Now this problem is reduced to this one.

Code : http://ide.geeksforgeeks.org/tH7y0j

IITK (03-10-2017)

Q1) Question Solution
Q2) Question Solution
Q3) Word Ladder Problem

IITG (20-10-2017) - online test

11 students (all those who solved at least two questions) were shortlisted for the 3 algorithm rounds (via skype).
Q1. Question Solution
Q2. Question Solution
Q3. Question Solution

IITG (22-10-2017) - skype interviews

There were 3 algorithm rounds after online test and you need to clear at least 2 algorithm rounds. If you will clear first two algorithm rounds then there will be direct final round for you on 01-12-2017. You have to give optimal algorithm with proper code to clear any algorithm round.

Q1. Undirected graph, n nodes , e edges, 2 players A & B. They move alternately where they can move from their current position to an adjacent position. A is at p and B is at q. A has to reach p' and B has to reach q' . At any point in the game, they must have a separation greater than d. Find if it's possible or not?
Constraints on n and e ? If n is upto 1000 then , we can apply n bfs to find all pair shortest path, then do recursion , dp[i][j][x] = 1 if A is at node i, B is at node j, and x = 1 if current move is for B, else 0. Only thing which is left is to recurse and memoize. **- No such constraints were provided in the interview.**

Q2. Convert n-ary tree to binary tree :
- Siblings shouldn't be ancestors to each other
- Order of ancestors shouldn't change
- Insertion of dummy nodes is allowed.

Q. What exactly we have to do? Minimise the number of nodes with these constraints?

A simple solution would be , if one node “A” has 5 children let say “B” to “F”, then create something like “A” (Dummy1(Dummy2(“B”,”C”),Dummy3(“D”,”E”)),Dummy4(Dummy5(“F”,null),null))
So the main idea is for each value of K, where K is the number of children , compute such subtree and reuse it whenever we find another node with K children. This method will not minimise the number of dummy nodes. If the goal is to minimise the number of dummies, then there will be some tricks, hard to explain here - At first the interviewer didn’t ask me to minimise the number of nodes. I provided a random solution. Then he asked me to improve the space complexity and do something better. I took 10-15 minutes in providing another solution using k - 1 dummy nodes where k = number of original nodes.

Q3. http://www.geeksforgeeks.org/given-an-array-arr-find-the-maximum-j-i-such-that-arrj-arri/

Q4. http://www.geeksforgeeks.org/find-maximum-dot-product-two-arrays-insertion-0s/

Q5. http://www.geeksforgeeks.org/maximum-size-rectangle-binary-sub-matrix-1s/

Q6. http://www.geeksforgeeks.org/maximum-product-increasing-subsequence-size-3/

Q7. http://www.geeksforgeeks.org/weighted-job-scheduling-log-n-time/

Q8. Probability of Knight to remain in the chessboard

Q9. http://www.geeksforgeeks.org/find-smallest-range-containing-elements-from-k-lists/

IITR(28 oct 2017)

There were different slots. In my slot these 3 problems were there-

1. Standard knapsack
2. https://www.codechef.com/DI17R136/problems/WORDCOMM(exactly same problem)
3. Similar to this- http://www.geeksforgeeks.org/dynamic-programming-set-6-min-cost-path/

Apple

IIIT-H

5 MCQs and 3 coding (1:15 min)

1) Given 5 nodes, how many binary search trees can you make. Ans : 14 (Catalan Number)
2) Probability of rotten fruit is 4 out of 15. What is the probability to draw the last rotten fruit in 9th pick. Items once picked aren’t put back into the basket. Ans : 1/7
3) Queue is implemented using circular linked list. How many additional pointers do you need to make insert and delete O(1). Ans: 1
4) Begin A(n):

```
If (n<3)
        Return 1;
Else
        Return A(celing(sqrt(n));
```

Options : O(1), O(n), O(log n), O(log log n).
5) Don’t remember

Coding:

- Substring calculator : Remove 0 or more from the left/right/ left and right and output the total number of substrings that can be formed with this. (http://www.geeksforgeeks.org/program-print-substrings-given-string/)
- Maximum difference in an array (http://www.geeksforgeeks.org/maximum-difference-between-two-elements/)

- Sort an array according to the number of 1's in the binary representation of its elements. (http://www.geeksforgeeks.org/sort-array-according-count-set-bits/)

IBM Research (Can anyone state the CTC?)

CGPA criteria? No CGPA criteria in IITM

Are we supposed to write the entire code on paper ? Or pseudo code or algorithm works ?

IIT-KGP

CGPA>8.5 considered. All those who applied (EC Mtech, idk abt other depts) with cg < 8.5 were shortlisted for test too, they might consider the criterion during shortlisting after test. Anyone less than that needs to have a publication and a LoR from a full time Prof. about his research exp. Needs to also have 1 year of research lab experience.

It was a **Pen and paper** test with time constraint of **1 hour. Max marks 60**

1) Array of strings given. Find pair of strings who have no character in common. If there are multiple answer possible, return pair with the maximum value of product of length of two strings. **(10 marks) -> EXPECTED COMPLEXITY ANYONE?**
2) You are at nth step of stair. Find no. of ways to get down. (from each step, you can take either take 1 step down or 2 steps down). ANS: fibonacci number(DP) **(10 marks)**
3) kNN and kMeans (machine learning), similarity or difference with example.(asked whether they are similar or different, which things are similar and which are different, explain with example) **(10 marks)**
4) Some Hotel review question. You have to prepare a model(seems similar to IITM Q.3, I didn't attempt it, so not sure) **(15 marks)**
5) A string S can always be written as T^N where T is a string. Find max value of N. (T^N means T concatenated N times) **(15 marks)**
Ex: "abcabcabcabc" = "abc"^4. (Return 4)
"aaaaaaaa" = "a"^8. (Return 8)
"Abcdefgh12345" = "Abcdefgh12345"^1 (return 1)

Idea: Think in terms of KMP algorithm (O(n) time and space). Any other efficient approach is welcomed. Regex? Divide n Conquer ?

IITD

Q1. given an array A of size n with elements from 1 to k and another Array B of size k with elements 1 to n . show that they have a subarray of same sum. Solution ??
Q2. 1000 doors puzzle
Q3.http://www.geeksforgeeks.org/a-linked-list-with-next-and-arbit-pointer/
Q4 - case solving type long question (I didn't read it)
Q5. Your model attains an accuracy of 96% for cancer detection training data. Why you should not be happy about it? What will you do to solve this problem?

IITM - 26-09-2017

CGPA Shortlist? They let everyone give the test
5 questions in 1 hour
Question 1: Detect the presence of error in a linked list where the last node (supposed to be pointing to null) got merged to the list. (is it cycle detection???)
Question 2: Suppose your model has low bias and high variance. What model should be adapted to overcome this problem.
Question 3: Given review of the hotels along with some meta information like location, hotel room, facilities etc. Return the hotel which best satisfies a user query like “i would like to stay near beach, cheap hotel” and don’t like “breakfast facility”. Design a model which can suggest hotels on such queries.
Question 4: Given an unsorted list of even numbers, partition the list into 2 equal sets such that the sum of the 2 sets is nearly equal.
Question 5: Given a string and dictionary of words. Find out whether the string can be formed from the dictionary words.

IIT Roorkee is having a written test for IBM. Was it the same for other IITs as well?Yeah it will have the same format as KGP, D and M mentioned above. The hotel question has repeated.

IITR

-4 question 1 hour written test 55 marks

1. Hotel Question(same as in other iits) 15 marks
2. Given a string(has alphabets and other characters too) reverse the string(characters other than alphabets should remain at same position) 10 marks
3. http://www.geeksforgeeks.org/dynamic-programming-set-5-edit-distance/ 10 marks
4. This q. Had subparts, ML based general questions -20 marks(5 mark each part)

IIT Kanpur (2/11/17)

4 Questions, 55 marks, 1 hour. Written exam, you had to write it on blank piece of paper.
For the “design” questions, you had to write details of your network etc, you couldn’t just write “Machine Learning” and leave it at that. For the algorithmic question, you had to write pseudo code.

Question 1 : Hotel question (15 marks)
Question 2 : 5 algo puzzles, each worth 2 marks. They were :

1) There are n boxes and there is a cat hiding in one of the boxes. You are allowed to open one of the boxes every day, and after you open and close the cat moves in the night to a box adjacent to one he was in. How many days do you need to find the cat?
2) There are 11 players and you have to make them play 3 matches each (within each other). Is this possible?
3) A polynomial is given as a1 + a2*x + a3*x^2 + ... Given the value of x, give an O(n) algorithm to evaluate the polynomial at this value. Addition and multiplication are O(1) operations.
4) Give an O(n) algorithm to find the maximum value of mean of a window of size k elements in an array of n elements.
5) Probability of ants colliding when they start from vertex and choose any edge randomly.

Question 3 : You are given access to a magicFunction() that will generate a C program and a corresponding Python program. They will do the same thing. Now, using this, create a ML model that will take as input a C program and output a Python program.
Question 4 : Two teams are playing volleyball, and you are told how much each team scored. Report the number of point sequences that can lead to this total. Note that a team wins (and game is over) if either reaches 25 and the other is < 24, or if both have score >=24, and the difference between the two teams is 2.

IITB 24 Novembmer

Cognitive Data Scientist

Aptitude test - Difficult
Question on sequence and number series, aptitude

English language test - Medium difficulty
Questions on english grammar, letter writing, professional writing

Samsung (Delhi)

IIT Bhu (03-10-2017)

1. Graph coloring problem (with 2 color) (STL was allowed) -> NO IT WASN'T, CHECK THE GUIDE before attempting
Query - STL was allowed or not??

IITK (13-10-17)

1. Same as above (graph coloring with 2 colors) but STL was not allowed

IITG(25-10-2017)

1- Cycle in a directed graph (one cycle is enough in case there are multiple cycles)
NO STL was allowed. Only iostream, malloc.h, and stdio.h was allow
Ed.

IITM(6-11-2017)

http://www.geeksforgeeks.org/samsung-interview-experience-set-30-campus/

Samsung R&D (Noida)

http://www.geeksforgeeks.org/samsung-interview-experience-set-30-campus/ (from 2016-17)

Solution please someone?
Query: Was STL allowed in this question??
Query: DP solution required or naive got accepted?
DP or naive??????????????

IITK (11-10-17)

1 question : 3hr
Given a directed graph. Find any cycle present in the graph and print it's nodes in sorted order.
Ex. If '4->2->5->4' is a cycle then print '2 4 5'

Note: There may be many cycles present in the graph. You just have to print one of them. If no cycle exists then print -1.
// Was STL allowed ??
//I think it wasn't allowed
No STL allowed in Java and C++. Coding is in their own software.

`SAMSUNG BANGALORE

Bond of 3 years like they do have every year??

CGPA criteria? **7.25**
Only one question? **YES**
Test duration? **3 hrs**
Was stl allowed?!!!!!!!!! **No, iostream was allowed**
Any limit on submission count ??
one slot will contain only one fisherman ?? Yes
Result of the test case ?
Solution Anyone ?
Test cases please.

Important Instructions for Test

Samsung Software-Competency Test

1) Test Details & Pattern

Write code in C/C++/Java to solve a given problem. Code should compile, run and pass all given test cases.
- Emphasis on working code with efficient Programming Logic, Algorithms, Data structures
- NOT dependent on any specific Platform/API

Duration	3 hours	
Allowed Languages	C, C++, Java	· Candidates proficient in C# or other language can also take the test, by choosing one of C / C++ / Java to write the code, as the focus is on

<table>
<tr><td></td><td></td><td colspan="3">Algorithms & Data Structures. (Some language-specific learning/refreshing and practice may be required)</td></tr>
<tr><td>Number of Questions</td><td>One</td><td colspan="3">· The question details the problem, gives constraints
and sample inputs.</td></tr>
<tr><td rowspan="5">Allowed Functions, Libraries</td><td rowspan="5">Basic memory mgmt, input, output</td><td>Language</td><td>Memory</td><td>Input, Output</td></tr>
<tr><td>C</td><td>malloc, free</td><td>scanf, printf</td></tr>
<tr><td>C++</td><td>new, delete, malloc, free</td><td>cin, cout, scanf, printf</td></tr>
<tr><td>Java</td><td>New (memory freeing is automatic by garbage collector)</td><td>java.util.Scanner, System.out.print,println</td></tr>
<tr><td colspan="3">· Other functions, libraries not allowed
· Test taker needs to write any required utility functions</td></tr>
<tr><td>Allowed IDEs</td><td>· VS (C/C++)
· Eclipse (Java)</td><td colspan="3">· Code can be written directly in server itself, compile and test also possible in server.
· For debugging on local Test-PC, IDEs can be used. IDEs Pre-installed on the Test PC/Laptop.
· Code must be saved regularly in server, and must be submitted in server for evaluation.</td></tr>
<tr><td>Criteria for Passing Test</td><td>Pass all test-cases</td><td colspan="3">· “Sample test-cases” are given to test locally
· Developed program has to:
· Pass all “Evaluation test cases” on server (not shared with test-taker) and generate the output in specified format
· Meet efficiency criteria given in question (max limit on execution time, heap memory, and stack)
· Prepare and test with additional test-cases (not given during test, but, may be run after test). Consider large data, boundary/corner cases, rare cases, high-speed requirement, complex combinations etc.</td></tr>
</table>

2) Preparation recommended

a) **Before the Test: Candidate is requested to refresh topics on data structures & algorithms**
i) e.g., Array, Grid, List, Tree, Graph, Map, String, Search, Sort, Permutations/Combinations/Probability, Traversal, Path finding, Optimization, Dynamic Programming etc.
ii) Some popular websites for study/practice: geeksforgeeks, hackerrank, codeforces, topcoder, codechef, spoj, project-euler etc.

IIT BHU

can anybody provide solution of this question?

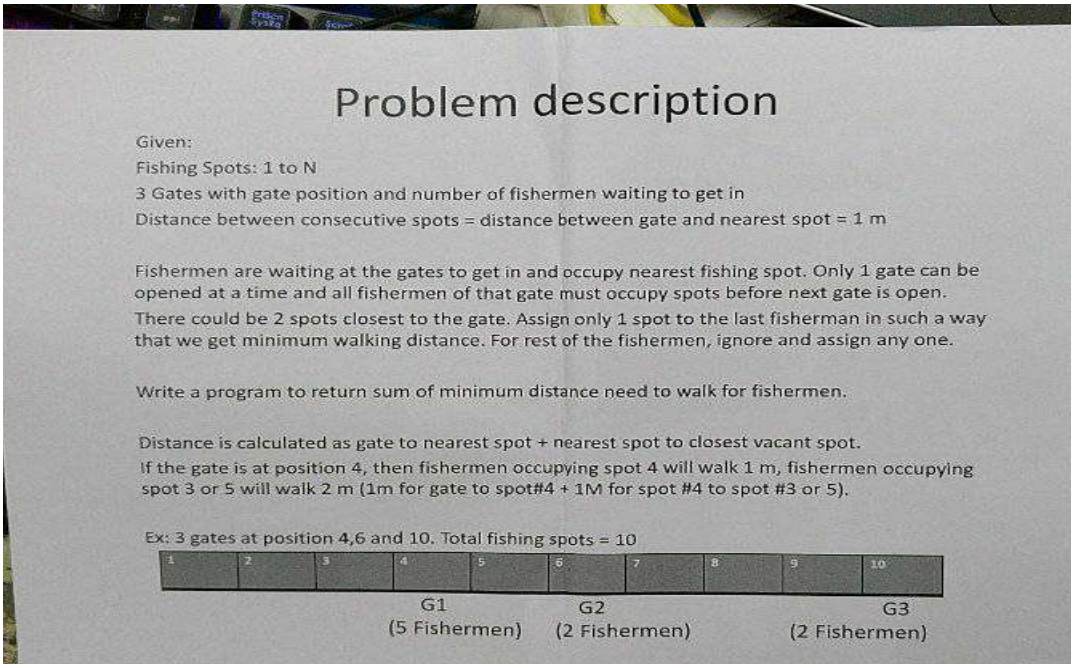
BHU people! how did u solve ? plz help.
DP se hoga kya?
Solution anyone??
Please elaborate the question.
What do you mean by “the fisherman will find the best slot.” ? Doest that mean he will choose the nearest empty slot ? (Greedy) Yeah best slot means closest one, but there can be one on left and other on right at same distance. So you have to consider both cases for the last fisherman at the given gate.

On a riverbank there are N slots for fishing and 3 gates.
For example 10 slots
Slots → 1 2 3 4 5 6 7 8 9 10
Gates at slot no-> 3 6 8
Fisherman at
Gate1 - 5
Gate2 - 2
Gate3 - 2

There are some fisherman at each gate and sum of fisherman is less than equal to total slots.
Cost of fisherman to reach from a gate to any slot is how many slot he has passed + 1.
For example if a fisherman enter from gate 1 (slot 4) and settle at slot no 2
Then cost is → (4-2) + 1 = 3

At a time only one gate is opened and if a gate is open then all of the fisherman at that gate will go inside one by one and will find best slot

So we have to find order in which gate is opened and best possible arrangement to minimize the cost.



########There was a photo of the question here, please don’t delete it (Replicated from backup) Plz do inform in future also :)

// duaao me yad rakhna ;)
Something Similar : https://cs.stackexchange.com/questions/79671/minimum-sum-of-distcance-from-entrance-gate

Solution ?? Soln. yar??
https://repl.it/N8c5/0
https://ideone.com/5M1uVj
(This ideone link solution is wrong)
test case:
i/p:

1 (no of test case)
10
4 5
6 2
10 2
expected o/p:18

IITK (15-10-2017)

Graph - 2 color

Query: STL allowed? // No STL was not allowed!!
DFS is easier and quicker to apply in this question.
In BFS, you will need to implement queue using array or linked list.

(Solution link for this, anyone ?)
THE MOST IMPORTANT THING -
"NO. OF TEST CASES" IS FIXED TO 10. YOU DON'T NEED TO SCAN IT.
YOU WILL HAVE A HARD-CODED LOOP WHICH WILL RUN FOR 10 TIMES TO SOLVE EACH TEST CASE.

IITR

(date of test ?)
http://www.geeksforgeeks.org/samsung-interview-experience-set-28-campus/
Round 1 question

The question was based on an airplane game. The entire game map is divided in game zone and control zone.

game map : NX5
game zone : 5X5
control zone : 1X5

There is an airplane initially at center of control zone (i.e. at index 2). The game moves as follows:

1. on each turn, the plane can either stay at its own position, or move left, or move right.t5

2. the last 5 rows of the game map form the game zone, and each time after the plane moves, each row comes down by 1 unit

3. each cell in the game map may contain a coin(represented by 1), an enemy(by 2) or is empty(by 0). when all rows come down, if the cell that meets the plane contains coins, the number of coins collected by the plane increases by 1, else if enemy hits, coins decreases by 1.

ex: N=3:

```
1 0 0 2 1
2 0 0 1 1  ==>>  1 0 0 2 1
0 0 1 0 0          2 0 0 1 1
      | (plane)          | (since cell containing coin meets the plane, coin count becomes 1)
```

This way, the game continues till all rows are over.

4. the plane also has an option of using a bomb to blast all the enemies present in the current game zone before the airplane moves. (note that only enemies in the 5X5 game zone will be blasted) But this bomb can be used at max once.

5. If at any time the number of coins becomes -1, the airplane explodes.

Given a map configuration, find the maximum number of coins that can be collected; output -1 if there is no way the plane can survive.

How to include the bomb constraint in the DP solution? When to use the bomb??

IIT Delhi

(soln please anyone?)
You have a matrix of 0 and 1 of order N*M and a parameter K is given.
You have to perform the operation of flipping any column of matrix exactly K times. Flipping means changing 0 to 1 and 1 to 0. **This operation can be performed any number of times on the same column.** Using this operation, maximize number of rows filled with all 1.
First line is number of test cases, next line is N, M and K, and then N*M matrix follows.
E.g
2
5 3 3
1 0 0
0 1 0
1 0 0
0 0 1
0 1 0
3 3 2
0 1 1
1 0 0
1 1 0

Output:
0
1
Similar question: https://stackoverflow.com/questions/7116438/algorithms-question-flipping-columns

IITB

Link to Question Images: https://goo.gl/D3LNV5

IIT Madras

Input: number of vertex(n), number of edge(m). Then in next line m pairs of numbers representing edges of directed graph.
The question is to find if there is any cycle and if there is cycle then print cycle in ascending order of vertex number, involve in cycle else print 0 (if there are multiple cycles print any one)

IITG (31/10/17)

(please post the solution.. IITG guys did someone solve this?)
https://stackoverflow.com/questions/7116438/algorithms-question-flipping-columns

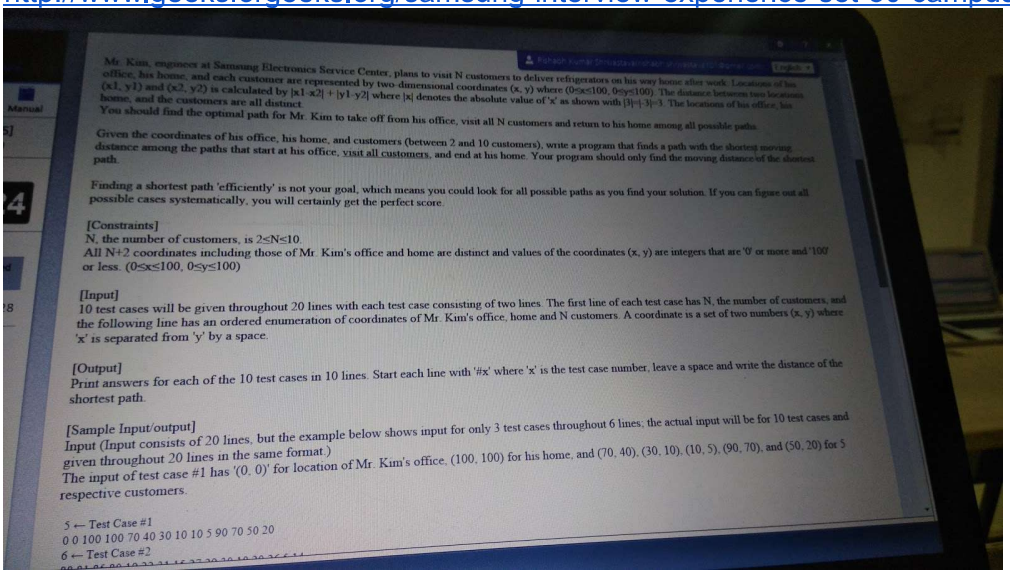
Link to Question Images: https://goo.gl/ARZQGz

You have to toggle the columns k times, Count the max number of rows with all ones
Solution for this???

IIT KGP (4/11/17)

Common test for all 5 profiles (3 Bangalore, 1 Noida, 1 Delhi)

Optimal path
http://www.geeksforgeeks.org/samsung-interview-experience-set-30-campus/



Mr. Kim, engineer at Samsung Electronics Service Center, plans to visit N customers to deliver refrigerators on his way home after work. Locations of his office, his home, and each customer are represented by two-dimensional coordinates (x, y) where (0≤x≤100, 0≤y≤100). The distance between two locations (x1, y1) and (x2, y2) is calculated by |x1-x2| + |y1-y2| where |x| denotes the absolute value of 'x' as shown with |3|=|-3|=3. The locations of his office, his home, and the customers are all distinct.
You should find the optimal path for Mr. Kim to take off from his office, visit all N customers and return to his home among all possible paths.

Given the coordinates of his office, his home, and customers (between 2 and 10 customers), write a program that finds a path with the shortest moving distance among the paths that start at his office, visit all customers, and end at his home. Your program should only find the moving distance of the shortest path.

Finding a shortest path 'efficiently' is not your goal, which means you could look for all possible paths as you find your solution. If you can figure out all possible cases systematically, you will certainly get the perfect score.

[Constraints]
N, the number of customers, is 2≤N≤10.
All N+2 coordinates including those of Mr. Kim's office and home are distinct and values of the coordinates (x, y) are integers that are '0' or more and '100' or less. (0≤x≤100, 0≤y≤100)

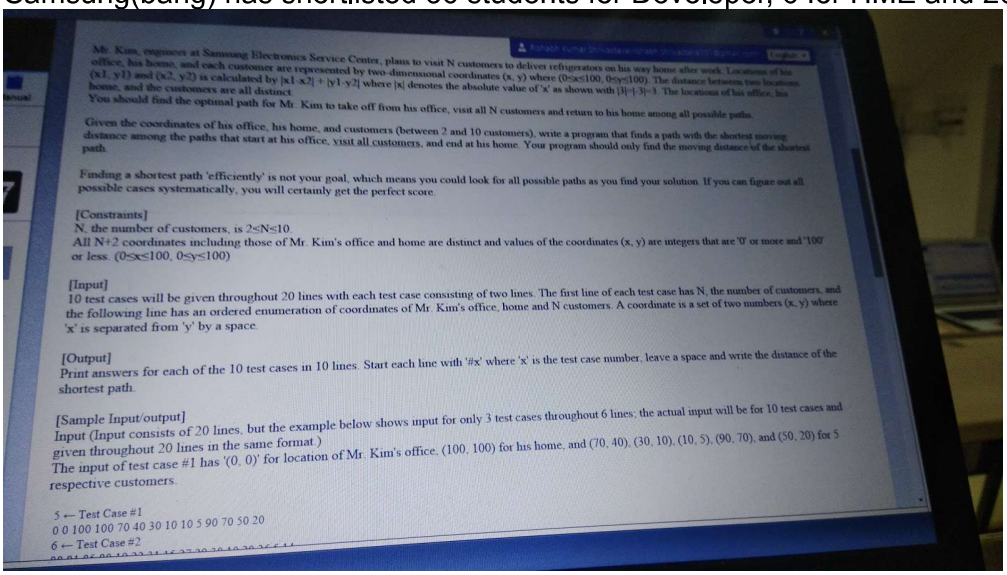
[Input]
10 test cases will be given throughout 20 lines with each test case consisting of two lines. The first line of each test case has N, the number of customers, and the following line has an ordered enumeration of coordinates of Mr. Kim's office, home and N customers. A coordinate is a set of two numbers (x, y) where 'x' is separated from 'y' by a space.

[Output]
Print answers for each of the 10 test cases in 10 lines. Start each line with '#x' where 'x' is the test case number, leave a space and write the distance of the shortest path.

[Sample Input/output]
Input (Input consists of 20 lines, but the example below shows input for only 3 test cases throughout 6 lines; the actual input will be for 10 test cases and given throughout 20 lines in the same format.)
The input of test case #1 has '(0, 0)' for location of Mr. Kim's office, (100, 100) for his home, and (70, 40), (30, 10), (10, 5), (90, 70), and (50, 20) for 5 respective customers.

5 ← Test Case #1
0 0 100 100 70 40 30 10 10 5 90 70 50 20
6 ← Test Case #2

Around 360 students have written the exam, as per recent shortlist(17-11-'17),
Samsung(bang) has shortlisted 36 students for Developer, 6 for HME and 26 for Research. CG cutoff - 8.00



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All N+2 coordinates including those of Mr. Kim's office and home are distinct and values of the coordinates (x, y) are integers that are '0' or more and '100' or less. (0≤x≤100, 0≤y≤100)

[Input]
10 test cases will be given throughout 20 lines with each test case consisting of two lines. The first line of each test case has N, the number of customers, and the following line has an ordered enumeration of coordinates of Mr. Kim's office, home and N customers. A coordinate is a set of two numbers (x, y) where 'x' is separated from 'y' by a space.

[Output]
Print answers for each of the 10 test cases in 10 lines. Start each line with '#x' where 'x' is the test case number, leave a space and write the distance of the shortest path.

[Sample Input/output]
Input (Input consists of 20 lines, but the example below shows input for only 3 test cases throughout 6 lines; the actual input will be for 10 test cases and given throughout 20 lines in the same format.)
The input of test case #1 has '(0, 0)' for location of Mr. Kim's office, (100, 100) for his home, and (70, 40), (30, 10), (10, 5), (90, 70), and (50, 20) for 5 respective customers.

5 ← Test Case #1
0 0 100 100 70 40 30 10 10 5 90 70 50 20
6 ← Test Case #2

Deutsche Bank

IIT Bhu

(profile?)(open for ?)
(questions from any other iits) ??

1. Sort numbers in increasing order of number of set bits in them.
http://www.geeksforgeeks.org/sort-array-according-count-set-bits/
2. Given a set of strings we need to find the longest chain of strings such that 2 consecutive string differ by 1 in length and by removal of one character from the longer string we get the shorter one.
For example given set { “a”, “z” , “ghj” , “ab”, “azb”, “hhjk” , “apzb” } answer is
{ “a”, “ab” , “azb”, apzb” }.
Solution: Sort strings by their lengths then use something like LIS.
Solution2 : 1. Build a graph
2. If strings differ by 1 char and by removal of one character from the longer string if we get the shorter one then are adjacent to each other
3. Do DFS on graph

http://ide.geeksforgeeks.org/O8lVKA

IITR

(profile and open for all ?)
1. String problem : even swap i.e even place (0,2,4,...)string can be swap
Similarly ood swap i.e Odd place (1,3,5,...)string can be swap any number of time.
Resultant string is “twin” if follow above mentioned property otherwise not
Exp. abcd and cdab are twins while abcd,badc are not So compare string and print “YES”. if they are twin otherwise ”NO”.
SOLn: sort characters in even places and odd places and compare the resulting strings. Will this work??
2. Given a graph, find the maximum friend factor of each trio.
What is friend factor : for each trio (3 nodes that are all connected to each other), the friendship factor is defined as the sum of number of nodes that each of the three are connected to, other than each other.
Brute force worked, constraint -> n<100

IITG

2 Programming (I don’t remember)
Some Tech MCQs
Topics -
Full binary Tree, Stable sort(Primitive & Composite Datatypes), Strongly Conn graph, Macro, Circular Linked List(Queue),
Pointer to Function(Syntax), Select * from table where ROWNUM>5;
LinkedList not suitable for (Insertion sort, Binary Search, Radix sort, polynomial manipulation)
Who is not Stable Sort (Heap, Selection, Bubble)

// 31 shortlisted for the interviews

Oracle

IITD

It has 3 sections. Each section has 3-4 subsections. Don't remember exactly what was asked in each section and subsection.

