NPTEL

NPTEL ONLINE CERTIFICATION COURSE

Discrete Mathematics
Set Theory

Complement of a set

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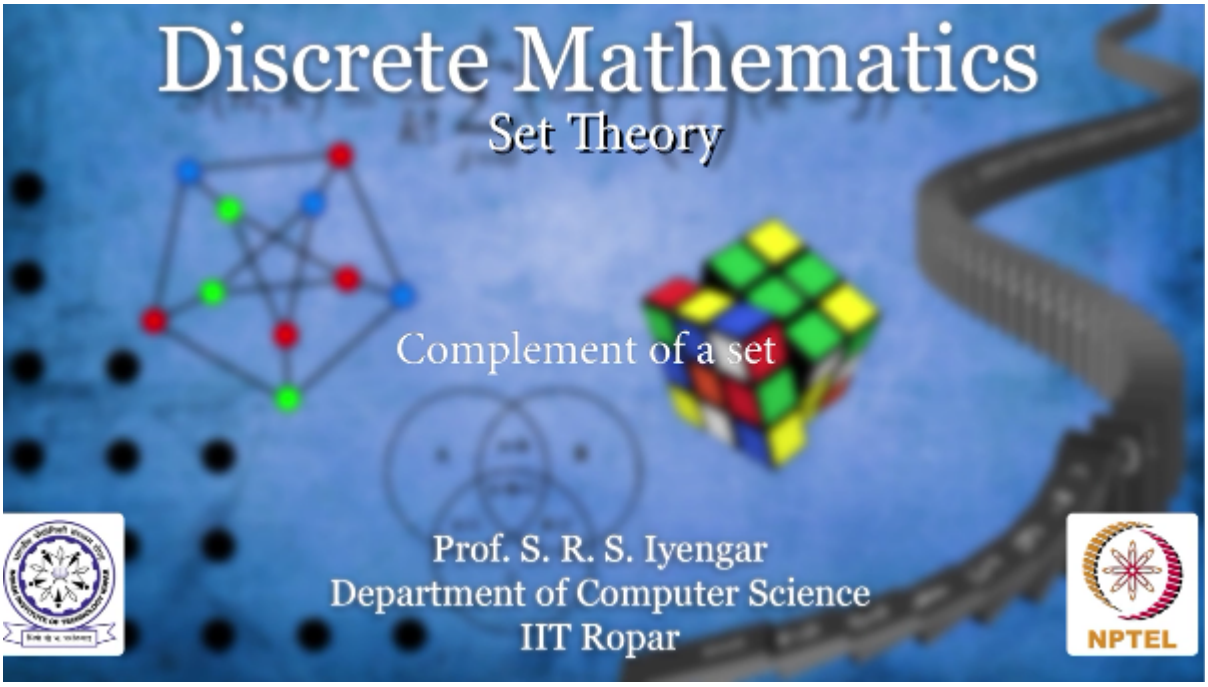
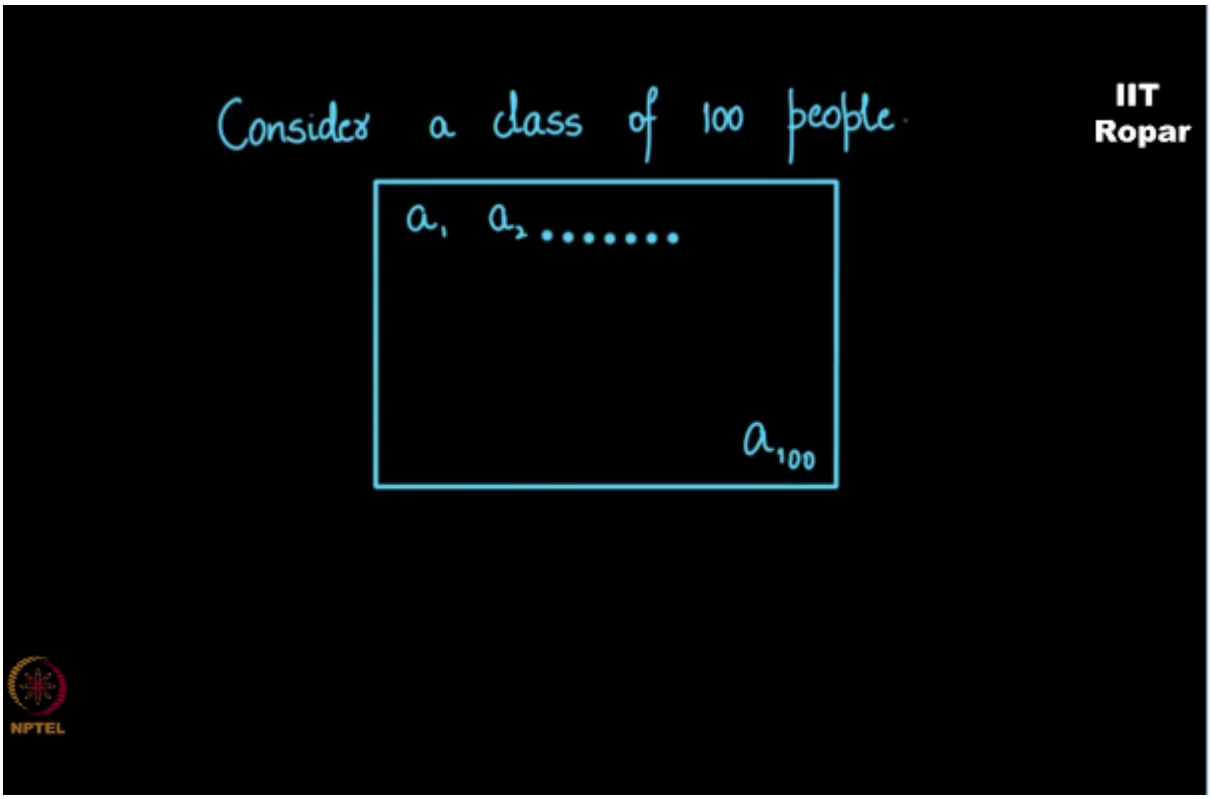
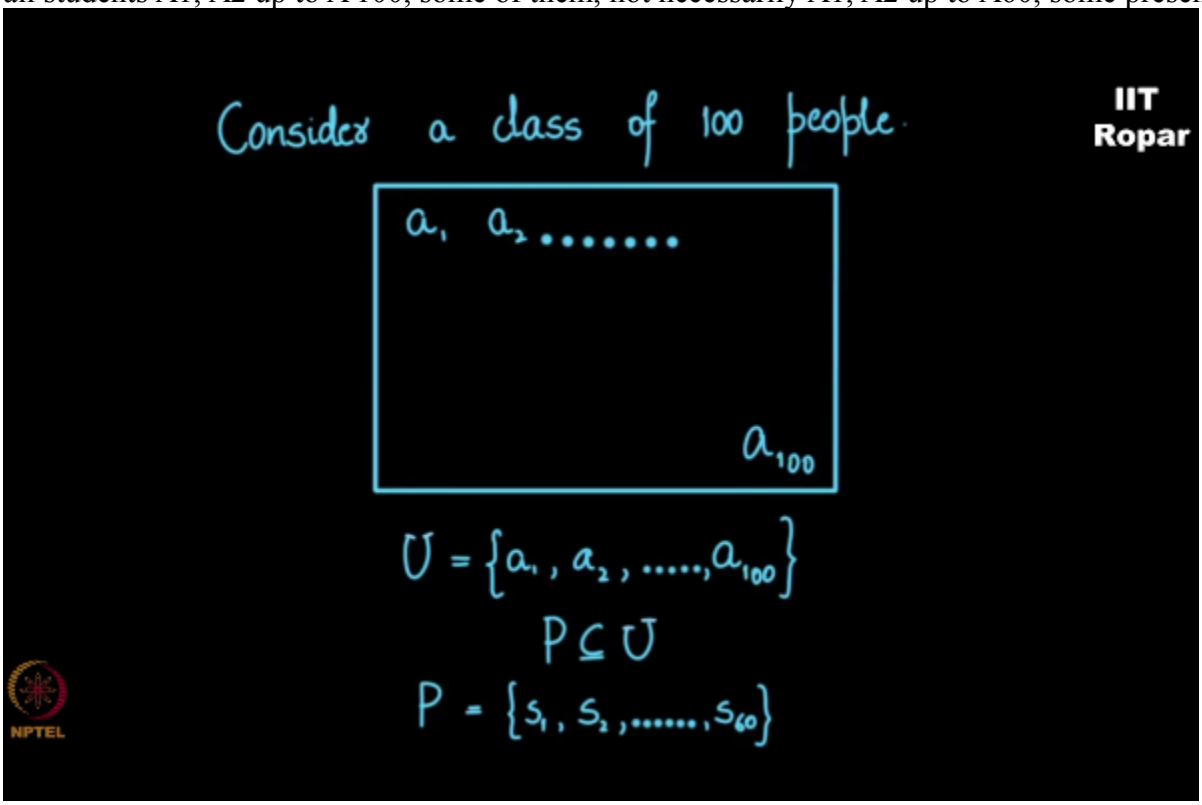


