NPTEL

NPTEL ONLINE CERTIFICATION COURSE

Discrete Mathematics
Graph Theory - 1

Connected and Disconnected graphs

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Look at this graph,
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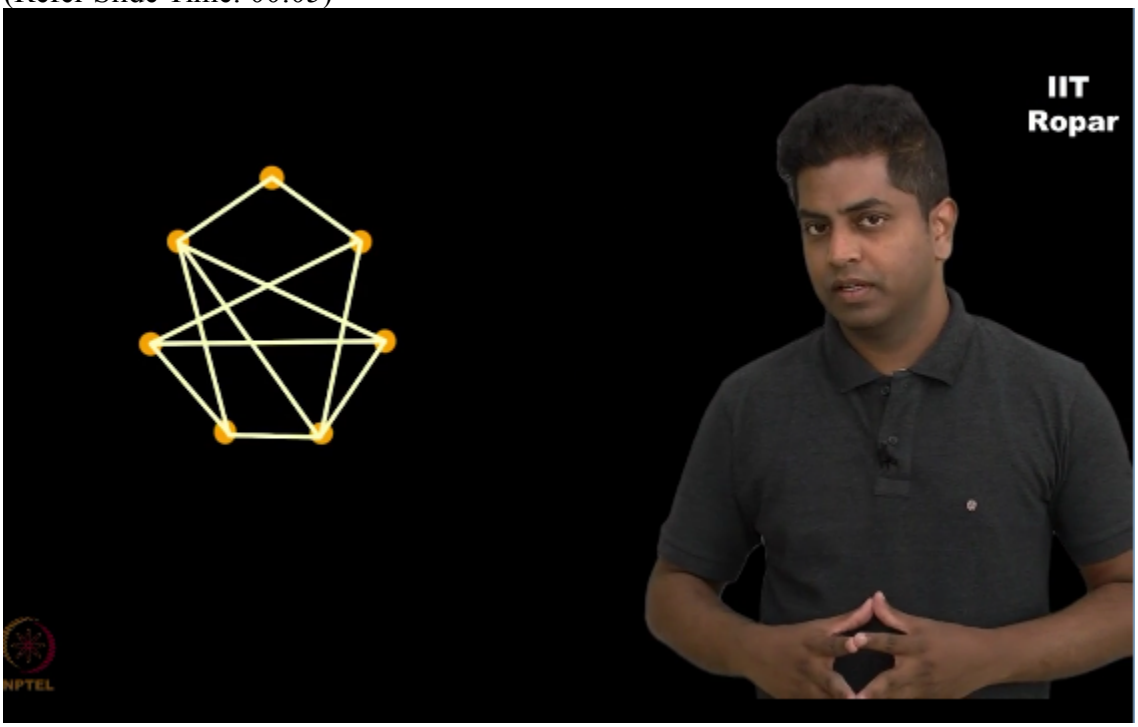

