

ISHU GUPTA  
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Q.2

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$\left(\frac{4}{5}\right)^3$  : All three told reality

$\left(\frac{1}{3}\right)^3$  : All three gave total false info.

Since, all three have told "Yes",  
chances that they have actually  
surrounded is -

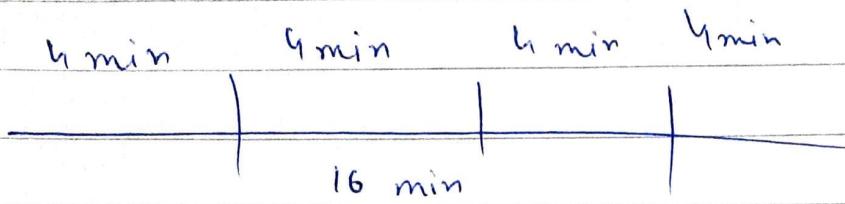
$$\frac{\left(\frac{4}{5}\right)^3}{\left(\frac{4}{5}\right)^3 + \left(\frac{1}{3}\right)^3}$$

(conditional Probability)

$$\Rightarrow \frac{64/125}{\frac{64}{125} + \frac{1}{9}}$$

$$\Rightarrow \frac{64 \times 9}{64 \times 9 + 125} = \frac{576}{701}$$

Q.3



$x \rightarrow$  probability of barking in 4 minutes.

$$\Rightarrow {}^4C_1(x)(1-x)^3 + {}^4C_2 x^2(1-x)^2 + {}^4C_3 x^3(1-x) \\ + {}^4C_4 x^4(1-x)^0 = 0.9$$

 $\Rightarrow$ 

Using  ${}^4C_0 x^0(1-x)^4 + \dots + {}^4C_4 x^4(1-x)^0$   
 $= (x+1-x)^4$

$$\Rightarrow 1 - {}^4C_0 x^0(1-x)^4 = 0.9$$

$$\Rightarrow 0.1 = (1-x)^4$$

$$\Rightarrow 1-x = (0.1)^{1/4}$$

$$\Rightarrow x = 1 - (0.1)^{1/4}$$

Probability of barking in 4 minutes  
 $= 1 - (0.1)^{1/4}$

Q.4

(i)  $N = 0$ (ii)  $N > 0$

Q.5

$$\begin{aligned}
 P = & \frac{1}{100} \times 0 + \frac{1}{100} \left[ \frac{1}{2} \times 1 + \frac{1}{2} \times 0 \right] \\
 & + \frac{1}{100} \left[ \frac{1}{3} \times 1 + \frac{1}{3} \times \left( \frac{1}{2} \times 1 \right) + \frac{1}{3} \times 0 \right] \\
 & + \frac{1}{100} \left[ \frac{1}{4} \times 1 + \frac{1}{4} \times \left[ \frac{1}{2} \times 1 \right] + \frac{1}{4} \times \left( \frac{1}{2} \times 1 \right) + \frac{1}{4} \times 0 \right] \\
 & + \frac{1}{100} \left[ \frac{1}{5} \times 1 + \frac{1}{5} \times \frac{1}{4} \times \frac{1}{2} + \frac{1}{5} \times \dots \right] \\
 & \quad \vdots
 \end{aligned}$$

$$\begin{aligned}
 P = & \frac{1}{100} \left[ 0 + \frac{1}{2} \times 1 + \frac{1}{3} \times \frac{3}{2} + \frac{1}{4} \times \frac{1}{2} \times \frac{3}{2} \times \frac{1}{3} \right] \\
 & + \frac{1}{5} \times
 \end{aligned}$$

Q. 6.

~~Q. 7.~~ ~~the shopkeeper gave Rs 1000 to X~~  
 (4)

X gave Rs 800 to Man (M)

X gave Rs 1000 to Y

Total money X got = 1000  
 " " X gave = 1800

→ Total money lost = Rs. 800

→ But if we count his labour also,  
 then he lost Rs. 1000

[He should have got this money]

Q.7 Yes, I can make 2 such piles

There are total 10 plates  
If I divide it this way

Pile 1	Pile 2
Plates with x side up	so $5-x$
Plates with y side down	$5-y$

such that  $x+y=5$

Step 1 i.e. I just divide 10 plates equally in two piles randomly,

Step 2 → Now reverse all plates of pile 2.

