

Lec87 : Cascading Behavior in Network - We Follow

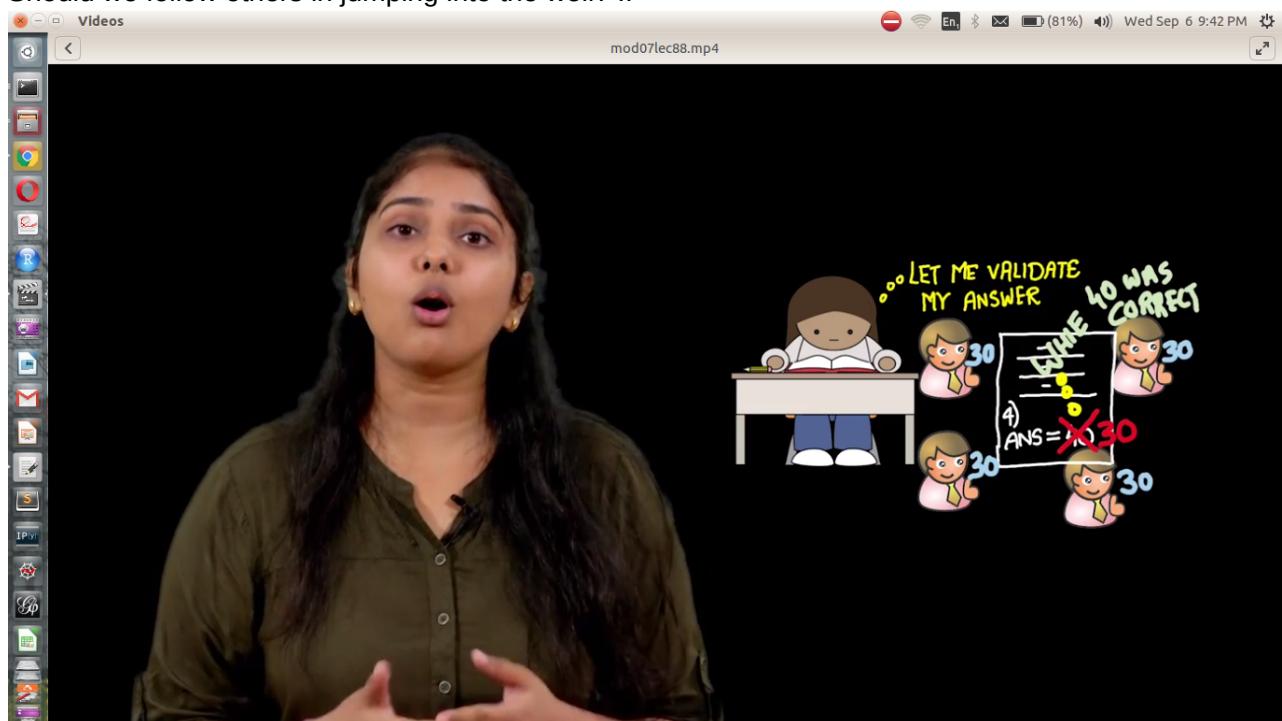
Analogy : Burger(all other people eating) and Pizza(I like the most) -> I will order pizza

Analogy : We take the way in which the most people move if we don't know the path (Left or Right)

People in Lift Video :P

Lec88 : Cascading Behavior in Network - Why would we follow?

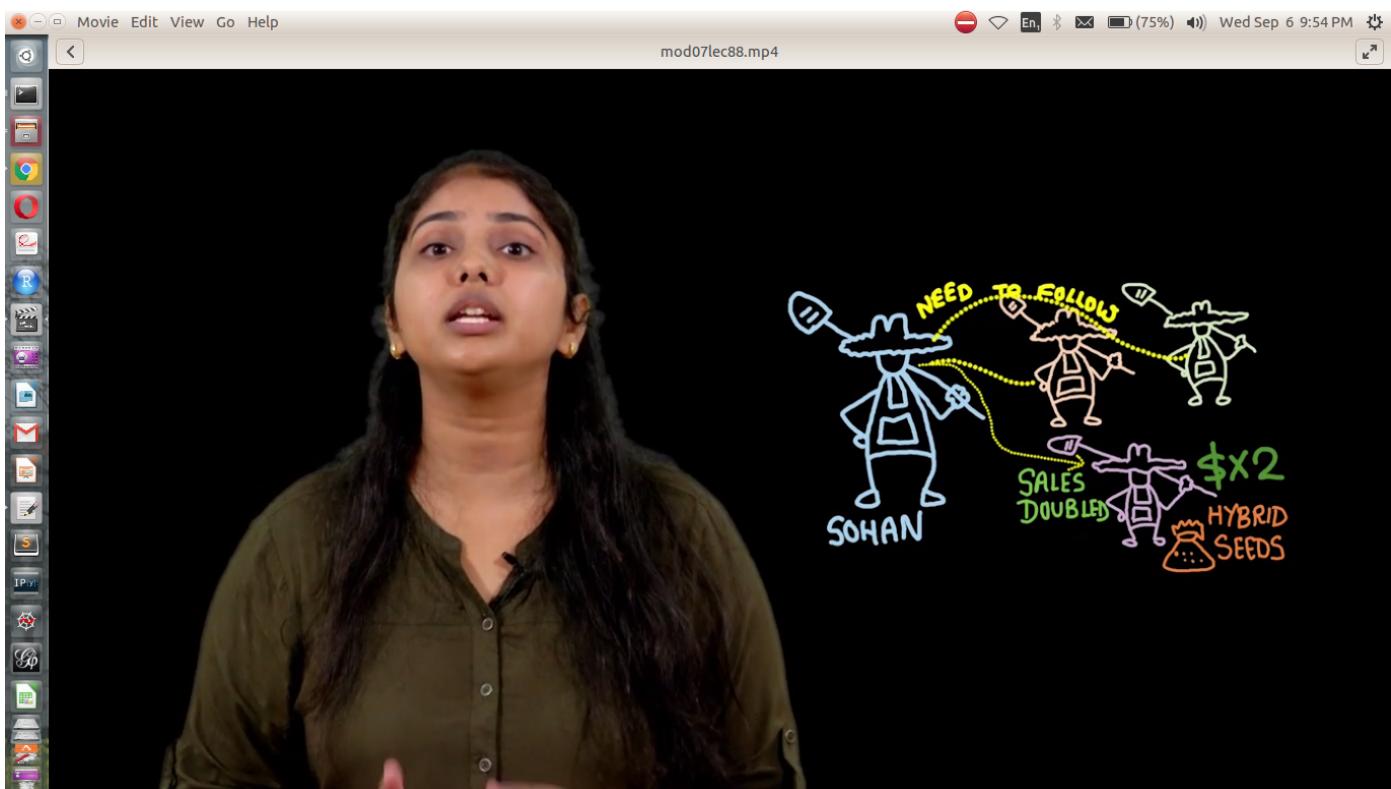
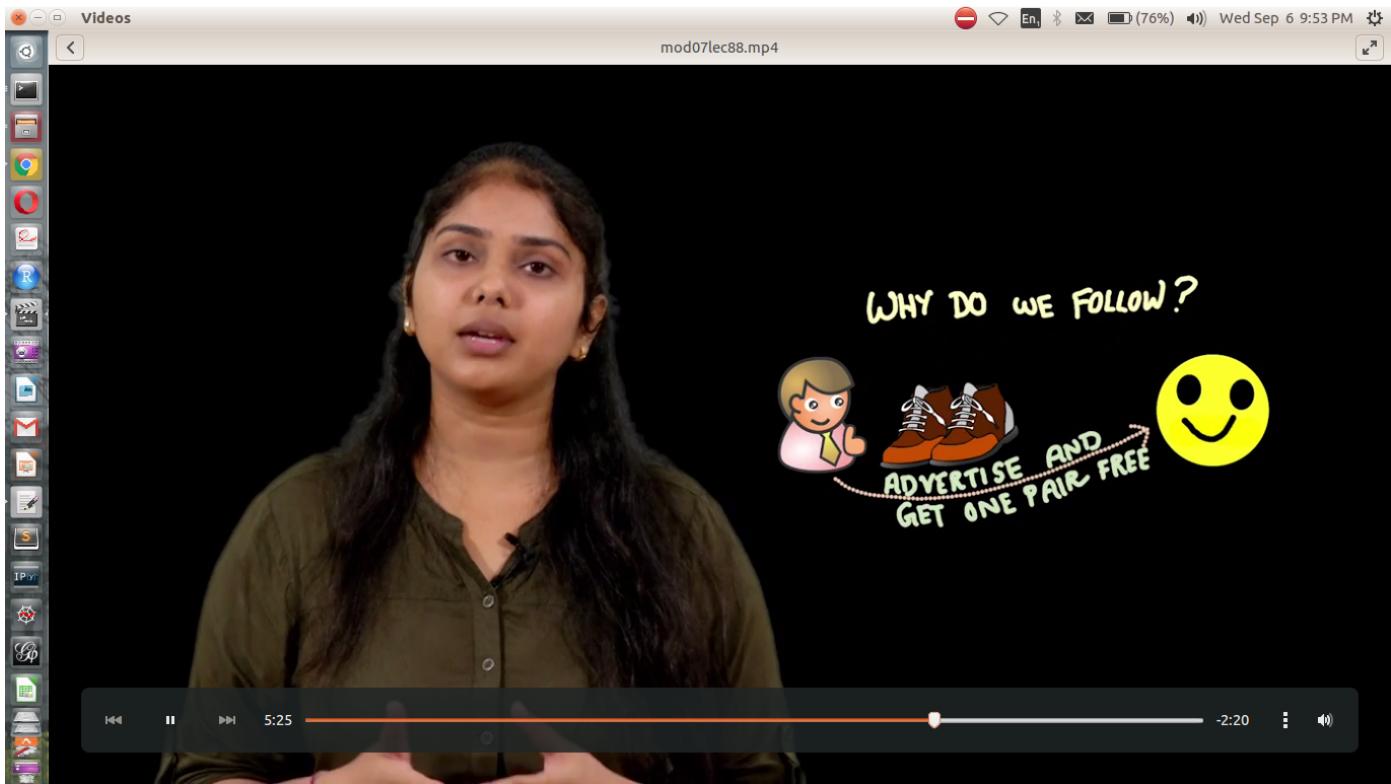
- Should we follow others in jumping into the well? :P