One Section has Aptitude and Logical Reasoning
One Section has OS, DBMS, OOPs
One Section has Data Structures. Most of Questions are from AVL Trees, BST & Flow chart problem
No english comprehension
No negative Marks.
Time Management is very very very very important for this exam.(seriously this much important) (How much time for each section and overall test?)
(somebody please post questions from os and dbms).

Notes : each subsection is time limited, You can answer the skipped answer if you have attempted all the questions of the subsection (so answer the easy ones first and afterwards answer the long description questions) , once answered you cannot change your answer, Especially in the the programming subsection skip lengthy questions (were in the starting) answer the later simple ones and then attempt these.

Level of questions(on the scale from 1 to 5)?????

Query: There wasn't any coding section? If yes, can someone please tell the question. No coding section at IIT KGP.
(actually there was but it was multiple correct type, code was written and you have to ans NV m by r question regarding that code. Don't remember the question. Questions were ime co)

.

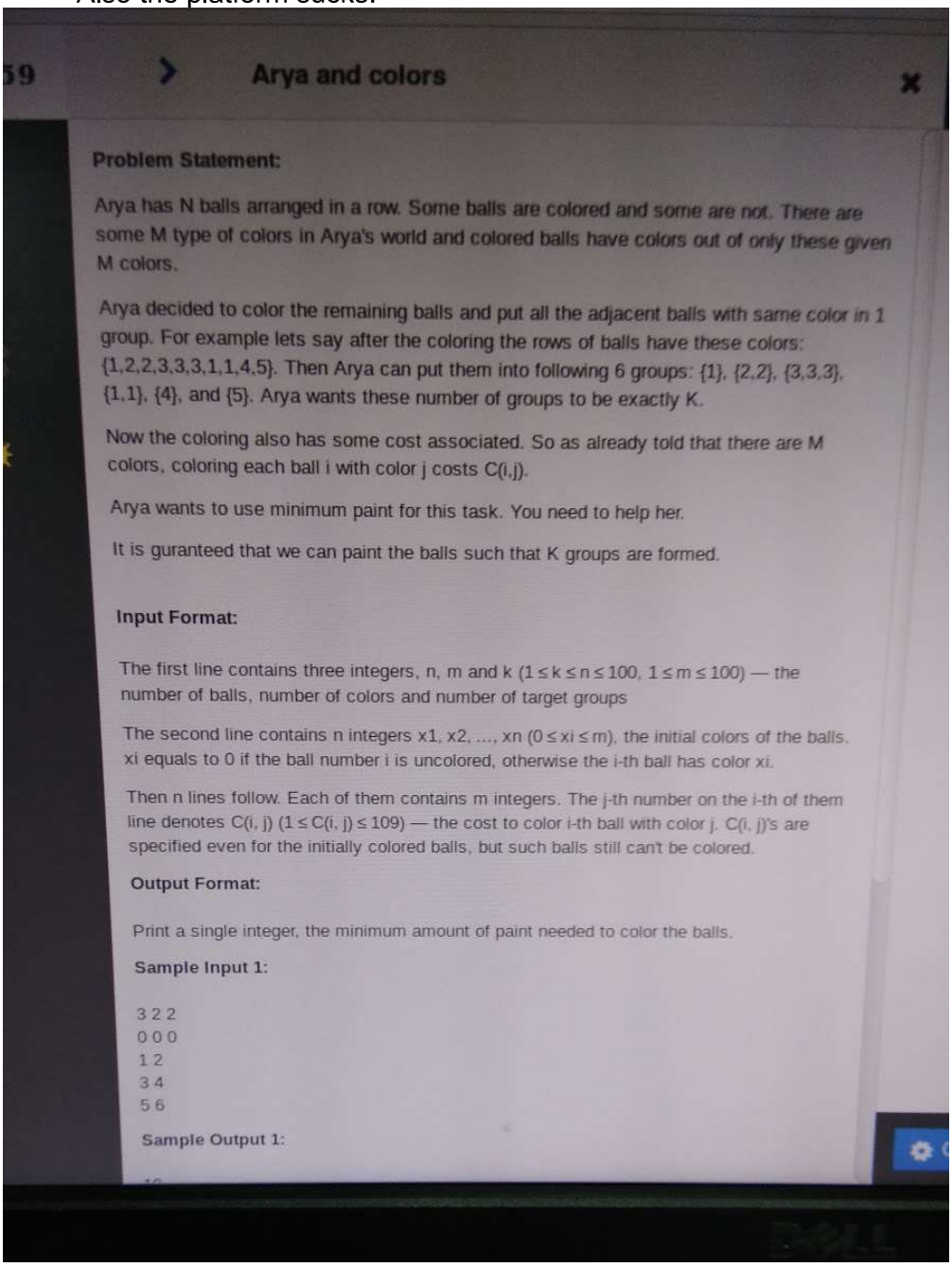
IITKGP (24/10/17)

- All sections same as above
- No coding section
(actually there was but it was multiple correct type, code was written and you have to answer the questions regarding that code. (in which language the codes were given?) Don't remember the question. Questions were time consuming. Oracle platform also sucks as once you leave a question page, you can never access it again :(that means either attempt now, or never.) Nopes you can skip them and access them later
- Coding MCQs focused mainly on AVL trees, Binary trees, Radix Sort, Circular queues
- Lengthy codes of AVL tree given, and about 15 numbers to be inserted were given, find no of left rotations, left right rotation and so on were asked
- DBMS 5 questions, OS+OOP 5 questions, Dbms contained SQL syntax questions + Query generation questions
- Time constraint made the medium difficulty test hard.
- Shortlist of this round will go for coding round to be held on 29/10/17 (tentative)

Query: Any negative Marking? No

Coding Round:
2 questions - attempt only one
Time: 1hr
- Given an array, return number of continuous entries of length m with a sum n Solution???
- Another question on graph - didn't attempt
- https://codeshare.io/5g0E4V
- Divide an array into 4 subarrays such that sum = sum1-sum2+sum3-sum4 is maximum. (sum1 denotes sum of elements of subarray) Conditions: sum1 occurs before sum2, which occurs before sum3 subarray and so on. Also, sum1 sum2 etc can be zero(empty subarray).
Eg: -1 2 -1 -1

Ans: 5 (0 - (-1) + 2 - (-1+-1)) sum1 is empty, sum2 is -1, sum3 = 2, sum4 = -2. Not necessary to choose entire array. O(n^3) got accepted too.
Also the platform sucks.



59 Arya and colors

Problem Statement:

Arya has N balls arranged in a row. Some balls are colored and some are not. There are some M type of colors in Arya's world and colored balls have colors out of only these given M colors.

Arya decided to color the remaining balls and put all the adjacent balls with same color in 1 group. For example lets say after the coloring the rows of balls have these colors: {1,2,2,3,3,3,1,1,4,5}. Then Arya can put them into following 6 groups: {1}, {2,2}, {3,3,3}, {1,1}, {4}, and {5}. Arya wants these number of groups to be exactly K.

Now the coloring also has some cost associated. So as already told that there are M colors, coloring each ball i with color j costs C(i,j).

Arya wants to use minimum paint for this task. You need to help her.

It is guranteed that we can paint the balls such that K groups are formed.

Input Format:

The first line contains three integers, n, m and k ($1 \le k \le n \le 100$, $1 \le m \le 100$) — the number of balls, number of colors and number of target groups

The second line contains n integers x1, x2, ..., xn ($0 \le xi \le m$), the initial colors of the balls. xi equals to 0 if the ball number i is uncolored, otherwise the i-th ball has color xi.

Then n lines follow. Each of them contains m integers. The j-th number on the i-th of them line denotes C(i, j) ($1 \le C(i, j) \le 109$) — the cost to color i-th ball with color j. C(i, j)'s are specified even for the initially colored balls, but such balls still can't be colored.

Output Format:

Print a single integer, the minimum amount of paint needed to color the balls.

Sample Input 1:

3 2 2
0 0 0
1 2
3 4
5 6

Sample Output 1:

IITK

Programming part- d on array, one question on graph traversal (DFS), preorder travel of given binary tree that is given in form of array.question on min in BST, implementation of heap, bst implementation base-these are objective questions

Query: These many coding questions? And in how much duration?-the
Query: Platform? (Someone please answer?) Oracle's own platform
Query: Was python allowed? There was no coding assignment at IIT d
Can someone post the questions from OOPS and DBMS,OS??(NAY !!)(Why?? :( ) :(

Coding Round :-

2 chill question ; only one to do ; tips:- give this test on chrome, it sucks on mozilla
Questions:- (Screenshots Link)
https://ibb.co/gx1KNb
https://ibb.co/hDQeNb
For the these 2 questions did brute force work on all test cases ?If it didn't Please suggest how it can be solved?

Anyone solving please provide solution/hints.
Thanks

IITBHU

Pattern was same as mentioned before. Few things to add:

- Revise trees and array representation of trees. Almost all of the long code snippets given were in some way to modify a given tree and we have to give the final form of the tree after operations. Some of the operations were to mirror a tree, to calculate minimum and maximum values, to check if certain node is accessed or not, etc. It was taking time to understand the code.
- Attempt the flowchart questions in one go. Then you can easily fill in the empty boxes.
- You can skip the questions and come back to them later. So, don't click on answer for guesses as you can't re answer the same qs again later.
- There were a number of SQL queries like and SQL functions like rand(), instr() and lcase().
- OOPs(were they language dependent?) and OS qss were standard qs from gfg.

Coding Round:
2 very simple questions out of which I don't know why they had instructed to attempt only one!
Time: 1hr 15mins

- longest substring with unique characters
- number of ways to make sum N using only 1's and 2's with no consecutive 2's

Everybody had same coding questions? yes

IITG (28/10/17)

(Refer Last Year Doc - available in Fb group pinned post) Same pattern

IMP Update: If any image is not loading in ques, close the browser immediately and reopen it.
Time will resume and images will also load. (Not applicable for coding section)

Section -1 Software Engg Aptitude
Sec 1.1 Maths Aptitude {
Sec 1.2 Data Analysis & Critical Thinking

Sec 1.3 Persistence Attention to Details Given a table, and list of choices, choose the choice which is correct/incorrect in table. (Key to clear is keep track of numbers in cell/data)
Sec1.4 Programming Ability (Full Flow Chart, only 2 ques(5sub ques) Total 10 ques.
A game is given and flowchart is given for output .Some blocks in flowchart are left empty ,based on the game or problem find the missing blocks,etc. Solve for all 5 blocks of a ques, by which u can answer further 4 ques.
Sec 1.5 Logical Thinking {Picture reasoning, Series,
Section - 2 Computer Science Knowledge
Section - 3 Coding Challenge

Can u give some examples of OS,DBMS,OOPS questions?

IITG Coding (12/11/17)j

Questions link - https://goo.gl/sqTstX

Flipkart

Please post the test questions for the Data Science profile.

(CTC -
APM - 26 LPA)

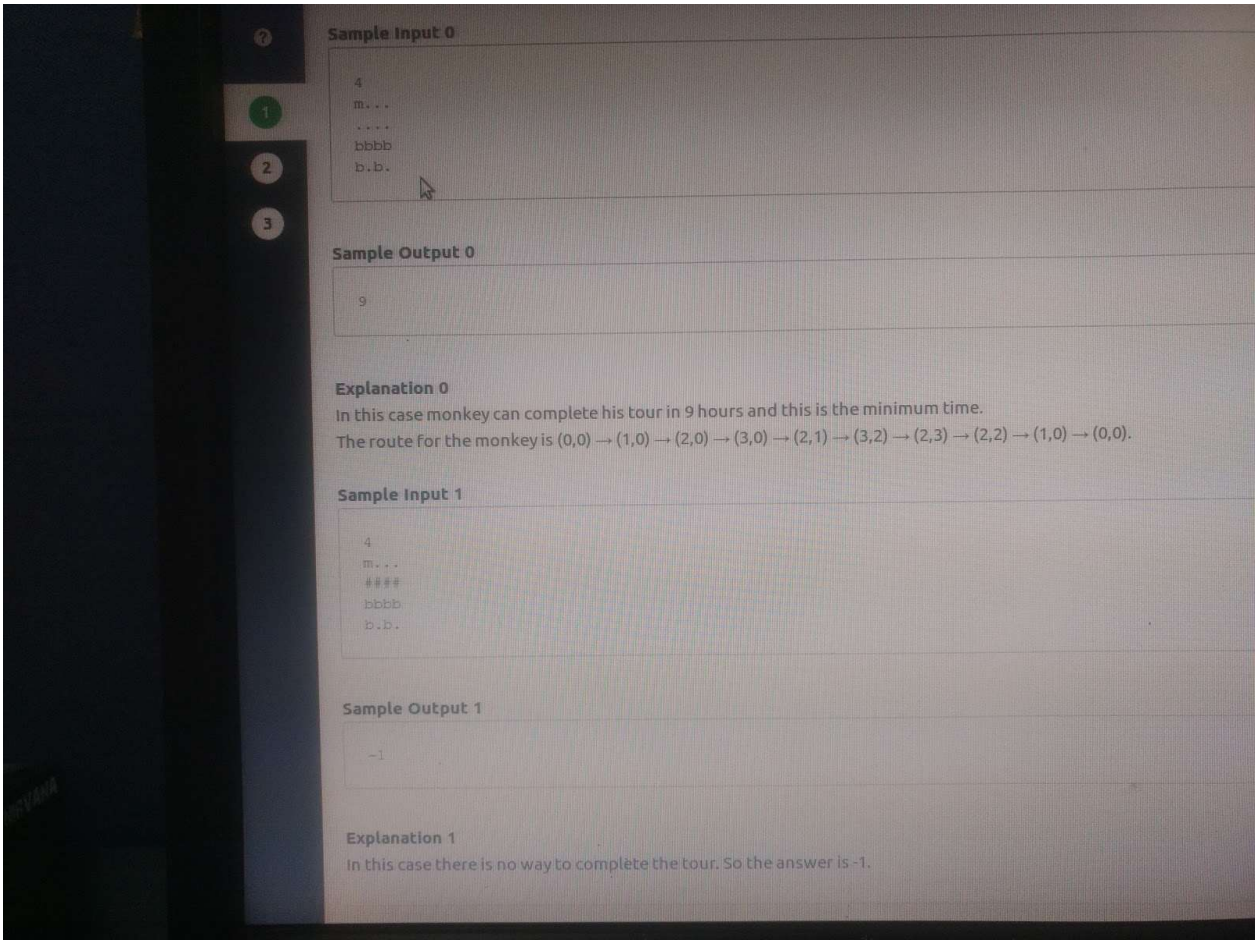
IITG (APM 12 - 10 - 17)

Apm case study session.
Two hours of session where they introduced about what is all about product manager, their role and for a given problem how do we formulate the hypothesis and analysis the data and design a product solution and prioritize the work.

Case study was:
Why do users uninstall flipkart app from mobile, and the given data was 1st time user was uninstalling at 2x rate is to 1x repeating user, where lot of solutions were discussed, nothing to submit in written in this workshop. They will send a separate mail for case study assignment where we need to make a 6 slides ppt and submit, based on that shortlisting will happen.

IITG SDE (23/10/17)

Link for Questions images: https://goo.gl/5AGVhW
Q1, Q2, Q3 same as asked in IITD even the order is same.
Practice all the flipkart questions from this doc (write code for each and every question). All the best guys.



Sample Input 0

```
4
m...
....
bbbb
b.b.
```

Sample Output 0

```
9
```

Explanation 0

In this case monkey can complete his tour in 9 hours and this is the minimum time.
The route for the monkey is (0,0) → (1,0) → (2,0) → (3,0) → (2,1) → (3,2) → (2,3) → (2,2) → (1,0) → (0,0).

Sample Input 1

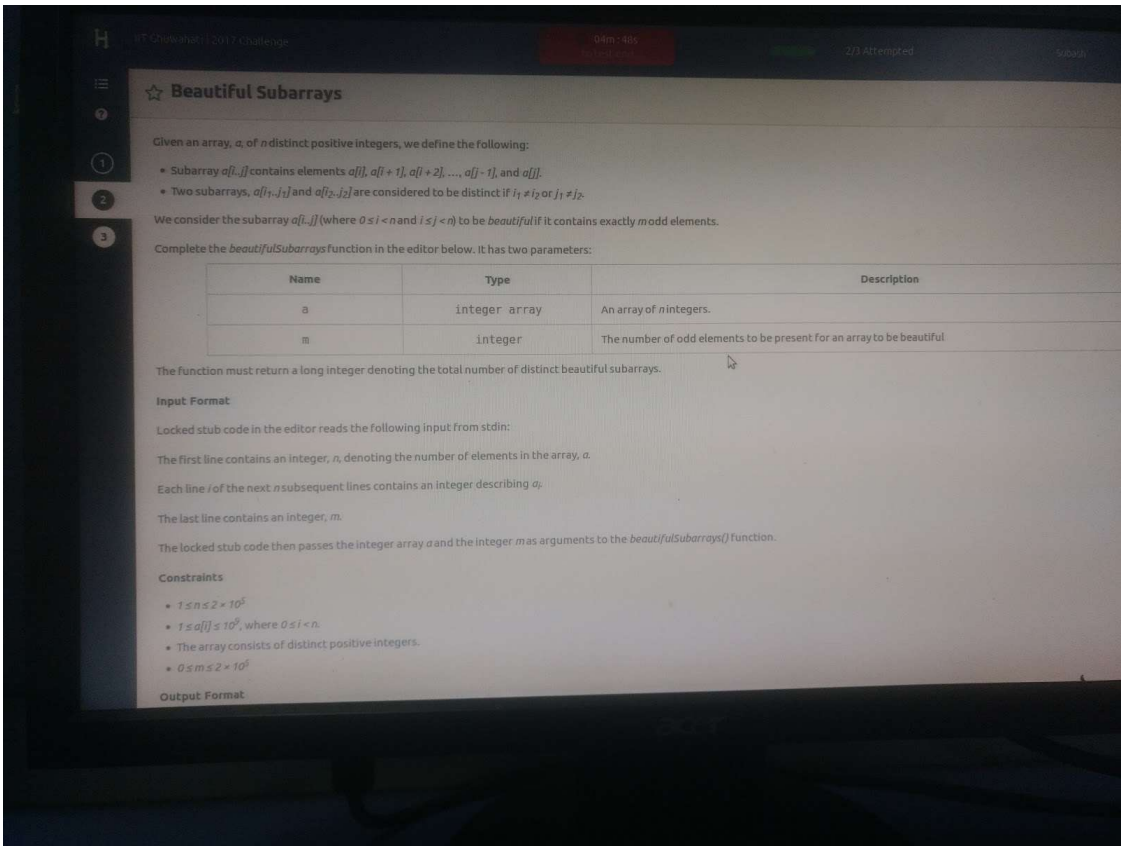
```
4
m...
####
bbbb
b.b.
```

Sample Output 1

```
-1
```

Explanation 1

In this case there is no way to complete the tour. So the answer is -1.



☆ Beautiful Subarrays

Given an array, a, of n distinct positive integers, we define the following:

- Subarray $a[i..j]$ contains elements $a[i]$, $a[i+1]$, $a[i+2]$, ..., $a[j-1]$, and $a[j]$.
- Two subarrays, $a[i_1..j_1]$ and $a[i_2..j_2]$ are considered to be distinct if $i_1 \neq i_2$ or $j_1 \neq j_2$.

We consider the subarray $a[i..j]$ (where $0 \leq i < n$ and $i \leq j < n$) to be *beautiful* if it contains exactly m odd elements.

Complete the *beautifulSubarrays* function in the editor below. It has two parameters:

Name	Type	Description
a	integer array	An array of n integers.
m	integer	The number of odd elements to be present for an array to be beautiful

The function must return a long integer denoting the total number of distinct beautiful subarrays.

Input Format

Locked stub code in the editor reads the following input from stdin:

The first line contains an integer, n, denoting the number of elements in the array, a.

Each line i of the next n subsequent lines contains an integer describing a_i.

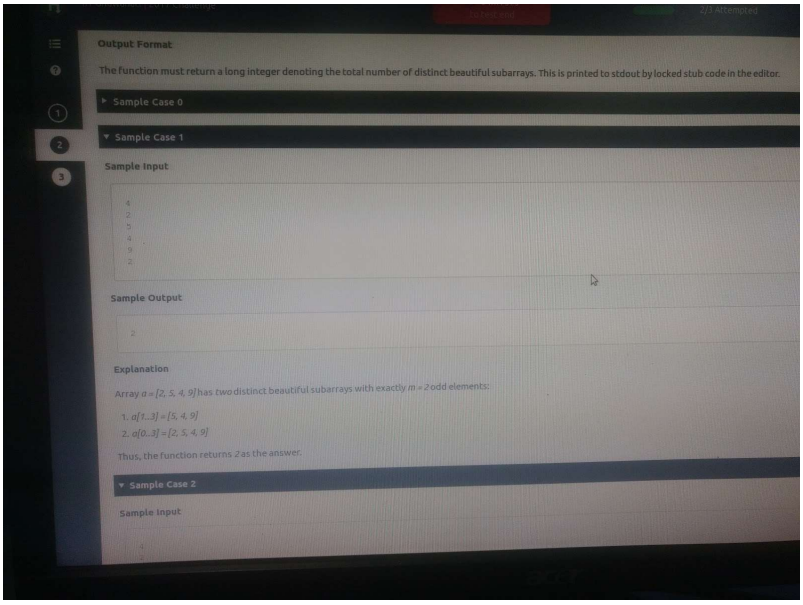
The last line contains an integer, m.

The locked stub code then passes the integer array a and the integer m as arguments to the *beautifulSubarrays()* function.

Constraints

- $1 \leq n \leq 2 \times 10^5$
- $1 \leq a[i] \leq 10^9$, where $0 \leq i < n$.
- The array consists of distinct positive integers.
- $0 \leq m \leq 2 \times 10^5$

Output Format



Output Format

The function must return a long integer denoting the total number of distinct beautiful subarrays. This is printed to stdout by locked stub code in the editor.

▸ Sample Case 0

▾ Sample Case 1

Sample Input

```
4
2
5
4
9
2
```

Sample Output

```
2
```

Explanation

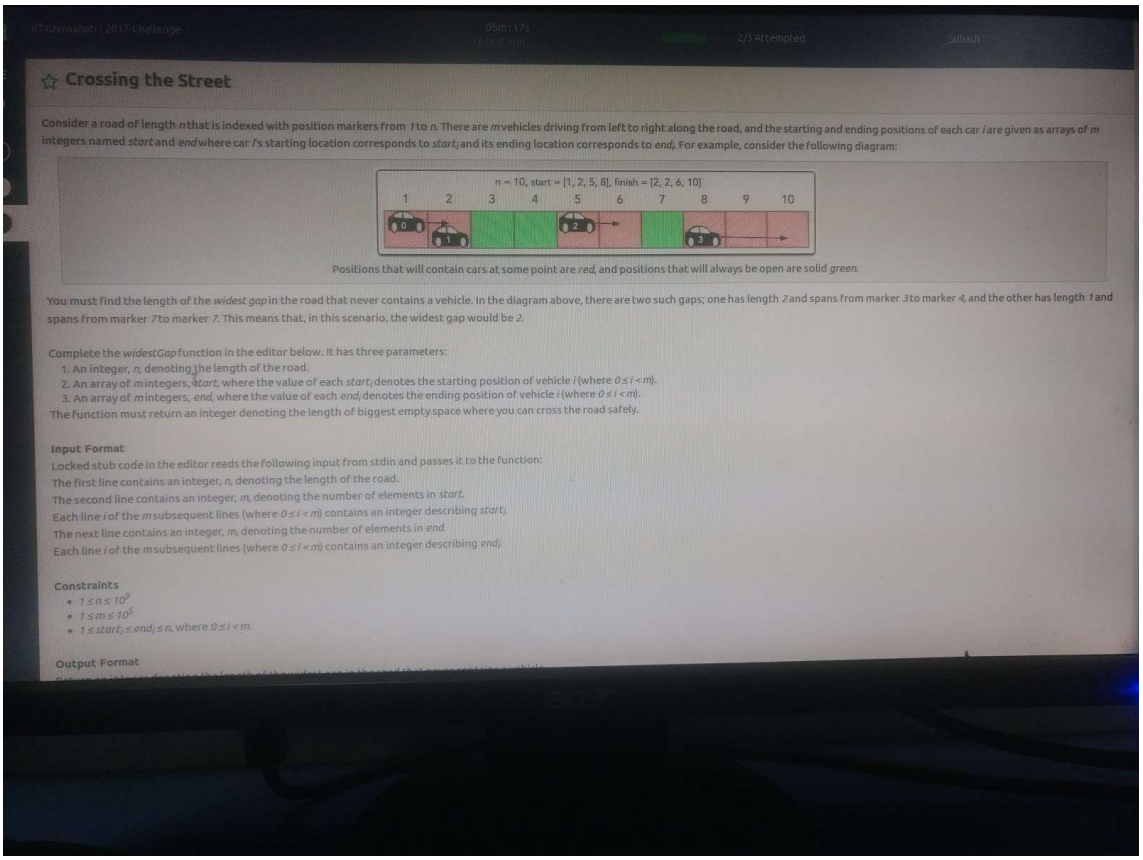
Array $a = [2, 5, 4, 9]$ has *two* distinct beautiful subarrays with exactly $m = 2$ odd elements:

1. $a[1...3] = [5, 4, 9]$
2. $a[0...3] = [2, 5, 4, 9]$

Thus, the function returns *2* as the answer.

▾ Sample Case 2

Sample Input



IIT Guwahati] 2017 Challenge 05m : 17s 2/3 Attempted Subash

☆ Crossing the Street

Consider a road of length *n* that is indexed with position markers from *1* to *n*. There are *m* vehicles driving from left to right along the road, and the starting and ending positions of each car *i* are given as arrays of *m* integers named *start* and *end* where car *i*'s starting location corresponds to $start_i$ and its ending location corresponds to end_i. For example, consider the following diagram:

Positions that will contain cars at some point are *red*, and positions that will always be open are solid *green*.

You must find the length of the *widest gap* in the road that never contains a vehicle. In the diagram above, there are two such gaps; one has length *2* and spans from marker *3* to marker *4*, and the other has length *1* and spans from marker *7* to marker *7*. This means that, in this scenario, the widest gap would be *2*.

Complete the *widestGap* function in the editor below. It has three parameters:

1. An integer, *n*, denoting the length of the road.
2. An array of *m* integers, *start*, where the value of each $start_i$ denotes the starting position of vehicle *i* (where $0 \le i < m$).
3. An array of *m* integers, *end*, where the value of each end_i denotes the ending position of vehicle *i* (where $0 \le i < m$).

The function must return an integer denoting the length of biggest empty space where you can cross the road safely.

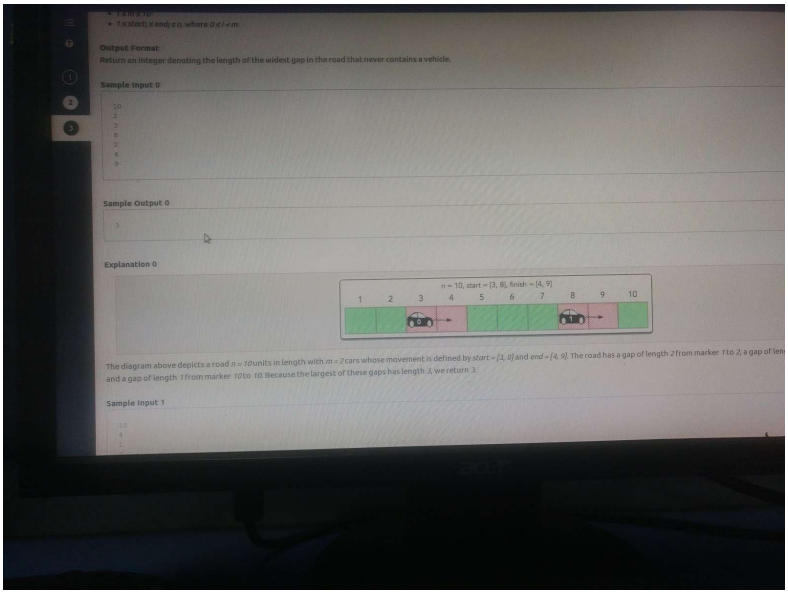
Input Format

Locked stub code in the editor reads the following input from stdin and passes it to the function:
The first line contains an integer, *n*, denoting the length of the road.
The second line contains an integer, *m*, denoting the number of elements in *start*.
Each line *i* of the *m* subsequent lines (where $0 \le i < m$) contains an integer describing $start_i$.
The next line contains an integer, *m*, denoting the number of elements in *end*.
Each line *i* of the *m* subsequent lines (where $0 \le i < m$) contains an integer describing end_i.

Constraints

- $1 \le n \le 10^9$
- $1 \le m \le 10^5$
- $1 \le start_i \le end_i \le n$, where $0 \le i < m$.

Output Format



IITK

Coding Round - 90 minutes - Hackerrank

Problem 1
Given an array of **N** integers. Find number of of sub-arrays with **M** number of odd integers.
https://discuss.codechef.com/questions/103416/contiguous-subarray

https://github.com/cem3394/HR-Haskell
https://stackoverflow.com/questions/45645728/given-an-array-find-the-number-of-sub-arrays-with-m-odd-numbers (NOTE: the O(n) solution given here doesn't work when m=0)

It says distinct subarrays, how to handle that ? (Distinct subarray means start or end of subarray should be different, which will be handled by this solution(https://discuss.codechef.com/questions/103416/contiguous-subarray))

Was O(n^2) allowed?? No.

Problem 2

N gears were given each with their own cost ci and radius ri. One extra gear was also given with radius r1. A distance d was given and we had to find the gear with minimum cost following the below conditions:-

1) ri +r1>=d(if there are multiple gears satisfying this condition then see condition 2 for those set of gears satisfying condition 1)
2) Minimum cost ci(if there are multiple gears satisfying this condition then see condition 3 for those set of gears satisfying condition 1 & 2)
3) Find the gear with larger radius(if there are multiple gears satisfying this condition then see condition 4 for those set of gears satisfying condition 1 & 2 & 3)
4) Choose the gear with smaller index.

(Solution ?) - Simple Sorting problem bases on the given conditions. Was using vectors allowed? - Yes

Problem 3

Graph problem.
Based on Union find.
Can be done without union find also.

There is a city with n areas, and we need to build clinics in the city such that all the areas have access to the clinics.
The road between the cities might be damaged or broken.
The cost for repairing the road is R and the cost of building the clinic is C.
Find the minimum cost such that all the areas have access to at least one clinic.