this is called a connected graph, and look at this graph,
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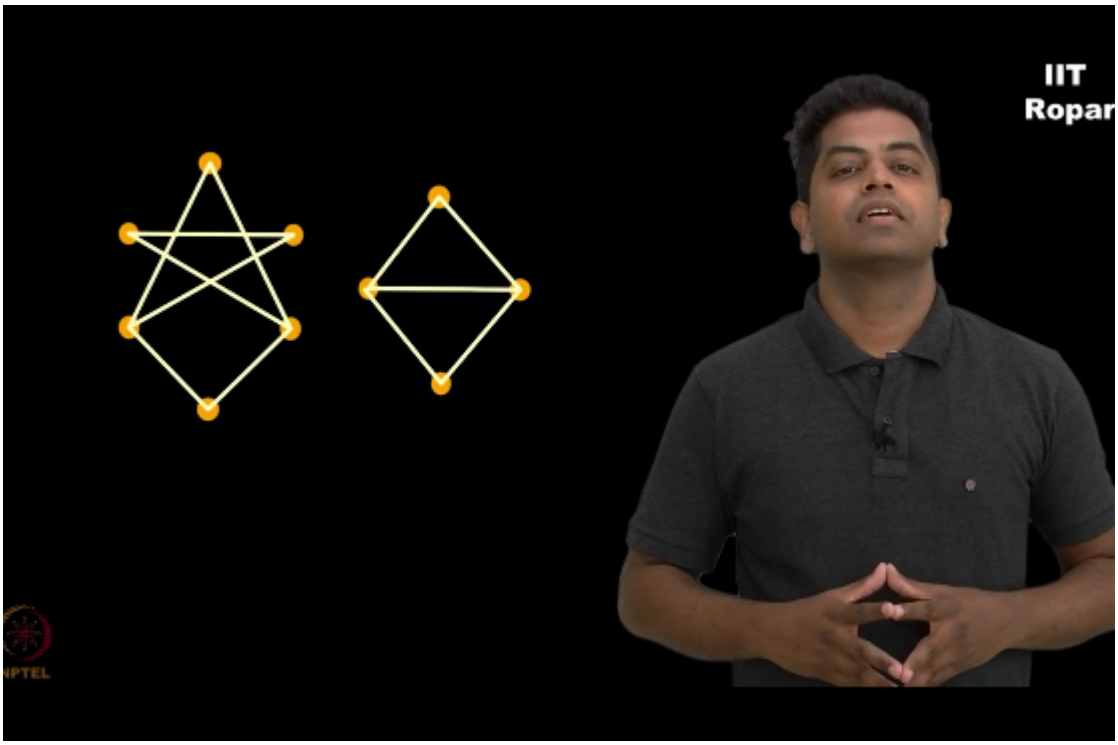

this is called disconnected, although self-explanatory, I need to add in a comment here, you can have 20 friends

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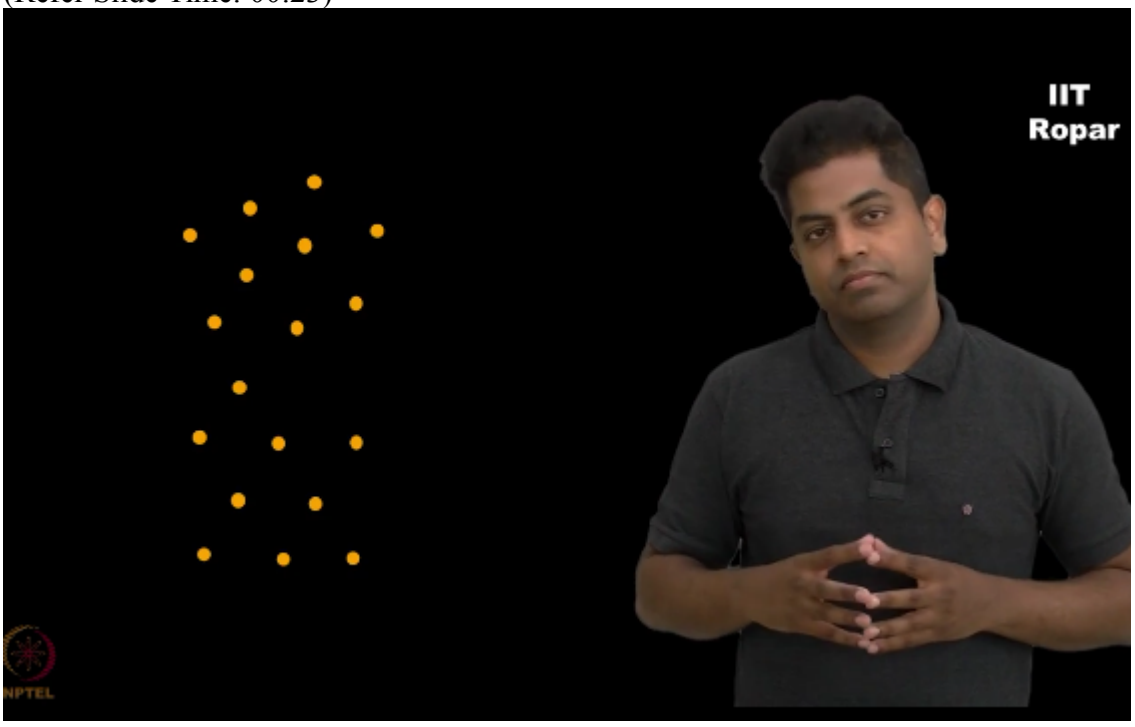

and they might be part of let's say two groups, where this group does not talk to this group at all,