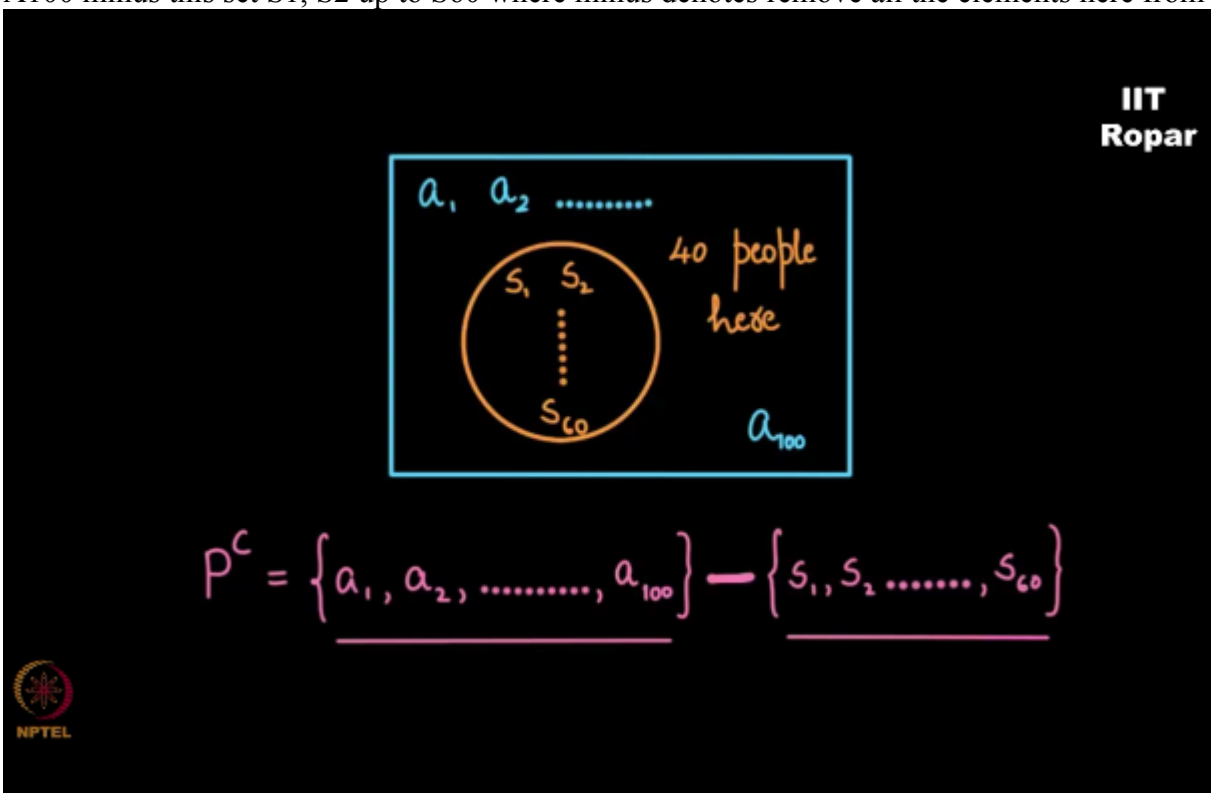
Considering a class of 100 people, let's say there are A1, A2, up to A100 people, I'm handling a class and some of them are present in the class, not all are present. What do I mean by that?