For example(If the city is divided into three areas such that the roads between those areas are damaged that either we can build the clinics in all three areas or build the clinic in any one area and connect the other two areas with it by repairing the roads between them.)
(https://www.hackerrank.com/contests/world-codesprint-8/challenges/torque-and-development)

This was not for APM role, correct? No it wasn't.

IITD (10 - 10 - 2017)

78Coding Round - 90 minutes - Hackerrank

Problem 1 [Dynamic Programming]
A matrix is given with following details. Each cell can have one of the four values.
'M' - Starting position of monkey
'.' - Empty cell
' #' - Blocked cell
'B' - Banana.
From any point, monkey can move in all 8 adjacent directions. Find min number of steps required to collect all bananas and at last monkey have to come back to its starting position. For exact problem statement see above image. Monkey can't cross blocked cell.
Constraints : Max grid size = 100*100, max B = 18
Is there any banana which is not reachable from Monkey? - Yes
((sol please) If someone has solved this, please share in gfg ide.)+3

This is nothing but Travelling salesman problem (NP hard) - only brute force will work - have to check for all permutation. No, travelling salesman problem has a constraint that every city can be visited exactly once, but here we can visit one block twice. Yet you are right that brute force will work. I also could think of brute force only.

Wrong Solution :
I think this problem is NP hard for large values of B counts. Could anyone confirm? Yes, it is
All I can think of is to generate B! Ways of reaching out all bananas, and picking the minimum answer.
1.Count no of bananas,let it be B.Run dfs or bfs and check whether all bananas are reachable from the starting point.
2.if there is a banana which is unreachable from starting point return -1.
3.else do bfs from starting point(same cell can be visited any number of time) until you get B no of bananas.Since we are using BFS the first such point will be minimum no of steps.(Not sure) Nope. This doesn't work. Try with an example. Nope this method is wrong.

We can use bfs to find answer for this problem if it is a tree. For a graph it won't work.

Can we do it using backtracking and maintain min steps? : Yes, but it may exceed the time limit.

One solution could be to maintain dp[i][j][k] as the min number of steps to end up with k points(each banana is one point) and final position is matrix[i][j]. As precomputation, find distance for each pair of bananas.

Query : I think this is right but how do we fill the table dp[][][]?

Problem 2 [Two Pointers](two pointers not required)
Given an array of **N** integers. Find number of of sub-arrays with **M** number of odd integers.
Note : m=0 was also possible , so handle it specially.
Solution : 1, 2
Did it say distinct subarrays ?
Not sure (I think distinct subarray in the question means distinct (start,end) index pairs. Not by the value. Otherwise we will have to insert subarray in a set every time and check whether it was already in the set or not. And that won't make sense at all)

Problem 3 [Greedy (Sorting)]
Given an n length road and m cars with their start and end points(between 1 and n). Find the largest empty gap (length of the road where no car is present).

(PLEASE PROVIDE A TEST CASE. THE QUESTION IS NOT CLEAR TO ME.)+1

Sorting by start points and checking difference between adjacent intervals will work right? - Yes
No,
after sorting, you have to maintain one maxReach variable and if the starting point of next car is greater than maxReach, then there is a gap and update result if gap>result.

IITR (11 - 10 - 2017)

Problem - 1
A array contains N numbers all of which are a power of 2. Count the numbers possible to form using sum of array elements such that each element can be used at max once in the sum.
eg:{1,4,8}=>possible sums are {0,1,4,5,8,9,12,13}=8.

(Are there any duplicates?)+1

(Won't this have O(1) solution since using n-1 elements you can never obtain nth element? Answer to all case would be simply 2^n provided all the elements in the array are distinct.) In distinct number's case, I think you are right because each number will represent a unique bit position(1) and we can make different numbers by taking different different bit positions.

http://www.geeksforgeeks.org/find-distinct-subset-subsequence-sums-array/

Problem 2
Same as IITD Problem 2

Problem 3
Same as IITD Problem 3

IITM (12 - 10 - 2017)

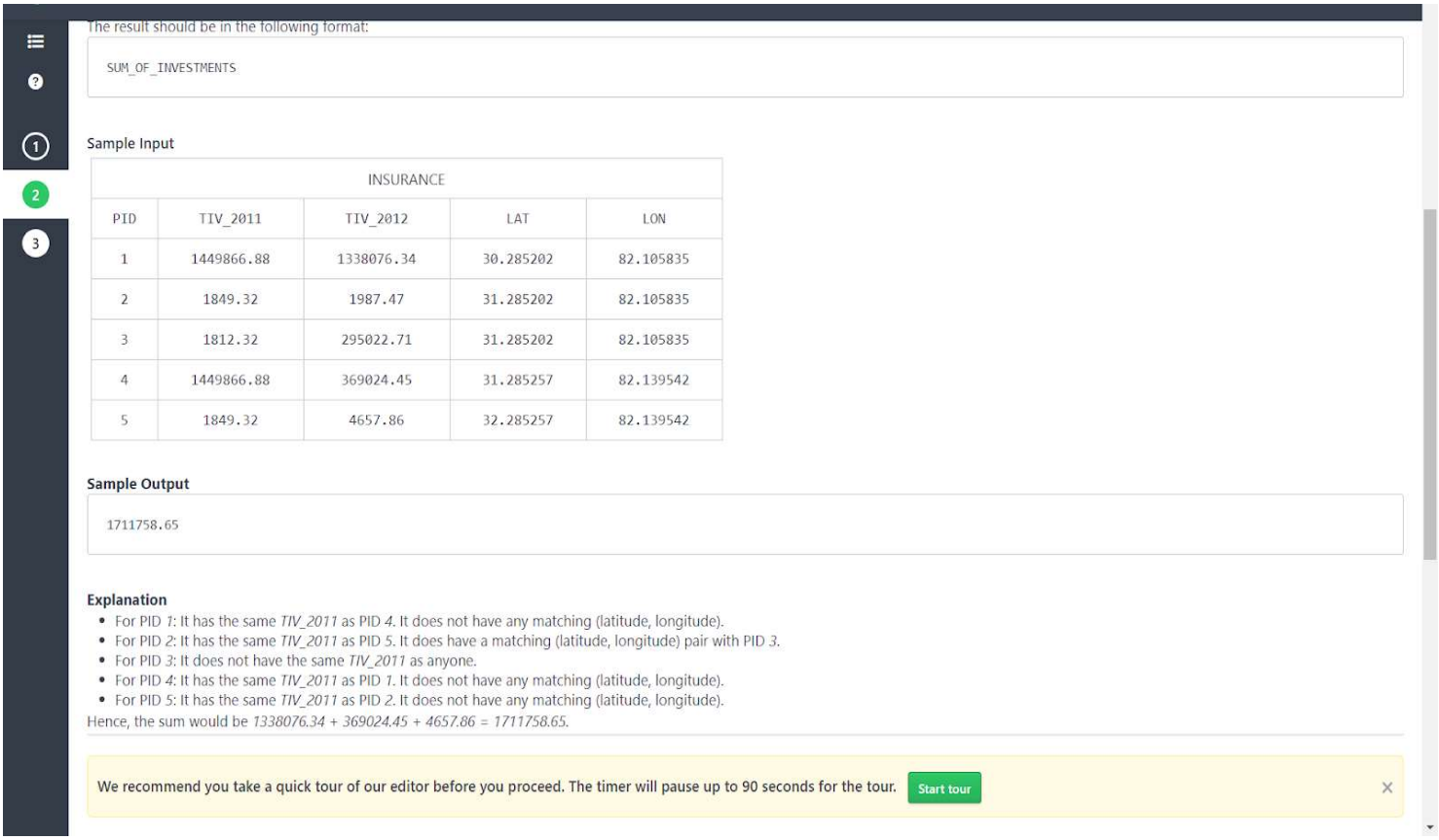
Same as IITR

IITR (APM 18/10/2017)

Initial part was same as IITG - Intro to the role, expectations etc. Then a long QnA session.
Sample Case Discussed - Take for example WhatsApp. Mention 3 things you like and dislike about it. Prioritize the points that you dislike and solve the topmost one. How will you solve it? If you find a solution, how will you validate it?

IITB(30/10/2017)

2 Coding question and 1 SQL Query.
1 Coding Question was pretty easy. Another Coding question was very hard.
SQL query was also hard.
F99999999999999999



The result should be in the following format:

```
SUM_OF_INVESTMENTS
```

Sample Input

INSURANCE

PID	TIV_2011	TIV_2012	LAT	LON
1	1449866.88	1338076.34	30.285202	82.105835
2	1849.32	1987.47	31.285202	82.105835
3	1812.32	295022.71	31.285202	82.105835
4	1449866.88	369024.45	31.285257	82.139542
5	1849.32	4657.86	32.285257	82.139542

Sample Output

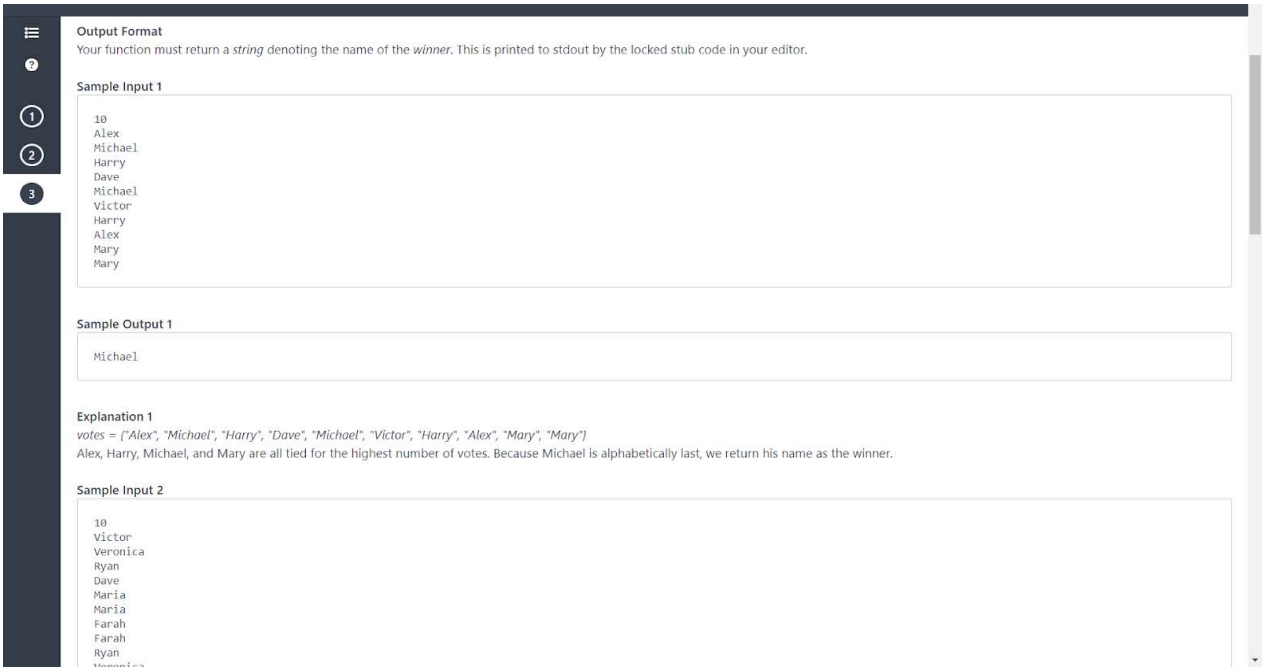
```
1711758.65
```

Explanation

- For PID *1*: It has the same *TIV_2011* as PID *4*. It does not have any matching (latitude, longitude).
- For PID *2*: It has the same *TIV_2011* as PID *5*. It does have a matching (latitude, longitude) pair with PID *3*.
- For PID *3*: It does not have the same *TIV_2011* as anyone.
- For PID *4*: It has the same *TIV_2011* as PID *1*. It does not have any matching (latitude, longitude).
- For PID *5*: It has the same *TIV_2011* as PID *2*. It does not have any matching (latitude, longitude).

Hence, the sum would be *1338076.34 + 369024.45 + 4657.86 = 1711758.65*.

We recommend you take a quick tour of our editor before you proceed. The timer will pause up to 90 seconds for the tour. Start tour



Output Format

Your function must return a *string* denoting the name of the *winner*. This is printed to stdout by the locked stub code in your editor.

Sample Input 1

```
10
Alex
Michael
Harry
Dave
Michael
Victor
Harry
Alex
Mary
Mary
```

Sample Output 1

```
Michael
```

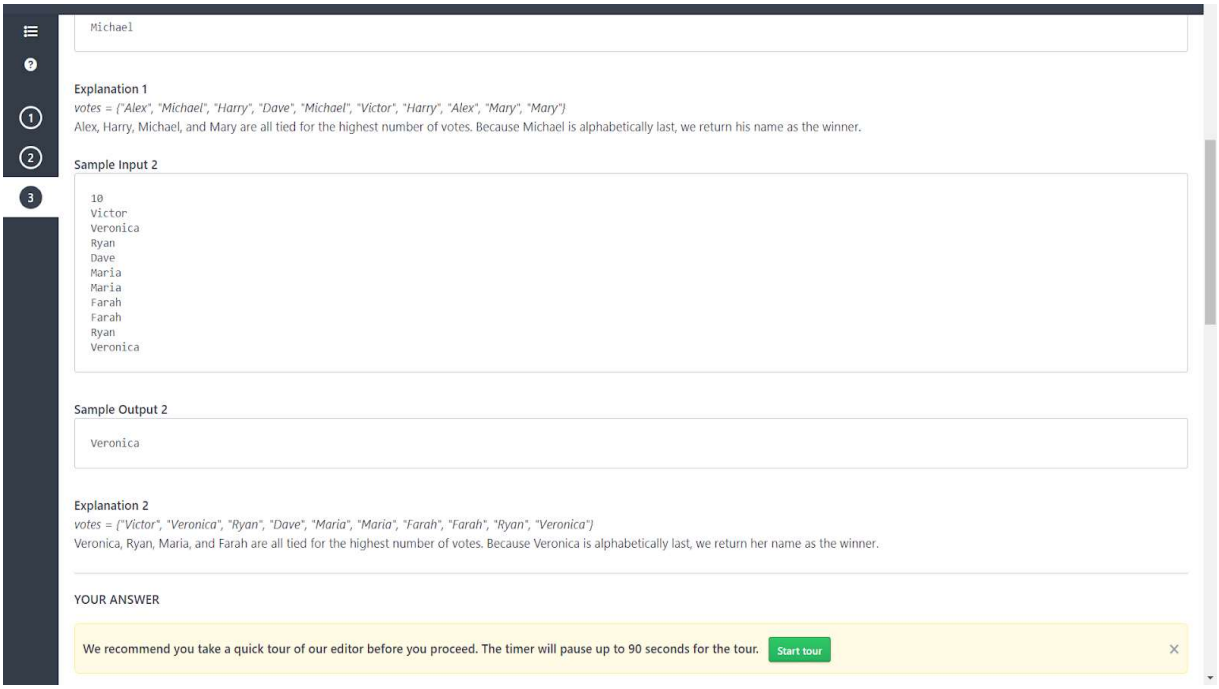
Explanation 1

votes = {"Alex", "Michael", "Harry", "Dave", "Michael", "Victor", "Harry", "Alex", "Mary", "Mary"}

Alex, Harry, Michael, and Mary are all tied for the highest number of votes. Because Michael is alphabetically last, we return his name as the winner.

Sample Input 2

```
10
Victor
Veronica
Ryan
Dave
Maria
Maria
Farah
Farah
Ryan
```



```
Michael
```

Explanation 1

votes = {"Alex", "Michael", "Harry", "Dave", "Michael", "Victor", "Harry", "Alex", "Mary", "Mary"}

Alex, Harry, Michael, and Mary are all tied for the highest number of votes. Because Michael is alphabetically last, we return his name as the winner.

Sample Input 2

```
10
Victor
Veronica
Ryan
Dave
Maria
Maria
Farah
Farah
Ryan
Veronica
```

Sample Output 2

```
Veronica
```

Explanation 2

votes = {"Victor", "Veronica", "Ryan", "Dave", "Maria", "Maria", "Farah", "Farah", "Ryan", "Veronica"}

Veronica, Ryan, Maria, and Farah are all tied for the highest number of votes. Because Veronica is alphabetically last, we return her name as the winner.

YOUR ANSWER

We recommend you take a quick tour of our editor before you proceed. The timer will pause up to 90 seconds for the tour. Start tour ×

Questions aren't clear. Does anyone have full photos?

IIT KGP (9/11/17)

Q1) Count max occurrences of distinct substrings given that it follows the following constraints:

a. It's length is in the range [minLength, maxLength] - Both given
b. It has unique characters less than a given integer maxUnique

Q2) Zombie Clusters (simple dfs) - Find number of components in the graph
Q3) Car parking question. (same as IITD)
IIT HYD (26/11/2017)

Same as IIT Kgp. Order too was exactly same.

Optiver Amsterdam

IITK

1. Quant Quest

Time series analysis on stock market data.

It was a 20 day long contest.
2 problems. http://quant-quest.auquan.com

2. Speed Test
8 minutes 80 questions
simple + - * / were asked.

Shortlisting based on quant quest performance and resume.

Speed test was to test mental calculation ability. You need to be above certain level.

When was the quant quest test ? Is this for trader or researcher ?
For both. Quant quest was an open contest held by them for two-three weeks or so, they also did shortlisting from within campus.

Did they declare the shortlist? Did they have further rounds? What were they?

Qualcomm

WERE ECE STUDENTS EVERYWHERE NOT ALLOWED FOR CS SECTION IN THE TECHNICAL PART?
(CTC??,CTC/Job Profile with details??)

IITG (ECE+EEE) 10-10-2017

3 sections 60 questions
1.section-Aptitude(20) 2.basic C input/output problems(20) 3.computer science/electronics/communication(20)
Questions in Communication was easier compared to others. Check out basic poisson distribution, sum of poisson, fourier series expansion, BPSK, Change in AM signals with change in frequency, Given eigenvalues of A find eigenvalues of inverse A, Fourier series of ramp function

IIT BHU 9-10-17

Same as IITG + eee/ece were not allowed to do the CS section in the third part.-atleast give some idea of the questions???

Please tell me all questions of input/output are based on C only or C++ also??? Mainly c :enum,structs, do check operator precedence table(many question on that) -thanku

Please Can you tell me the type of question asked in Electronic part??
555 Timer.
Given R1, R2, C values either find the duty cycle or frequency of the circuit

IITK 26-10-17

Same as above 2 IITs three sections 20 questions each 30 mins each - Aptitude, Programmings (given a pseudo code tell the output), computer science/electronics/communication.
Programming part was easy most questions were based on operators precedence table few on enum, structs etc.
Electronics part was easy too, questions were on Flip-Flops, Boolean Expression, Hexadecimal system, 555 timer (find frequency), concentration of holes given some parameters etc, Noise Margins, counters etc.

IITKGP 8-11-17

Format same as above.
Aptitude was quite tough to be done in the allotted time, large LR questions, 4 friends gave 4 books of 4 different authors to 4 of their friends. Find and decode who gave what to whom. One DI too.

C basics part had questions based on operator precedence, ternary operators, effect of comma operator, void pointers, structs

Electronics part had circuits of flipflops, and given input binary string, find output binary string. Question on shift register, 8085 instructions - RRC ,RLC, concentration of holes, finding expression of one of the input bits to convert binary to XS2, finding capacitance given L and oscillator freq in Colpitt's oscillator, finding freq of 555 timer with R1 shorted, R2 was to be calculated to find freq. Calculation intensive questions, difficult to do in 30mins

Futures First

CTC/Job Profile with details - Trainee Market Analyst (CTC - 1240000 and Base Pay - 840000)
How many members are selected and when will the results be declared?

IITG 10/10/17

General aptitude questions are asked basically you have to take care of the time as questions would be easy only time management is important and in the first section don't skip questions as it would be written 6 min for 40 questions but there would be only 12 questions and u can't go back to the previous question and similarly in the next section there would be 30 minutes test with 20 questions i guess simple aptitude and memorization based, pattern filling
Can you post few questions here for futures first? Anyone????????

-> 000^2+300^2+20^2+11
-> sqrt(ab.cd) upto two decimal places

-> Find the next number in series
-> Find the next pattern
->there were two questions, A random figure will come, question will ask to remember it and figure will disappear in around 6-7 sec. After that there will be 6-7 apti qus and then there will be questions from that figure. You have to remember that figure (it's better to write what u seen in the figure just after disappearance.) The questions will be like
->sum of the numbers present in the figure
->arrow pointing to which object
->Number of circles in that figure
->among the following which icon was not present
->which characters were present in that figure.

->some questions were of 2 marks and some were of 1 mark. Negative of ⅓ was also there for wrong answers. If u skipped question then there was no way to go back.Also number of questions remaining won't be shown.Time management is key
->advised to skip question which has 3-4 lines of english. The end questions in my set were easy. I hope it will go same. (More risk more benefit) Did you have any progress bar at the top which showed the percentage of exam completed?
->Progress bar at the top will show the % progress of the whole test...but it will not provide you the progress of the individual section. So tracking how many questions are done is impossible for individual section.

Basically the questions were like the ones asked in sof (fake olympiads :P)

CTC/Job Profile with details?? Updated on CTC detail sheet
CGPA and branch criteria? CGPA:7.0, B.tech- cse,eee,ece M.tech-cse,eee,mat

IIT BHU 13/10/17

Test consisted of 4 sections (Total 90 minutes)
Section-1 Aptitude Test- 10 questions- 15 minutes

Section-3 Language- 15 questions - 15 minutes (5 questions on each of the three languages i.e JAVA, C++, PYTHON). Attempt questions of only 2 out of the 3 languages.
Section-4 Coding- 30 minutes - 1 question (Given two array in ascending order, merge the two arrays such that the resulting array remain sorted and print the output array. Print "Invalid Input" if 1). array is not in ascending order 2.) n(size)>450 or is not an integer.
// Handle the case where n is not integer such as 56.689 or 't'
Query: How can n be not an integer? Someone please clarify the question.

- MIGHT BE THE CASE THAT THEY HAVE GIVEN THE FLOAT VALUES AND THEY WANTED THE OPERATION ON THE VALUES WHICH HAS FRACTIONAL PART EQUIVALENT TO ZERO !!!

#Section-2?? (+1)
Neg marking for mcqs???

IITG (26-10-2017)

Aptitude questions
OS, Networks, OOPS
2 languages (Java, C++, Python)
1 coding ques:
Given a string. Find the maximum length substring which forms positive sequence. And print its length too.
Question language was not clear. They actually meant to find maximum length substring, which is consecutive and increasing.
e.g : I/O 23623789
O/P 789
Neg marking for mcqs???

IITK (30-10-2017)

Aptitude - 10 q, 15 min ; Less time; skip lengthy q's
Technical- Basic Coding, OS, Networks, OOP
Same 2 language
1 coding q.

Given a no . find maximum power of 2 in difference between no and its reverse. (No need to use array. Works with int also)
Koi Soluchan daalo (int waala)
How much time is given to solve coding question?
(PLS MAKE THE QUESTION CLEAR) +3
WHATS THE RANGE OF THE INPUT?

Neg marking for mcqs???+2

IITR (30-10-2017)

Same as IITK.

IIT KGP (08-11-2017)

Same as IITK.

Mathworks India

IITG (10-10-17)

CGPA cutoff?7.5

open for Btech?? - yes

Please update what non-tech ques are asked in the offline video interview?
Questions that Mathworks is asking in their video interview :
1) What about this position interests you?
2) What about your background or experience makes you a good fit for this position?
3) Tell us about a time when you worked on multiple projects / tasks at the same time and how you handled it?
4) What is your cumulative GPA?
Profile: Associate in Engineering Development Group
Paisa: 11-14 lakh(CTC) (Monthly fixed salary: 83,333.33)

Visited IITG and held a ppt in which they told us about all the responsibilities of an engineer at Mathworks and other general info. about the company.

Now after 2-3 days we have received an e-mail from the company

Here is the body of the e-mail:
==========
Here are 3 important steps that we would like you to perform to confirm your interest in this job -

(1) This is an offline video interview (link will be active till October 15, 6 PM ONLY) where you answer a set of pre-recorded non-technical questions. Keep your webcam & microphone ready before you begin. The entire interview should only take ~15 minutes.
Click on the link below to begin your video interview:
https://mathworks.hirevue.com/openvue
(2) Complete this simple survey (link will be active till October 15, 6 PM ONLY) which will help us process your application faster. Simply click on the web page address below or copy and paste it into your web browser -
https://www.customersat3.com/e.asp?IID=xxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
(3) After successfully submitting the survey, last step is to apply to the most relevant position below (you will need to use your MathWorks Account to login).

Position Overview -
Link
https://www.mathworks.com/company/jobs/opportunities/xxxxxxxxxxxxxxxx

It is important that your resume is on our system for us to consider your candidature for our interview process.

We also encourage you to go through the below links -

Why EDG? -
http://www.mathworks.com/company/jobs/opportunities/students/infographic.html

Why MathWorks? -
http://www.mathworks.com/company/jobs/students/index.html

Mathworks Test

==========
For computer science Interview track →
90 minutes
Mandatory : 10 multiple choice on Quants and CS questions - questions were on probability, difference between structs and unions etc.
Choose any two of Java, C , C++ : each has two coding questions.

1. C: Given two numbers left, right and another number k , find maximum xor of a,b less than or equal to k such that left<= a< b<= right ;
2. C: Given two strings like abcgh and def return a resultant ⇒ adbecfgh . that is alternate characters till one string exhausts and append the remaining.
3. C++ : Implement three classes Circle, Rectangle and Square with methods to calculate area and constructors with parameters.
4. C++ : Given a number N return the number of beautiful arrangements possible with .numbers 1 to N . An arrangement is said to be beautiful if ith element is divisible by i or i is divisible by ith element. (i is 1 based index).

Choose any one of Matlab or Python : (for python a coding question was given to IITRsolve)
For Matlab : (more than one correct option)
1. A is a 4x 3 matrix, B is a 3 x 3 matrix which of the following is valid : [A B], [A ; B] , {A, B} , horzcat(A, B) , vertcat(A, B) .
2. Clear B; B(3)= 1 → what will appear on the command window.
3. A=ones(6) B= rand(6,1) C=2 → which is valid : B*A, C.*B , C*B'*A, etc.
Two more similar syntax based questions were asked.
For Core engineering track → 51 questions in total. One section on control theory, signal processing and embedded systems MCQ's , Math and aptitude section, Coding MCQs , one coding question of C,C++,JAVA . → it was to find redundancy in linked list in C++; . FInal section Matlab or python.

iManage

Profile?(??????)
CGPA criteria? Above 5

IITM - 14/10/2017

2 sections, only MCQ , No Coding
Aptitude Section - 30 Questions - 20 Minutes
Technical MCQ - 20 Questions - 30 Minutes
Had questions on ordered traversals of binary tree

Alphonso.tv

IITB

Job Profile:Technologist

CTC 30lacs+Benefits Open For : CS, ELEC
Cpi cutoff???
No CPI cutoff

Test 1: 30 questions, 75 mins
Questions were multiple correct answers type or fill in the blanks.

d

All logical problems.

IITK

One question on deadlock, one on output of c code, what is complexity of binary search. if array is almost sorted which is the best sorting algo.
Test 2: 2 Questions, 60 mins

Q1. Millions of users, thousands of servers in a server farm. What are the potential issues and some solutions?

Q2. A Question related to Synchronization (OS), for implementing FIFO queue - socket- read-write

IITD

Test 1: same as IITB
Also there was negative marking even in subjective questions In subjective questions only correct option was not sufficient.

Test2: 2 Questions 60 mins

Q1 Job sequencing problem with profits and different time required for different jobs
Q2. The client software which performs hashing for audio clips and communicate that with the server . What are the potential issues and some solutions?

JP Morgan

IITG (13 - 10 - 17)

JP Morgan visited IITG for Analyst - Quantitative Research profile and conducted ppt on 13th Oct, where they told that they will take one test in which they will test coding skills and general mathematics such as probability and stochastic calculus etc. Based on that they will shortlist people for interview. The test is scheduled for 16th October (Test now postponed). CTC- INR 2520000.00(Base salary: INR 1800000.00)
Also, it came for 2 profiles- Quantitative Research Analyst and Data Science. The test has 2 parts basically quant (which involves lot of maths, probability) and 2 coding questions. For quant role, 65-70% weightage to quant section and 30% for coding. In case of Data science, 50%-50% weightage.
Is it open for all Btech? And Is there resume shortlisting based on CGPA?
- Yes, its open for all b.tech with cgpa >=7. Yes, the resume shortlisting is based on CGPA, branch and projects.

Rest of breakdown: 40% of Base (annual variable) + 75,000 (relocation)

Guys can you post the questions of quant? Sure, After the exam.
Exam was supposed to happen on 16th right? ->(Test Postponed to unknown date) Please upload the questions _/_

Please add question _/_ _/_ _|_ :(

IIT KGP (28/10/17)

Profile : Quantitative Research
3 Sections (Platform - CoCubes)

1. Math : 60 Questions - 30 Minutes (+1 , -0.25) Marks
2. Programming MCQ : 30 Questions - 15 Minutes (+1, -0.25) Marks
3. Coding : 2 Questions - 30 Minutes (+5 Marks)

Note : Time management is very very very important. Literally, you have 30 sec for each question. Don't read lengthy questions at all (time waste). First attempt all small questions and try to attempt as many as possible as nobody can attempt all questions. It is not possible to read all the questions also.

1. Math :

Topics - Basic Math, Probability, Permutations & Combinations, Integration, Differentiation etc.
- Starting questions are lengthy, skip them and first try to solve easy questions.
- Questions are same for everyone but order is different for everyone.
- BEWARE OF NEGATIVE MARKING

2. Programming MCQ :

Topics - C, C++, No Java (OOPS, Pointers, Trees)
- Questions are same for everyone and order of questions is also same.
- Questions are like code will be given, you have to tell the output of that code.
- Most of the codes given are very lengthy (15 - 20 lines). So, first attempt those questions which have less code
- Most of the questions are in C++. No single question is in Java. So, java people at least make sure you know the syntax of C++ classes and objects.
- Be careful of pointers.

