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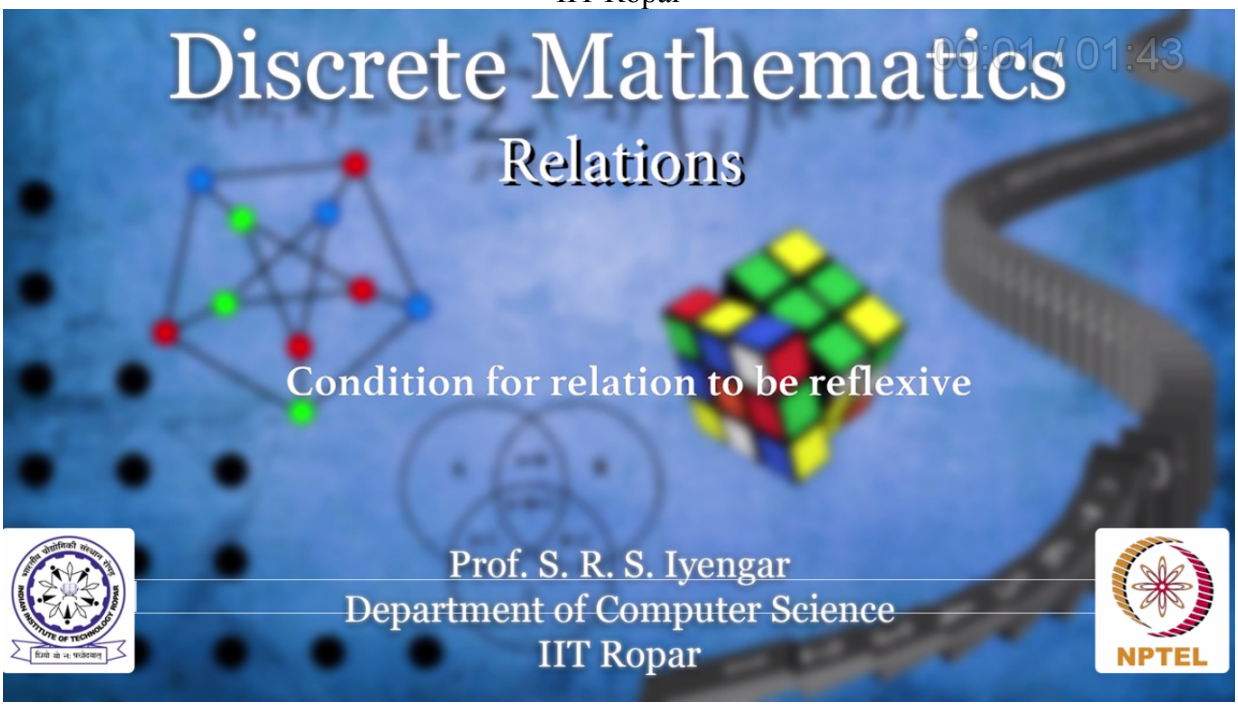
Discrete Mathematics Relations
Condition for relation to be reflexive(2)
With
Prof. S.R.S. Iyengar
Department of Computer Science
IIT Ropar

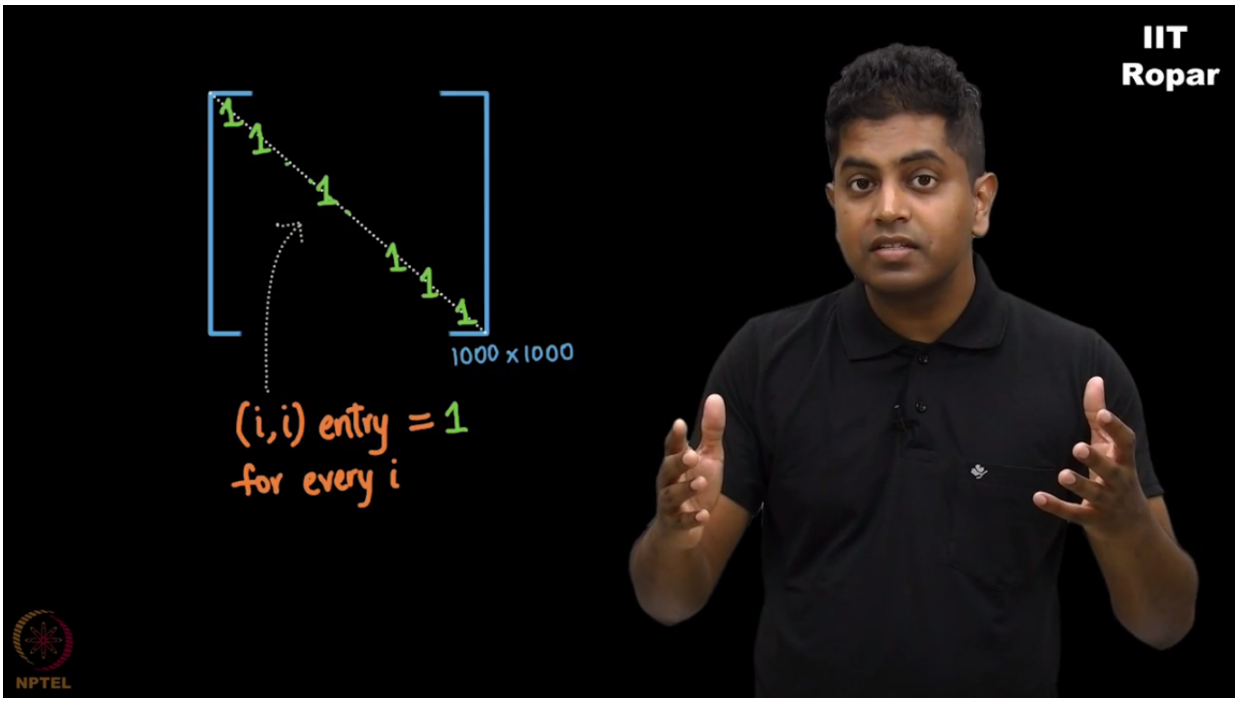


So I told you, discrete math, the very origin of this subject was because of the advent of computing. It was computer science that led to this whole new branch of mathematics mainly. So let us ask a question with computing in mind. Here is a question, we've been discussing relations which are sort of the set is a small set and the possible relation is also obviously small if the set is small, but now let us ask a question on a huge relation. By huge, I mean a big relation with several elements.

So let me take my set S or A, by the way, S and A, I use it interchangeably. Let me take a set A with 1000 elements and then let me consider some relation on A. what do I mean by some relation? A relation R is a subset of A x A. I'll take some relation.

Now this relation is fed into the computer. How? By let's say its corresponding matrix and my computer should tell me whether the given matrix corresponds to a relation which is reflexive or not. How do I do that?

It's only obvious that in the matrix representing a reflexive relation, the diagonal should all be 1. Why? That's the definition of reflexive relation. For every element in the set A that element, the same element belongs to the relation.



This is true for every element containing in A which means (i, i) entry, (i, i)th entry in the matrix should always be 1, which means the whole diagonal should be 1, 1, 1, 1, 1 however, the other entries may or may not be 1; it can be 0s or 1s, we don't care. But the diagonal should all be 1. Note, even if we one entry in the diagonal is not 1, it is 0, means the relation is not reflexive.

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Funded by
Department of Higher Education
Ministry of Human Resource Development
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