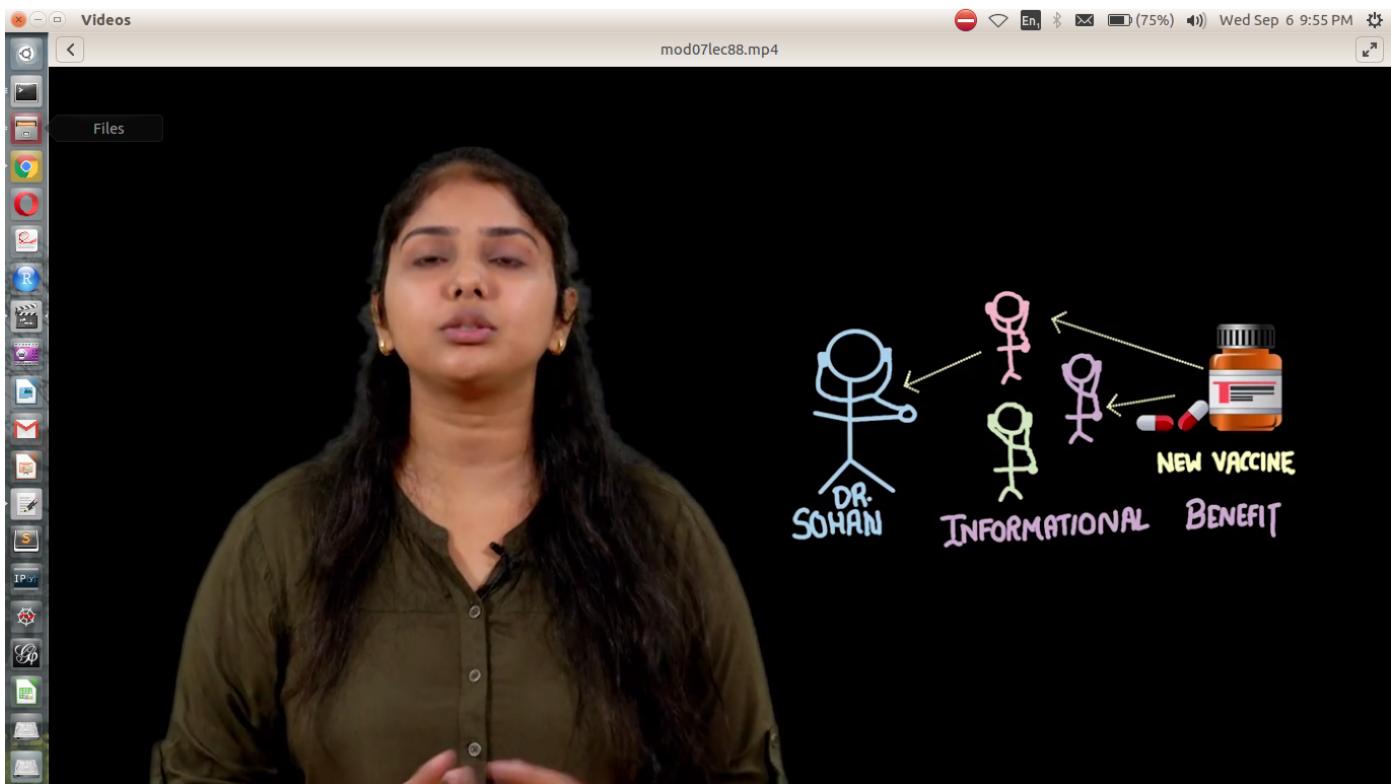


When we follow?

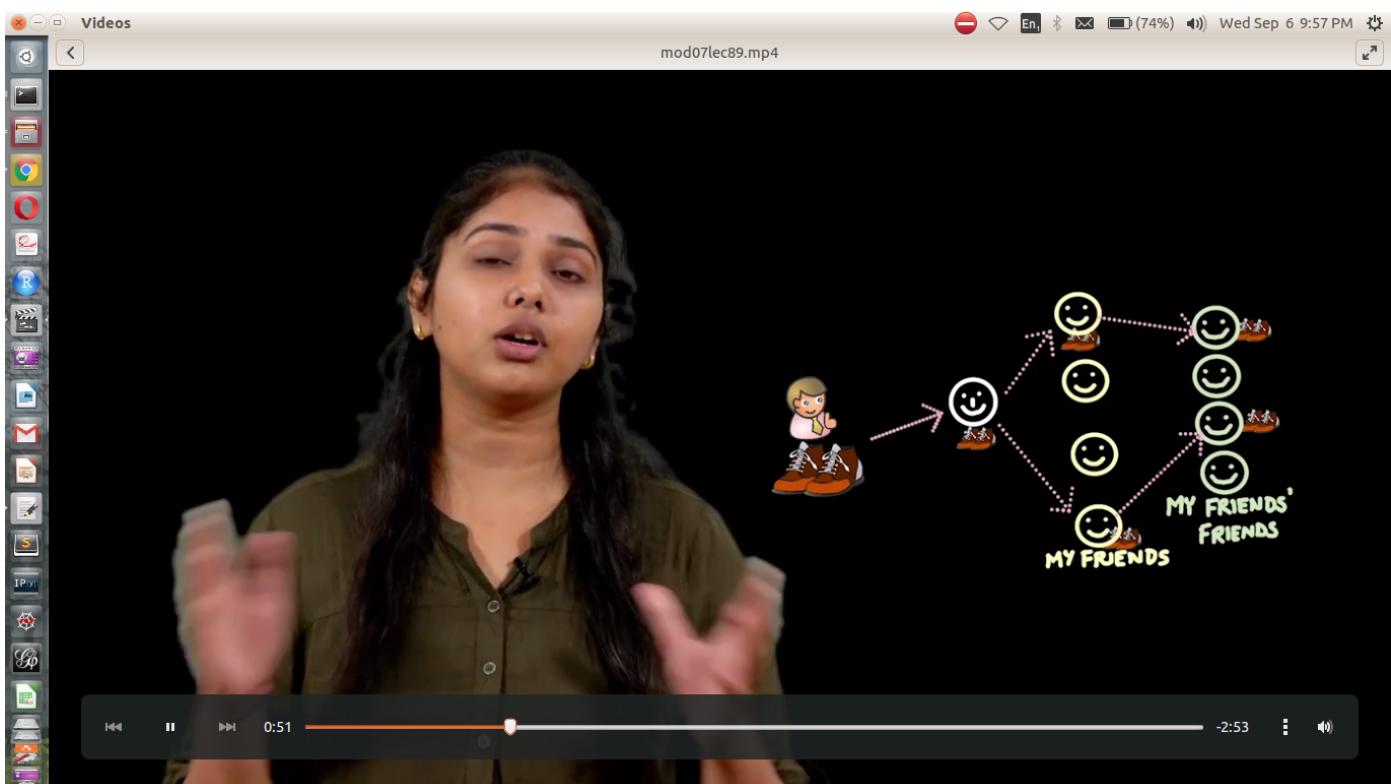
- smoking
- Buying Products
- songs (Why this Kolaver di?)