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right, but this as a whole is one graph,

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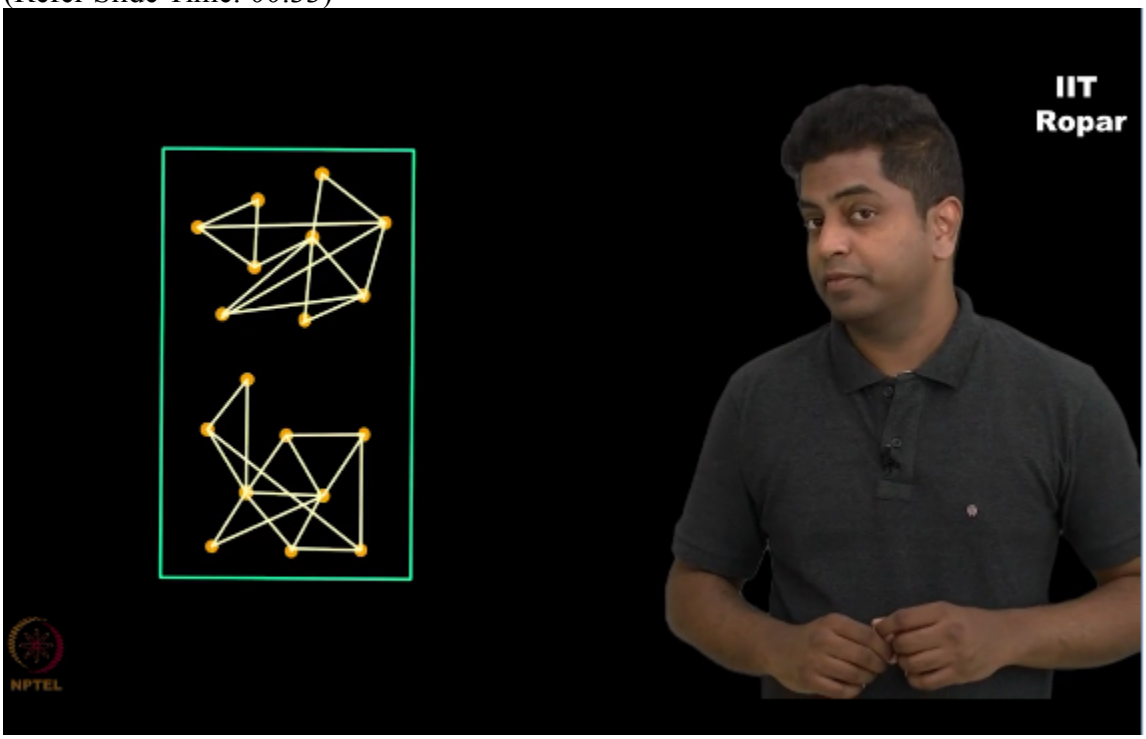

it's not two graphs, this group A and group B maybe some football team, A football team, B

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they don't like each other across the teams, but within the teams they are friends, so this is a example, very good example of a disconnected graph, where the vertex set involves all the vertices here, and the edge set involves all the edges here,