3. Coding :

- Sum of Specific nodes in a binary tree (Difficulty - Hard)
  - You are given a binary tree, a node(n) and some distance(k). Return the sum of the values of all the nodes that are at a distance of k from node n.
  - http://www.geeksforgeeks.org/print-nodes-distance-k-given-node-binary-tree/
- Relative Sorting (Difficulty - Medium)
  - You will be given two arrays (arr1, arr2). And swapping is defined as arr1[i] can be swapped only with arr2[i]. Return the minimum number of swaps required such that both the arrays should be in

strictly ascending order. Return -1 if both the arrays cannot be made in strictly ascending order with any number of swaps.

- Trimming Binary Search Tree (Difficulty - Easy)
  - Given binary search tree and a range (min,max), return the binary search tree that has the values only in this range.
  - http://www.geeksforgeeks.org/remove-bst-keys-outside-the-given-range/

- Least Common Ancestor (Difficulty - Easy)
  - A binary tree and 2 nodes are given, you have to return the least common ancestor of the given 2 nodes.
  - http://www.geeksforgeeks.org/lowest-common-ancestor-binary-tree-set-1/

IITR (31/10/17)

There were 8 MCQ's (Aptitude and DS) (3 marks each) and 2 coding questions

1. **Time of Announcement (30 Marks)**
   Find the best time during the day such that maximum people are present in the office at the time of announcement. You are given two vectors, arrival and departure of the employees.
2. **Best time to buy and sell stock (40 Marks)**
   You are supposed to return an array of 4 elements where you have to find the optimum strategy (day number at which you buy and sell) to when buy and sell stock.

Strategy #1
You can sell only after you buy
Strategy #2
You can short sell, i.e, you can sell before you buy, If both strategies doesn't work return {-1,-1,-1,-1}.

EXL Pvt Ltd

IITR (13-10-17)

Can someone also mention the CTC offered (base 8.5lpa)
CGPA cutoff? 7.271 to be exact. 200 selected out of all applied.(around 400)

Could you please provide us with questions of individual sections?

CTC- 11.2 lacs
45 min 40 question @IITR

Marking Scheme :- +1, -.25
Test is conducted on cocubes platform, one can find some mock papers of cocube available online
Questions division :- 20 quant, 10 LR, 10 English
Difficulty level: Avg and above for quant. English and LR were relatively simple
In quant, revise ratio and mixtures properly
Also questions on sum of factors, nos. of factor of given no. (see formula)
Try attempting anything above 35

IITK (25-10-17) (Consultant Profile)

CTC- 11.2 lacs
45 min 40 question
Marking Scheme :- +1, -.25
Test is conducted on cocubes platform
Questions division :- 20 quant, 10 LR, 10 English (everything same as IITR)

What about the verbal section? How was it? (could you please post the questions of verbal sections also)

Sample Questions(Quant)

1) Number of factors of 400 except 1 and 400
2) Number of numbers of 4 digit divisible by 4 from 1,2,4,5, repetition allowed.
3) Number of zeroes in 632 factorial
4) a+b+c=0 , a3+b3+c3=?
5) Hypotenuse=20, find other sides if they differ by 4.
6) There were two DI paragraphs (total 5 ques.) based on calculating percentages.
7) There are two sets each consisting of 10 different objects. How to choose objects from two sets such that you have to select at least one object from each set

Verbal Section Questions:
Comprehension based 3 questions. Don't remember the passage. Others simple fill in the blanks(use of would, have/had, prepositions and articles), one/two synonym/ antonym questions(detest-> admire).

ISRO

IITG

Open for EEE, ECE and Mechanical Dept. at IITG.
Only for BTech people
No test.
Just resume shortlist and interview.
CPI cut off 6.84.
Open.for Dual Degree? -----> No dual degree in IITG
CTC = Base Salary = 9.6 LPA
M.TECH students are allowed???? -NO

Everyone who filled the form was shortlisted for interviews which are to be held in November 1st week or so
How many were shortlisted???

// Interviews on 6th November

ECE Questions(IIT Guwahati): The level of questions increases as you start answering..they ask about our interest in joining ISRO and stuffs but it doesn't really matter much.

- Draw a transmission line
- Draw diagram of an antenna
- Difference between Analog and Digital Modualtion
- Non linear device
- Use of a non linear device in AM generation
- Type of modulation in Mobile Communication
- Draw diagram of a frequency multiplier F to 3F
- Devices in which we use Microwave
- Frequency of Microwave
- Difference between Class A , Class B, Class C amplifiers
- Which one is better and why
- Transistor as a switch
- Circuit of an EVM Machine
- Circuit of a 2-Way switch

// 4 from ECE and 4 from Mech were selected

IITK

Open for AE,ME and EE
For B. Tech and Dual degree student
No test, Resume shortlist and Interview.
What is the shortlisting criteria? Is there a CG cutoff?

IIT KGP

CG Cutoff: 8.5
ME or EE?
Mechanical cut-off 8
Question were based on basic concepts and subtleties. Be prepared to explain your project thoroughly in depth.

1. What is your masters project on?
2. I answered evaluation of material properties for graphene sheet, so he asked why do we need to do so.x
3. What are elastic constants?
4. Some inquiry into bachelors project.
5. Subject other than Solid Mechanics. I said Dynamics. First question was to write down a single DOF equation without any assumption. (md2x/dt2 + cdx/dt + kx = F(t))
6. Then plot frequency response of the system.
7. How would we measure m, k and c?

P.S. The interview only lasted about 10 minutes for each candidate. Only basic/conceptual knowledge was tested. There was only 1 interviewer. All questions on dynamics were also asked to the previous candidates

PayPal

CGPA criteria? CGPA >= 7.4

IITR

- Total test duration was 90 minute s, 10 MCQ's + 1 coding question.
- MCQ's were based on OOPS, Data structures and Java, C++.
- Platform ? **Hackerrank**

- **Coding Question**

There are n students that need to be arranged in a queue for the morning assembly. Given that queue will always start from student no. 1. There is an interaction matrix [A_{ij}], where Aij stands for the interaction between student i and j when 'j' is standing at the immediate back of 'i'. (Note: Aij and Aji need not be same). Find the optimal arrangement such that the total interaction between the students is minimum. (if the arrangement is [1,2,3], then total interaction is given by A[1,2]+A[2,3]).
Constraints: 1<= n <= 16 ; 0<= Aij <= 1000.
[Backtracking or bitmasking dp were enough]

Only check for the minimum sum of all interactions, if the interaction sum of the current queue is greater, no need to check further. Stop backtracking of that permutation. Try the question once, it's easy.
Won't it exceed time limit? 16! Permutations max to check. Or when we backtrack it executes within given time limits? The test cases were weak. Even the least optimal solution using DFS cleared 6 out of 10 test cases.

```
// Simple backtrack
// There could be some minor mistakes, as I have not tried writing the actual code.
Int ans = MAX
recurse(int idx, int mask, int currans){
        if(idx == 0 && mask == 0) ans = min(currans, ans), return;
        if(currans > ans) return;
        for(int i = n-1 to 0){
                if(mask & (1<<i))
         {
                        recurse(i, mask^(1 << i),currans + (idx==-1)?0:A[idx][i] )
                 }
         }
        return;
 }

 main(){
        recurse(-1, (1<<n) - 1, 0);
 }
```

Do we have to print the arrangement also ? No
All test cases passed using backtracking? YES

// Alternate Solution (All cases are passing)
Use Bitmask DP
Make 2d array: dp[mask][i]:
represents the minimum cost of this mask(binary number) when the person at front is the ith person. Mask will be a number with bits set that represent the corresponding person in the current solution.

E.g. mask = 0001011 i.e. only 1st, 2nd and 4th person are present in the current solution

Dp[mask][i] = min{ Dp[mask][i], Dp[mask_after_removing_ith_bit][j] + interaction[i][j] }

Can we do it using greedy approach? Maintain an array arr[n] where arr[i]=true indicates i is already in queue. Let's say we have a queue of i students and we need to (i+1)th student , then we need to find min(summation over j, A[i][j]+A[j][i] and arr[j]==false). (No, I tried it but was not giving ac for all test cases).

IIT(BHU) 17 oct

Given a set of nonnegative distinct integers, and a value K, find out number of subsets of the given set with sum divisible by K using exactly M integer elements of array.

It can be done using 3 state dp.I
dp[i][j][k] = number of subset till i index using j number of elements in current subset and k as current modulo.

```
long solve (int i,int j,int k)
{
	if(j==M)
		return k==0;
	if(i==n)
		return 0;
	if(dp[i][j][k
]!=-1)
		return dp[i][j][k];	return dp[i][j][k] = solve(i+1,j,k) + solve(i+1,j+1,(k+a[i])%K);
}
```

IIT Bombay

Total 10 MCQ

1. Number of colors required to color planar graph
2. https://www.completegate.com/askus/157/question-on-circular-queue

1 question in SQL
3 more questions on C++/Programming

Given three arrays, a, l, r. Array a contains integers. Array l and r contains left and right boundary. For each element from l[i] to r[i] in array a , calculate result[i], where result[i] = Sum of distinct prime divisors of all elements in a (From l[i] to r[i].)
Ex
A = [2, 3,10 , 5,6]
L = [1,2]
R = [2,3]
For first test case L= 1, R = 2, So result[1] = 1+1 = 2 (Number of unique prime factor for 2 = 1, for 3 = 1)
For second part, L = 2, R = 3, so result[2] = 2+1= 3 (Number of unique prime factor for 10 = 2, for 5 = 1)
Doubt: for second part, shouldnt it be sum of no. of unique prime factors for 3 and 10? Can u explain it clearly?
+1

IIT KGP (02/11/17)

Set 1:

1) 10 MCQ: (10 Marks)
   a) DFS complexity - using Adjacency Matrix vs Adjacency List
   b) Arraylist vs Vector - Java
   c) malloc in C/C++ - Where and when is it called?
   d) 2 questions based on classes/constructors where you had to predict output (Easy)
2) CODING: (Hackerrank) (75 Marks)
Given a vector of elements arr[n] and an integer x, return the total number of subarrays having x as its maximum element
Eg: arr: {1,2,3,4} and x = 4, return 4 ({4},{3,4},{2,3,4},{1,2,3,4})
1<n<10^5, 1 <= a[i] = 10^5 … so give O(n) solution.

was x guaranteed to be unique in array a?

You can use the concept of this question. https://stackoverflow.com/questions/45645728/given-an-array-find-the-number-of-sub-arrays-with-m-odd-numbers

HSBC Analyst

IITM (Platform)

(cgpa cutoff for test??+5 >=7)(ctc? 14lpa) Coding which language?

Exam had 6 Sections
Each had individual time limit
First one was aptitude which had around 20 questions (Please specify the major topics)
Second was Verbal and Logical Reasoning
Third one was English
Fourth one was Coding round. They stressed on perfect code which passed all test cases**(plz elaborate regarding questions: Everyone had different questions, they were simple though if you are preparing for coding companies)**
The fifth one was round based on Mathematics.It had questions of JEE level in probability,limits etc..**(plz specify topic? Definite Integral, Differentiability as well? Yeah basics of them and kinds)**
Last one was like a psychometric round where a problem was given and we had to choose best and worst possible answers.

Everyone had a different paper, time was not an issue but needed to be accurate.

IITk
AMCAT test,prepare for math section that is tough-two simple program like prime no, question on matrix mult. , string. , remove duplicates from arrays

Was there any cgpa criteria in IIT K? I guess not

Can we use stl here?? No
For KGP it was allowed

IIT Kgp
Platform : AMCAT
Total Time : 2.5 Hrs(Approx)
Sections:
1.Logical->14 Ques->14Min
(Basic Apti,OddmanOut, what's next in the given series)

2.English Comprehension ->22 Ques->18Min
(reading Comprehensions, Antonyms, Synonyms, Grammatically wrong identifications, replacing the italic with most suited from the options)

3.Coding -> 2 Ques -> 60Min (STL was allowed) (C,C++,Java were the only allowed languages, No Python) (Different Sets- 2 to 3 sets I guess)
(Very simple simple questions are given)
(1. Given two arrays of different length,we need to find the count of distinct elements in both the arrays)
(2. For the given integer need to print the pattern in the form of trapezium)
Ques: http://qa.geeksforgeeks.org/6283/program-print-trapezium-pattern-numbers-stars-and-hyphens

4. Engg Mathematics -> 20 Ques -> 30Min
(Applied Mathematics, Calculus, Prob, Descriptive Stats) look into positively,negatively skewed data there were some 2-3 ques on this, Prob- Baye's theorem, Area between the curve and the line, Questions on Compound Interest and Simple Interest, maxima and minima from differentiation
5. Workplace Competency Test -> 14Ques -> 30 Min

Mercari

(cgpa cutoff for test How much?) NO
Platform? Anyone? IITB, IITR, IITD guys?

IITB(15/10/17)

Two very easy online coding questions in 1 hour. Each candidate got a different set of questions. (what were some of the questions ??)(Which platform?)(Which language?)

Add two numbers given in base (-2).
Number of subarrays of length 3 , which are AP.

Given a string, consisting of digits, spaces or dashes(-), convert the string into block of numbers such that there is a dash after every 3rd digit. Space has to be removed. If the last block has just one digit, modify it, such that last and 2ndlast block consists of 2-2 digits.
Ex: 203 984- 940- -> 203-984-940
203 984- 9 -> 203-98-49

IIT Roorkee

Q 1. Given top face of n dices find the minimum no. of steps so that each dice has same value. Value of n ranges from 1-100 Solution??? Just check the no.of steps to set all the dices to the same face for face = {1,2,3,4,5,6}. This will be of O(6 * n) times. Accepted solution.

Q 2. For an array a, k is defined as 2^a[0]+2^a[1]+...+2^a[n-1]. Find set bits in 3*k. Length of array 1-10000. Value of a[i] ranges from 0-1,000,000,000. O(1) space complexity. O(n) time complexity. Number of 1's in the binary representation of 3*k?? Solution????

```
Int no_of_1s=0;
For(int i=0;i<N;i++){

k=pow(2,A[i])
}
a=3*k;
while(a>0)
{
rem=a%2;
if(rem==1)
No_of_1s++;
a=a/2;
}
Return No_of_1s;
```

Another

^^ This solution will fail when a[i] is large. The limits of a[i] are given to be 0 <= a[i] <= 1,000,000,000.
A[i] directly says which bits is being set to 1 in K. so all you need to do is add binary 1 and a carry (if any) at A[i]th position and forward the carry. Checks are to be placed for consecutive 1s in K.

Another solution can be like this sort the array then we will know the set bits positions .(r to power a[i] representing at which position bit is set).
So for k we can know the set bits position using above .
Now multiplying with 3 with k means =3*K=2K+K.
That means addition of k with one left shifted of itself that you have to add 1 in all elements in array.
Now compare this array with old array(actually doing this for addition of 2k+k)
So whenever there is same element .don't count this element and its neighbouring elements.
Cont only for different elements
At the end return count.

IIT Delhi

- Everyone had different questions

1.(Simple brute force) given an array with 4*n size mentioning temperatures of the days from 1 to 4n. Day 1 to day n is season 1 , day n+1 to 2n is season 2 …… 3n+1 to 4n is season 4 . answer the season with maximum temperature amplitude.

2. Given a 2d matrix (chess) with 0 entries as places where you can visit and 1 as places where there are obstacles. A Knight Start with 0,0 nd answer the minimum number of steps to reach at n,n.

IIT KGP - Different sets

1. Given a set of N points, find the number of vertices in the convex hull of the given points
2. Easy question on string manipulation

Capital One

Test on 24th OCT '17

Is there a change in pattern/type of questions, as compared to last year's?
Query : post the last year pattern please(Last year it was Data Interpretation and nothing else, if you can calculate percentages correctly for 35 questions, you would be in) 35 questions in 30min all DI --
Is this pattern followed for ML profile too??
Which areas to prepare for Machine Learning profile???
Is the pattern same for both ML and Analyst profile??

Same for both ML and Analytics Profile

35 mins 10 questions DI, 20 questions Logic and Math. Slot 1 in IIT B

For last years ques, please refer the docs posted in the Pinned post of our FB group.(Has this been updated yet , Couldn't see any link regarding this)
Where?
Last Year Docs = (Kindly read pinned post completely)

IIT KGP(23/10)

ML Profile: 26 Questions, 30 Marks, 35 Mins
Two Sections: 1. Data Interpretation 2. Reasoning + General Maths
Each section has individual cutoff so it's important to attempt each of them.
Section 1 - 3 parts: 1. Pie-chart, 2. Line charts 3. Bar graphs
Section 2 -Quant
(Time management is very very important,it makes all the difference,dont waste much time on single question)

Same Question Paper for both ML and Analyst Profiles.
Section A(DI) had 10 questions, section B (LR+Quant) 16 questions.

DI was fairly simple, Quant was slightly difficult considering the time per question.

IIT Delhi

Some quant questions.
-Number of triangles that can be formed using the corners of 11 sided polygon ,with the formed triangle having no side overlapping with that of polygon.
-Some bayes theorem questions.
-Minimum number of arithmetic operations required to solve f(x) with only 1 variable f(x) = X^3 + 4X^2 … (something like this)

SAP LABS

IITG (20/10/17)

Topics:
33 Questions in 75 minutes. (Coding involved DP and graph, and others questions were time taking.)
Too tough to compete in the given time frame. One question on modified DFS/BFS..one question on DP. No STLs allowed.
Quantitative Aptitude (10) [percentage, Data interpretation]
Logical Reasoning (10) [Coding & Decoding, Series, visual reasoning]
Guesstimates (1) (Single question, Around 14 statements were there from which you have to infer the result.)
Computer Knowledge (10) [SDLC={Vmodel, horizontal, vertical model}]
Coding questions (2) [Didn't attempt, no ques repetition]

1. You have to count the no. of nodes in a tree. Where each node is having a value 'v' assigned to it. Each node will have a maximum of (v*v+1) % M child, with value assigned from 0 to (v*v+1)%M - 1. The value of root node is=2.

Input : No. of levels, value of M.
Output : No. of nodes in tree.

[Practice DP & graph].
I can think of O(v*levels*M) DP? Anything better.
Solution??
Wasn't there questions from OS, Networks, DBMS?-->os, 1 dbms. NO
On which platform was the coding test conducted? Sap labs is premium subscriber of mettl platform.
Check queries page for all issues by mettl. Practice once in mettl. (Worst platform ever) -(check tricky part of IIT Bhu sap labs)
I don't remember seeing python. (**Python was available**)
Do well, all the best :)

IIT BHU

Other parts were same as above

Coding part:

1. Given a tree,in which we have to calculate value of node, which is defined as r_val_currNode - l_val_currNode + value left subtree, where each l_val and r_val are given for each node. Root node was not given, we had to construct tree from given inorder and preorder traversal array. Then perform the required calculation.

2. Simple BFS based question: Given a 10x10 binary matrix, where each row defined a state, binary 1 in (i,j) means we can jump from i'th state to j'th state.Find minimum number of steps needed to go from one state to another.

Tricky part: The platform sucked in coding part.Read only part of 1st question was wrong,hence was just waste of time for those who attempted it.

And in addition to this there was some problem with Java editor,so Java guys didn't solve any coding question. >True that

Both the problems were correct and solvable.

IIT KGP (21/10/17)

75 min, Mettl Platform
Quant - 10 Questions
LR - 10
Guesstimate - 1
Computer Knowledge - 10
Coding - 2

Level of Toughness (Informal) : Lag gayi bhai. Phatt gayi, literally!(True)
Arey bhai bhai bhai bhai

Level of Toughness (Relative):
Coding>Computer Knowledge > LR > Quant ~ Guesstimate

Coding Questions:

1. Given inorder traversal, level order traversal of a binary tree and number of nodes, you have to find out the minimum height of the tree.(Did you construct the tree here ?) - you dont need to, send in recursion parts of arrays which are subtrees.
2. Given the number of rows and columns of a binary matrix, find number of perfect matrixes possible, a perfect matrix is defined as, if a binary matrix can be converted into all 1's on any number of steps. In one step you can tap on any block then the values of all elements in same row and column of that block flips.(Are we suppose to count no. of ways to convert matrix to all 1's ??) No , we have to count how many matrix have solution.(all possible combination of 0 and 1 to construct a matrix with given no. of rows and column which are perfect)

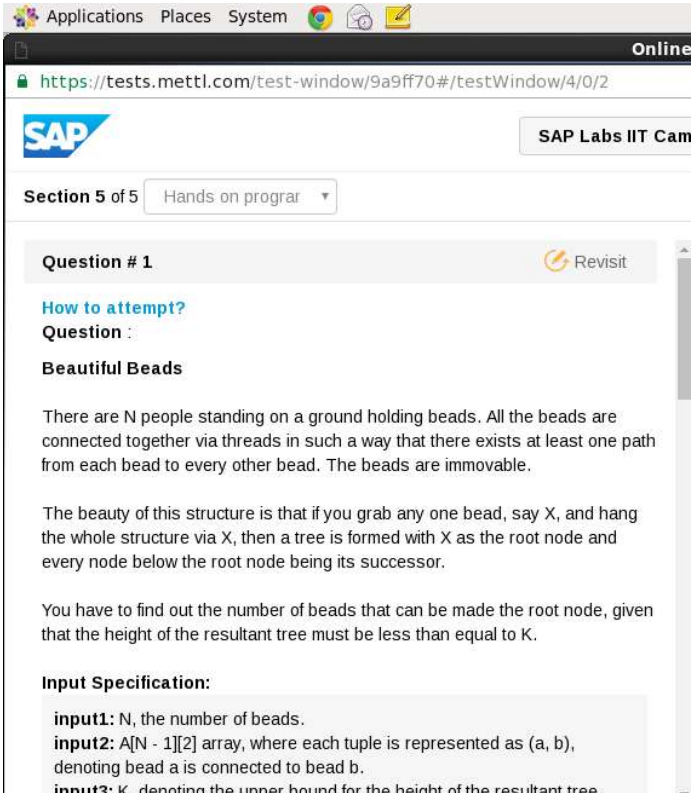
(How to do this^)

Note : You can use stl(Dude editing was not possible outside the function). I have edited the header files. You can add your own functions, header files as required.(i added) Nowhere it is mentioned that u cannot use stl. The header files are outside the read-only section of the code. So u can edit the header files.(True)

IIT Kanpur(21-10)

75 min, Mettl Platform
Quant - 10 Questions
LR - 10
Guesstimate - 1
Computer Knowledge - 10
Coding - 2

Coding:



MICROSOFT : IDC // anyone completed group fly round in microsoft?

Guys can you post the questions of quant? Sure, After the exam.
Exam was supposed to happen on 16th right? ->(Test Postponed to unknown date) Please upload the questions _/_

IITM

There were different set of Papers.Platform Cocubes.Time 70mins 3 Questions

- Simple problem on String Manipulation(If string has A in ith position and E in i+2th position remove the i+1th character in string and return the reduced string)
  - - expected output for AAEE? Ambiguity :D
  - Shouldn't it be AE?(maybe replace blocks of Es with one E and then operate)
- http://www.geeksforgeeks.org/dynamic-programming-set-13-cutting-a-rod/
- http://www.geeksforgeeks.org/count-distinct-subsequences/
- Given a number, find max prime factor of it.

Any constraints? Does sieve work? Yes sieve works.

- Given a Binary Tree , nodes having weights , find maximum path in it

(how to solve this ? soln)
https://leetcode.com/problems/binary-tree-maximuSearch
m-path-sum/description/

- Sol: http://www.geeksforgeeks.org/find-maximum-path-sum-in-a-binary-tree/

#was java allowed in microsoft test?
Yes --> java, c++, c#Search
#was STL allowed in microsoft test?: YES
Collections in java were allowed : YES
#was python allowed in microsoft test?: NO
C, C++, C#, Java

Q. 4th question had just one number or N queries?
Q. In 1st question do we have to check it recursively after deleting the character?
Q. In 4th problem are they expecting pollard rho? Or simple bruteforce / with without sieve? - Don't think sor , Sieve Worked
Q. Test contains only coding questions or aptitude is also in test ?

There are 2 tests of 2 different profiles. One for Data Scientist, another for Software Engineer. Please post the test questions asked separately for each profile. How were the 2 tests different? (+1)

Q.What is the syllabus for aptitude written test(Quant or CS subject(including data science ,linux)) ?

IITR

- Question number 1,2, 3 and 5 same as IITM.
- http://www.geeksforgeeks.org/level-order-traversal-in-spiral-form/
- http://www.geeksforgeeks.org/diameter-tree-using-dfs/
- http://www.geeksforgeeks.org/given-a-number-find-next-smallest-palindrome-larger-than-this-number/
- http://www.geeksforgeeks.org/dynamic-programming-set-18-word-wrap/
- Largest prime factor of a number
- Rod cutting to maximize profit
- Max path sum in a binary tree

IITB

There were different set of Papers.
Platform Cocubes - **BEWARE don't change tabs, (they monitor your tab activity, many people who opened tabs were asked to leave.**,
Time 70mins 3 Questions

- Last Digit in Factorial

- www.geeksforgeeks.org/last-non-zero-digit-factorial/
- Rod-Cutting
  - www.geeksforgeeks.org/dynamic-programming-set-13-cutting-a-rod/
  - DP Solution only works
- Maximum expression in a string with numbers and "*" and "+"
  - www.geeksforgeeks.org/minimum-maximum-values-expression/
- Maximum sum path
  - http://www.geeksforgeeks.org/maximum-path-sum-matrix/
- Count distinct subsequences
  - http://www.geeksforgeeks.org/count-distinct-subsequences/

IIT Kanpur (24/10):

IDC / Redmond - 70 minute coding round on Cocubes platform.
There is compiler on the platform, but the test cases seemed very weak. It is recommended that after solving and seeing that you have passed all system tests, you try to make sure your algorithm covers all edge cases. Also note that the **cocubes ide sucks**. You cannot enter a custom test case. Java compilation was taking too long. C++ recommended for compiling and testing quickly.

3 questions, one easy, two medium from the following pool :

- Given a string, remove characters that have a preceding 'A'/'a' and a succeeding 'E'/'e' Do we have to perform this operation recursively/repeatedly?
- Find the missing term in a AP sequence O(n) or O(logn) required?- it can be done in logn
- Find last non-zero digit of n!
- Given a tree, find number of subtrees with diameter = k (solution?) - recursively compute max height of left and right children and use this.
- Max sum path
- Given an array of bushes containing strawberries, you can pick all the strawberries from bushes, except you can't pick from consecutive bushes. What is the maximum amount of strawberries that can be picked (within limit maxlim). If not possible, return 0
- Max value of expression containing '+', '-'
- Max value of expression containing '+', '*'
- Start from any point in first row of matrix, you can only go downwards and move left/right at most one unit (from a[i][j] -> a[i+1][j], a[i+1][j-1], a[i+1][j+1]). What is maximum reward possible
- Some question of employees needed in each month, cost of hiring employees, and cost of firing employees - find min cost hiring policy

(Can someone post how to solve it ?)

The questions will repeat with very high probability, so make sure you revise all these questions before going to the round. They have a common set of questions which are asked everywhere. Also, they use C style arrays (not strings or vectors), that could be annoying. **Yes It was -_- (+1)**

Data Scientist / ML Role - 60 minute aptitude test on Cocubes platform

~50 questions, 3 sections. First section had ~20 questions, +1/-0.25. Second section had ~15 questions, +2/-0.5. Third section had ~15 questions, +3/-0.75

Questions in first section mostly focussed on basic probability distributions (properties of normal, t-distribution), calculate entropy of a set, and some basic machine learning related questions.
Second and third section focussed on machine learning more, questions like what terms mean in soft margin SVM, whether K-means is deterministic, etc.

Points to note :

- A good fraction of questions were around graphical models. Which of the following (junction tree, message passing) is an algorithm, what is kalman filter, stuff about conditional random field (definition only), markov random field etc.

- Most ML questions will be of the form : Which of the following is true, which of the following is false, in such a scenario what is best algorithm. The questions will be straightforward if you know the material.
- Numericals - focus on probability basics only. Stuff like how to compute maximum of n random variables etc.
- Time will be sufficient, if anything it will only be lack of knowledge that stops you. It is like a GATE exam based on probability, linear algebra, statistics, and machine learning.

IITG (23/10/17)

Same pool of questions as IITK

- Last non zero (from right) digit of the Factorial of a big number.
- Diameter of tree
- Maximum sum path in a tree
- Maximum sum path in a matrix
- Given an array of size n with given capacities of items in it, a robot with maximum capacity max has to pick nearest number of items less than max while also it cannot pick items from consecutive positions in array. Return max num of items it can pick.

CAN SOMEONE PLEASE EXPLAIN THE QUESTION PROPERLY?
Any link for this question or/and solution?
Did O(n^2) solution work? Yeah(My DP solution worked just fine)
Can you explain your DP soln??

- http://www.geeksforgeeks.org/minimum-maximum-values-expression/
- An array consists of number of employees required for each month. 'Hire' is the cost of hiring an employee and 'serv' is the cost of removing an employee and 'sal' is monthly salary. What is the minimum possible total cost for the 'n' months.

Example:
14 10 11
Hire = 8;
Sal = 10;
Serv = 5;
Sol:
First month Hire 14 employees and next month fire 3. - (1)
Or First month Hire 14 and next month fire 4 and last month hire 1. -(2)
Equation (1) will lead to min cost to company after 3 months.

Question unclear. Link appreciated.

IIT KGP (27/10/17)

See all the questions asked in different IITs before the exam. Poora same question hai bhai! Literally same paper.

All are repeated questions from above list.

- Largest Prime factor of a number
- Maximum Value of an expression
- Cutting Rod Problem
- Distinct Subsequences
- Missing number in AP
- Last non-zero digit in n factorial
- Strawberry Problem (Solution??)

Sol: modify knapsack. k[i][w]=max(k[***i-2***][w-arr[i-1],k[i-1][w]) sort of stuff.

- Company Hiring Problem: An array consists of number of employees required for each month. 'Hire' is the cost of hiring an employee and 'serv' is the cost of removing an employee and 'sal' is the cost of retaining an employee for a month.Cost for each month will be (no_hires * hire + no_fired * serv + no_retain * sal) Given, the requirement for any month will strictly lie between 1 and 41. What is the minimum possible total cost for the 'n' months. Modified KnapSack problem. Brute Force solution is also accepted in the test.

- Maximum expression in a string with numbers and "*" and "+".
- Maximum path sum in matrix
- M.L. problems- type of error based on ROC

Backpropagation algorithm, different types of error function, some probability questions and some algebra. Svm and KNN based question based on their boundary shape with varying input data.