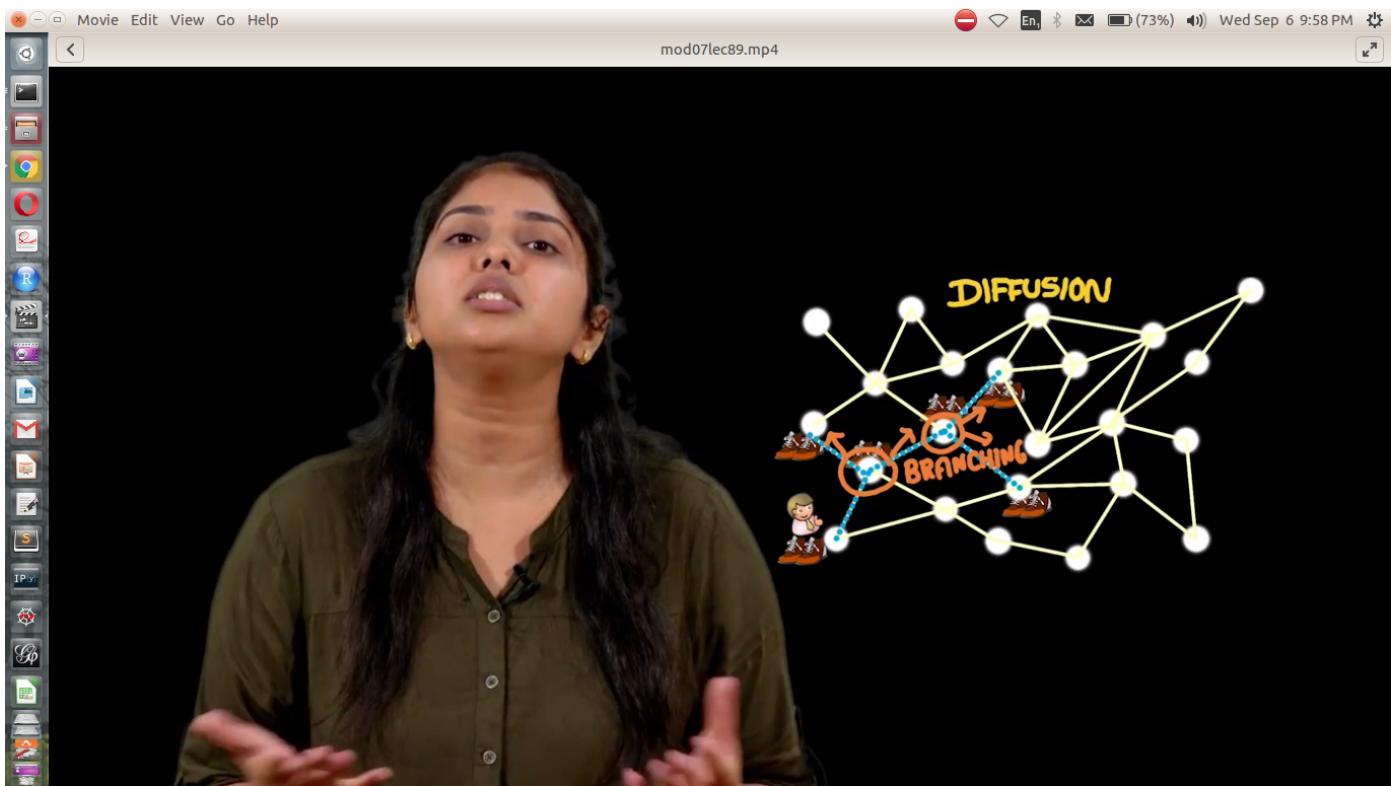
Reason : For Explicit Benefits



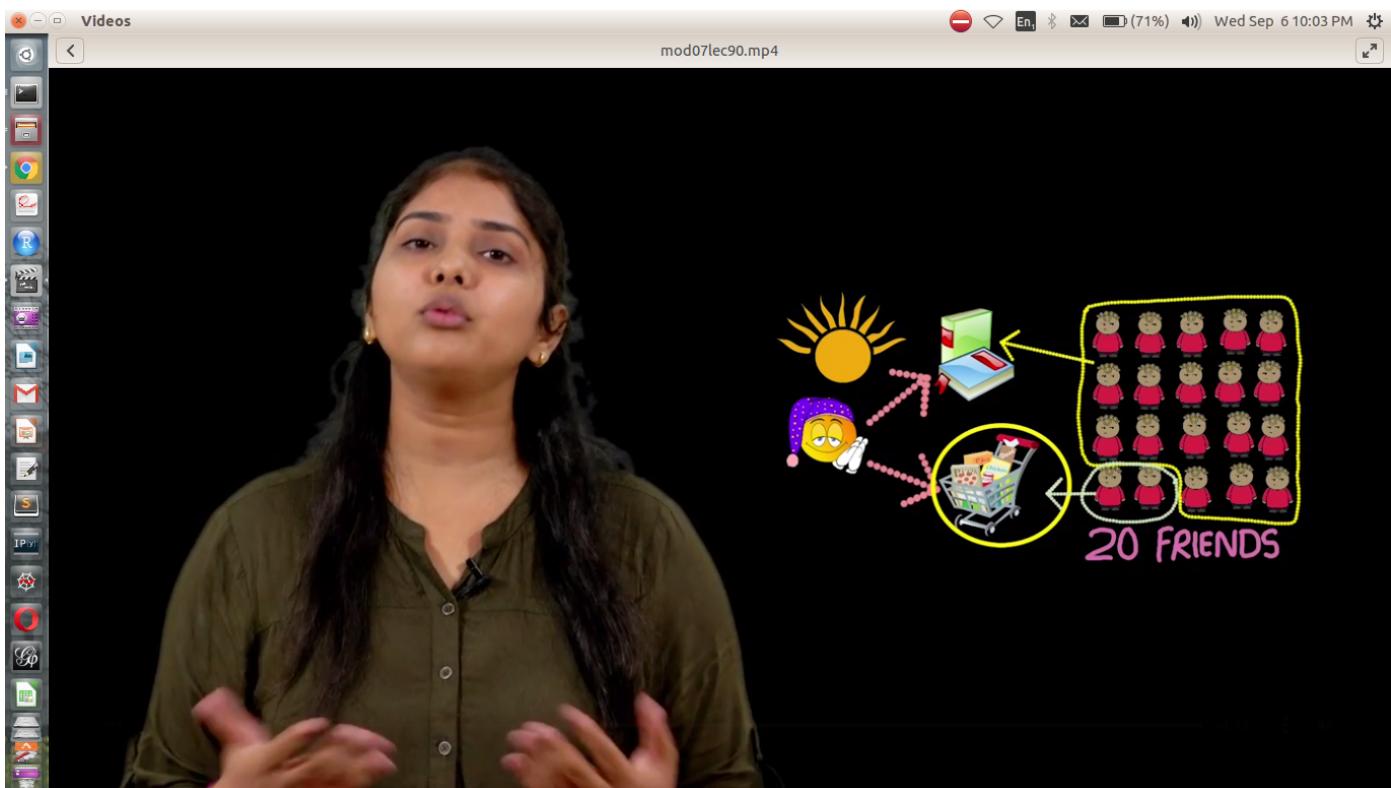