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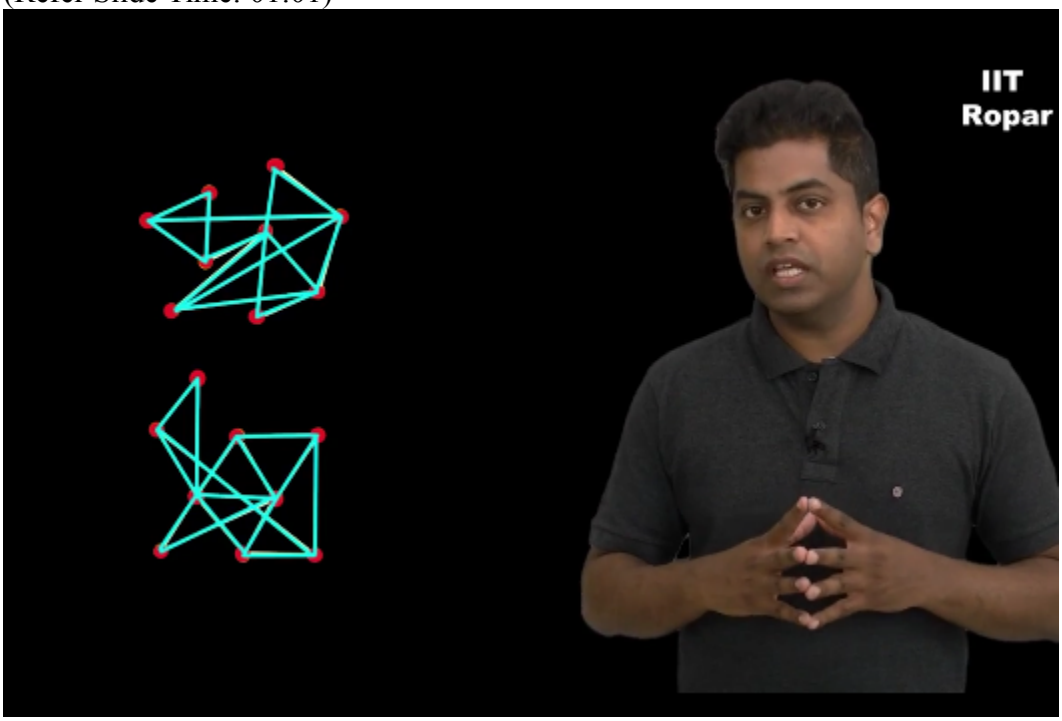

but you see there are two components here.

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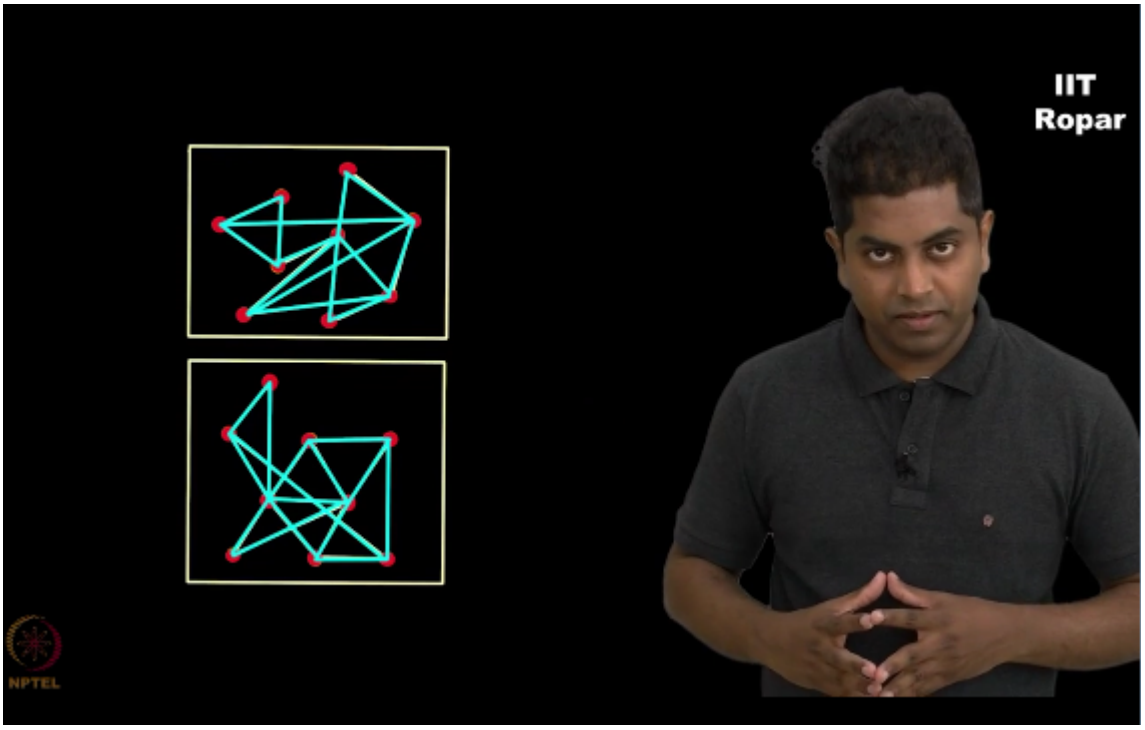