IITH - 25.11.2017

Same pool of questions as mentioned above.

Next Education

IIT D

1. Format -- 20 objectives (puzzles, output of code) , 2 design questions(subjective), 3 programming quesions.

2. Platform -- HackerEarth , Time -- 1 hour 30 minutes

3. Questions--
a) Estimate number of school teachers in Delhi.
b) Design an app to track school buses . Explain Client Server model for this application. Functionality and technical details something like that.
c) Given N numbers from 1 to N. you have to change sign of exactly floor(N/2) elements such that the resulting sum of whole array should be 0.
Sol-- N*(N+1) should be divisible by 4.

d) Longest non decreasing subsequence for a given array.(note since it's non decreasing elements can be repeated).
Note--- O(N^2) solution results in TLE. so use segment or BIT tree. You can also use Dp.

e) Given N consecutive buildings find maximum amount of water which can be filled between two buildings. Suppose if buildings i and j are selected then all in between buildings will be removed. I.e amount of water will be min(h[i],h[j]) * distance between them. Ex. 2 3 4 (select 1st and last building. Distance between them is 1 so ans is 2).
Note -- O(N^2) solution results in TLE. so for every index **i** find the farthest right and left index such that value as those index is greater than value at index **i (can be calculated in nlog(n) using binary search and two array Lmax and Rmax where Lmax[i] = max(h[0] …. h[i-1]) and Rmax[i] = max(h[i+1], … h[n-1]).** Then try to fill water between i and those farthest index**es.**
http://www.geeksforgeeks.org/trapping-rain-water/
Can New tab be opened during the test?yes

Societe Generale

IITD - 24/10/17

Sections - Aptitude,Software Testing questions,English, Java/C# Questions
Time - 70 min
Aptitude - Was moderate **Topics? Is it Quant or LR? Or general Aptitude?**
Quant - Level >=medium,English-Easy,Software Engineering-Testing and Models-Medium
Revise Oops concept .

No coding questions? No
Can you list some questions?
Question on software development, types of model (eg. waterfall model), types of testing (eg. unit testing, integration testing etc) and related.
Platform ?

IS THERE ANY CG CRITERIA IN SHORTLISTING FOR SOCIETE GENERALE??6.00
Topics of aptitude questions ? anyone ?

IITB 24 November

Exactly similar to IITD

RAZORPAY

IITM

10MCQ + 3 Coding Questions
MCQ were covering one question from each of oops dbms networks os aptitude dsa etc..
1)Chef loves lucky numbers. Everybody knows that lucky numbers are positive integers whose decimal representation contains only the lucky digits 4 and 7. For example, numbers 47, 744, 4 are lucky and 5, 17, 467 are not.Find number of changes which needs to be made to a integer to convert it to a lucky number
2) Problem based on 2variable array sorting.
3)A number is lucky number if it contains only digits <5 and all are in ascending order. Find number of such lucky numbers till given n. N can be upto 10^18 (Expected Complexity?)

Stl allowed?

IITR

10MCQ + 3 Coding Questions

1)Chef loves lucky numbers. Everybody knows that lucky numbers are positive integers whose decimal representation contains only the lucky digits 4 and 7. For example, numbers 47, 744, 4 are lucky and 5, 17, 467 are not.Find number of changes which needs to be made to a integer to convert it to a lucky number (Same as iitm)
2) http://www.spoj.com/problems/RATING/
3) Question on basic dp QUESTION??

Saavn

CTC ?

IITB

1hr - hackerank
http://www.geeksforgeeks.org/minimum-number-of-manipulations-required-to-make-two-strings-anagram-without-deletion-of-character/

http://qa.geeksforgeeks.org/2038/count-number-of-power-numbers-in-the-given-range

http://www.geeksforgeeks.org/element-1st-array-count-elements-less-equal-2nd-array/

4 MCQ questions -
Data struct for Level order traversal
Complexity of a code given
Complexity of DFS
Which algo doesn't need backtracking - Knapsack , tower of hanoi, n queen etc

Tesco

IIT BHU

Hackerrank platform, 60 mins, 2 coding questions
1) Simple question based on stack, some application of next number larger than current
2) String question: Lexicographically smallest substring that starts with a vowel and ends with a consonant. n^2 solution passed 8/10 test cases Test case? What if the string is abc?ab or ac? In case of substring only contiguous seq should be considered . ab is anyway lexicographically smaller than ac . for test case efgach, the answer should be ach ??
For efgach, why not 'ac'?
(Length vs Lexicographic order, which one should be prioritized?)
Length doesn't matter
Solution??(+1) https://ideone.com/n2rJDf

Any one from IIT BHU can clarify the1st Q. properly??
An application of this
http://www.geeksforgeeks.org/next-greater-element/

What was the cpi cutoff?anyone??

IIT Hyderabad (26/10/2017)

Hackerrank platform, 90 mins, 2 coding questions
1) Given a number N, write a function to express N as sum of two or more consecutive positive numbers.
http://www.geeksforgeeks.org/express-number-sum-consecutive-numbers/
2) Tom and Jerry in a maze https://www.careercup.com/question?id=5749266532270080
Tom & Jerry problem - If someone has solved this, please share in gfg ide.

IITG (30/10/2017)

(IITG Friends, kindly rephrase and improve the ques) Better? Thanks bro :)

1) Given an array which may have duplicates, you have to make the array unique by increasing the numbers such that their sum is minimum.
Eg:
For, arr = {2, 2, 4, 5} arr[1] is not unique. Make arr[1]=3 to get min sum, which is 14.(what if arr[1]=1, isn't sum still less?) {when a duplicate no comes you will increment it until you find a unique no so arr[1]!=1 its is 3}
For, arr = {1, 5, 6, 5, 6}. The unique arr for minimum sum would be {1, 5, 6, 7, 8}. Therefore, the sum would then be 1+5+6+7+8 = 27.
(o(n)) ? can we apply union find algo ?
NLOGN complexity http://ide.geeksforgeeks.org/Parh93
https://ideone.com/B6RsON
2) Given a string "acdapmpomp", find two palindromic subsequence, such that the product of length of the two subsequence is maximum and the two subsequence should not overlap.
Suppose, 1st subsequence (start, end) = [1, 6], 2nd subsequence = [3, 8] ==>overlap
"acdapmpomp" = "aca"(3) multiply "pmpmp"(5) ⇒ 15(answer)

http://ide.geeksforgeeks.org/48KvCs

IITR (30/10/2017)

1. Find all the unique pairs (a_i , a_j) in an array such that sum is k (i ≠ j). Also (a_i , a_j) & (a_j , a_i) are considered as same pair.
Can be solved simply using map
2. Given a string, 3 operations are allowed
   a. Remove zero or more elements from left
   b. Remove zero or more elements from right
   c. Remove zero or more elements from left and Remove zero or more elements from right

Find all the unique substrings possible.
(Take care of time complexity)
//Suffix array passed all test cases

IIT Delhi

2 questions, 90minutes

1. Given an adjacency matrix of 0's and 1's (symmetric matrix). Calculate number of connected components in the graph. (some zombie story was written but it meant exactly the same).
2. A string was given. Find number of substrings which are adorable. An adorable substring is one which follows following rule:
   - It should start with an alphabet('a' to 'z')
   - Next, it may have zero more english alphabets, numbers(0-9) or colon(:).
   - Next, it should have one forward slash
   - Next it should have one or more alphabet or numbers
   - Next, it should have one backward slash
   - Finally it should have one or more alphabets at the end.

Fidelity

IITG

What is the cpi cut off?6

CTC??? 11LPA

Coding qs??
Fixed order(1-32 in 45 mins , 33rd in 30 mins , 34th in 15 mins)
Test done on HirePro
2 coding questions(easy)(one question 30 minutes other 15 minutes)(10 test cases each)
Coding questions????**+3**
Can you please mention the coding questions ???
Platform for coding Q.???
32 MCQs in 45 minutes(quants , basic english , C/C++ programming , one question on scheduling , one on DNS servers, 2 Comprehensions)
No negative marking

TEXAS INSTRUMENTS

IITD

There were 3 profiles, Software Engineer, Hardware Engineer, and Software & Hardware Engineer. You were allowed to take the test for only one profile. I applied for Software Engineer.

Test duration: 1.5 Hours
Total Questions: 20
10 apti (Basic time, work and distance questions, find the missing term in series, odd one out, Permutation Combination, Mixtures)
10 Technical (basic C++ DS and OS (Round robin scheduling, tlb hit-miss time), sieve output)
There was enough time for the test and level of questions was average.
Analog - Questions based on RC circuits, Op-amps
Digital- Even Parity Generator, Self Complementing Codes, Encoders, R-2R DAC
(HARDWARE QUESTIONS PLEASE?) +1
LEVEL OF HARDWARE QUESTIONS ????????

IIT KGP

Analog: 20Q 45min
Digital: 20Q 45min
Aptitude: 20Q 30min

Profiles : Analog Engineer, Digital Engineer

Analog: pretty much everything on BJT, RLC circuits (3dB bandwidth, cutoff frequency, quality factor), MOS(region of operation), OpAmp (non-ideal)
Digital: verilog, boolean logics, hazards, assertion reasoning type questions about correctness of given circuit, possible 5 variable Kmap grouping using new technique
Aptitude: simple math

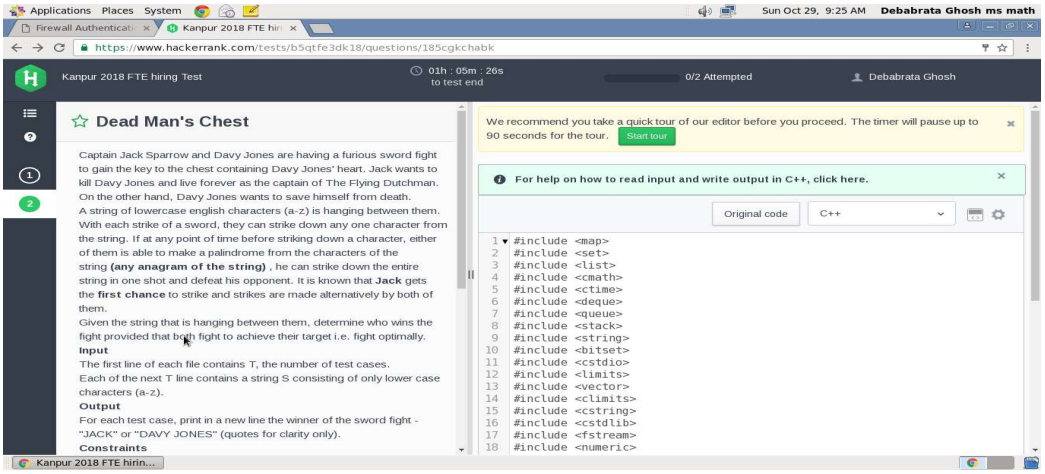
Difficulty: Digital > Analog >> Aptitude

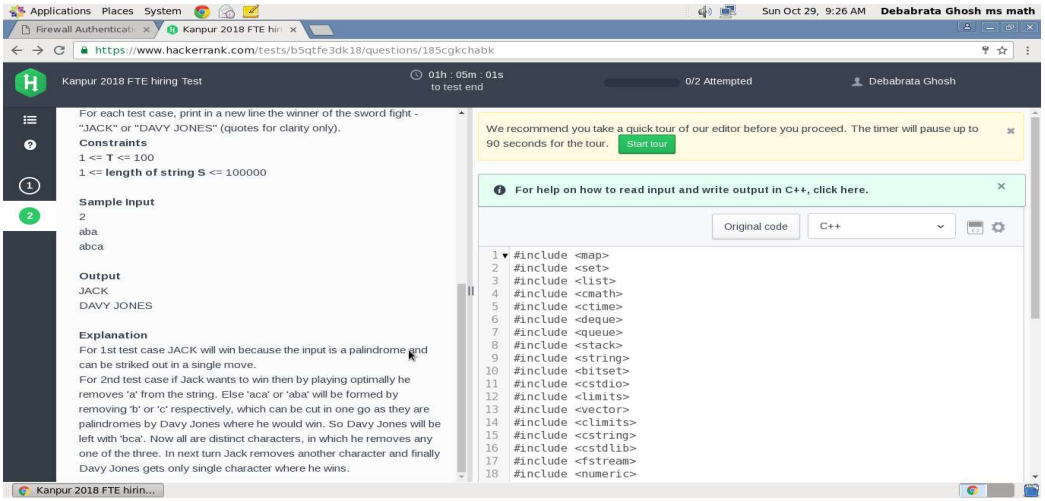
Nutanix

IITK & IITG(same) 29-10

2 Coding Questions
75 Minutes

Somebody post Questions(just the rough idea would do), please.


Applications Places System
Sun Oct 29, 9:25 AM Debabrata Ghosh ms math
https://www.hackerrank.com/tests/b5qtfe3dk18/questions/185cgkchabk
Kanpur 2018 FTE hiring Test
01h : 05m : 26s
to test end
0/2 Attempted
Debabrata Ghosh
Dead Man's Chest
Captain Jack Sparrow and Davy Jones are having a furious sword fight to gain the key to the chest containing Davy Jones' heart. Jack wants to kill Davy Jones and live forever as the captain of The Flying Dutchman. On the other hand, Davy Jones wants to save himself from death.
A string of lowercase english characters (a-z) is hanging between them. With each strike of a sword, they can strike down any one character from the string. If at any point of time before striking down a character, either of them is able to make a palindrome from the characters of the string (any anagram of the string) , he can strike down the entire string in one shot and defeat his opponent. It is known that Jack gets the first chance to strike and strikes are made alternatively by both of them.
Given the string that is hanging between them, determine who wins the fight provided that both fight to achieve their target i.e. fight optimally.
Input
The first line of each file contains T, the number of test cases.
Each of the next T line contains a string S consisting of only lower case characters (a-z).
Output
For each test case, print in a new line the winner of the sword fight - "JACK" or "DAVY JONES" (quotes for clarity only).
Constraints
We recommend you take a quick tour of our editor before you proceed. The timer will pause up to 90 seconds for the tour.
Start tour
For help on how to read input and write output in C++, click here.
Original code
C++
#include <map>
#include <set>
#include <list>
#include <cmath>
#include <ctime>
#include <deque>
#include <queue>
#include <stack>
#include <string>
#include <bitset>
#include <cstdio>
#include <limits>
#include <vector>
#include <climits>
#include <cstring>
#include <cstdlib>
#include <fstream>
#include <numeric>
Kanpur 2018 FTE hirin...


Applications Places System
Sun Oct 29, 9:26 AM Debabrata Ghosh ms math
https://www.hackerrank.com/tests/b5qtfe3dk18/questions/185cgkchabk
Kanpur 2018 FTE hiring Test
01h : 05m : 01s
to test end
0/2 Attempted
Debabrata Ghosh
For each test case, print in a new line the winner of the sword fight - "JACK" or "DAVY JONES" (quotes for clarity only).
Constraints
1 <= T <= 100
1 <= length of string S <= 100000
Sample Input
2
aba
abca
Output
JACK
DAVY JONES
Explanation
For 1st test case JACK will win because the input is a palindrome and can be striked out in a single move.
For 2nd test case if Jack wants to win then by playing optimally he removes 'a' from the string. Else 'aca' or 'aba' will be formed by removing 'b' or 'c' respectively, which can be cut in one go as they are palindromes by Davy Jones where he would win. So Davy Jones will be left with 'bca'. Now all are distinct characters, in which he removes any one of the three. In next turn Jack removes another character and finally Davy Jones gets only single character where he wins.
We recommend you take a quick tour of our editor before you proceed. The timer will pause up to 90 seconds for the tour.
Start tour
For help on how to read input and write output in C++, click here.
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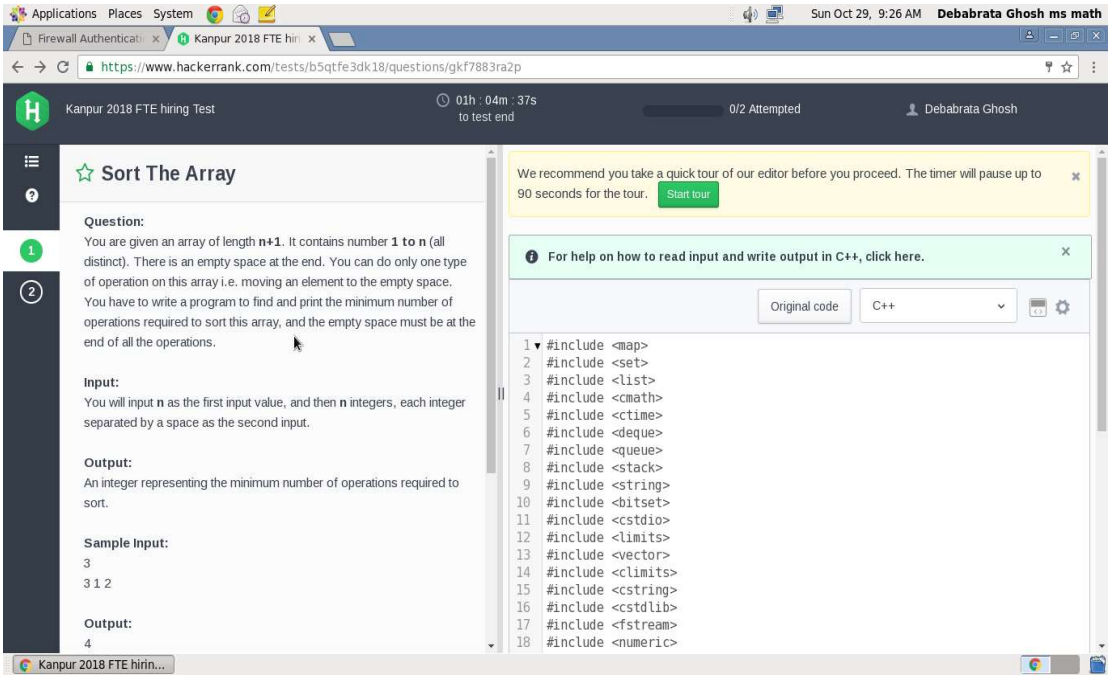
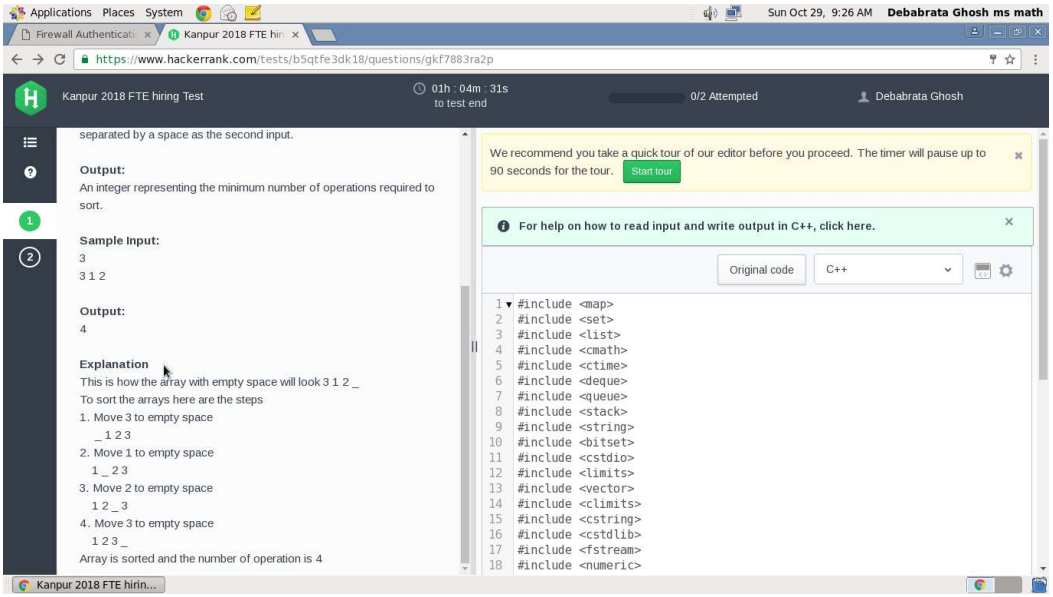
#include <climits>
#include <cstring>
#include <cstdlib>
#include <fstream>
#include <numeric>
Kanpur 2018 FTE hirin...





Solution for the sorting question anyone?

Nearest problem - http://www.geeksforgeeks.org/minimum-number-swaps-required-sort-array/

Here, Consider blank as integer (n+1).
We need to find length of cycles in permutation of numbers. But the constraint is we can swap with the blank only.
First introduce blank(n+1) in a cycle by swapping with a number of the cycle and then find length.
Answer will be summation of (cycle length - 1) for all cycle.

Example
2 1 4 3 _ (Given)
2 1 4 3 5 (Consider)
5 1 4 3 **2** (Introducing blank in cycle of 1 and 2. Now we have cycle of 1 2 5) (Ans = 1 swap)
5 1 4 3 **2** (cycle of length 3. Ans = 1 + 2 = 3)
1 2 4 3 5
1 2 5 3 4 (Introducing blank in cycle of 3 and 4. Now we have cycle of 3 4 5) (Ans = 3 + 1 = 4)
1 2 5 3 4 (cycle of length 3. Ans = 4 + 2 = 6)

1 2 3 4 5
Answer = 6

Envestnet Yodlee

CTC??

IITK: 29th Oct

(open for?)(CSE, EE, Maths n Computing): 2 Profiles-IT(MTS) and Lead Data Scientist
41 questions 50 marks
20 Apti in 30 minutes (Basic Apti)
10 systems and Java in 10 minutes
10 Code snippets and output answers (two sorting based questions) in 25 minutes
1 coding question in 25 minutes
No Negative marking
Coding question: Given link e.g. `<a href="http://www.codeproject.com">CodeProject-For those who code</a>`
Output http://www.codeproject.com CodeProject-For those who code (extract the URL and text part).

Yodlee coding Q.?? Above link is not correct.

I think that is **not** question link, its a sample test case of the question asked in test.
Was python allowed??
Well, there was no Python in the test. The community should have answered at least this question.
What was CPI cut off?? **There wasn't any.**
What platform test was on? **FirstNaukri**

IIT Delhi

41 questions 50 marks (same pattern as in IITK)
In coding question each student got one of the following question:

1. Given a number n, you have to find smallest number 'm' such that n*k = m where m contains 1 or more 4's followed by 0 or more 0's only. Basically you were supposed to return 2*S+P, where S=number of 4's in m and P=number of zeros in m. Eg: n =8 => for m=40 (=8*5) so ans is 2*1+1=3
2. Same as IIT K

IIT Roorkee

Same as IIT D

IIT Guwahati

Same as IITD

CISCO

Which profile? Is it SE II?Yes

IITK

Simple aptitude and probability questions and some questions on microprocessors. 60 minutes 50 questions.
(can you elaborate on what kind of qns were asked in aptitude and probability?)
- Very easy stuff. Ratio, permutations combinations. Some simple puzzles.
No real need to practice for this part.
- Can you describe something more on the microprocessors part? What to study? +2
(IIT Kanpur)(Did they ask on Networks?) +2
For microprocessors, they asked what certain instructions meant / did. Do not recall if there were Network questions.(I am a math major. I might not have recognized them).
Do you mean MIPS instructions??
(^^^^Can someone from elec shed more light on this??)+4

Were microprocessor questions compulsory for everyone? Or was it only for non-cs background?
- Test was common for all the depts
Was it open for signal processing?

IIT BHU

Same as above^^
Regarding microprocessor, there were 2-3 questions. Which mode of operation in 8255 PPI, 8085 machine instruction to clear flag, how many chips required to design 64k of memory when individual chips had 12 bit address line and 4 bit data line, simple questions related to NOR gates and boolean algebra.
(Any questions on computer networks?)

IITG (3/11/17)

50 questions, 60 minutes.
Very simple aptitude questions, very few network & EEE questions(approx 10)
(HDLC, loopback address, C code output,
(Friends, kindly add more info)

Citicorp(Bangalore)

IIT BHU (Analyst)

3SECTIONS: platform:amcat
1. Quant :
16 questions-16mins, very easy, just maintain your speed to attempt all questions

2. DI: 10 questions 20 mins
   (2 sets of 5 questions each)
3. Critical Reasoning: 22 questions 30mins

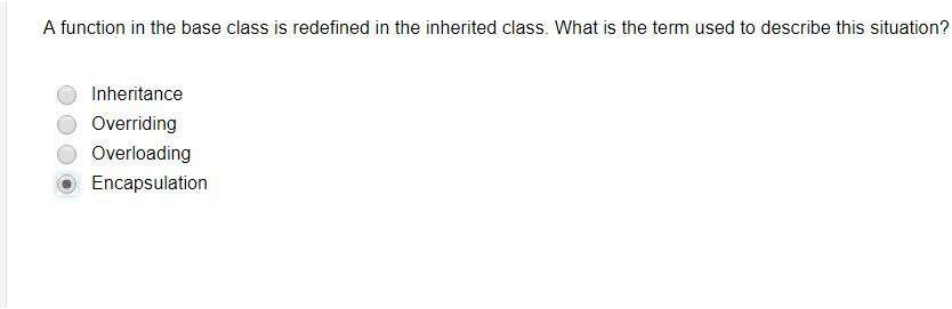
NO negative.

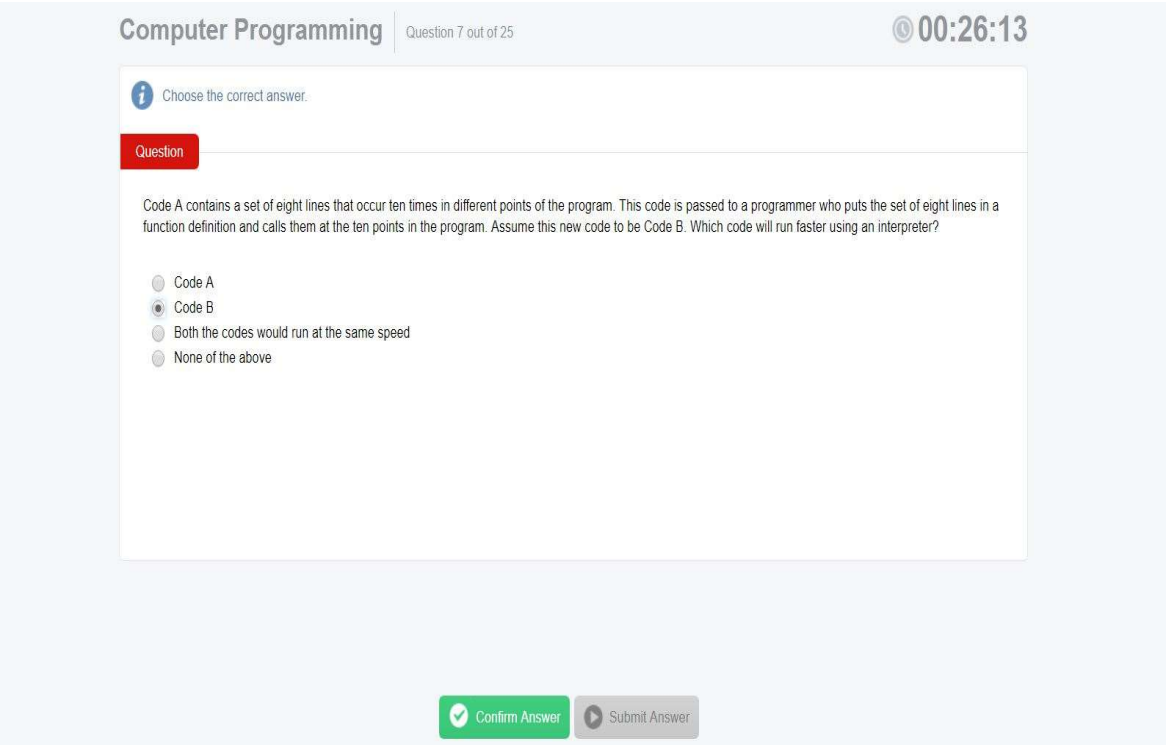
In our portal the total duration of test for citicorp is mentioned to be 120 min.So does it contain coding problem of 60 min as well or not?

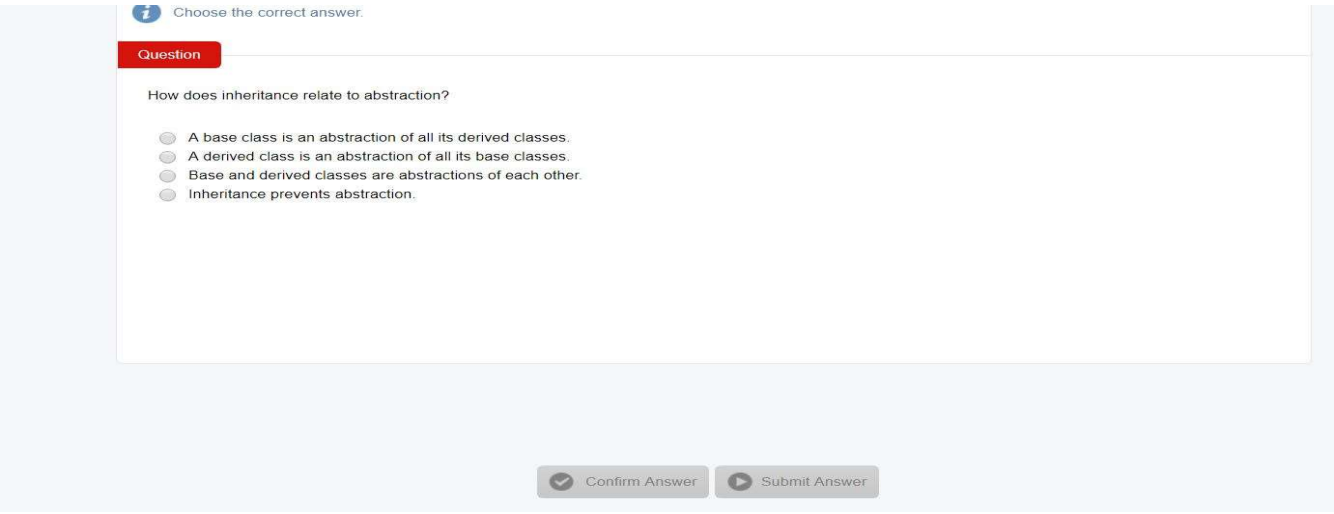
IITD Delhi (so is this for 60 min?) So was there a coding round ??