So we get,

Pile 1	Pile 2
Side up $x$	$5-y = x$
Side down $y$	$5-x = y$

Since  $x+y=5 \Rightarrow 5-y=x$  &  $5-x=y$

Hence, we have got required piles.

Q.8 I'll use the following strategy -

1. If no. of candies in the box are odd -  
 I don't have option to choose half,  
 so I'll choose 1.

\* 2. If no. of candies = even ( $n$ )  
 and  $\frac{n}{2}$  = odd, I'll choose half  
 and if  $\frac{n}{2}$  = even, I'll choose 1.

Initially,  
100

Me	Friend	left candies
1		99
	1	98
49		49
	1	48
1		47
	1	46
23		23
	1	22
11		11
	1	10
5		5
	1	4
1		3
	1	2
1		1
	1	
92		

Ans - 92

Q. 9. If lead character (sunshine) is a Cat.  
Superman

We can have a game where Cat needs to score maximum by catching rats and also needs to escape from dogs.

Score = no. of rats caught

Frame terminates when one of the dogs catch the cat.

Poses →

- Turning face left: Cat turns left
- Turning face right: Cat turns right
- Moving hands up & down: Cat runs with a speed proportional to speed rate of movement of hands.

- Moving hands up & down:  
(Both hands in same direction)

Cat jumps according to hands.

i.e. if both hands are taken up: cat jumps upwards

i.e. if both hands are taken down:

cat jumps downwards.

Q.10 whatsa~~p~~ -

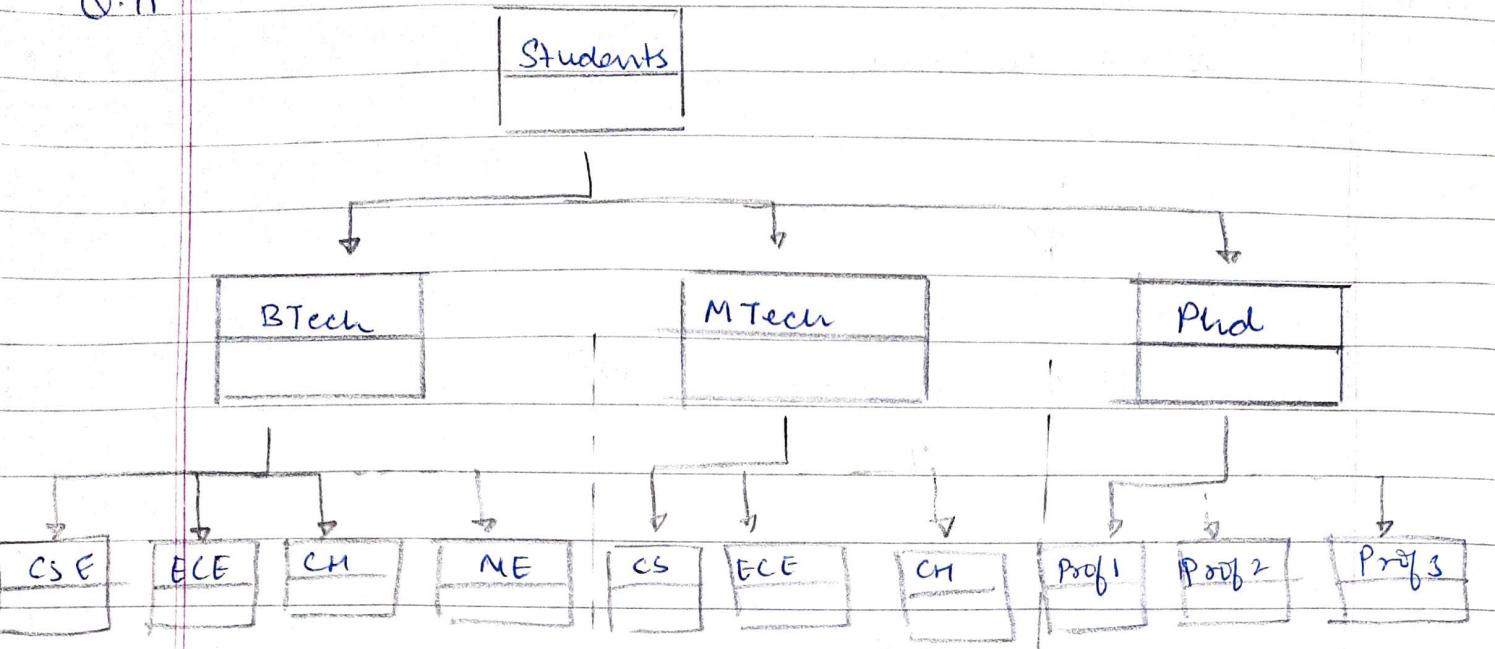
Bug:

I have <sup>faced</sup> one issue multiple times.