Similarly, look at this graph
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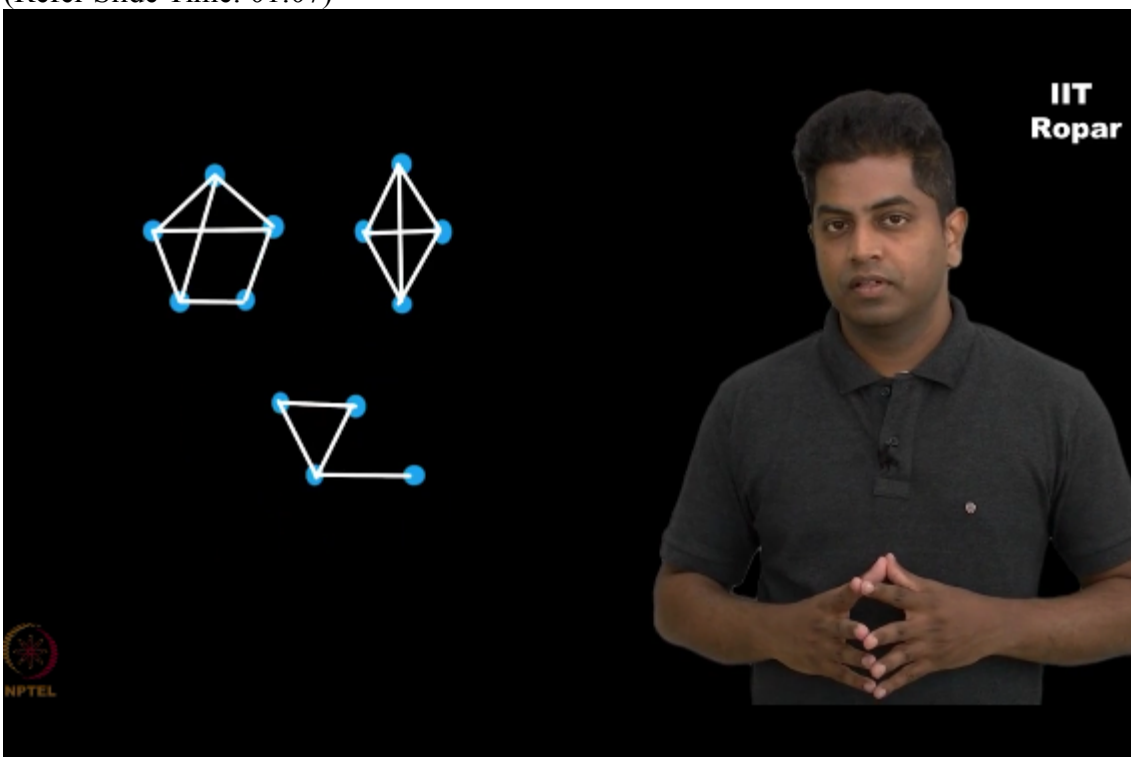