Java question

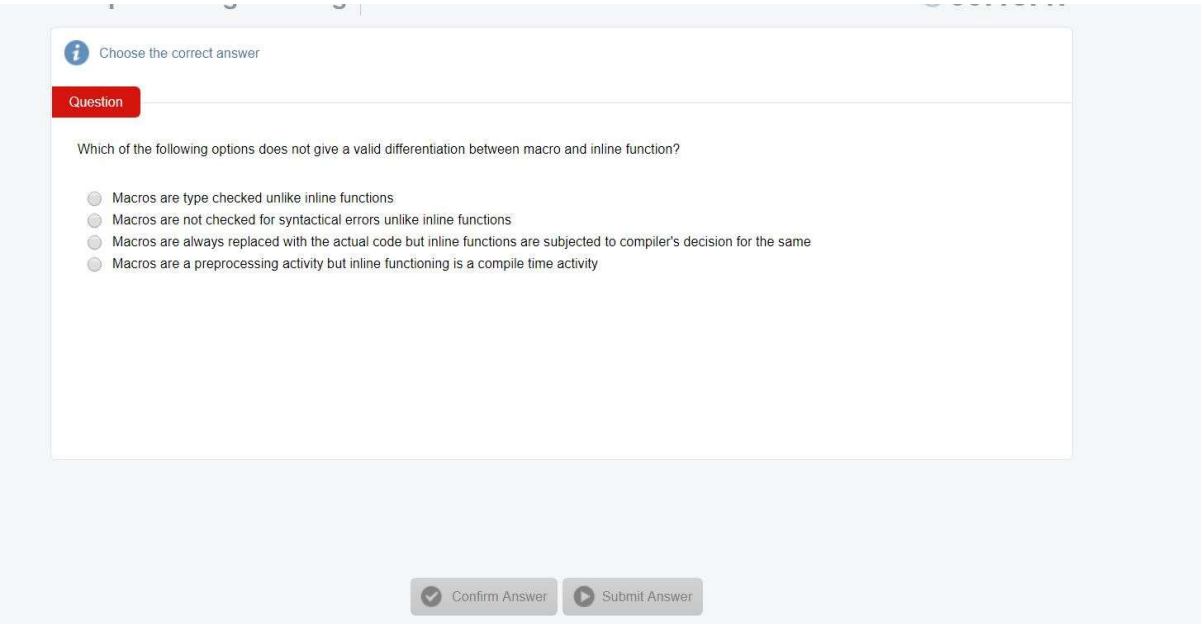
Someone answer it also 1



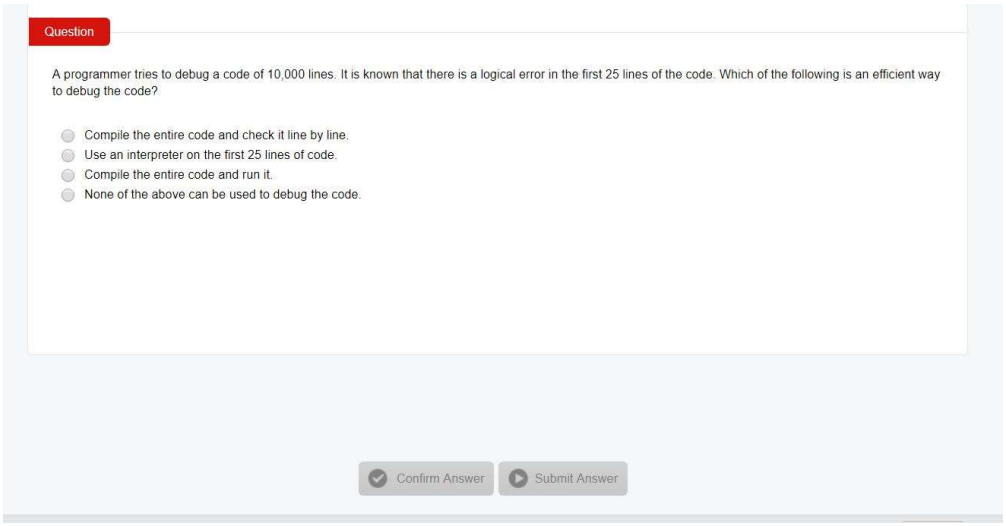


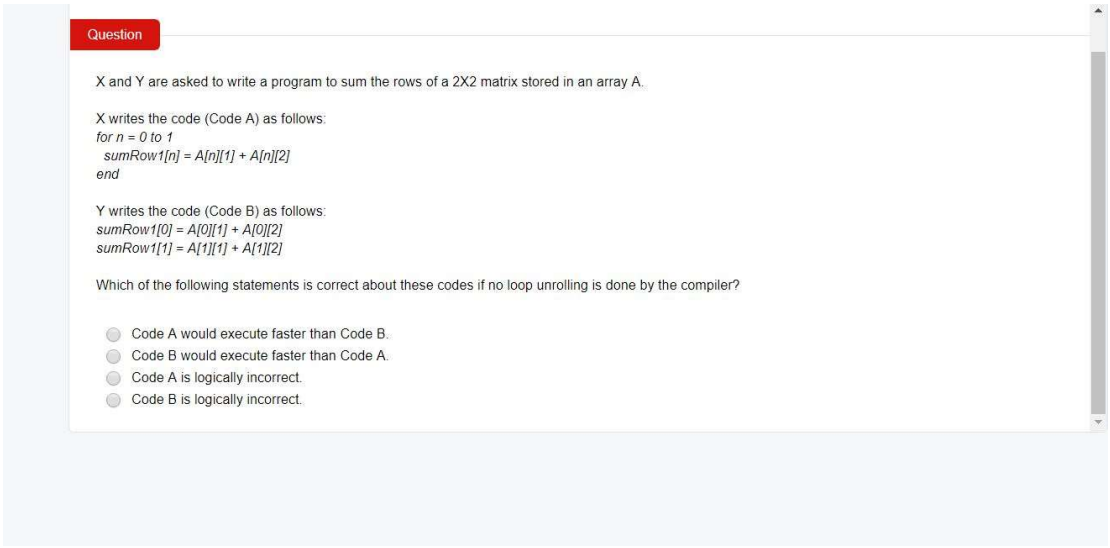

Choose the correct answer.
Question
How does inheritance relate to abstraction?
A base class is an abstraction of all its derived classes.
A derived class is an abstraction of all its base classes.
Base and derived classes are abstractions of each other.
Inheritance prevents abstraction.
Confirm Answer
Submit Answer

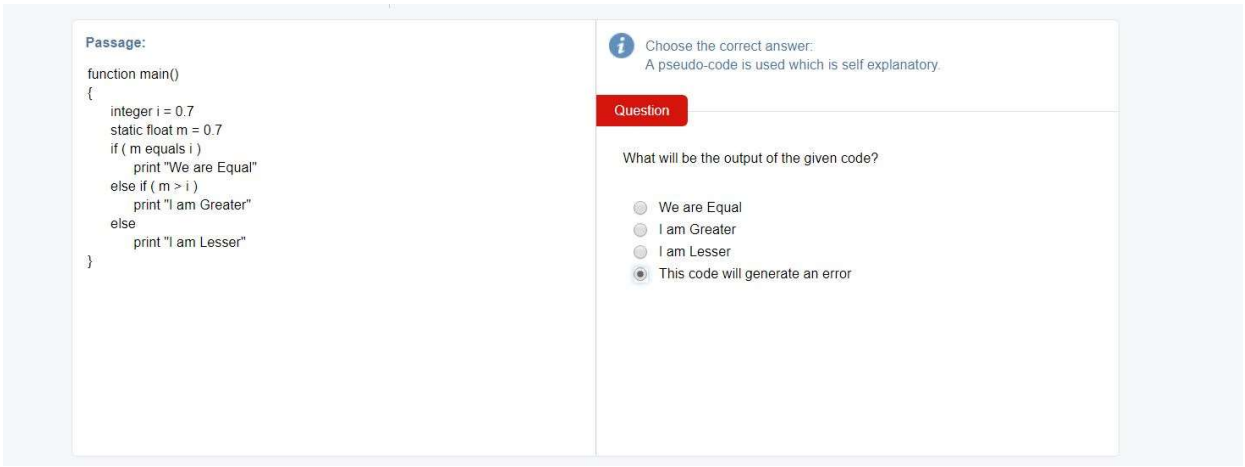
Ans: 1


Choose the correct answer
Question
Which of the following options does not give a valid differentiation between macro and inline function?
Macros are type checked unlike inline functions
Macros are not checked for syntactical errors unlike inline functions
Macros are always replaced with the actual code but inline functions are subjected to compiler's decision for the same
Macros are a preprocessing activity but inline functioning is a compile time activity
Confirm Answer
Submit Answer

Ans: ??







Symantec

IITG (28/10/17)

10 MCQ
2 coding ques.

1. Given n sentences of max of w words in each sentence. M queries having 1 or few words, you need to output index of sentences where you can find these words.

Ex:
3
John likes Tom
Tom likes Mary
Mary and John are friends
2
Likes
Mary likes

Output:
0 1
1

2. Given matrix with 1's, 0's, -1's. 1 - diamond, -1 wall, 0 no diamond but you can travel through it. You need to start from (0,0) , go to (n-1,n-1) and return back to (0,0) with max diamonds.

Once collected the diamond there will become 0..

Cohesity

IISc Bangalore

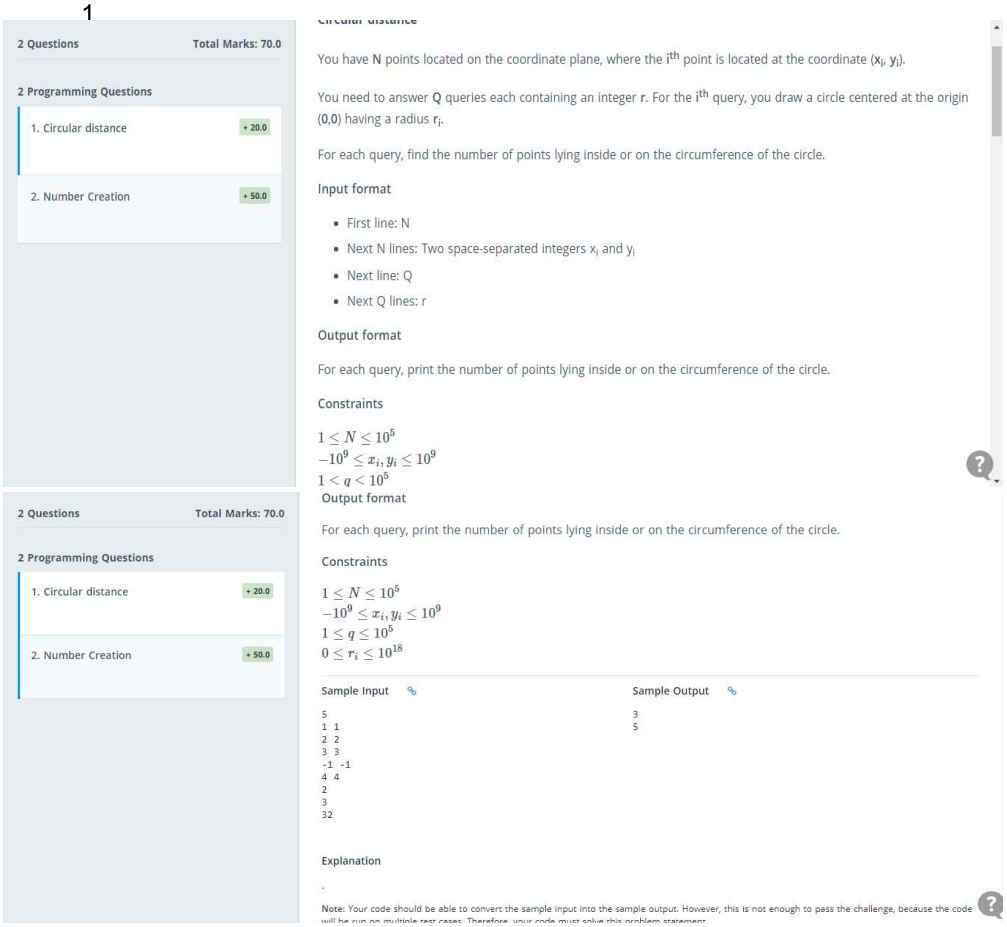
1 coding question (60 min[hackerearth])
N task given with deadline, profit and time (is it time taken to complete or starting time?) for that task….schedule task to maximize profit.

IIT Kanpur(22-10)

(Open for CSE,EE and MnC)
One coding question: 1hr and 15 minutes
Shortest Snippet: You are given two strings S and Q. Each string has multiple words separated by single spaces. Each word in S is given an index, starting from 0 for the first word. You have to find the smallest range [l,r](both inclusive) in S which contains all words in Q.
No duplicate words in Q.
All lower case characters.
E.g.
Input:
S: what about the lazy brown fox that jumped over the other brown one which lazy dog ate the food of the fox
Q:lazy brown dog
Output: [11,15]
Example test cases?
Constraints??? Don't Remember
Platform??
Did O(n^2) work ??????????
Was Python allowed? Yes

IITR (06-11-2017)

1



2 Questions Total Marks: 70.0

2 Programming Questions

1. Circular distance + 20.0

2. Number Creation + 50.0

You have N points located on the coordinate plane, where the i^{th} point is located at the coordinate (x_i, y_i).

You need to answer Q queries each containing an integer r. For the i^{th} query, you draw a circle centered at the origin (0,0) having a radius r_i.

For each query, find the number of points lying inside or on the circumference of the circle.

Input format

- First line: N
- Next N lines: Two space-separated integers x_i and y_i
- Next line: Q
- Next Q lines: r

Output format

For each query, print the number of points lying inside or on the circumference of the circle.

Constraints

$1 \leq N \leq 10^5$
$-10^9 \leq x_i, y_i \leq 10^9$
$1 < q < 10^5$

2 Questions Total Marks: 70.0

2 Programming Questions

1. Circular distance + 20.0

2. Number Creation + 50.0

Output format

For each query, print the number of points lying inside or on the circumference of the circle.

Constraints

$1 \leq N \leq 10^5$
$-10^9 \leq x_i, y_i \leq 10^9$
$1 \leq q \leq 10^5$
$0 \leq r_i \leq 10^{18}$

Sample Input

```
5
1 1
2 2
3 3
-1 -1
4 4
2
3
32
```

Sample Output

```
3
5
```

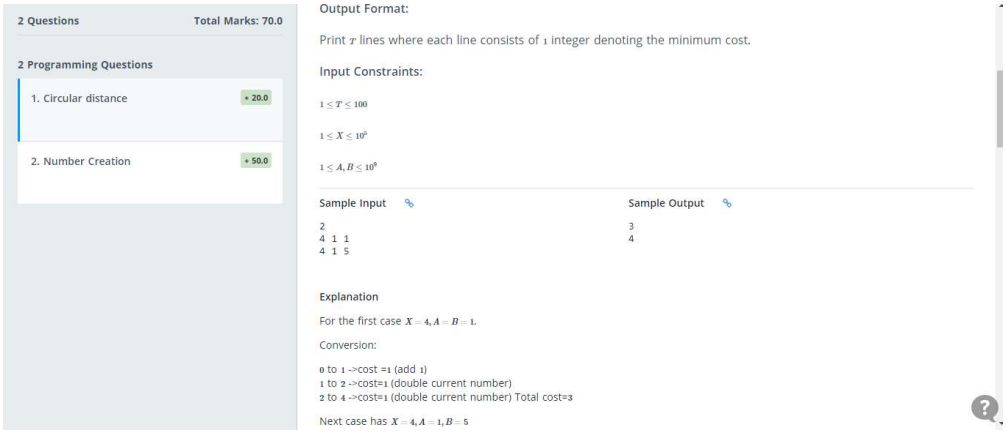
Explanation

.

Note: Your code should be able to convert the sample input into the sample output. However, this is not enough to pass the challenge, because the code will be run on multiple test cases. Therefore, your code must solve this problem statement.

2.

++



2 Questions Total Marks: 70.0

2 Programming Questions

1. Circular distance + 20.0

2. Number Creation + 50.0

Output Format:

Print T lines where each line consists of 1 integer denoting the minimum cost.

Input Constraints:

$1 \leq T \leq 100$

$1 \leq X \leq 10^6$

$1 \leq A, B \leq 10^9$

Sample Input

```
2
4 1 1
4 1 5
```

Sample Output

```
3
4
```

Explanation

For the first case $X = 4, A = B = 1$.

Conversion:

0 to 1 ->cost =1 (add 1)
1 to 2 ->cost=1 (double current number)
2 to 4 ->cost=1 (double current number) Total cost=3

Next case has $X = 4, A = 1, B = 5$

Solution: https://ideone.com/SNQMEw

IIT Delhi

2 Questions(60minutes)
70marks(50+20)

1. Direct Coin Change problem(50marks)
   http://www.geeksforgeeks.org/dynamic-programming-set-7-coin-change/

2. 2d grid given. You have to go from Source to Destination using minimum steps, also some positions are blocked.
(Simple BFS approach worked)

IIT KGP

2 Questions, 60 minutes - 70 marks (50 + 20)

1. **Knight'**http://www.geeksforgeeks.org/probability-knight-remain-chessboard/
2. **String Tokenization**
Given a string, tokenize it and print tokens on each new line such that text between "" (double quotes) isn't split (it's preserved).
For example:
Input:
abc pqr mnp "asdasd asdsad" lol pip "adsad"
Output:
abc
pqr
mnp
"asdasd asdsad"
lol
pip
"adsad"

Rakuten

CTC??
-> Gross 3600000.00 JPY; CTC:4500000.00 JPY
Is it in rupee or JPY ??
Will we know all the test cases Or are there any hidden test cases?
How many shortlisted for interview(IITB)?//Anyone respond from IITB

IIT BOMBAY

Platform - Codility
1Qn - 1 Hr

There were many sets for the exam.
My question was
I am using ^ symbol for bitwise XOR
Given 2 integers M, N where(M<=N)
Calculate M^(M+1)^(M+2).....^N
Conditions: O(log(n)) worst case time complexity; O(1) space complexity

They defined an adjacent pair of elements in an array as 2 elements such that there is no element between them in the array. e.g. Given U and W, U and W are the array elements, if there's no V in the array such that U < V < W. (Note: U is strictly smaller than W) then U and W are adjacent.

Given an array of integers (may have repeated elements and multiple adjacent elements) find the maximum distance between adjacent pair of elements (i.e diff of the indices in the original array should be max)Do we have to return -1 or it is guaranteed to have a non-zero answer as if the array consists of all equal elements then what is the answer?
//Anyone Respond please

Anyone have screenshot for this question asking to @Subash M ? (No screenshots shared with me)

IITH

Is this for JAPAN or INDIA?
Japan
Same as above,They have 4-5 sets of questions, two being the same as IITB.
Given A number print all its valid decimal configurations (no trailing zero numbers)
Platform: Codility
Duration:1hr

Deloitte

IIT KGP (31/10/17)

What is the ctc? 11.85lpa fixed , 13.85 ctc

4 Sections : (MCQ) (Platform - AMCAT) (Total - 90 Minutes)

1. Verbal Reasoning :
2. Probability and Statistics :
3. Critical Reasoning :
4. Quant : 10 Questions - 15 Minutes

- No negative marking. You have to attempt all questions.
- Only one section at a time. You cannot switch between sections like GS.

- Only one question will be displayed at a time. You have to attempt the present question to go to next question. No skip option, once a question is answered and if you move on to next question, you cannot browse back to previously attempted questions.

1. Airplane (100 passengers) and drunk man puzzle
2. Questions on Correlation , Hypothesis (Z table given)
3. Type1, Type 2 error
4. Relation between Mean Median Mode (curve positive skewed, negative skewed, normal distribution
5. Residual curve
6. Calculate F Static using ANOVA Table
7. Find no of Pieces , when no of cuts are given
8. Rank of Matrix (was a 5x5 matrix and tough to reduce to lower order, probably find det)
9. Quadratic equation (condition for no solution)
10. Confidence Interval (for N(0,1) in (1,2) what percent ? 95%,83%..?)

Test Platform - Aspiring Minds

Points 2 to 8 - Details please!!! Can you recall the exact questions?

Verbal Questions related to Assumptions and Statement support

1. Verbal Reasoning :
   - Some synonyms and antonyms were also asked.
   - Basic Assertion and Conclusion type questions.
   - Some paragraph related questions.

2. Probability and Statistics :
   - Mainly focused on statistics. Make sure to revise basic statistics, regression analysis, hypothesis testing, parameter estimation and ANOVA.

3. Critical Reasoning :
   - Basic logical questions - Statements and Assumptions, in some questions table and other figures were given, questions related to that were asked

4. Quant :
   - Consisted of 12 questions to be solved in 15 minutes, varying from probability to geometry. Level of questions was medium/easy.

V mock

IITR

5 Easy coding question, same for all profiles
http://practice.geeksforgeeks.org/problems/equilibrium-point/0
http://practice.geeksforgeeks.org/problems/subarray-with-given-sum/0
http://practice.geeksforgeeks.org/problems/edit-distance/0
http://www.geeksforgeeks.org/find-the-next-lexicographically-greater-word-than-a-given-word/

IITK

Same as above ^^

AXTRIA

(Technical Analyst/ Business Analyst)

IIT BHU (31/10/17)

Platform- cocubes
3 sections

1. Axtria questionnaire- 20 mins
2. Quant(Aptitude,verbal, logical) 60 questions-60 mins
3. Technical (C/C++) -20 questions - 20 mins

Please update the details for this company.

Tower Research

IITD

4 coding questions plus 15 MCQs (Computer Networks, Data Structures, OS). (were there any mcq on AVL / red,black tree ?)
Coding questions.
1) Write a SQL query to perform some given task. Should be simple for someone who knows SQL.
2) Python snippet for inorder traversal given. Find the bug in the code. (Bugs was in the base case.)
3) A question reducing to finding the number of connected components in a graph.
4) A question on parsing . Would recommend to use python.

IIT Kanpur

Note : there were two different tests, one for Core Software Engineer, another for Strategist. Former was open only for BTechs in EE/CS, latter was open even for some other departments and MTechs.

Core Software Engineer :

plus 19 MCQs (20min).
Coding questions.
1) Write a SQL query to perform some given task. Should be simple for someone who knows SQL.
2) Find the bug in the code. (Python)
3) Simple DFS question
4) A question on parsing .

Strategist :
3 sections. First section was 40 minutes, 40 MCQs, second section was 20 minutes, 20 MCQs, last section was 45 minutes, 3 coding questions. First two sections have negatives as well, and you can't switch sections (doing so will end that particular section).
Section 1 : medium-hard difficulty puzzle questions. All of them were elementary questions, like man is swimming upstream and downstream, or probability / permutations and combinations style. You need to have a lot of practice on such problems to get more than 20/40 in the given time.
Section 2 : About the same difficulty as the first section, but it was marked as "advanced" aptitude for some reason. Permutations, probability are pretty much all you need, along with some basic data interpretation questions (pie/bar chart is shown, estimate some quantity).
Section 3 : Three coding questions, worth 8, 10, 12 marks each (each of the MCQ questions were like +1/-0.5 and +2/-0.75). The questions were different for different people, taken from a common pool of questions (similar to Microsoft). Some questions :

1) Find the longest palindromic substring of a string (O(n^3) passed apparently)
2) You're given N, and k. You have to print the sum of the kth sequence, where first sequence is all the divisors of N, second sequence is all the divisors of first sequence, and so on. So for N = 4, k=1 (1, 2, 4), k = 2 (1, 1, 2, 1, 2, 4), k = 3 (1, 1, 1, 2, 1, 1, 2, 1, 2, 4) etc
3) You are given a string and two integers m and n. At the first move, you take the last n characters and move it to the front, on the second you take the last m of the current string and move it to the front, and so on. You have to find when the original string is recreated.

IIT KGP/BHU (04/11/17)

Same. 4 Coding Questions(100 min) + 19 MCQ (20 min)
1. SQL Query
2. Bug detection in Python Code (Code was about to find the shortest distance between 2 given nodes in a graph)
3. Output number of components in a graph.
4. String Parsing.

Yahoo Japan

Any test in IITs till now?
IITD?? - No
IITH - Test on 1st Nov
Platform? Codility?

IITH

4 questions. 2 were very easy. Time : 2 hr 15 min
What were the other questions?

1. A slice in a array of n elements is consecutive pair of elements. Find the no of slices in given array whose sum = 0.(Can someone explain what exactly is this ??) It is same as number of subarrays with sum equal to zero - yes
http://www.geeksforgeeks.org/print-all-subarrays-with-0-sum/
No it is like the number of pairs having sum =0 in array.// that's what it is same as number of subarrays with sum=0
Time Complexity - O(nlog n)
Space complexity - O(n)

Ex: [3, -3, 0, 4, 3, -7]
Has 4 slices.

2. Given an array. Find three elements in the array such that their sum which is the perimeter of the triangle is minimum. The sum of any of two of three numbers should be greater than third one.
Time Complexity - O(nlog n)
Space complexity - O(n)
Ans:
Sort the array and return a[0],a[1],a[2].//No it won't work say 1,3,4(1+3=4 not >4) - check the second answer in the link below
//https://stackoverflow.com/questions/32388962/given-n-numbers-find-minimum-perimeter-triangle

Was python allowed??Yes

If somebody remember the today's coding test question, please add here??

IITD

How many did they shortlist? And what is the cut off for 100? IITD please respond

160 candidates gave test.No information about shortlist from 160.

Q. Count the number of 1's in 1 to n.

Q. Make email id lastname_firstname_firstletterofmiddlename@company.com
Q. Recursion G(A,B,N) mod = 1000 000 007
If N==0 return A%mod;
If N==1 return B%mod;
Else return (G(A,B,N-1) + G(A,B,N-2))%mod
Q. Minimum A[p] + A[q] where 0<p<q<N divide the array such that [0 to P] [P+1 to Q] [Q+1 to N]

Smartprix

IITG

1) Aptitude - 30 minutes & 20 questions (blood relation, More of visual reasoning)
In aptitude round more than 10 questions were diagrammatic reasoning. As this round is easy even single mark matters and it is deciding round to qualify for coding round. It is important to practice diagrammatic before-hand. This will give a start:
https://www.practiceaptitudetests.com/diagrammatic-reasoning-tests/
2) Technical - 30 minutes & 10 questions (Pure coding output [Java, C], inheritance, static)

Very easy test (but every single mark matters. Only 65 shortlisted for coding)

IITH

Aptitude and Technical : Same as IITG
Shortlist after aptitude and technical round
Coding : 2 questions (Same
(Wrong Ques & Ans) as given in the link below)
http://www.geeksforgeeks.org/smartpix-interview-experience-set-3-campus/

Coding IITG (5/11/17)

OPEN Internet ROUND (Trap) (RIGOROUS PLAGIARISM CHECK)
Do solve the question prior and use that solution.
Even the question is not proper. GeeksforGeeks ques is not complete and incorrect.
No proper answer in internet as of 5/11/2017.

Questions Link: https://goo.gl/SHGKzq

Friends add more input, if u have any. :)

Mentor Graphics

Questions ??????

IITH
Time : 90 minutes
3 sections
Section 1 : Aptitude (16 questions, 20 mins) Medium level
Section 2 : C/C++/Java output (16 questions, 20 mins) Medium level
Section 3 : Coding (4 questions, 50 mins)
Question1 : Reverse linked list in groups of given size.

Question 2 : In a BST, add the values greater than node to that node (reverse inorder traversal and keep adding the values). (http://www.geeksforgeeks.org/add-greater-values-every-node-given-bst/)

Question 3 : Swap bits in a given number (http://www.geeksforgeeks.org/swap-bits-in-a-given-number/)
Question 4 : Longest even length substring such that sum of first half is equal to second half (http://www.geeksforgeeks.org/longest-even-length-substring-sum-first-second-half/)

Exxonmobil

IIT K

- 2 hours test (1 hour essay writing and 1 hour for solid mechanics and fracture mechanics
- Essay writing
  - How globalization has affected India. (30 minutes, Minimum 150 words and maximum 400)
- Two question about oneself
- Solid mechanics
  - Very basics solid mechanics and fracture mechanics. 20 question in 1 hour. Objective with explanation.

IITM

2 papers - 1 Hour each
Paper1 - Online- Compulsory for all who applied and got shortlisted
Section 1 - 30 minutes - 2 questions about self
1) Quote an incident or experience which gave you a major learning in life
2) Give an example of a conflict between you and a team member you worked with. What did you do to resolve the conflict? What was the result?
Section 2- 30 minutes - Essay Writing - Min 150 words & Max 400 words
What can India do to improve its manufacturing economy?
Paper2 - Pen and Paper - For those who want to be considered for Computational Sciences role as well - Pictures attached here

Instructions – IIT Madras Computational Sciences Position

- Please turn off your cell-phones.
- You have 60 min for this test.
- Write your names, roll number and discipline on the answer booklet and the question paper
- You will need to return the question paper at the end of the test together with the answer booklet
- This exam is divided into three sections (A, B, and C) with two questions each. Each section carries equal weightage. There is a cut-off criteria for each section. All questions carry the same number of points.
- You should choose one question in each section to answer first, and then, only after you've attempted to answer one question in each section, should you attempt to answer the remaining questions. You should choose which question in each section to answer first based on which of the two questions you think you are best able to answer.
- The exact answer that you provide is not as important as the thought process you use and your approach to solving each question. Therefore you should write legibly and clearly explain your approach and assumptions.
- If you are running out of time, try to explain the approach you will take to solve the problem.
- You can use a calculator during this test.
- There will be no clarifications to any question. In case of doubt, please make an assumption and answer the question. Please document your assumptions

Section A

Section A, Question A1

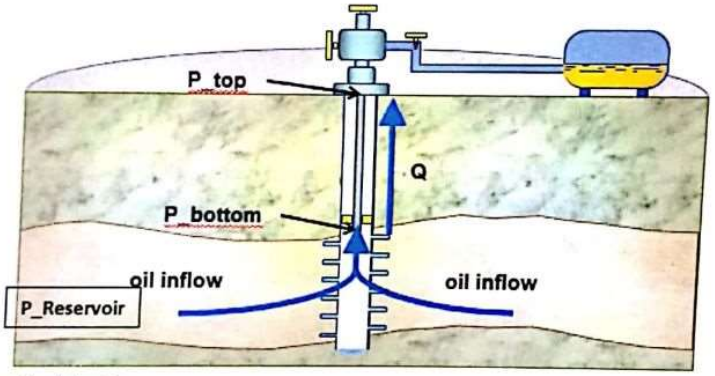
A "well" is a cylindrical pipe through which fluid flows. For this problem, we will assume that:

- our well is vertical;
- the fluid is oil with a uniform density and viscocity;
- all fluid enters the well at its bottom; and
- all fluid exits the well at its top.