By that I mean let's say some 60 students are present, amongst these set U which comprises of all students A1, A2 up to A 100, some of them, not necessarily A1, A2 up to A60, some present

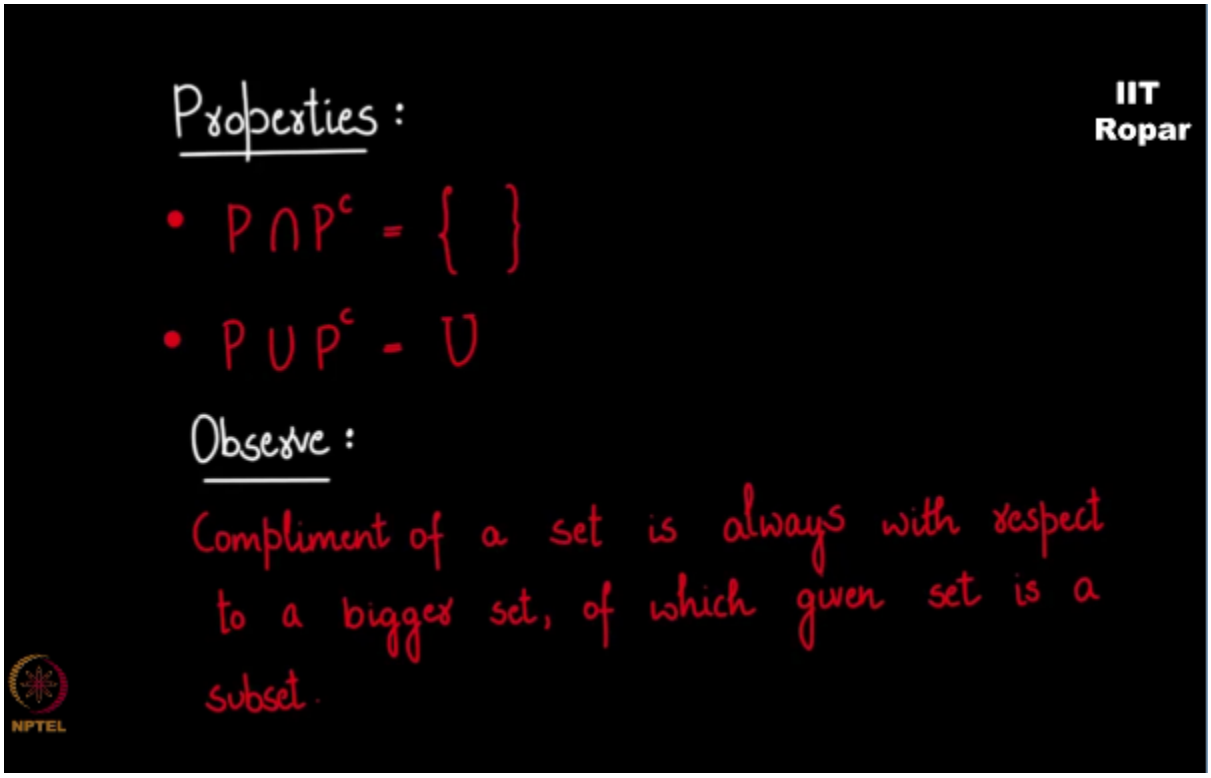


let's say set P is a subset of U where P is some S1, S2, up to S60 of them are present, you see as you can see in this Venn diagram you can put a circle and put all these S1, S2 and so on up to S60 and what do you observe? You observe that there are 40 people outside this circle, okay, that is called P compliment, we denoted as PC which is simply this set U which is A1, A2 up to A100 minus this set S1, S2 up to S60 where minus denotes remove all the elements here from



this set, this is called the compliment as you can see there are couple of very straight forward properties of this compliment set P intersection P compliment is going to be a null set, nothing will be in common, isn't that true by definition.

And secondly P union P compliment will be your set U, so observe something whenever we talk about compliment of a set we need to do it with respect to a bigger set of which the given set is a subset, otherwise we cannot talk about compliment.



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