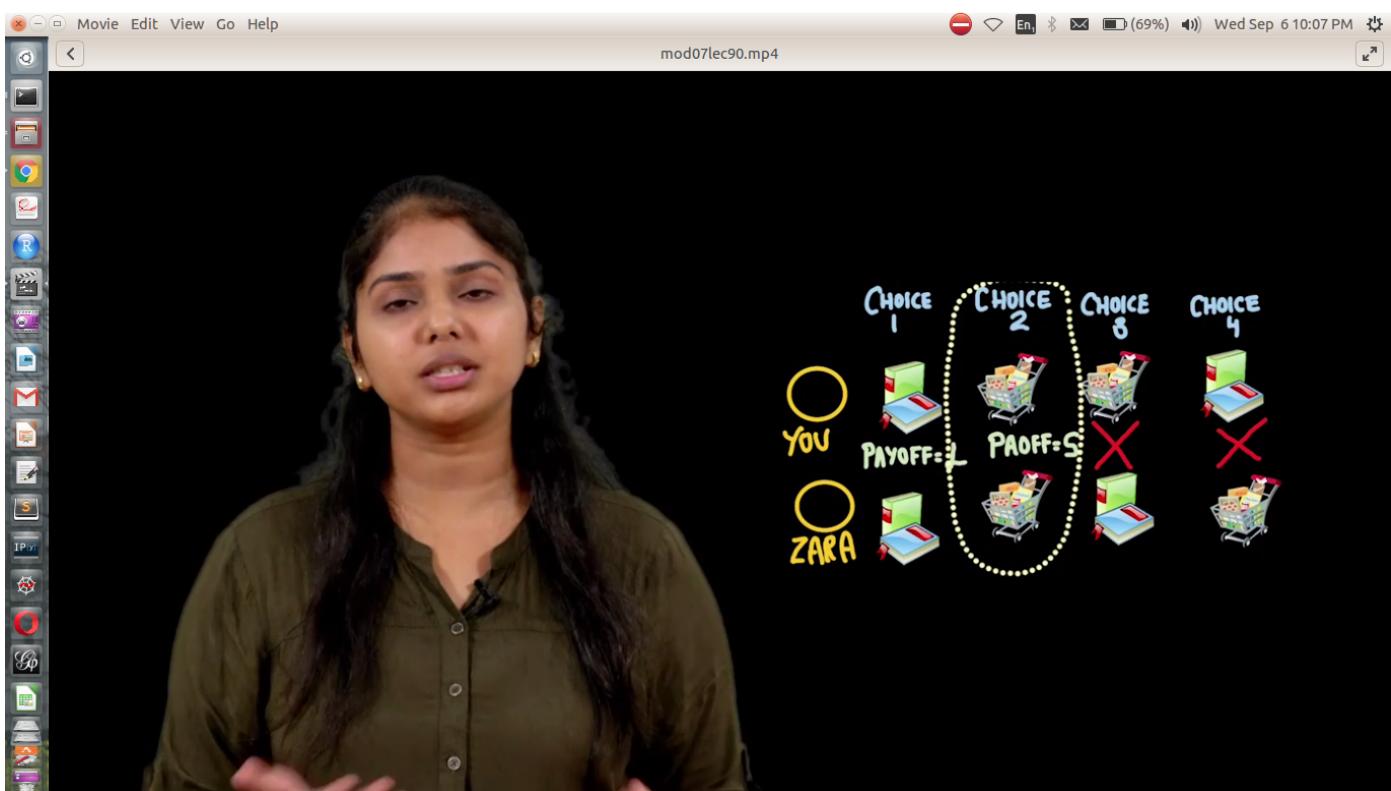
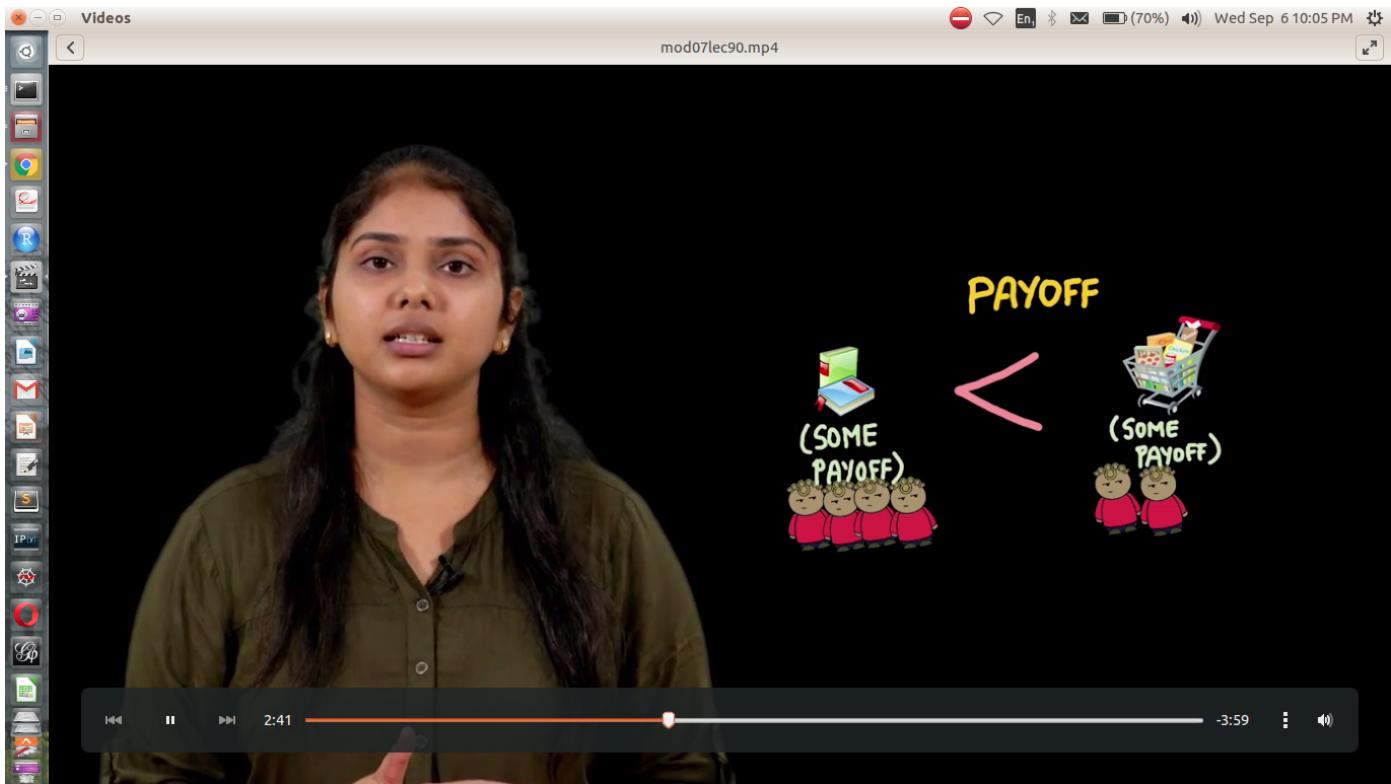
Lec89 : Cascading Behavior in Network - Diffusion in Networks