there are all these things form the vertex set, and of course the edges are all the lines put together, but it has 3 components,
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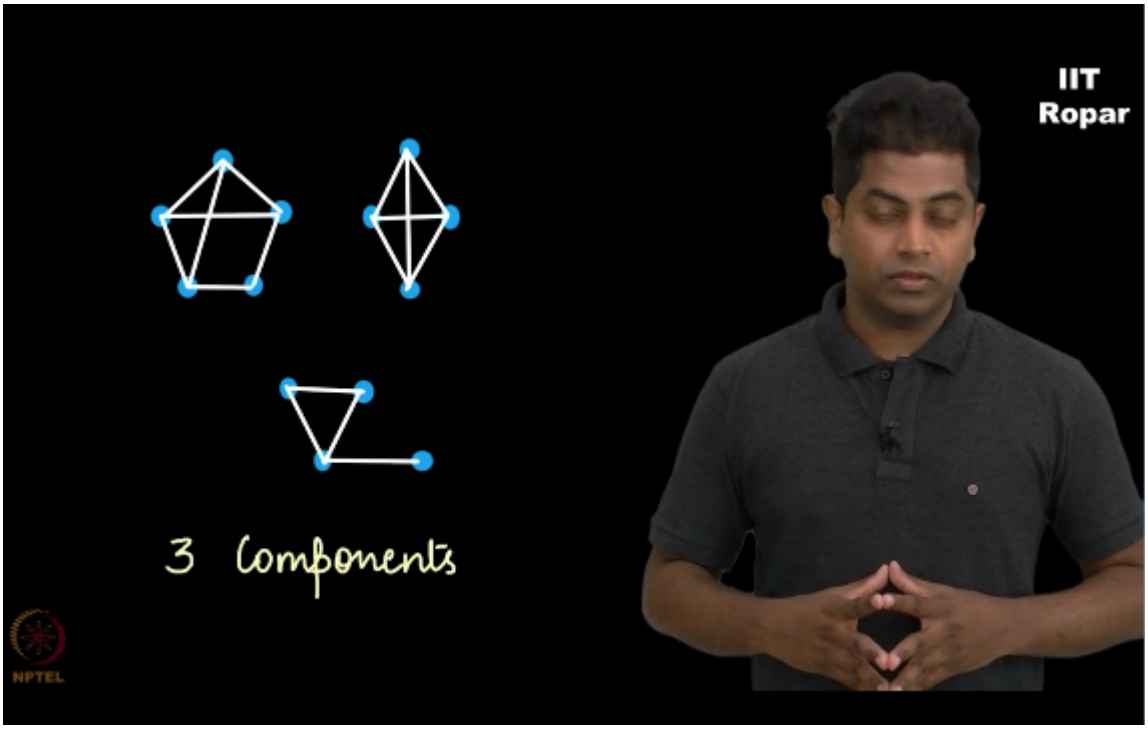

now

now what about this graph with five nodes

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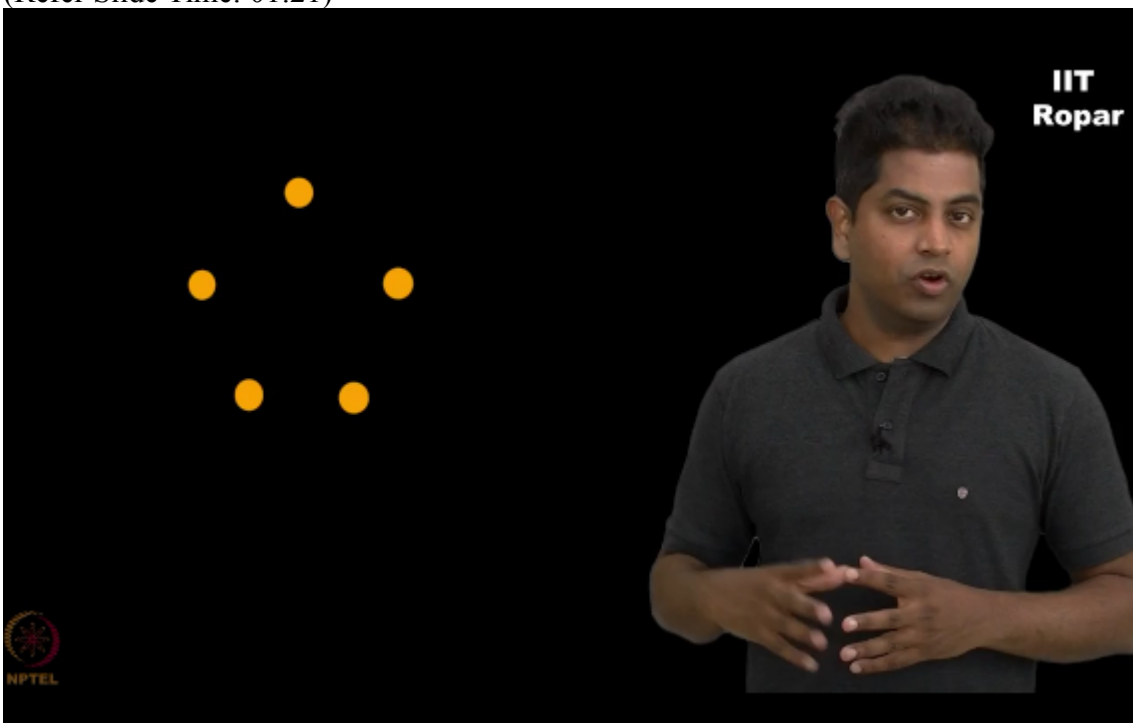