Engineers are very interested in the following quantities:

- P_top, the pressure at the top of the well [in pounds per square inch, *psi*]
- P_bottom, the pressure at the bottom of the well [in pounds per square inch, *psi*]: the lower we can make P_bottom compared to pressure in the reservoir (P_reservoir) the more oil we can produce; and
- Q, the total rate of oil flowing through the pipe [in cubic meters per day, m^3/d].

See the figure for reference:



Now answer the following:

a) When Q=0, what is the equation relating P_top and P_bottom?

b) When Q > 0, the pressure drop is bigger than the above because of friction between the fluid and the pipe. Do you think the pressure drop due to friction would increase or decrease in response to each of the following (no equations are necessary, just supply physical reasoning):
   i. density of the fluid increases;
   ii. Q increases;
   iii. we switch the well for another one with larger diameter?

c) A common practice in the oil industry is to pump gas from the surface, through a second pipe, into the bottom of the well. The gas then flows with the oil back up through the well. Based only on your answers to a) and b):
   i. Why do you think that this is useful? HINT: P_top is usually fixed to be equal to the pressure in the surface container shown in the picture. Thus, it won't change even when the pressure drop along the well changes.

ii. Are there any conditions when this might be counterproductive?

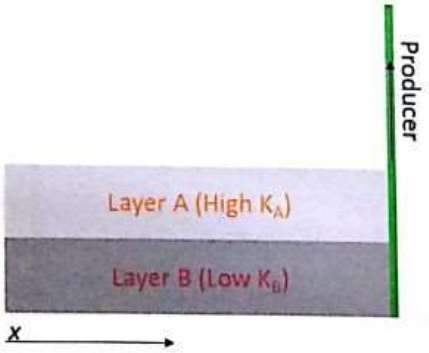
Section A, Question A2

The figure below shows a subsurface reservoir with a single well producing fluids from two different layers of rock. Each rock layer has a different permeability.

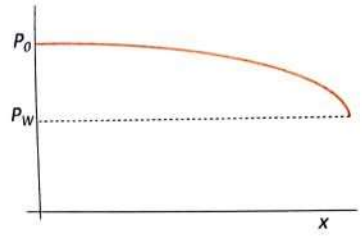
Definitions

- Reservoir: Think of this as a porous media or a rock volume with connected pore space through which fluid can move
- Permeability (given the symbol K): A measure of ability to flow; high K means there is a lower resistance to flow
- Well: Think of this as a cylindrical pipe through which fluid flows between the reservoir and the surface of the earth

The top rock layer, Layer A, has a high value of K. The bottom layer, Layer B, has low value of K. At time $t=0$, the entire reservoir is at an initial pressure P_0 and its pore space is filled with a low-density fluid (for example, oil). In the figure below, which visualizes the reservoir in two dimensions, this means that the pressure in both layers is equal to P_0 for all values of x at $t=0$. The well is turned "on" by opening it to the reservoir at a pressure P_w, which is much less than P_0, causing the low-density fluid to flow into the well. This well is labled as "Producer" in the figure because it produces oil from the reservoir, up the well to the surface of the earth.



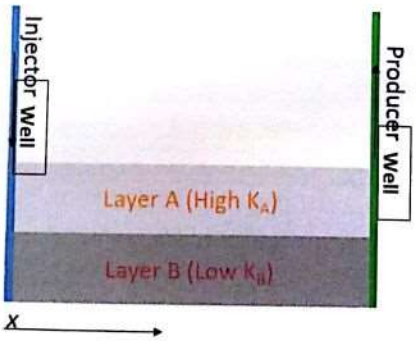
Part 1: Assume that the fluid is NOT able to move between Layer A and Layer B. The chart below shows the pressure profile as a function of x in Layer A at a time $t=t_1$, a few days after the well is turned "on".



(a) On the same axes, draw the pressure profile in Layer B at time t_1. Mark this curve with (a), and explain in a few words why you chose the curve you drew.

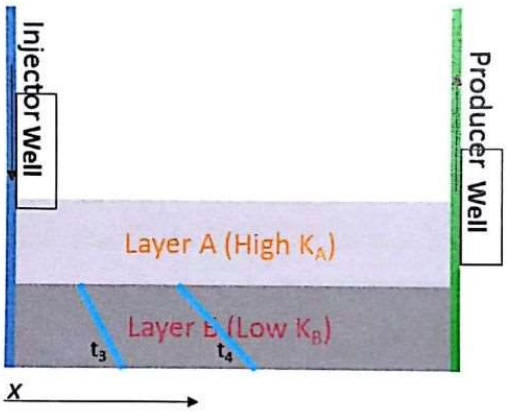
(b) On the same axes, draw the pressure profile in Layer B at time $t=2*t_1$. Mark this curve with (b), and explain in a few words why you chose the curve you drew.

Part 2: Consider the same system with the addition of an injector well (see figure below). This well is labled as "Injector" because it moves a fluid like water down the well from the surface of the earth to the reservoir. The injector well is at a pressure P_I, which is higher than P_0, causing the injected fluid to be pushed out of the well and into the reservoir.



(a) Assume that the injected fluid is water with a higher density than the in-situ oil. Why would we be interested in injecting fluid into the reservoir? Answer in a few words.

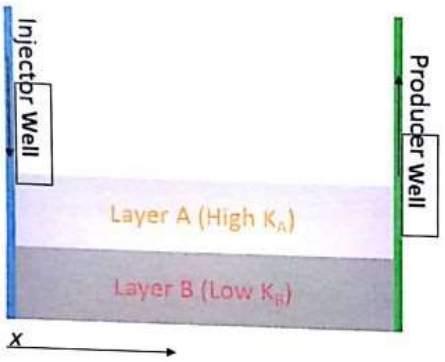
(b) Assume that the fluids still CANNOT move between Layers A and B. The figure below shows the "water front" in Layer B at times t_3 and t_4. Explain why the fronts are not vertical in a few words. What controls the slope of the front?



(c) On the figure above, draw possible locations of the water front in Layer A at times t_3 and t_4. Explain your reasoning behind your drawings.

Part 3: Now assume that fluids are able to move between Layers A and B.

(a) On the image below, draw what the water front may look like a few days after the injector is turned "on". Explain your drawing.



(b) Consider the case where the permeability contrast is nearly infinite ($K_A >>> K_B$). Describe in a couple of sentences what will be happening inside the reservoir a long time after the injector is turned "on".

Section B

Section B, Question B1

You are given the following set of 2 differential equations to solve numerically for $C(t)$ and $T(t)$:

$$\frac{dC}{dt} = -e^{(-1/T)}C$$

$$\frac{dT}{dt} = 2e^{(-1/T)}C$$

$$C(0)=1$$

$$T(0)=1$$

The equations and initial conditions are all non-dimensional, so you do not need to include units.

a) Using a time step of $\Delta t=0.1$, apply Euler's method to estimate values for C and T at $t=0.1$ and $t=0.2$. Write down the equations you are using at each time step, and provide numerical values for C and T.

b) If you wanted to increase the accuracy of the solution, what would you do?

Section B, Question B2

Suppose that 1% of the population as a whole has a particular disease. Doctors have a test for this disease whose accuracy can be quantified as follows:

- It has a 1% chance of false positives. In other words, 1% of the people who do NOT have the disease and who take the test will be incorrectly told that they DO have the disease.
- It has a 1% chance of false negatives. In other words, 1% of the people who DO have the disease and who take the test will be incorrectly told that they do NOT have the disease.

If a person is chosen at random from the population and tests positive for this disease (that is, the person is given the test and told that he or she DOES have the disease), what is the probability that this person actually has the disease?

Section C

Section C, Question C1

You are given an M X N (M rows, N columns) matrix of floating point data values. Most of the elements of this matrix are legitimate values, but there are an unknown number of NaN (not-a-number) bad values distributed throughout the matrix.

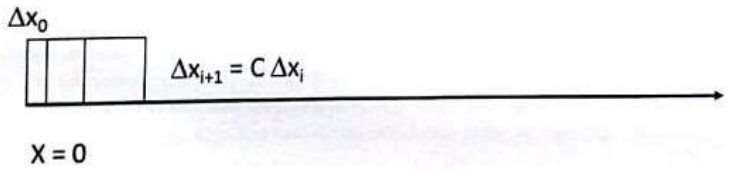
a) Write pseudo code for an algorithm that locates the NaN elements and replaces each of them with the average of the legitimate values in the row where each NaN element appears. Assume that there is a fuction you can call that when passed a floating point value, will return a boolean value of 'true' if the passed value is NaN and 'false' otherwise.

```
Boolean IsNaN(double x)
```

b) Assume that if M=1000 and N=100, that your algorithm takes 1 second to run. How long will it take your algorithm to run if M=10000?

Section C, Question C2

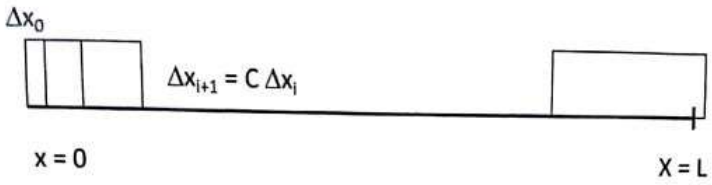
Consider a 1D mesh generation algorithm where cell sizes grow exponentially from the left boundary. See the figure below.



a)Write pseudo code for a function that takes in 3 parameters and returns a vector of the first *n* cell edge locations. The 3 parameters are:

i. Δx_o, the width of the left-most cell
ii. C, the factor by which cells grow from the left
iii. *n*, the number of cell edges to return

b) Now the domain is bounded to the right at x = L, as shown in the figure below.



Write pseudo code for a function that takes in 3 parameters and returns a vector of cell edge locations for as many cells as required to span from x = 0 to x >= L. The edge of the last cell may exceed L.

i. Δx_0, the width of the left-most cell
ii. C, the factor by which cells grow from the left
iii. *L*, width of the domain

ADOBE

Please also mention the time allotted for the test. 1.5 hours 3 Questions.
And also the platform. **Hackerrank**, most probably. Full screen mode. Exiting fullscreen = logged out

IITD (2/11/17)

1. **PAIR ENEMY**: There are n people numbered 1 to n. Some people are enemy, such pairs are given. You can form a group from range X to Y (from person numbered X to person numbered Y, all included) if and only if there is no pair (i,j) between X and Y such that (i,j) is enemy. Find how many total groups you can form.
Constraints : 1 <= N, M <= 10^6 .
Example:
a) N= 4, pairs (1, 3) (2,4) output = 7

questions clearly specifies that group should have consecutive numbers so {1,4} will not be included
b) N =8, pairs (2,8) (3,5) (4,6)(3,4) output = 18
Solution??
Basically, count number of solutions starting from each index
Linear solution should be possible. For each index i, calculate the minimum index f(i) such that there is an enemy pair **(k,f(i)) such that k<=f(i) and k>=i.** Now the answer would just be the sum of f(i)-i for all i.
1. **Task Scheduler**: Given an array A with complexity for n tasks and array B(size m) with time that each computer can execute. 1 task /can be run on a single computer and must be completed in one go. Find the maximum number of tasks that can be run at any time.
Example:
a) A = [1, 5 , 3, 7]
B= [4,1,1,9,7]
Output: 4
Explanation: Task with complexity 7 can use computer[3] (9), Task with complexity 5 can use computer[4], task with complex 3 can use computer[0], Task with complexity 1 can use either computer[1] or computer[2].
What does complexity of task mean?? Time to complete a task
Solution??(Will sorting both arrays work?) Yes

2. **WHITE & WATSON:** Given an array with n strings and an integer k. White and watson are playing a game. White gets to start game first always.
Game follows as: White first picks any string among first k strings.Watson can next pick any string that starts with last character of string picked with from next k strings (next to where white picked). This goes on until a player can choose a string from given k strings. If at any point, a player is unable to choose, he loses. Both the players select strings optimally.If there is a way White can win always, output “Yes” and the string he must choose as first string else output “No” and string watson must choose as first string, that guarantee his win(in this case assume, white selects first string always)

Solution?? (+30)

IITR (4/11/17)

(Member of Technical Staff)
3 question-90 min
1. A string S of + and - is given.You have to find the length of longest substring containing only +.
For eg. S= --++++-+-++ here (+),(++),(+++),(++++) are the valid substrings consist of only (+). But the longest substring is (++++), you have to return length i.e in this case it is 4.

2. PAIR ENEMY: There are n people numbered 1 to n. Some people are enemy, such pairs are given. You can form a group from range X to Y (from person numbered X to person numbered Y, all included) if and only if there is no pair (i,j) between X and Y such that (i,j) is enemy. Find how many total groups you can form.
Constraints : 1 <= N, M <= 10^6.
Example:
a) N= 4, pairs (1, 3) (2,4) output = 7

b) N =8, pairs (2,8) (3,5) (4,6)(3,4) output = 18

3. Words given and a string given. Any sequence of anagrams of words can be concatenated to form the resultant string. Cost is defined as no of letters to move from original place to final place to make anagram. Output the cost , else -1 if not possible.
Solution: one string in dictionary could be used multiple times !! keep that in mind
For instance if s = thatthat
And word in dictionary are = {that}
Then ans is 0 and not -1.
Based on last years ques, 1 definite question will be from **string**

IIT KGP (05/11/2017)

1. Given a string can u convert the string to “hacker” ? return yes or no.

Operations allowed : remove all the instances of characters in the string. Suppose if u remove character a, u have to remove all instances of a. U may remove as many characters.
Solution: remove all characters other than characters in hacker.

2. How many ways can you travel from point x to y. You can do jumps of size 1,2 and 3.
Its a simple DP problem.
Dp[i] = dp[i-1] + dp[i-2] + dp[i-3] ;
dp[0]=1, dp[1]=1, dp[2] = 2;

3. There is a board of size M * N grid. The girls keeps putting color sheets on the board one after another. Color sheets of varying rectangle size and each sheet has unique color. Sheets may overlap and one sheet may cover other partially or completely. Now given the final view of board. You have to give the order in which she puts the sheets on the board. Sample Test ??

IIT KANPUR

Question 1 Find zeroes to be flipped so that number of consecutive 1’s is maximized
http://www.geeksforgeeks.org/find-zeroes-to-be-flipped-so-that-number-of-consecutive-1s-is-maximized/

Question 2
Given N logs of radius R1...Rn. Height is 1 unit for all.
A guy wants to cut all N logs such that he can give wood of equal volume to N persons.
Find the maximum volume of a piece of wood each person can get. Each person can get only a single piece.
Answer should be in floating point with 10^-4 precision.
Approach for solving - Binary Search

Question 3
Two arrays of integers namely A and B.
Both of size n <= 100.
Return minimum operations required to convert A to B.
Operation defined as - Decrease 1 from ith element, add it to one of the two neighbours. Consider the arrays circular.

Same as last year’s following problem.
There’s a round table with n dwarfs (0 - n-1) sitting around it. Each have an initial strength of ai and need to reach a final strength of bi in order to free gandalf who is at the center. An operations is defined as taking 1 strength from a dwarf and adding it to a adjacent dwarf and the cost is the distance b/w them i.e 1. Note that it’s a round table so 0th and n-1th dwarfs can do this operation too. Find the minimum cost.

Nasdaq

IITB 3/11/17

Mcq - oops
c/c++
aptitude
logical reasoning
Communication skills
Software model
1 coding question (depends on your set which one you get)
Q1 Given an empty binary search tree, add nodes one by one and every time you add a node
Print sum of distance of all pair of nodes
Q2 given a text containing link
hu
Then print
gg,hu
(This ques is similar to one asked in yodlee, it's there in this doc)

Sprinklr

IITKGP (4/11/17)

40 MCQs + 3 Coding Questions (Graphs) (Time : 90 Min)

MCQs were based on OS, DBMS, Networks, etc.

Coding Questions:

1. **Social Network:** In a social network, a person i connected to another person j will get a friend suggestion corresponding to a person k (who’s connected to person j), so the network will send 2 notifications (one to i and k). Given an undirected graph represented as an adjacency matrix, find the total requests that will be sent.
2. **Aerial Surveillance**: Given a square matrix with values either ‘X’ or ‘O’ at location i j.
X means location is inaccessible. The location is inaccessible if top,down,left,right are inaccessible.
Update the array location value with ‘O’ which are surrounded by inaccessible locations.

3rd question ???
3. Boiled down to this given a weighted graph, tell whether an edge can be a part of an MST or not.

Blackrock

IITD (5/11/2017)

Online test- 20 MCQ ques. 60 Minutes.(Level High)
Marking Scheme- +1 or -1
Don't try to attempt all the questions
List of some questions.

1. 3 gates one to heaven, one to hell 1day wait back to gate, third one is to hell 2 day wait back to get, find expected no.of days to reach heaven?**(Ans. 3)**
2. No. from 19 to 93 formed one single number like 192021……..9293. Find max. Power of 3 that divides it. **3^1**
3. 39P19+38P19+.....+20P19. Find largest prime no. that divides this sum.(**Ans 19**)
4. FORTY+TEN+TEN=SIXTY each letter is different integer from 0,1,2…….,9. FInd value of F? 2

https://answers.yahoo.com/question/index?qid=20110326202746AAXG9kP

5. For any integers a,b,c (a+b+c)(a^3-b^3)(b^3-c^3)(c^3-a^3) is always divisible by ?(Ans.7)

Similar question
https://math.stackexchange.com/questions/1526860/prove-that-7-mid-abca3-b3b3-c3c3-a3

6. Min. no of weights required to weigh all weights from 1 to 100 by using simple weighing pans?(Ans. 5 weights are(1,3,9,27,81))

7. 100 passengers in a plane. First passenger takes wrong seat. All other takes their seat if available or any other seat if theirs is not available. Find probability that last person get correct seat(Ans.1/2)
8. Similar question to 7) , 50 eggs are there marked from 1 to 50 assigned for person 1 to 50 respectively. If ith egg is left and person i will pick ith egg only , otherwise he will pick randomly . , first person select randomly , what is probability that 45th person selct his egg only (45th) ?
(note the difference in Q7 , it is given that the first person has taken wrong seat , not here)
9. (1,2,3,4,5,.....,20). No. of subsets of size 3 that can be formed from given set such that their product is divisible by 4?(Ans. 795)

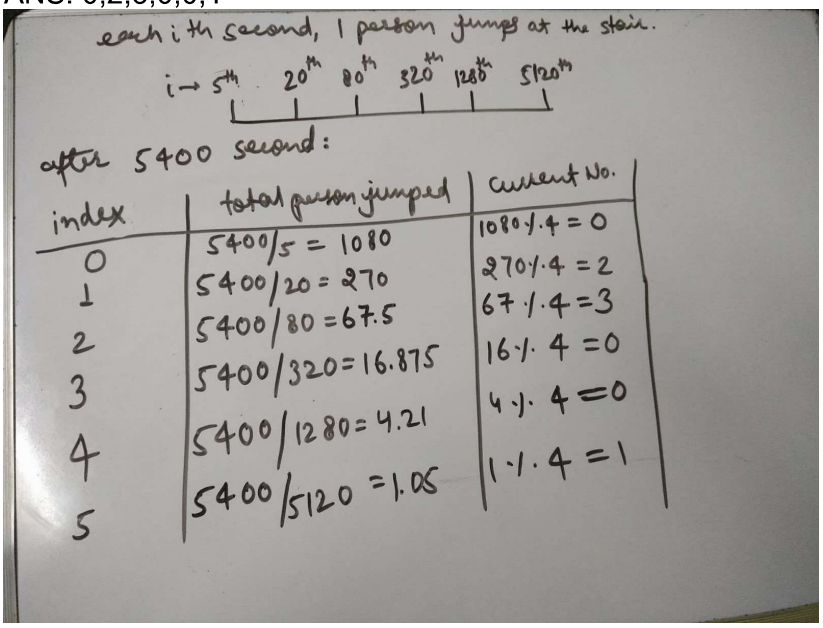
4k = 5 , 4k+2 = 5 , odd = 10 , (total - when all are odd or two odd and one number of form 4k+2)
Required answer =
20C3 - (10C3 + 10 C2 * 5C1)

10 Blackrock continued (image below) , can someone solve this please?

Two buildings A and B stand near each other. Due to a massive short circuit, building A catches fire. Residents of that building instead of using water, place a ladder in between the rooftops of the two buildings A and B. Their plan is that every 5 seconds one person from building A jumps to the first step of the ladder and hangs there. A person will either hold on to the step if empty or catch the lowest person already hanging by his legs. Each step of the ladder can withhold 3 persons hanging. Therefore, as soon as 4th person jumps on a step, the topmost person (the one holding on to the step) kick the ones below him (to let them fall) and steps forward, instantly (if his current step is 0, then he moves to step 1). Assume steps of ladder are numbered serially starting from 0 to 5. How many people would be hanging on each step after 1 hour 30 minutes?

- 1,3,2,0,1
- 0,2,3,0,0,1
- 0,2,3,0,1,1
- 0,2,3,2,0

ANS: 0,2,3,0,0,1



11 Find the next number
77,49,36,18, ? ans - 8

https://www.braingle.com/brainteasers/teaser.php?op=2&id=770&comm=0

12)there are exactly 4 mondays and 4 fridays in january, find the day of 20 january?
Ans - sunday
13) there are 3553 person in town, someone donate $45 to men and $60 to women
1/9 of men and 1/12 of women come to get donation, what is total amount of donation ?
Ans = 3552*5 (Total population includes donor also

14) there are 24 boys and 32 girls and total 100 students
, find the base in which number are represented?
Ans - 6
15)
Find the probability that six occurs 10 times before five occurs 8 times?

16) in a lottery , there are 175000 application and 3500 winner, A purchased 100 coupon
Find the probability that A wins the lottery
Ans = 1 - (175000 C 3400)/ (175000 C 3500)
Shouldn't it be 1 - (174900 C 3500)/ (175000 C 3500) ????

17)
There are total 25 students
There are 17 cyclist , 13 swimmer and 8 weight-lifter, . there is no one who is cyclist , swimmer as well as weight lifter
6 students got grades D or E

All cyclist ,swimmer and weight-lifter get B or C

Find the number of cyclist who are swimmers also .

Ans
Good question , C or S or W = 25-6 = 19
Using the total number of cyclist, swimmer and weightlifer , you will get sum of all student who are expert in 2 things = 19 hence number of student who are expert in only one = 0
This leaves

S and W = 2,C and W = 6,C and S = 11 ,

But 11 was not in option , neither was 2 , so i used 6

18)
A = {1,11,21, ...521,531,541,551}

What is the maximum number of element in a subset such that sum of any two should not be 552 .

Asn = 28

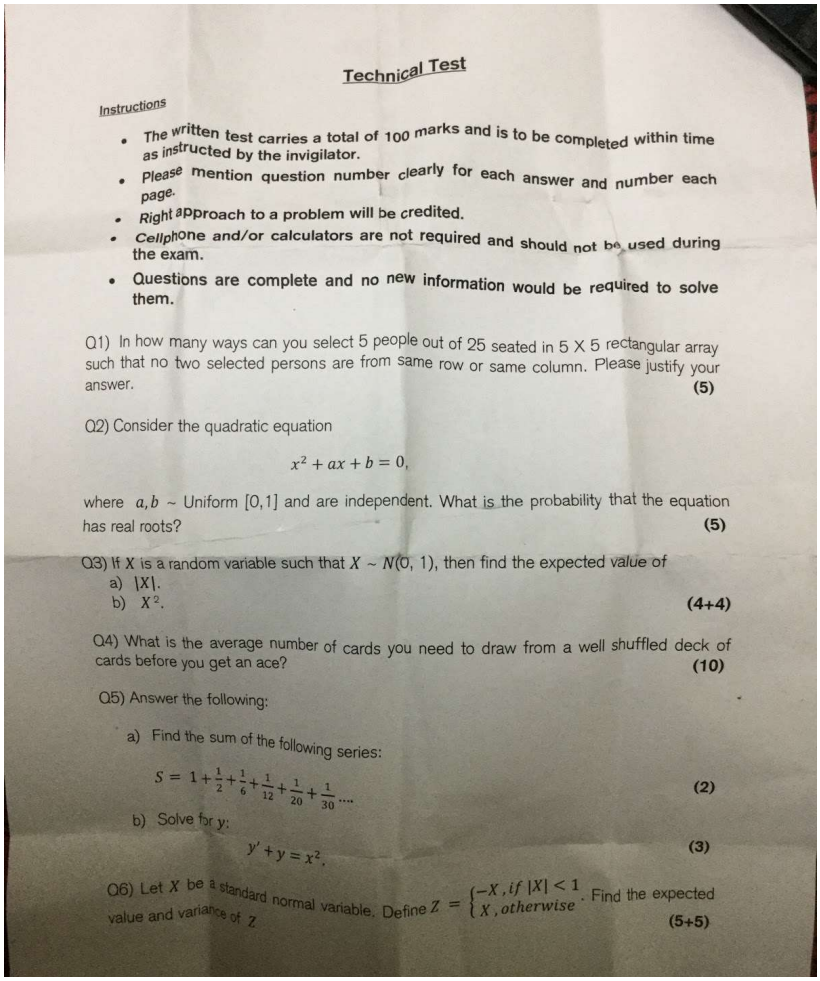
19)
A ,B and C are natural numbers
A vary from 0 to 10 , B from 2 to 7 , , C from 3 to 7 , hence total 11*6*5 = 330
Find a one-one function (a,b,c) that maps onto (1,2,..330)

Ans - f(a,b,c) = 66(c-3)+11(b-2) +a+1

Credit Suisse

IITK (5/11/17)

Profile: Risk Analyst



Technical Test

Instructions

- The written test carries a total of 100 marks and is to be completed within time as instructed by the invigilator.
- Please mention question number clearly for each answer and number each page.
- Right approach to a problem will be credited.
- Cellphone and/or calculators are not required and should not be used during the exam.
- Questions are complete and no new information would be required to solve them.

Q1) In how many ways can you select 5 people out of 25 seated in 5 X 5 rectangular array such that no two selected persons are from same row or same column. Please justify your answer. **(5)**

Q2) Consider the quadratic equation

$$x^2 + ax + b = 0,$$

where $a, b \sim$ Uniform $[0,1]$ and are independent. What is the probability that the equation has real roots? **(5)**

Q3) If X is a random variable such that $X \sim N(0, 1)$, then find the expected value of

a) $|X|$.
b) X^2. **(4+4)**

Q4) What is the average number of cards you need to draw from a well shuffled deck of cards before you get an ace? **(10)**

Q5) Answer the following:

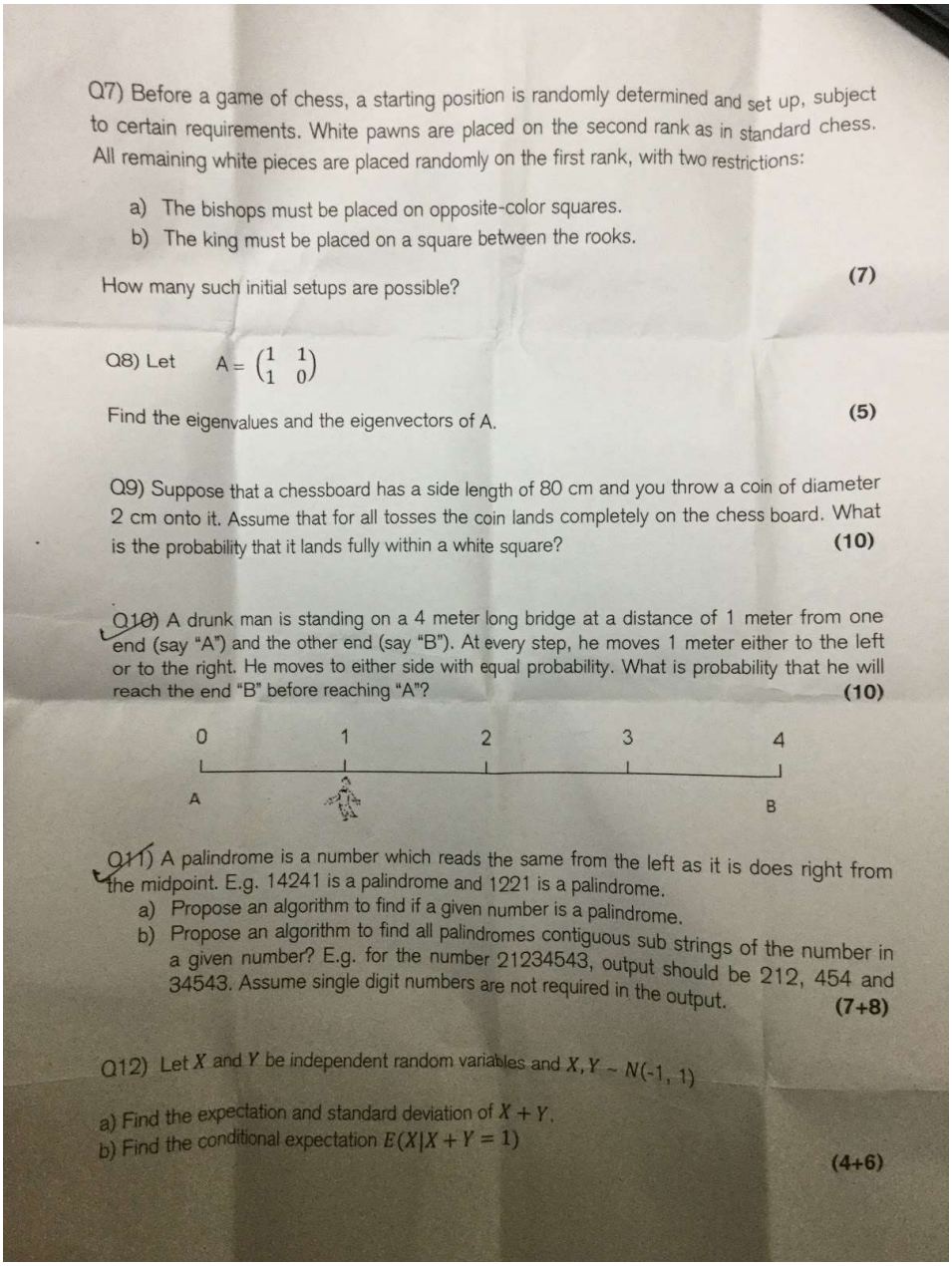
a) Find the sum of the following series:

$$S = 1 + \frac{1}{2} + \frac{1}{6} + \frac{1}{12} + \frac{1}{20} + \frac{1}{30} \ldots$$ **(2)**

b) Solve for y:

$$y' + y = x^2.$$ **(3)**

Q6) Let X be a standard normal variable. Define $Z = \begin{cases} -X, if\ |X| < 1 \\ X, otherwise \end{cases}$. Find the expected value and variance of Z **(5+5)**



Q7) Before a game of chess, a starting position is randomly determined and set up, subject to certain requirements. White pawns are placed on the second rank as in standard chess. All remaining white pieces are placed randomly on the first rank, with two restrictions:

a) The bishops must be placed on opposite-color squares.
b) The king must be placed on a square between the rooks.