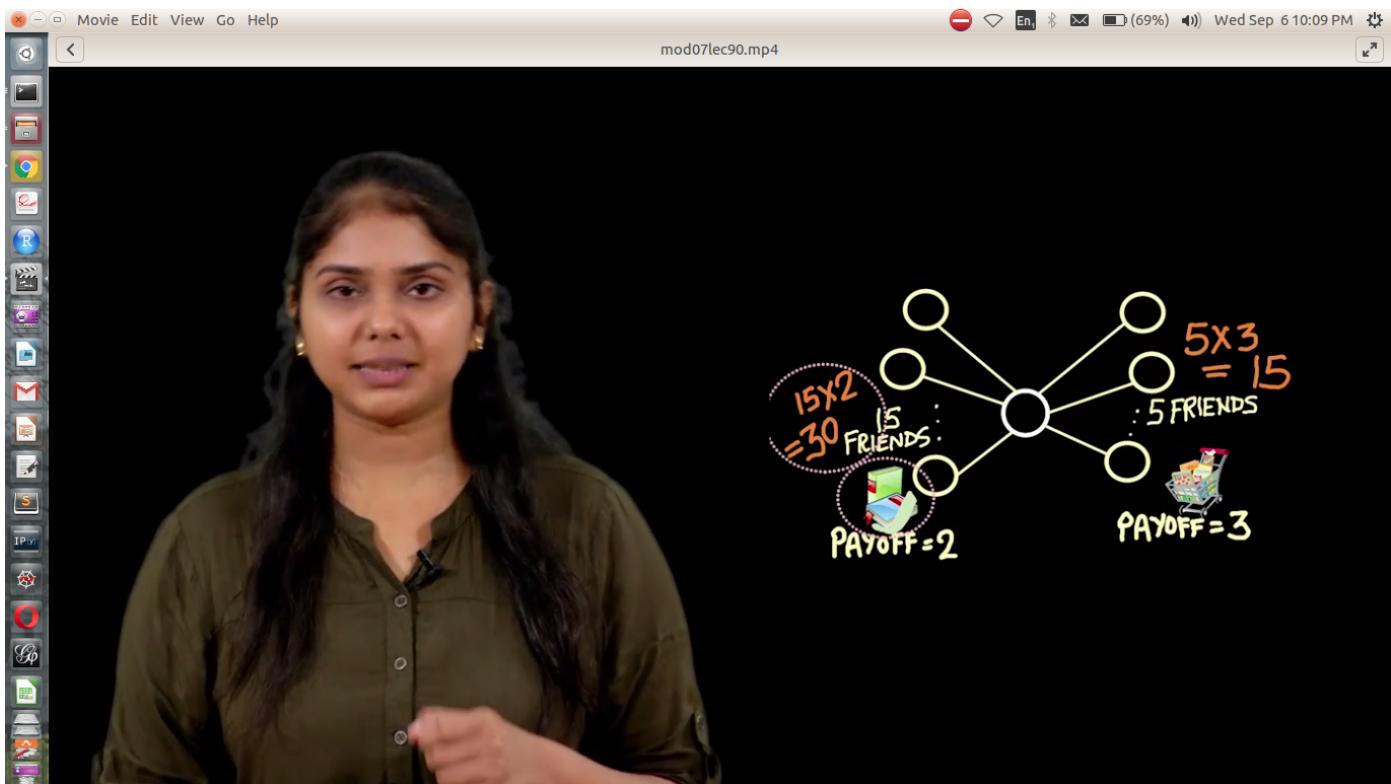




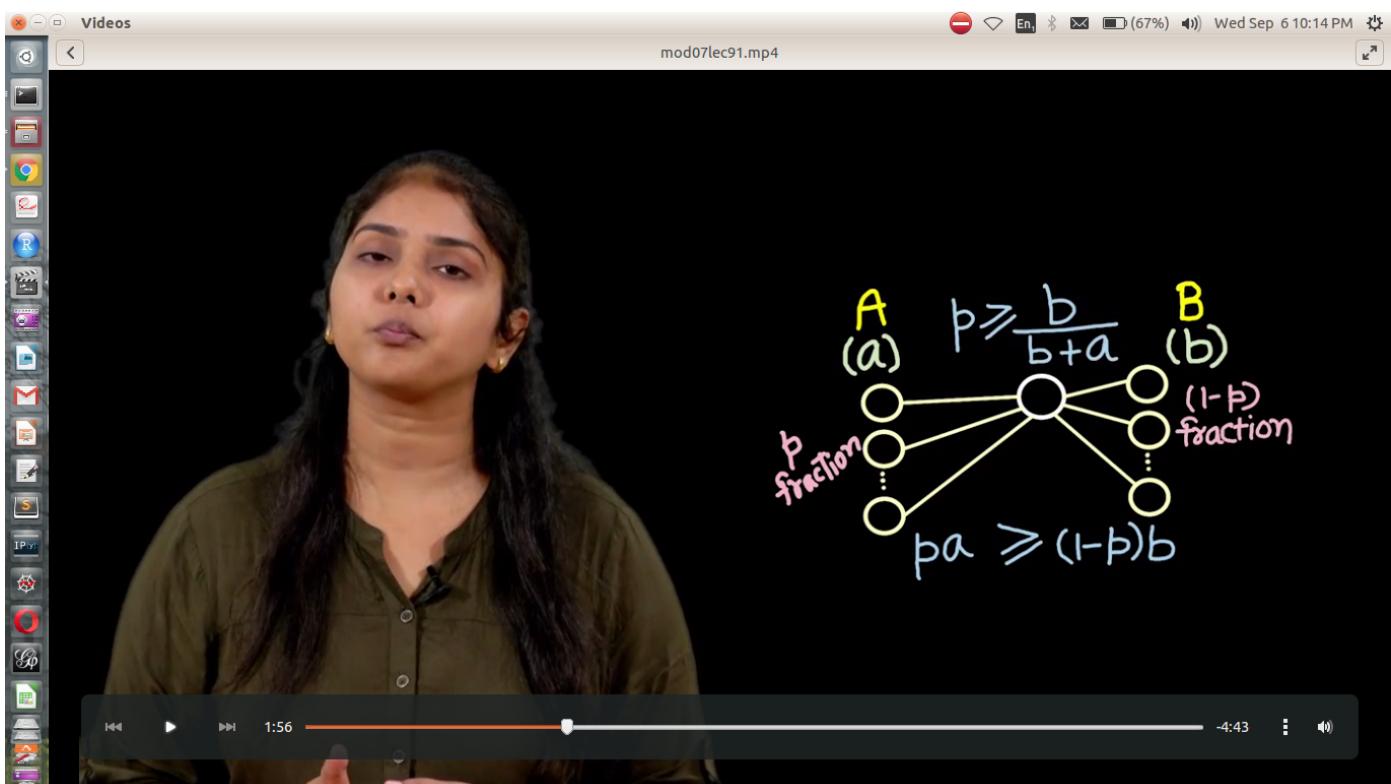
Lec90 : Cascading Behavior in Network - Modelling Diffusion





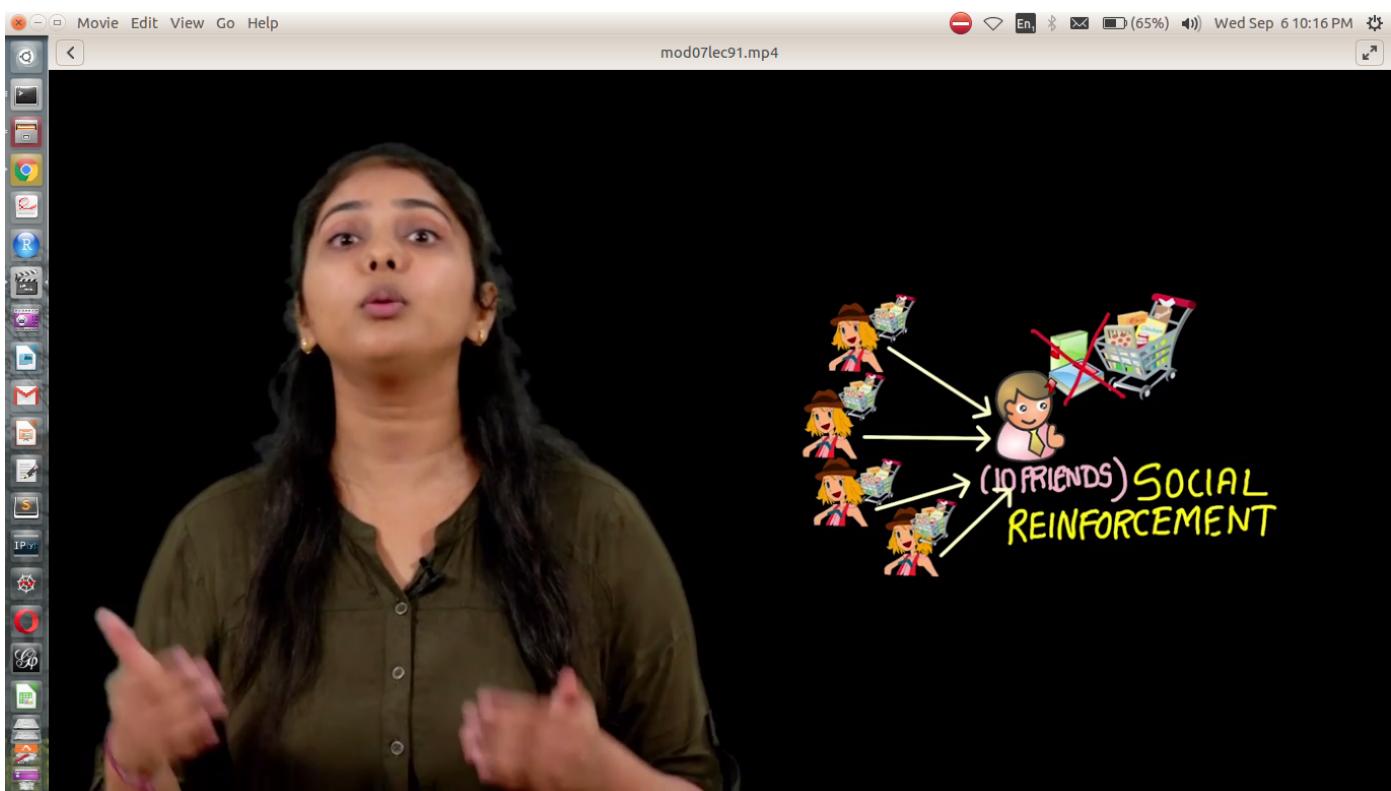


Lec91 : Cascading Behavior in Network - Modelling Diffusion (Continued)

