Hey Amit.

Hello.

Do you know how to solve a Rubik's cube?

No.

So you are trying to exhaust all possible configurations, is it?

Yes I think it's easy. How hard it can be?

How many configurations do you think a Rubik's cube has?

It's very small. I suppose a couple of hundred.

You see what just happened. Two friends are discussing; how difficult it is to solve a Rubik's cube. Look at Rubik's cube. Such a small object. You see you can rotate on one of these six sides at a time. And then you should arrive at the right configuration which is every side should have

the same color. How tough is this? Let me try to simplify the question and ask you all is it easy to solve 2 X 2 X 2 Rubik's cube which looks like this. How easy is it? What are total possible combinations that you can do with 2 X 2 X 2? How many possibilities for 3 X 3 X 3?, 4 X 4 X 4? Have you seen a Rubik's cube 4 X 4 X 4? I have. I have seen 8 X 8 X 8 Rubik's cube. It looks of course more complicated but can you guess the total number of ways in which you can switch, rotate, look at all possible configurations of a 2 X 2 X 2 Rubik's cube? Let me tell you people the exact answer. Wait for me. I have written down all the – all possible ways in which you can enumerate a Rubik's cube. So a 2 X 2 X 2 Rubik's cube ha 3674160 combinations which is roughly 36 lakhs. What about 3 X 3 X 3? It goes like this. It has so many combinations. 43252003274489856000. It's a huge number. How many digits I can't count. Maybe you can count. So these many combinations and these many seconds is more than the age of the universe as we have been talking. Look at the next one. If you were to take a 4 X 4 X 4 Rubik's cube. So just for fun let me tell you how many combinations this will entail to. So it is going to be 74 – I don't even know the unit here. So I am just going to enumerate. 7401196841564901869874039744985743360000000. My challenge would be to enumerate this pronounce this in a single breath. So the point is you increase the Rubik's cube one dimension you see a humongous change in the number of configurations. So people are now wondering how to solve a 3 X 3 X 3 X 3 Rubik's cube fast that itself is a huge question. 4 X 4 X 4 X 4 is actually out of question. In fact you can see a whole lot of YouTube videos on speed cubing how people solve Rubik's cube in matter of a few seconds but the point is it requires enormous amount of practice if the number of sides of – if the configuration keeps increasing let us say 8 X 8 X 8 X 8 is humanly impossible to solve. It has so many configurations.