

Social Networks
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Lecture - 46
Strong and Weak Relationships (Continued) and Homophily
Introduction to Fatman Evolutionary model

Now, we are going to do a very interesting screen cast; programming screen cast. So, what will be doing in this programming screen cast is, to make an evolutionary model. What is an evolutionary model? We have studied 3 main concepts in this chapter.

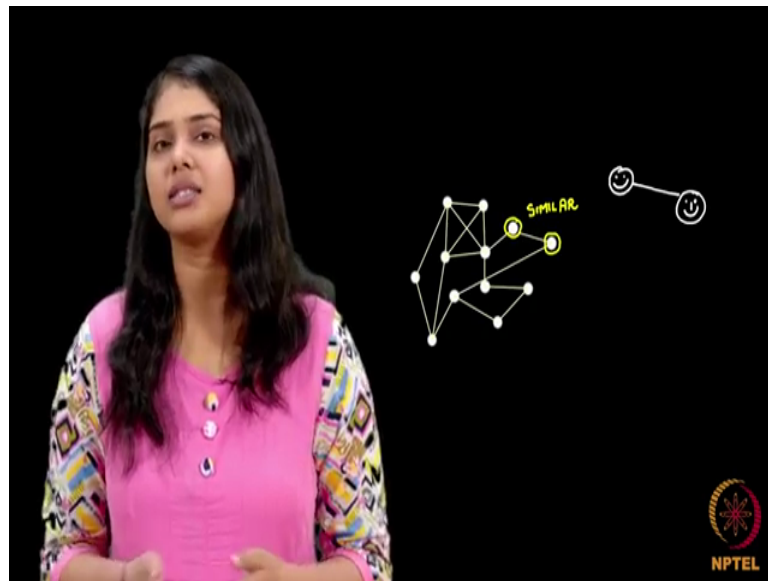
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So, the first one is homophily; people who are alike similar to each other, they tend to become friends with each other. Then we looked at 3 different kinds of closures triadic closure, focal closure, membership closure and we also looked at social influence.

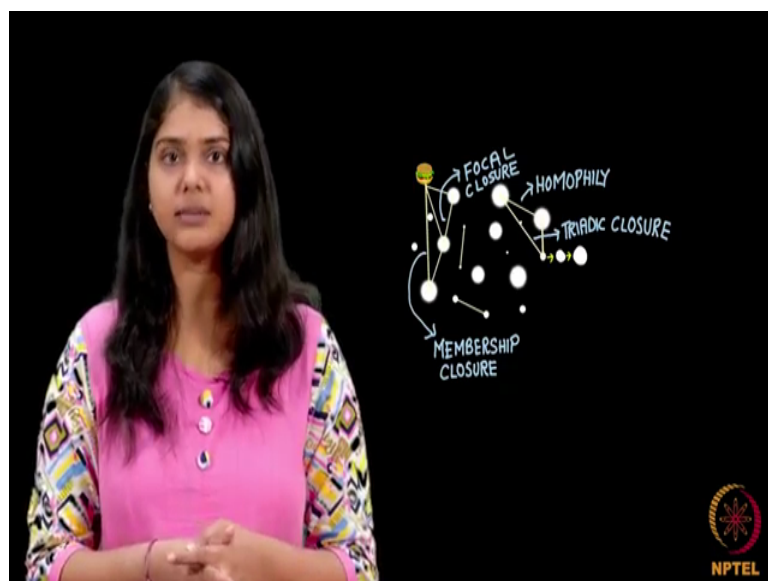
So in a graph, in a network of these people this people keep changing, so first of all new edges keep coming in this network.

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So, when 2 people look at each other and they find that they are similar to each other; they become friends with each other. So, you see that this network is evolving with time, more friendships are coming in this network and probably some friendships are getting broken also. And then people they change their properties because of social influence; for example, somebody who is not getting good marks becomes friend with a topper and starts getting good marks. So, we have also seen these kinds of things known as social influence.