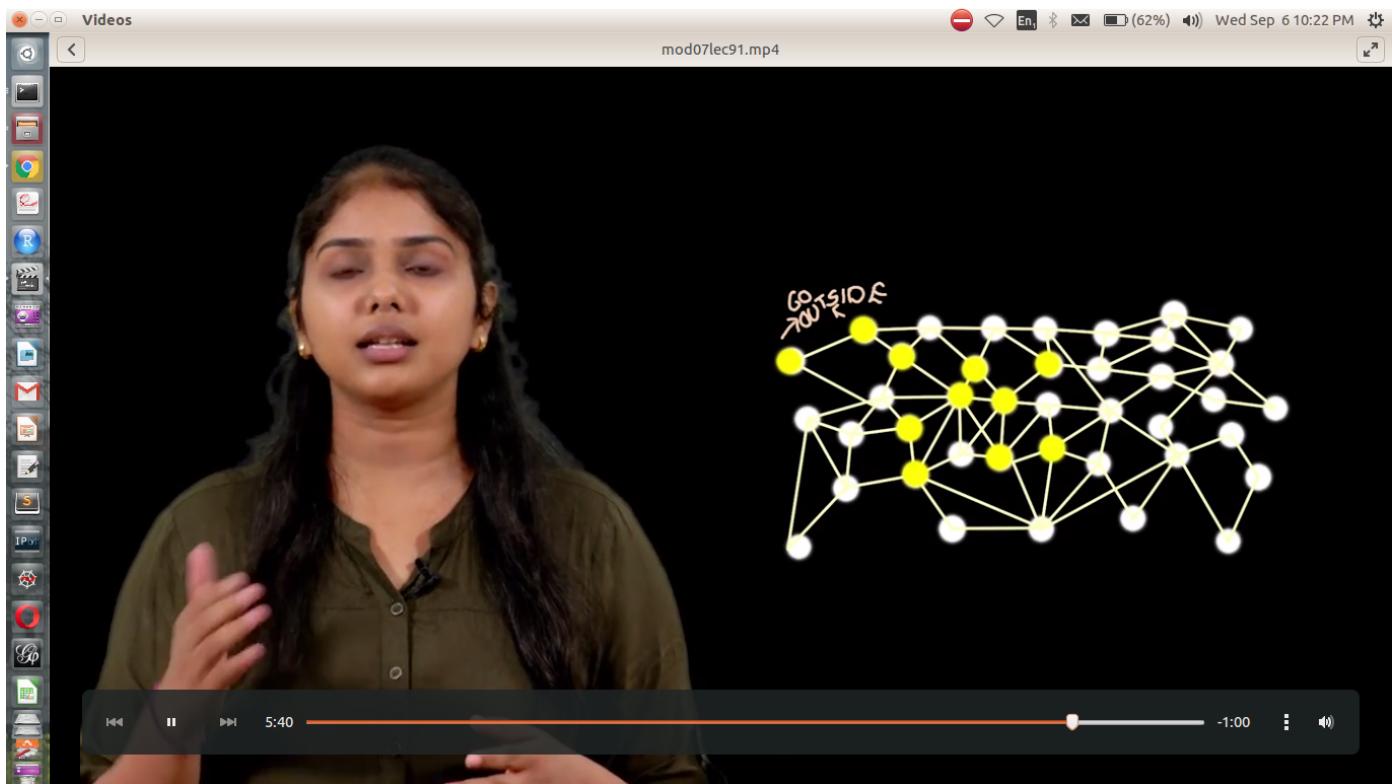




Social Reinforcement -> we decided to go to the library. But more and more people came and ask us to go with them to the mall. Finally we changed our decision. Such a phenomenon is called as Social Reinforcement



The number of people going outside increased from 2 to many due to social reinforcement

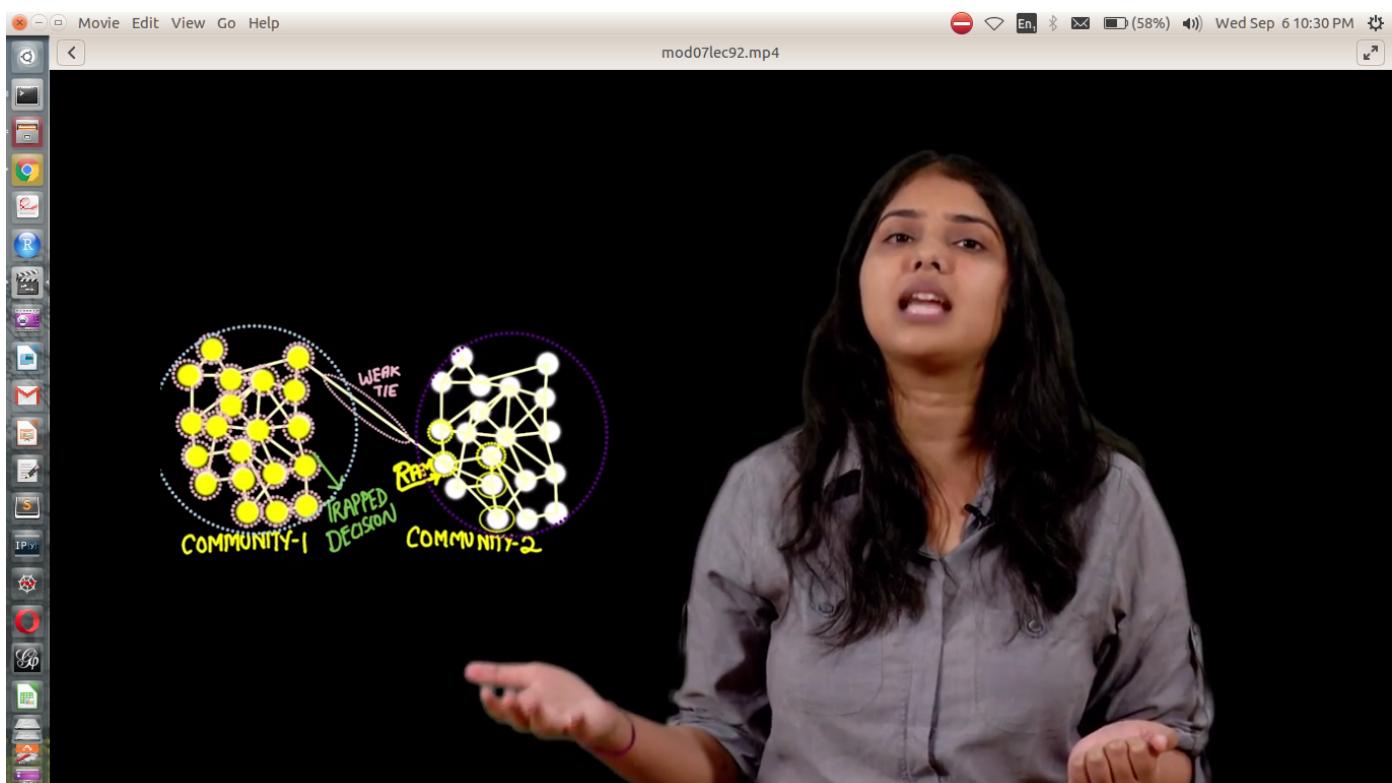


At the end, there will be 3 possibilities

1. All decided to go outside
2. All decided to do the assignment
3. some decided to go outside and other decided to do the assignment

Lec92 : Cascading Behavior in Network - Impact of Communities on Diffusion

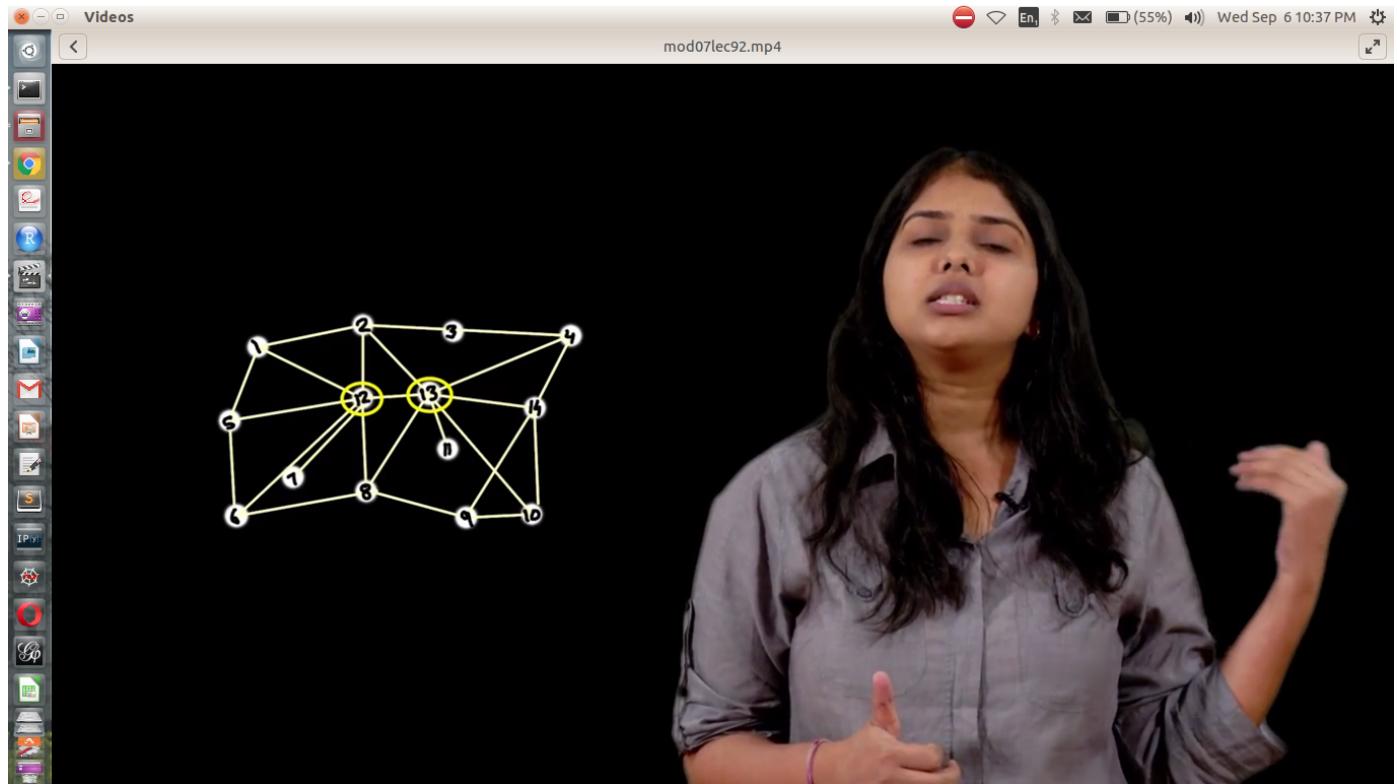
- If the class has strong communities(weak tie between the groups), then it will result in the 3rd possibility