How many such initial setups are possible? **(7)**

Q8) Let $A = \begin{pmatrix} 1 & 1 \\ 1 & 0 \end{pmatrix}$

Find the eigenvalues and the eigenvectors of A. **(5)**

Q9) Suppose that a chessboard has a side length of 80 cm and you throw a coin of diameter 2 cm onto it. Assume that for all tosses the coin lands completely on the chess board. What is the probability that it lands fully within a white square? **(10)**

Q10) A drunk man is standing on a 4 meter long bridge at a distance of 1 meter from one end (say "A") and the other end (say "B"). At every step, he moves 1 meter either to the left or to the right. He moves to either side with equal probability. What is probability that he will reach the end "B" before reaching "A"? **(10)**

Q11) A palindrome is a number which reads the same from the left as it is does right from the midpoint. E.g. 14241 is a palindrome and 1221 is a palindrome.

a) Propose an algorithm to find if a given number is a palindrome.
b) Propose an algorithm to find all palindromes contiguous sub strings of the number in a given number? E.g. for the number 21234543, output should be 212, 454 and 34543. Assume single digit numbers are not required in the output. **(7+8)**

Q12) Let X and Y be independent random variables and $X, Y \sim N(-1, 1)$

a) Find the expectation and standard deviation of $X + Y$.
b) Find the conditional expectation $E(X|X + Y = 1)$

(4+6)

AMERICAN EXPRESS

20 questions (Quant +LR + english question)- Speed test 35min
Basic Quant

1. Finding the sum of factors
2. Finding the remainder (find remainder of a * b * c *d when divided by 33. I don't remember exact values of a b c d but they were between 1000-1100). Use properties of modulo.
3. Find the angle if sum of sides of triangle is 3,5,7
4. Question relation to elevation (Quant)
5. Pattern recognition of LR.
6. If pages are numbered from 1 to 1000, find the prob of sum of no pages to be 9
7. LR questions related to arrangement (8 person given , divide them into 2 groups based on statement 1 and Statement 2)

8. Sum of consecutive 5 terms of AP given (Statement 1: first term is 54 , Statement 2: different is equal to first term.
9. Triangle given with two sides qual , find the angle
10. Question related to age. After 5 yrs age of father and son is ….
11. Number of divisors of 2160 which are not **perfect** numbers.
12. Many information sufficiency questions (like is statement 1 sufficient to answer this question, both statement 1 and 2 are required, etc)

Myntra

IITR

Test Pattern

1. 13 questions
2. 10 Multiple choice questions - What topics?
3. 3 coding questions
4. Platform??
5. Test Duration??

Test Questions (Coding)

1. **Matching Tokens(sol please)**

We define the following:
• There are friends_nodes friends numbered from 1 to friends_nodes.
• There are friends_edges pairs of friends, where each (x;, yJ pair of friends is connected by a shared integer token described by friends_weighti.
• Any two friends, xi and Yi, can be connected by zero or more tokens because if friends xi and Yi share token ti and friends Yi and zi also share token ti, then xi and z1 are also said to share token ti.
Find the maximal product of xi and Yi for any directly or indirectly connected (xi, yJ pair of friends such that xi and Yi share the maximal number of tokens with each other.
Complete the maxTokens function in the editor. It has four parameters:
The function must return an integer denoting the maximal product of xi and Yi such that xi and Yi are a pair of friends that share the maximal number of tokens with each other.
Please give a sample test case!

Sol to this ques…. Please
^^any example ?

2. **Diamon**
3. **d Mine (Sol please)**

Diamond Mine is your new favorite game. Its map is represented as an n x n matrix, and the value of each cell corresponds to some property of the map:

- A value > 0 represents a path.
- A value of 7 represents a diamond in a path that can be picked up by the player.
- A value of - 7 represents a wall (path obstruction).

The basic rules for playing Diamond Mine are as follows:
The player starts at (0, 0) and reaches (n-1, n-1), by moving right (.....) or down (!) through valid path cells.

- After reaching (n-1, n-1), the player must travel back to (0, 0) by moving left(-) or up (1) through valid path cells.
- When passing through a path cell containing a diamond, the diamond is picked up. Once picked up, the cell becomes an empty path cell (meaning you cannot pick up the same diamond twice).

•If there is no valid path between (0, 0) and (n-1, n-1), then no diamonds can be collected.
•A player wins the garne by collecting the maximum number of diamonds possible when following the above rules.
Complete the collect_max function in your editor. It has 7 parameter: a 2D array of integers, mat, describing the game map. It must return an integer denoting the maximum number of diamonds you can collect in the given Diamond Mine garne map.

Input Format

The locked stub code in your editor reads the following input from stdin and passes it to your function:
The first line contains an integer, n, denoting the number of rows in mat.
The second line contains an integer, n, denoting the number of columns in mat. Each line i of the n subsequent lines (where 0 < i < n) contains n space-separated integers describing the respective elements of row i in mat.
Solution Please Please +1 == (Backtracking seems the only option)

3. **Budget Shopping**

Helen has n dollars budgeted to purchase Math notebooks. There are m stores that stock unlimited supplies of notebooks in bundles, but the size and price of the bundles varies from store to store. Helen can purchase as many bundles as she wants from as many stores as necessary until she depletes her budget, but her goal is to purchase a maximal number of notebooks. For example, if Helen has n = 5 dollars and there are m = 2 shops where one sells 4-notebook bundles for 2 dollars apiece and the other sells 2-notebook bundles for 1 dollar apiece, she will buy a total of 4 + 4 + 2 = 10 notebooks (two bundles of 4 from the first shop and one bundle of 2 from the second shop).
Complete the budget Shopping function in the editor below. It has three parameters:

Bundle Quantities INT array Each bundle Quantities i (where 0 < i < m) denotes the number of notebooks
Bundle Costs integer array Each bundle Costs; (where 0 < i < m) denotes the cost of each bundle at shop i.

The function must return an integer denoting the maximum number of notebooks she can buy with n dollars.
Input Format
The first line contains an integer, n, denoting the number of dollars in Helen's notebook budget.
The next line contains an integer, m, denoting the number of shops.
Each line i of them subsequent lines (where 0 < i < m) contains an integer describing bundleQuantities i.
The next line contains an integer, m, denoting the number of shops.
Output Format
Return an integer denoting the, maximum number of notebooks she can buy with n dollars.

Similar to this:
http://www.geeksforgeeks.org/unbounded-knapsack-repetition-items-allowed/
Solution :- http://ide.geeksforgeeks.org/q3ppm7

IIT KGP (10/11/17)

Duration : 90 min

Slot-1: Total 10 Questions (6 MCQ + 4 Coding)
MCQ were not that tough.

1. There are n-leaves on a straight line numbered from 1 to n. A caterpillar starts from 0 and starts eating the leaves with some condition. There are total of k-caterpillars and their jump numbers are given in an array. A caterpillar with jump number 'j' eats the j, 2j, 3j, …. leaves till n. Like this every caterpillar will eat the leaves respective to their jump numbers. Find out the number of leaves uneaten at the end.
Constraints : Like this every caterpillar will eat the leaves respective to their jump numbers. Find out the number of leaves uneaten at the end.
Constraints : 1 < n < 2*10^9 and 2 <= k <= 22
(Bruteforce solved 7/15 test cases for some people and 10/15 for some other)
Ex: n = 10, k=3
Jump Numbers : 2 4 5
Answer : 4
Explanation : 2,4,5,6,8,10 will be eaten by the caterpillars and only 1,3,7,9 will be left.

2. https://www.careercup.com/question?id=6229105402970112

3. Find out the sum of common prefixes (common characters from starting) of a number with itself by removing first i characters. (i = 1,2,....n-1) , n -> length of string. (Bruteforce got accepted for some people).
Input : ababab
Output : 6 + 0 + 4 + 0 +2 + 0 = 12
Explanation :
ababab and abababab has common prefix (abababab) of length 6.
ababab and babab has common prefix () of length 0.
ababab and abab has common prefix (abab) of length 4.
ababab and bab has common prefix () of length 0.
ababab and ab has common prefix (ab) of length 2.
ababab and b has common prefix () of length 0.

4. Calculate the cumulative sum of the array and keep track of the minimum, if minimum less than one return (min*-1)+1; else return 0;

Slot-2 questions and pattern were different. (Same as IITG)

IITG (10/11/17)

// iitg folks please edit accordingly and please add the other two questions :)
Same pattern as others, 10 MCQ and 3 coding questions.
Question-1 :
Find the number of positive integral solutions for this equation -> (1/**x**) + (1/**y**) = (1/**N!**)
Input- An integer **N**. **{ 1 <= N <= 10^6 }**
Output- Number of +ve integral solutions.
(ref: https://goo.gl/q2QsaS)
(ide code: https://ideone.com/6x2kpl)
2. https://www.hackerrank.com/challenges/lexicographic-steps/problem

Appdynamics

IIT Delhi (09/11/2017)

14 questions(4 programming, 10 MCQs), Time: 2hours
MCQs were simple Data structure and Algorithm questions

1.
2. Two positive integer arrays given, nums and maxes. Return an array whose ith index contains number of elements in nums which are less than maxes_i.
3. Some question on Coin Change problem.
4. One more question which i don't remember much.(Can someone from IITD recall ?)

Questions please..

IIT KGP (15/11/2017)

15 Questions (5 Programming, 10 MCQs) Time: 2 hours
MCQs - Simple DS and Algo questions

1. Count max occurrences of distinct substrings given that it follows the following constraints:
    a. It's length is in the range [minLength, maxLength] - Both given
    b. It has unique characters less than a given integer maxUnique
2. Find max product of lengths of non-overlapping palindromic substrings (i.e if (i, j) is the start and end index of a palindromic substring, then the other substring can't have start/end index in range (i, j))
3. http://www.geeksforgeeks.org/count-sub-arrays-sum-divisible-k/
4. Detecting cycle in a linked list
5. Closest pair. Solution sort the array first. Find the **min** of arr[i]-arr[i-1] and then print all the pairs having **min**

AXIS Bank

IITK

Test had 4 major sections. You can't go back to the previous question.
Section 1: English: There will be a paragraph of 3-4 lines and 3 question based on that.

Section 2: Data Interpretation: Again 4-5 passage with 3 questions from each passage. Small data in from of graphs/table. And Calculator was allowed, so a plenty of time will be available.
Section 3: Critical Thinking: 20 questions based on figure patterns. 3-4 figures were given, and you have to find next best fit which follows the trend.
All 3 sections had approximately 1 minute for a question. Time will be enough if you maintain normal pace.

Section 4: Workplace Simulation: It had 5 different scenarios to judge on 5 different aspects like team work, leadership, relating with others etc. In each scenario, a meeting simulation video will be there and you have to select the best and worst statement to make after each statement of your colleagues. (No time Assigned)

Visa

IITB (5-11-2017)

4 questions
120 mins

1) http://www.geeksforgeeks.org/count-ways-express-number-sum-consecutive-numbers/
2) Given sets of intervals of the form [L, R]. Count minimum number of elements required such that at-least 2 elements from each interval are included.
3) N vertices and a number g are given. An edge exists between two vertices (i,j) if gcd(i,j)>g
Q queries. Each query is of the form (a,b). Return 1 if a path exists from a to b, 0 otherwise.
Constraints ??
4) Given 2 arrays A and M and a position saying even/odd
Score of A is sum(A[i]-M[i]) for i
Score of M is sum(M[i]-A[i]) for i
Return maximum score (Simple implementation based question)

IIT KGP (12/11/17)

4 Coding Questions : 2 hrs

1. Same question as first question asked by Myntra in IITR.
2. Finding number of characters needed to make two strings as anagrams.

3. Given a sentence with regex **^[A-Z][a-z]*/.$**, return the sentence by rearranging the words in the sentence by sorting the words according to their lengths and if the lengths of 2 words are same then follow the order in the original sentence.
Input : This is a sentence.
Output : A is this sentence.

Input : This horse is from some place.
Output : Is this from some horse place.

4. Social Grouping.
- In a graph, n-nodes will be formed into some groups, the sizes of different groups are given and the nodes also i.e., you will be given an array representing which node belongs to which size of group. You have to output the groups separately. (See the example for better understanding)
- Input : [2,1,1,1,2]
Output : 0,4
1
2
3
Explanation : Nodes-0,4 belongs to group of size 2 and nodes 1,2,3 belong to groups of size 1.
- Input : [2,2,1,2,2]
Output : 0,1
2
3,4
Explanation : Nodes-0,1,3,4 belongs to groups of size 2 and node-2 belongs to group of size 1. (Here first 2-sized group can have 0,3 also but have to assign least possible value node to first group which is 0,1).

Uber

Test Questions?? KGP Guys?? Platform? Exam isn't held yet

IITR 8th Nov.

3 coding questions, 90 minutes

1. Two player Arun and Tarun play a game. In each set of the game they can score point from -k to k (both including). They start their game from Arun's score A and Tarun's score B initially. If they play s number of sets in the game, find the number of ways by which Arun can win the game.
A person is considered winner if his points are strictly higher than the other by the end of the game.
You are give A, B, k and s. Output the number of possible ways for Arun to win.

K<=1000
s<=100 sol?
Did O((s^2)*k) work??
Solution??+3

2. Count the no. of characters you need to change to make two strings anagrams. You can only replace the characters (one by one).sol?+1
http://www.geeksforgeeks.org/minimum-number-of-manipulations-required-to-make-two-strings-anagram-without-deletion-of-character/
O(n) solution.

3. Simple Graph Question (solved by DFS or union-find).in I don't remember the question exactly

IIT KGP (13/11/17)

3 Coding Questions (90 min)

1. Find the number of paths from (0,0) to (m-1,n-1) in a mXn grid which contains 0's and 1's where 1 represents an obstacle and 0 represents path. You are allowed only to go right and down (top-down approach).

Other Questions??

DE Shaw

IITG (10/11/17)

(Friends kindly elaborate the question)

2 Programming - 50 mins
10 Technical - 20 mins (Easy)
Can u say what questions are asked in technical section?

10 Aptitude - 20 mins (Little standard ones, not easy)

1) In an array find the maximum length of repeated numbers in every window of k-size. Ex:- [1,1,0,1] k=3 O/P - 2 Exp:- windows {1,1,0},{1,0,1}. First window has 2 consecutive 1's so output is 2.
2) Modified Knapsack
An array of the following products are given
i) Cost [1, 1, 2] //Cost of each product to buy
ii) Happiness [2, 3, 1] //Happiness after buying each product
iii) MinQuantity [2, 1, 1] //MinQuantity to be bought in each product
iv) MaxQuantity [4, 3, 2] //MaxQuantity to be bought in each product
v) Money (4) //Total available money
Return the max happiness possible. Answer=8

Bidgely

IIT KGP (12/11/17)

Total 11 Questions (8 MCQ + 3 Coding) : 60 min

- MCQ were related to Quant and Aptitude.
- Some standard questions were asked. Some of them are :
1. Camel and banana puzzle
2. If we pick 2 squares from a 8X8 chess board, what is the probability that they have a common side.
3. How many different combinations are possible in a chessboard to fill it with elements ranging 1,2…...8 (any number of times) such that every element is equal to the average of its adjacent elements.
4. 1002 - 992 + 982 - 972 + ……. + 22 - 12 = ?
5. Alice is walking down an upward escalator, he felt 150 steps. James is walking up an upward escalator, he felt 75 steps. If Alice covers 3 times more steps than James in given time. What are the number of steps visible in the escalator at any given moment?

Coding :
1. Wild Card Matching - https://leetcode.com/problems/wildcard-matching/description/

2. Given two strings, find whether those two strings have a common substring or not.

3. Given an array of size n, find the xor of all i consecutive elements where i = 1,2,3,.....,n.
Input : [1,2,3]
Output : 2
Explanation : 1^2^3^(1^2)^(2^3)^(1^2^3) = 2
Input : [1,2,3,4]
Output : 0
Explanation : 1^2^3^4^(1^2)^(2^3)^(3^4)^(1^2^3)^(2^3^4)^(1^2^3^4) = 0
Solution :
If n is even, then answer = 0.
If n is odd then answer = xor(odd indexed elements where indexing starts from 1).
In first example n is odd, so the answer is 1^3 = 2 and in second example n is even, so the answer is 0.

Nvidia

IITB 23 November

CGPA cut-off ??
4 sections
Aptitude - difficult
C++ - Medium
OS - Easy
Data Structures
One more section was there which I don't remember.

Auctus Advisors

Coming to IITB, shortlist methodology will be similar to Bain, BCG, ATK

Amazon

Which profiles is Amazon offering? Data Science? Becoz I have heard that SDE has already been filled by PPOs.
BHU Guys?? Nahi aayi bhai Completely cancelled or is yet to come??

Test Questions?? BHU Guys?

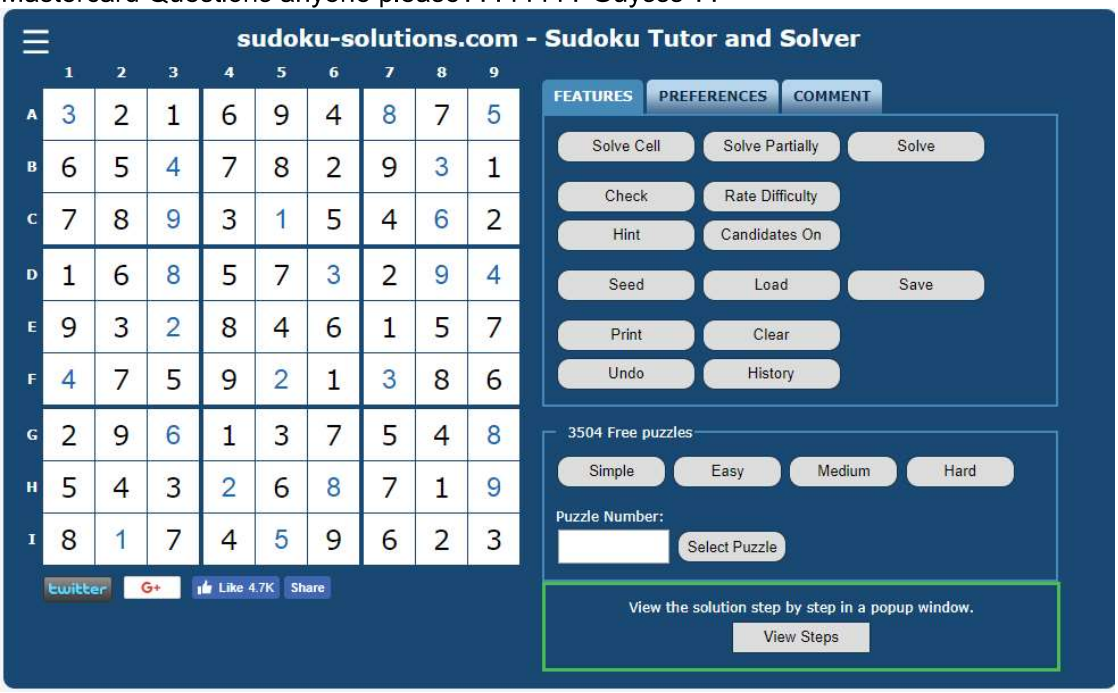
IIT DELHI- PLEASE GIVE INFO OF AMAZON TEST

~~(Test has been postponed)~~
(Amazon is not coming for campus hiring this time)
For all IITs???? Iitd confirm.

MasterCard Advisors APT

Can anyone share the process details here ?

Mastercard Questions anyone please???????? Guysss ??



AB InBev

Questions Anyone?????/?

Honeywell

Pattern and questions Anyone?

Idea Forge

Pattern and questions Anyone?

ZS Associates

Profile: Data Analyst
38 questions objective, 1hr
Questions based on statistics, quant, data interpretation, basic programming, Machine Learning

Profile: Decision Analytics Associate Questions?
Profile: Business Operations?

Mahindra and Mahindra

Manufacturing, Mumbai

Profile - Core eng.

Any updates?

Derq.com

Questions Anyone???

Apple

-Ye to sayad sirf IIITH aa rhi?
IIT KGP test on 18.11.17
Questions??
Was MTech allowed???? Yes :-)
How many coding ques needed to be solved for shortlist to next round?

IIT KGP

Time : 75Min Platform : HackerRank
3 coding + 5 MCQ's MCQs???
Coding:
1.check whether the given sides form a triangle or not
2. Gridland Lexicographical Ques
Ques link: https://www.hackerrank.com/challenges/lexicographic-steps/problem
3. Given an array of prices(P). For element i discount is given. Discount(di) is defined as the least P[j] for j>i+1 to j<n. Subtract the discount from the price and print its sum. (koi link daal do ya exact problem)

MCQs???

IIT Bombay

25 November

1. Checking whether given string of '<' and '>' is balanced. You are allowed to change '>' into '<>' some fixed number of times for each input. Check whether by changing '>' with '<>' given string is balanced.
2. Given huffman encoding of character, decode huffman encoded string.

Palantir

Facebook

Fractal Analytics

IIT KGP

1. http://www.geeksforgeeks.org/minimize-the-maximum-difference-between-the-heights/
2. **Alphabetically largest substring:**
Given a string, find the alphabetically largest substring and return it. For example, for a string “aab”, set of substrings is [“a”,”aa”, “ab”, “aab”, “b”]. So return “b” as the answer.
3. Same as Visa - IITB - Q.3 - on Graphs

Dr Reddy’s Lab

IIT KGP (14.11.17)

opened only for Chemical Engg. (Btech and Dual)

100 questions in 60 minutes (No negative marking)
Of course solving every question is impossible but make sure you make a guess on every question. Sectional cutoffs are there !

50 Questions Aptitude : Some were simple, some were relatively lengthy, trick lies on solving the simple ones and guessing the lengthy ones; Also had 2-3 random GK questions (eg. what was the first name of Mahabharata, Who was awarded Nehru Award :P)

50 Questions Core Chemical Engg : Core subjects (esp. Mass Transfer), Questions were arbit and random. Some questions were on fanning factor, dissolution, half life, drying, rate constants etc

Paytm

IIT BHU

http://practice.geeksforgeeks.org/problems/finger-game/0
http://www.geeksforgeeks.org/count-number-triplets-product-equal-given-number/
http://www.geeksforgeeks.org/wildcard-pattern-matching/
http://www.geeksforgeeks.org/remove-bst-keys-outside-the-given-range/

Given an array of size n take k random integer from array such that (max of k numbers - min of k numbers) is minimum

IITR (27-11-17)

Cocubes platform - 70 minutes 3 coding questions.

http://www.geeksforgeeks.org/expression-evaluation/
Count the number of time any number is carry forward while adding two numbers. (E.g. 456 + 789. Output = 3 as 3 carries)
Check if two binary trees are identical or not.

In another set :
http://www.geeksforgeeks.org/count-number-binary-strings-without-consecutive-1s/

narcissist

Schlumberger

IITH

IITH - Schlumberger (Data Scientist and Data Engineer Profile)
Date - 17 Nov 2017

Procedure - 55 mins - 3 coding problems

1. Given two 11 integer arrays, whether second array is a permutation of the first array or not?
e.g. Array1 - 1 2 3 4 5 6 7 8 9 10 11
Array2 - 1 7 8 9 3 4 5 10 11 2 6

2. Given a string containing all possible characters, tell whether after removing all characters except the uppercase and lowercase characters, the string is a palindrome or not. Note- uppercase and lowercase characters to be considered as same.
e.g. Input String - i-i.t+h*T-i^I, after removing all other chars, iithTiI is left which is a palindrome.

3. Given a range L to R, find all prime numbers between this range which could be divided into sum of two 'consecutive' primes numbers + 1.
eg. For range 1 to 20 - Ans : 2
13 = 5 + 7 + 1 // 5,7 are consecutive prime nos.
19 = 7 + 11 + 1 // 7,11 are consecutive prime nos.
L & R are inclusive??

Note - GUI is very bad. Platform?

RChain Coop

GENERAL MILLS

Any information regarding the Modeling Analyst profile????

Dynamic Technology Lab

Flow Traders

Hitachi Limited

Voltaire Capital

Oyo Rooms

IITH

Procedure - 1.30 hrs 20 Objective and 2 Programming Questions
Platform - HackerEarth
Date - 19.11.2017

Objective problems were from C++ including topics like dynamic operators, virtual functions, enum, define, pointers;
Some were output based problems.

Programming Problems -

1. Two strings are give, we need to convert them into anagrams of each other using the following 2 operations only
    a. Add a new character
    b. Delete a character

    Minimum no. of such operations required to do so ?
    e.g. abc abd
    Ans - 2

2. Find sum of length of sub-arrays which has maximum element as K (given), the sub-arrays should not overlap.
eg. K = 4 { 1,2,3,1} Ans - 0
eg. K = 4 { 4,8,5,2,4} Ans - 1 + 2 = 3;
eg. K = 4 { 5,6,7,8} Ans - 0
Java Solution: O(n)time O(1)space https://ide.geeksforgeeks.org/qrhLNNMFhU

IITR(Was very easy tho !!)

Unlike IITH, objective mainly consist of OS concepts.
Coding1:
http://www.geeksforgeeks.org/dynamic-programming-set-16-floyd-warshall-algorithm/
Coding2:

Codenation

IBM Cognitive Data Scientist

Honeywell

IITH 25.11.2017

Procedure - 2.30 hrs 3 Programming Questions
Platform - HackerEarth

Programming Problems -

1. Given a string, and q queries each representing a range L to R.
Output the no. of distinct characters within that range.

Brute Force does not work as Len of string <= 10^5 and No. of queries <= 10^5.

e.g. nikunj
Range 1 to 6 - 5
Range 1 to 4 - 4

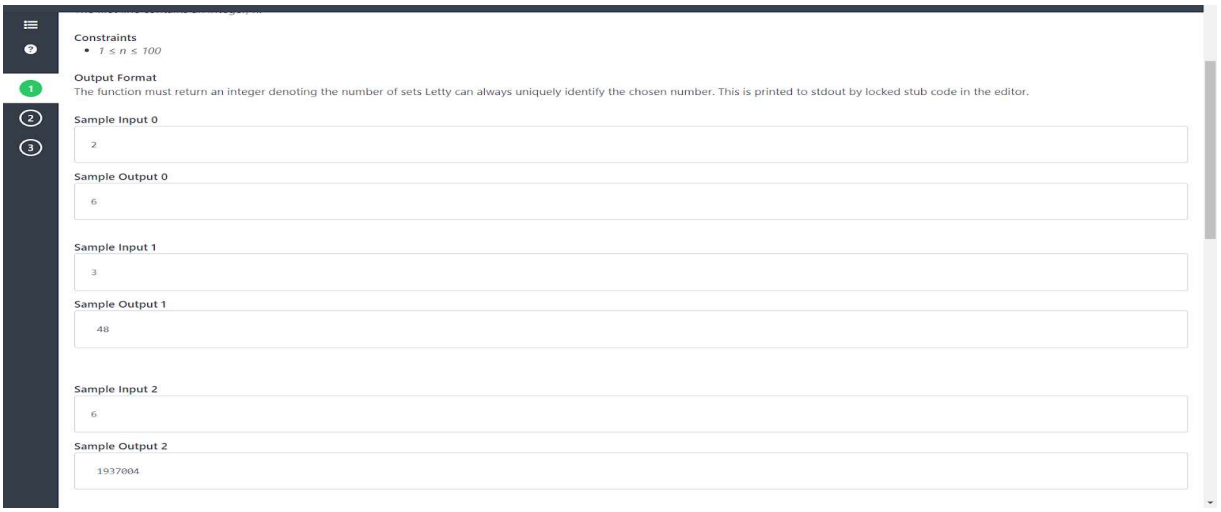
2. Given an array of numbers(both +ve and -ve). You have to flip the sign of
any number, k times, such the total sum of the numbers is maximum. You may flip the sign
of the same number multiple times.

e.g. -1 1 -1 1
Flips - 4
Ans - 1 + 1 + 1 + 1 = 4

Hint - 0 may also be present in the input.

3. Given an array, split the array into two half {1,2.....m} and
{m+1, m+2, ... n} such that A[1] = A[m+1], A[2] = A[m+2], ... A[m] = A[n].
Find such permutation of the given array.

e.g. 5 5 7 7 : {5 7} = {5 7}
e.g. 1 2 3 4 : Not possible
Note - total sum should not be same, the elements should be same.



Constraints
- $1 \leq n \leq 100$

Output Format
The function must return an integer denoting the number of sets Letty can always uniquely identify the chosen number. This is printed to stdout by locked stub code in the editor.

Sample Input 0
2

Sample Output 0
6

Sample Input 1
3

Sample Output 1
48

Sample Input 2
6

Sample Output 2
1937004

OLA

Priyesh Jain Yeah they conducted in IIT Madras yesterday the questions were fairly easy there were a few English questions which were hard and had most weightage so if u can google them u r through
Then
I remember a few questions will tell u those
A raft on calm water goes at 7mph and the stream at 3 mph a fisherman drops something at a distance of 14 miles from the raft upstream and u had to calculate the time taken by raft to reach that thing
The answer would be 2.
Then some women and bag question was there it's answer was coming out to be 17
Then a dog question with answer 6
Then one more question which occurred twice there were three numbers with product 18 which had to be divided into three people with one person having 3 and nontwo having same amount and we had to tell the sum of the numbers which would come out to be 3+1+6 = 10
Then in one question we had to interchange first and third digit and arrange it in ascending order and report second number it's answer was 645