If I turn off mobile data for few hours and a lot of messages come ~~if~~ on some group ( $> 1000$ ), I sometimes receive less messages than I would have received if my internet was on.

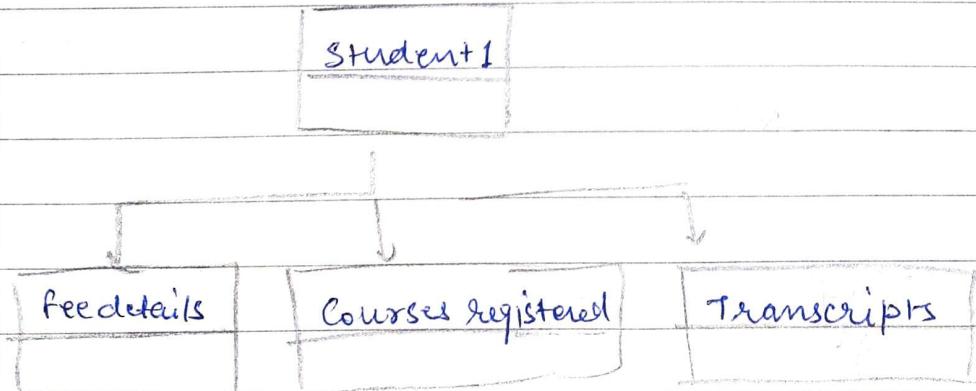
[~~If~~ I have verified this multiple times when some <sup>friend</sup> of mine received far more messages on the same group for the same period of time.].

Q.11

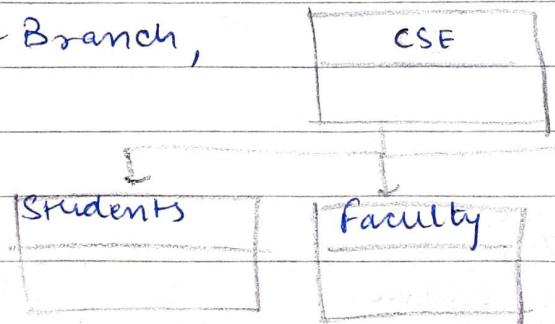


BTech, MTech are classified on the basis of branch but Phd is classified on basis of professor under whom whom they are doing phd.