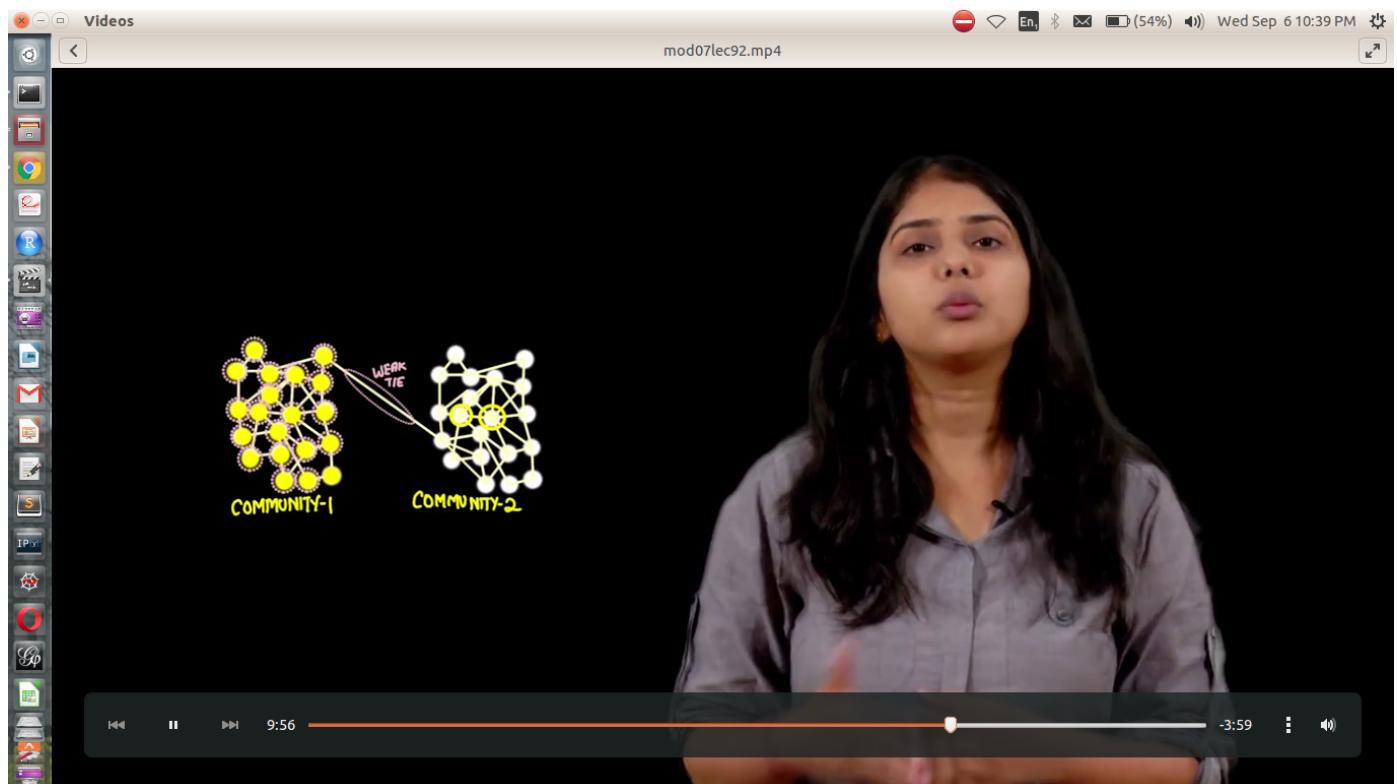
- Starting Trouble in Diffusion : No one will come forward first to use the time machine in the old age.

How to Overcome the start trouble?

1. Increase the pay-off or
2. Selecting few people and make them accept (Eg. Amitabh, Sharukh Khan.....)

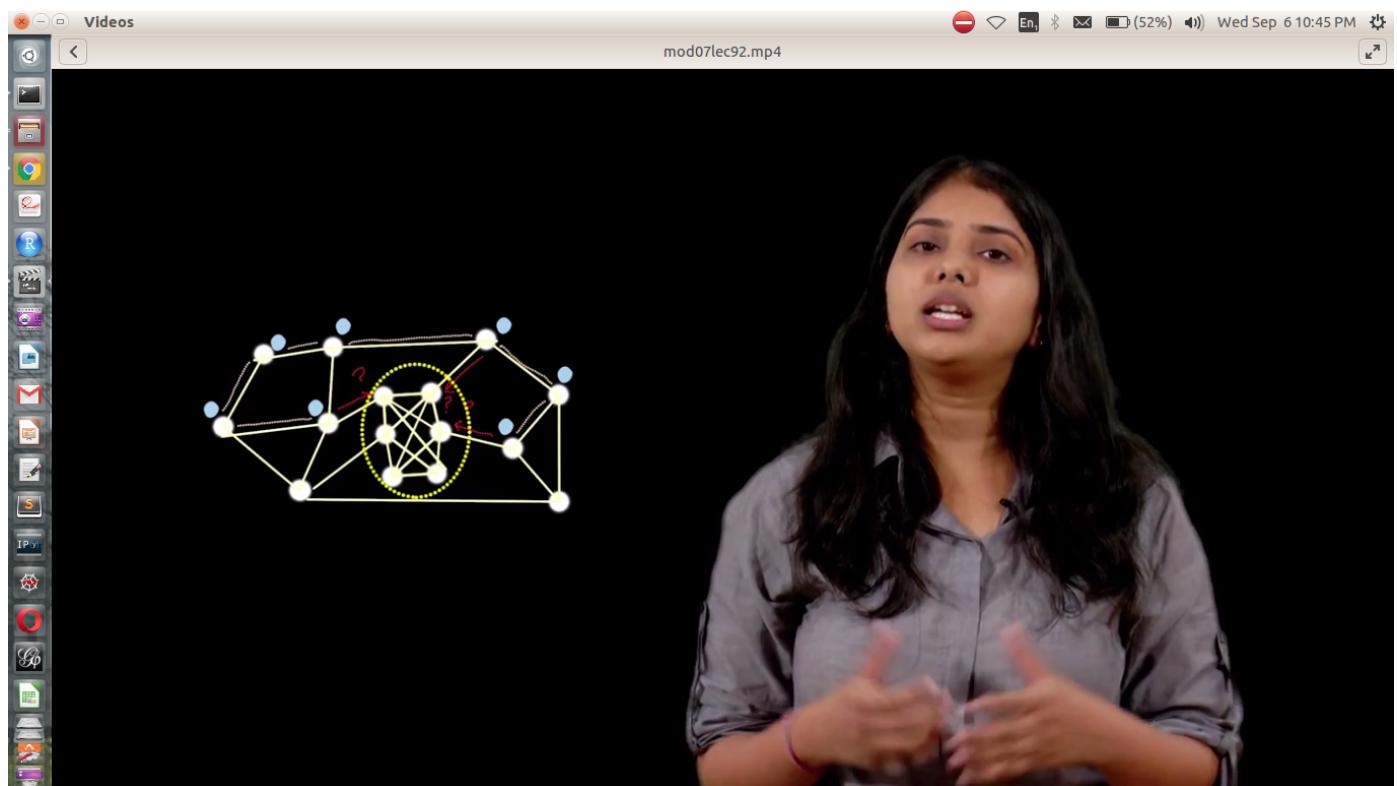
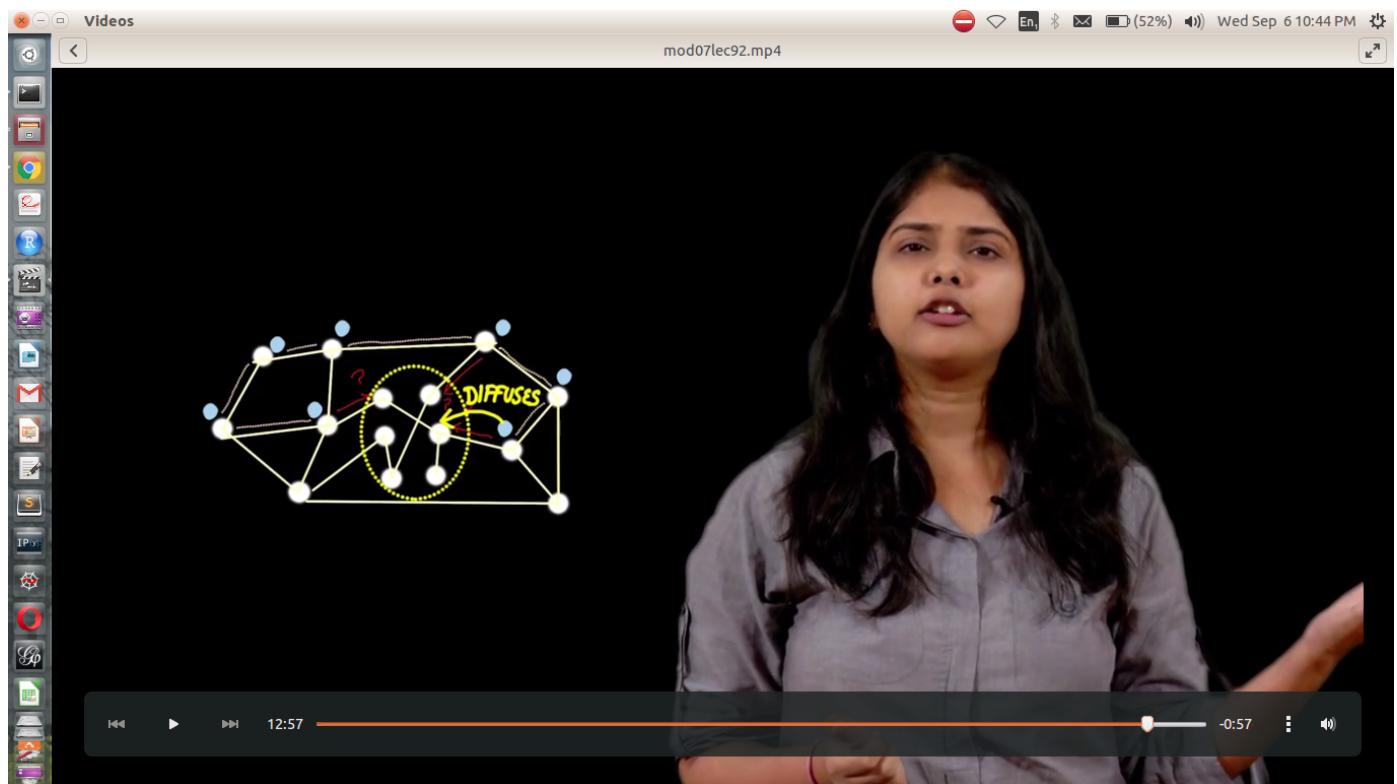