and absolutely no edges, as you can guess this has 5 components, every single node here is a connected component you see, so a graph can be connected or disconnected if it is disconnected it will have more than one component.

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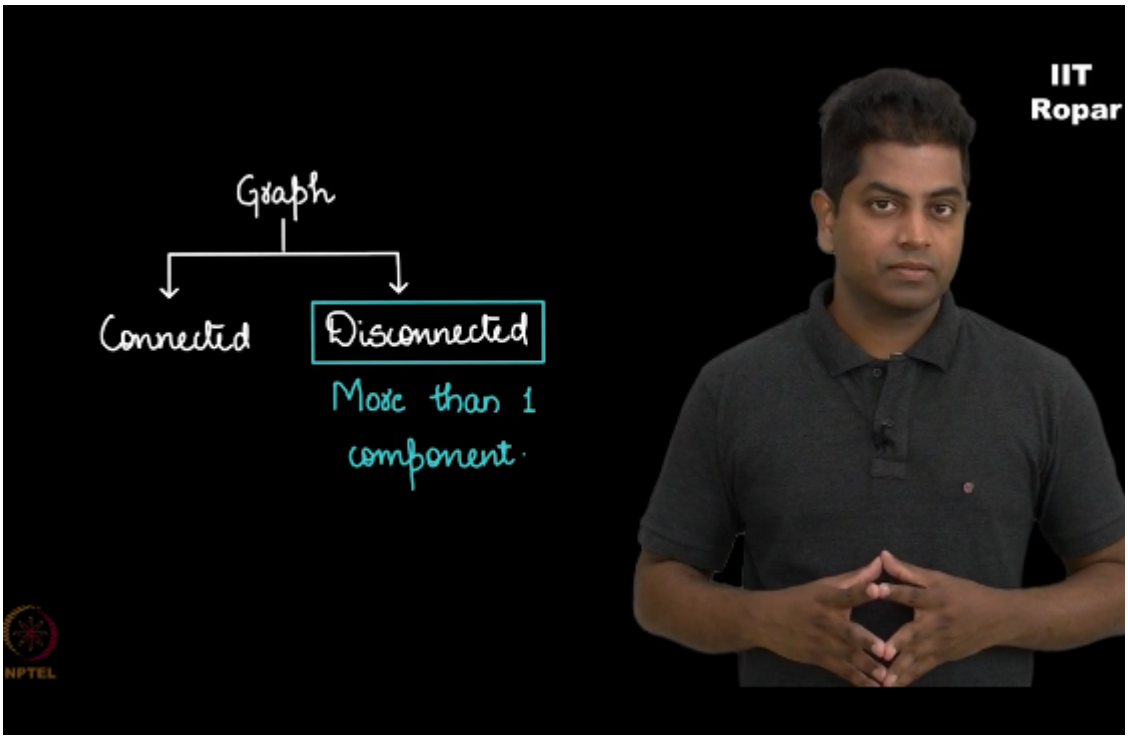

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