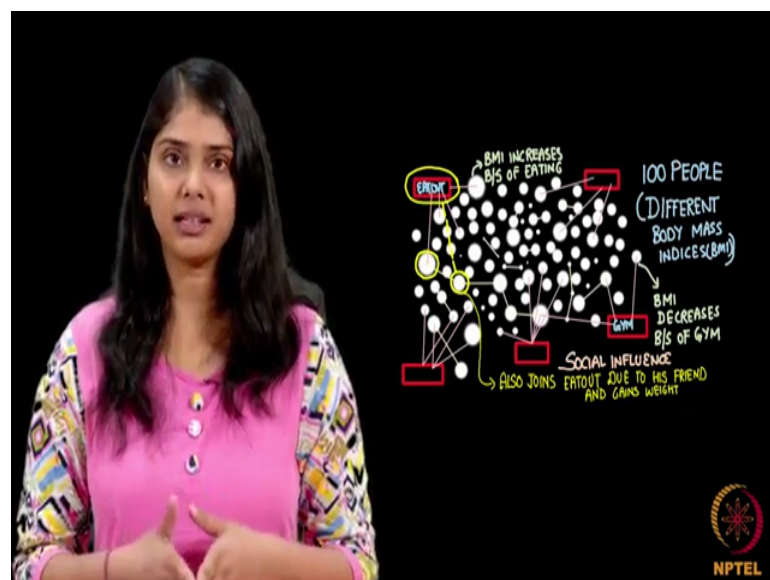
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So, we will try to model all these 3 things as an evolutionary model; what will be modeling is, there is a city and this city has different-different kinds of people; kinds of people in terms of their body weight. So, I hope you remember this fatman hypothesis which we discussed during the chapter that; beware of your fat friends, if your friend is fat the probability of you gaining weight increases. So, we will be modelling a city in which there will be people with different-different body weights, different-different BMI's and then we will look at all these 3 phenomena happening over this network. So we will see that, we will code it; mainly we will code it that people who are having similar body weight, they tend to become friends with each other. We will be looking at triadic closures also; 2 people having same friend tend to become friends with each other.

We will be looking at foci closure also; that is if 2 people they are going to the same eat out place or let us say the same gym, they tend to become friends with each other and we will also be looking at membership closure. So, assume I am a friend with somebody who regularly goes to an eat out place, so I also start going to that eat out place. So, all these different kinds of closures and we will also be modelling social influence that will be in a more subtle way; which I will tell you, so how does this programming screen cast proceed.

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So, first of all we have this network and let us say there are 100 people in this network and these 100 people have some BMI's. So, we assign some random BMI's to each of

these persons and then we look at; when the model proceeds, when the evolution continues people who are having similar BMI, they make more and more edges with each other. And then we also have; five, we will introduce five social foci in this system as I tell you and 2 social foci out of these will be one is an eat out and another is a gym; which has a direct impact on the BMI's of these people.

So, these people they will be linked to different-different social foci and this social foci will change the property associated with these people; that is, if you are part of a gym you will be losing weight, if you are part of an eat out place you will be gaining weight and then how do we implement social influence. One of the reason for social influence, if you remember or the sheared context, so if one person goes to an eat out place; I will also start going to that eat out place and I start gaining weight.

So, this is the way in which we will capture the influence of; we will capture the phenomenon of social influence. So, I might have less weight, but then over time I might become friends with somebody because of maybe let us say a triadic closure. So, we have a common friend and this common friend makes both of us friend, but now this new friend which I have made is going to an eat out place; I am in his company. So, I will also start going to this eat out place and I start gaining weight.

So, we will see how do we code such a complex scenario and one assumption in this programming screen cast that we will be taking; although there are many assumptions. One main assumption is that, new edges only come with time; previous edges as in the existing edges they are not deleted, only the new edges come in this network. But you will see once when we code the entire thing, it is actually very easy and you can modify this model in many ways you can have old edges leaving the network, you can increase the number of social foci, you can increase or decrease the number of people and you can incorporate many new interesting things in this model.