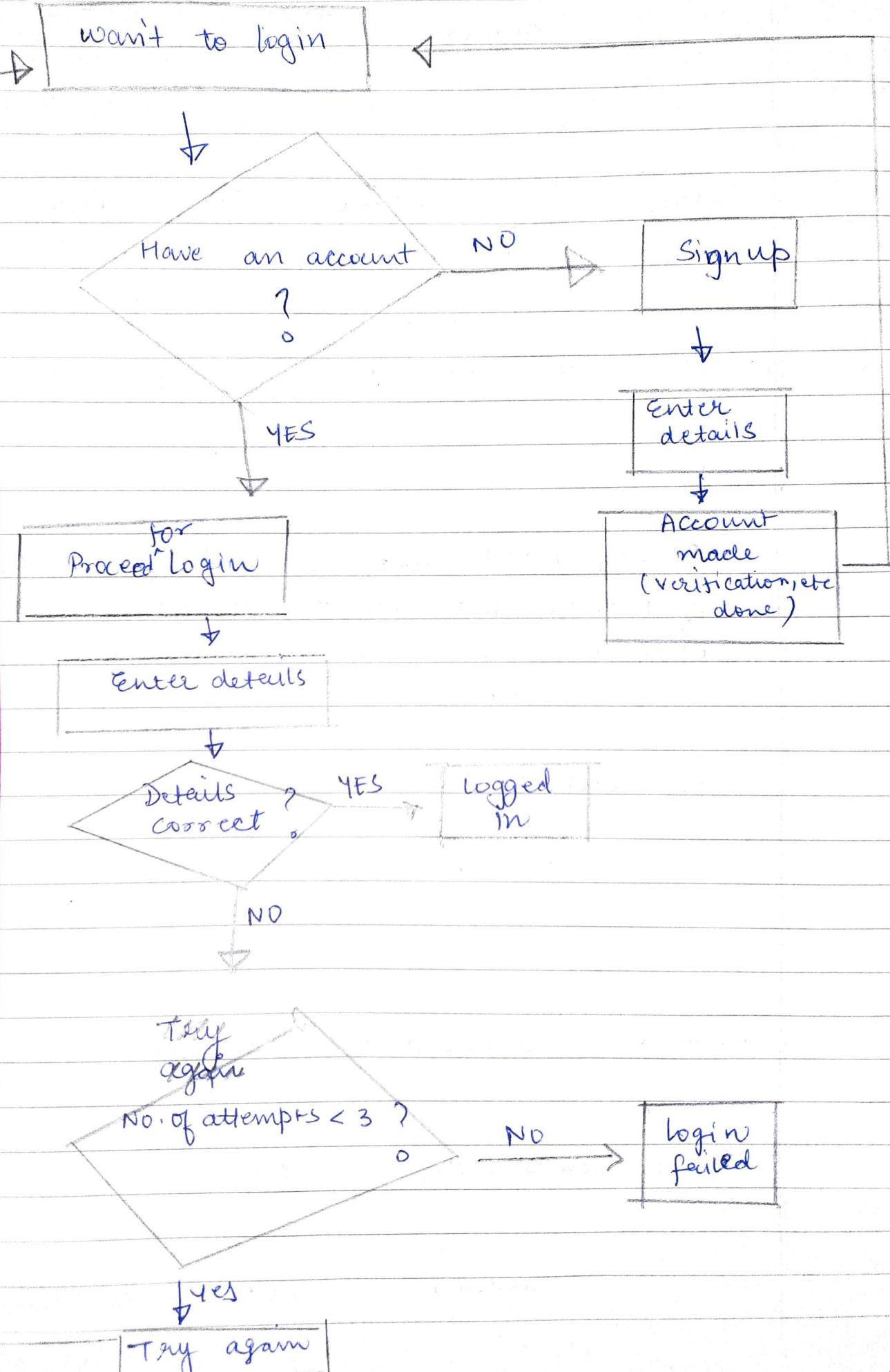
→ For each student,



→ for each Branch,



Q.12



Q.13.

all-in-one institute app

I am answering this question with respect to IITR junta.

I think an app which contains features of everything like channel-i's features [noticeboard, etc], hostel map, full institute map, managing mess fees, etc... [everything that is already existing but is staggered in different apps].

This app in my opinion will help students of IITR a lot.

Q.14

## Truecaller -

1. Access to contact information

2. Access to call log

3.

\* ① contact information :

Access to this information can increase accuracy of truecaller to some extent as more data will be fetched.

But leaking of information is a dangerous aspect.

② call log :

Access to this can help user manage call logs.

But sensitive information like who is calling a user at so and so time can be leaked.

## Google Chrome

Q.15.

I don't think that each post has a dedicated place by using the following observation -

whenever we scroll, after some number of posts, the webpage takes time to load more posts.

So, I think this is what happens or should happen-

Only a certain number of posts are displayed/loaded at a time & when we have scrolled through it, a new bunch of posts is loaded from backend.

So, at one time, only a specific number of posts would be there saving resources.

Q.16

- One thing that drives me is the variety of skills<sup>and initiatives</sup> that MDcr has, one of them is MDcr talks.

I watched some MDcr talks and found them helpful. They provide good guidance for people of various fields at various levels (from a newbie to a master).

#### , Alumini Network

- Development<sup>is</sup> and open source culture are one other reasons.

→ I think MDcr as a group does a variety of tasks, undoubtedly developments but various other things like MDcr talks.

Ques 9 I cannot remember any such situation I faced in school, Personal life till now.

Q.18

Other skills that I have -

- Good at speaking humbly with people.  
[ Might be helpful in taking interviews for  
MDca talks ]