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Discrete Mathematics
Relations
Cartesian Product
With
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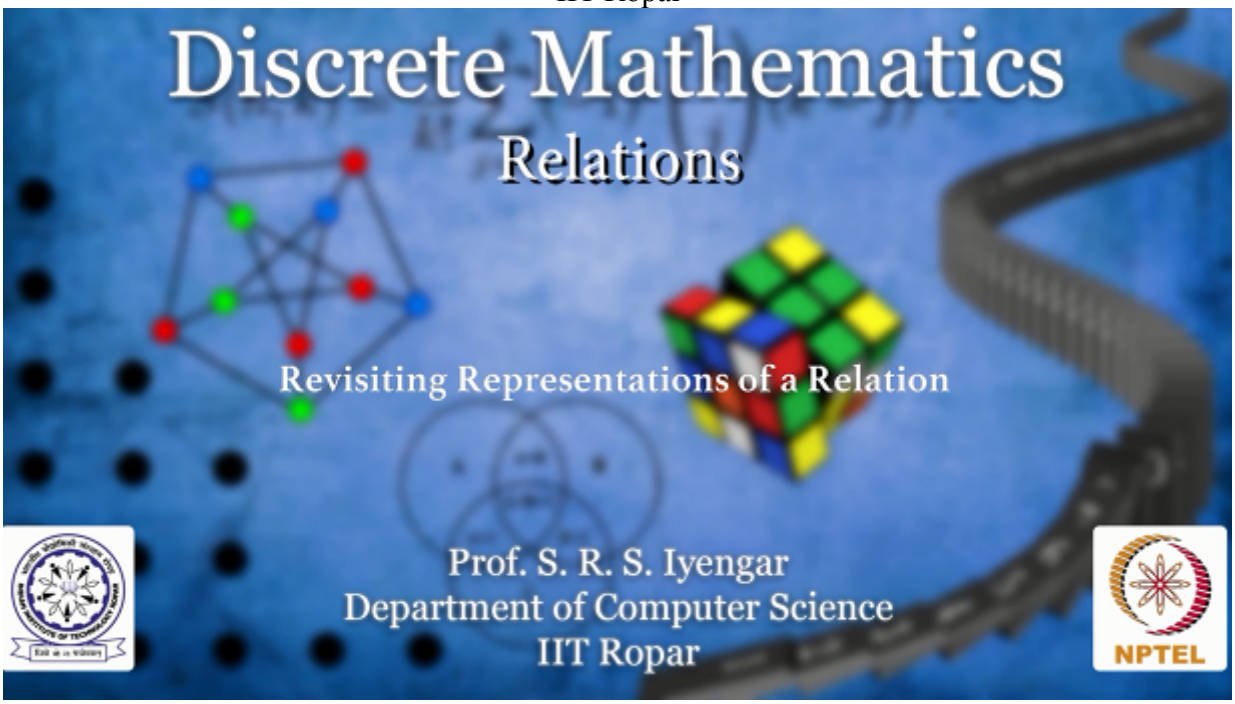

So points to note people, look I defined a relation using three different ways, rather different representations, right.

First one was graphical, I call it graphical, arrows going from one thing to the other. Second one was simple matrix with 0s and 1s. The third one, as you can see was a set theoretic notation. One two and three, please note this, we might toggle between these things when we talk about relations.

A small key point to keep in mind: The first one is a graphical representation, it is mainly for our minds to understand what's a relation. It's easy on our minds. Although first and second, the matrix representation and the graphical representation, denote the same relation, second one is easy on the minds of your computer, as you know computers only take matrices and Boolean values, right, it is easy to feed this to the computer, right.

The last one is a set theoretic notation, as you can see. It again an easy one for a computer to read, understand, and we can ask more questions about such a relation. You'll understand very soon what I am talking. All that you need to know is the matrix representation is easy on the computer; the first one, the graphical representation is easy on the minds of humans. So if you are wondering why state the same thing in three different forms, as I told you, it is just the ease of representation, nothing else.

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