Changing the key people in a community can change that entire community



Density = Actual edges/Total Possible Edges

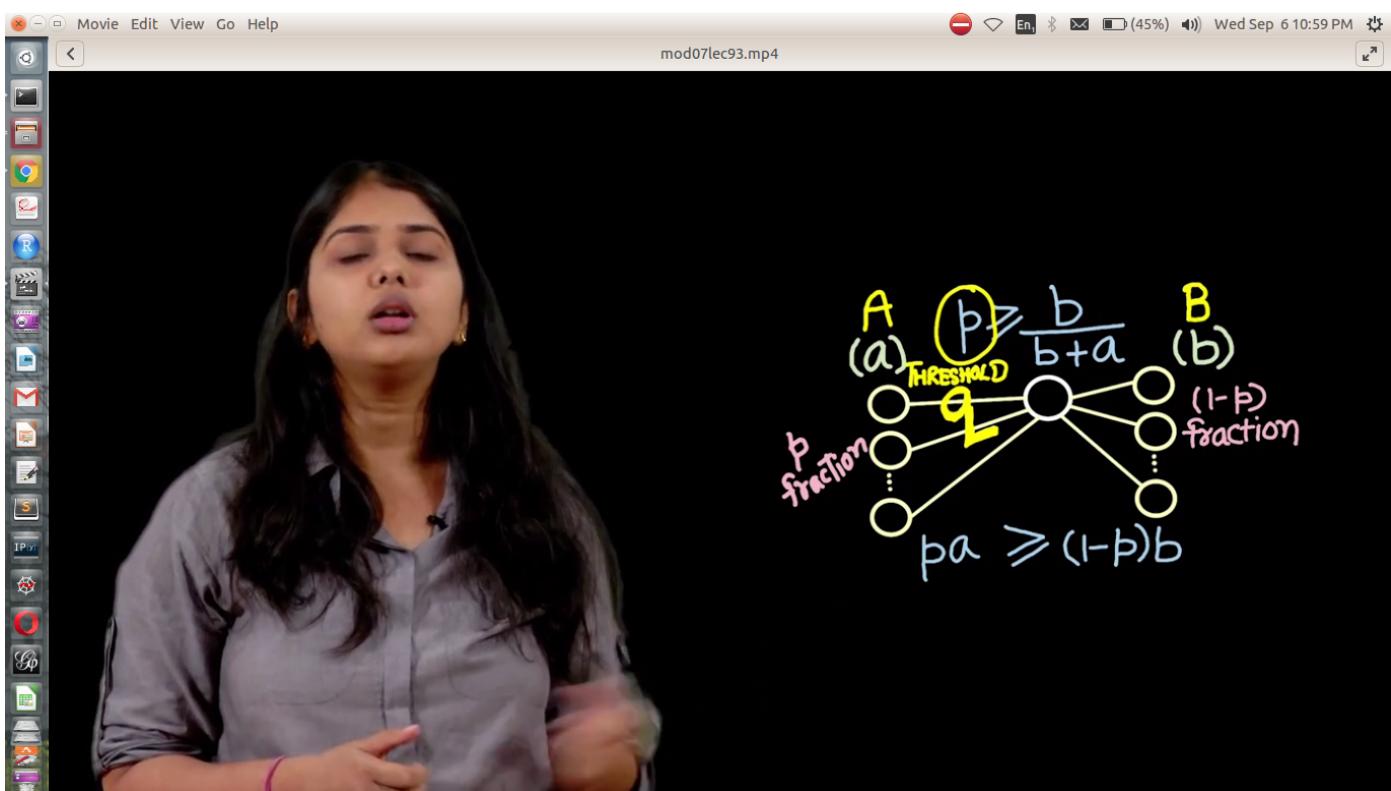
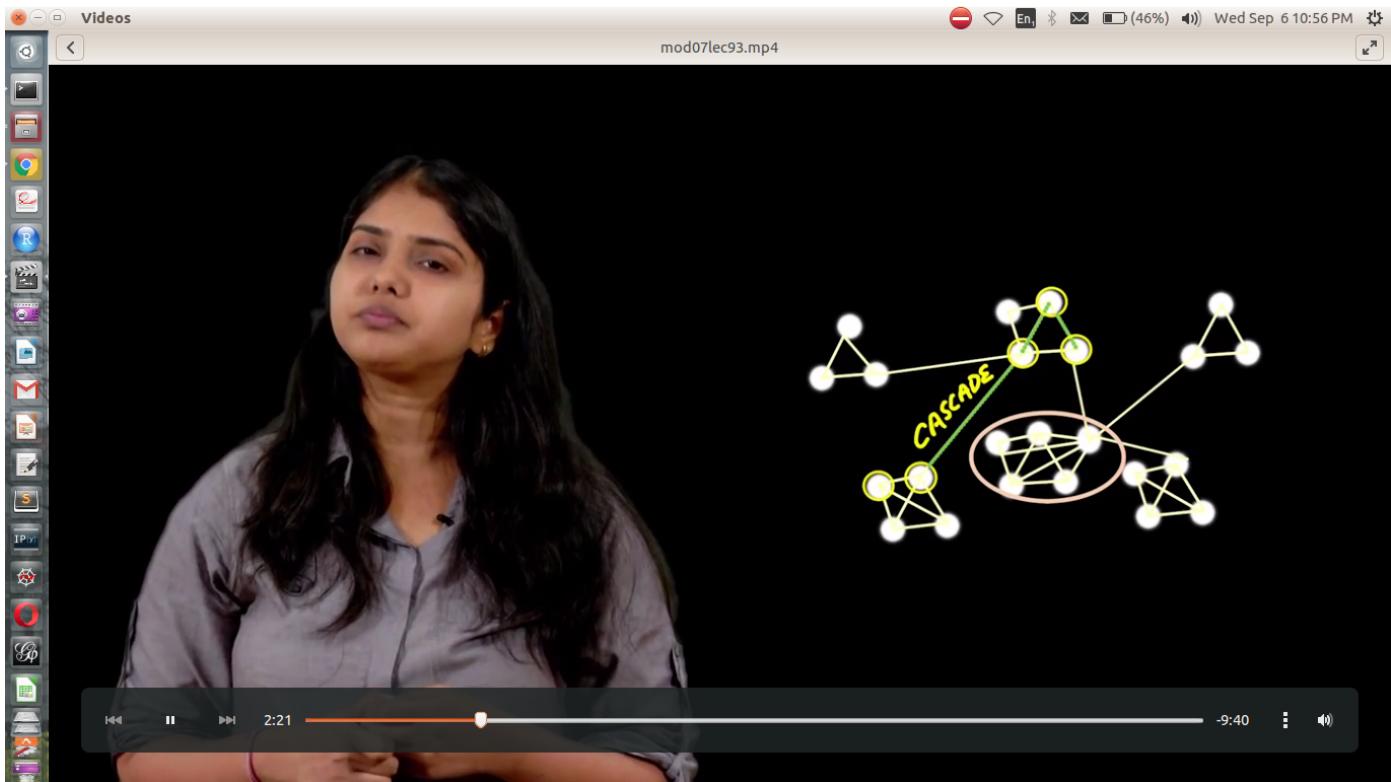
- Do density play a role in diffusion?



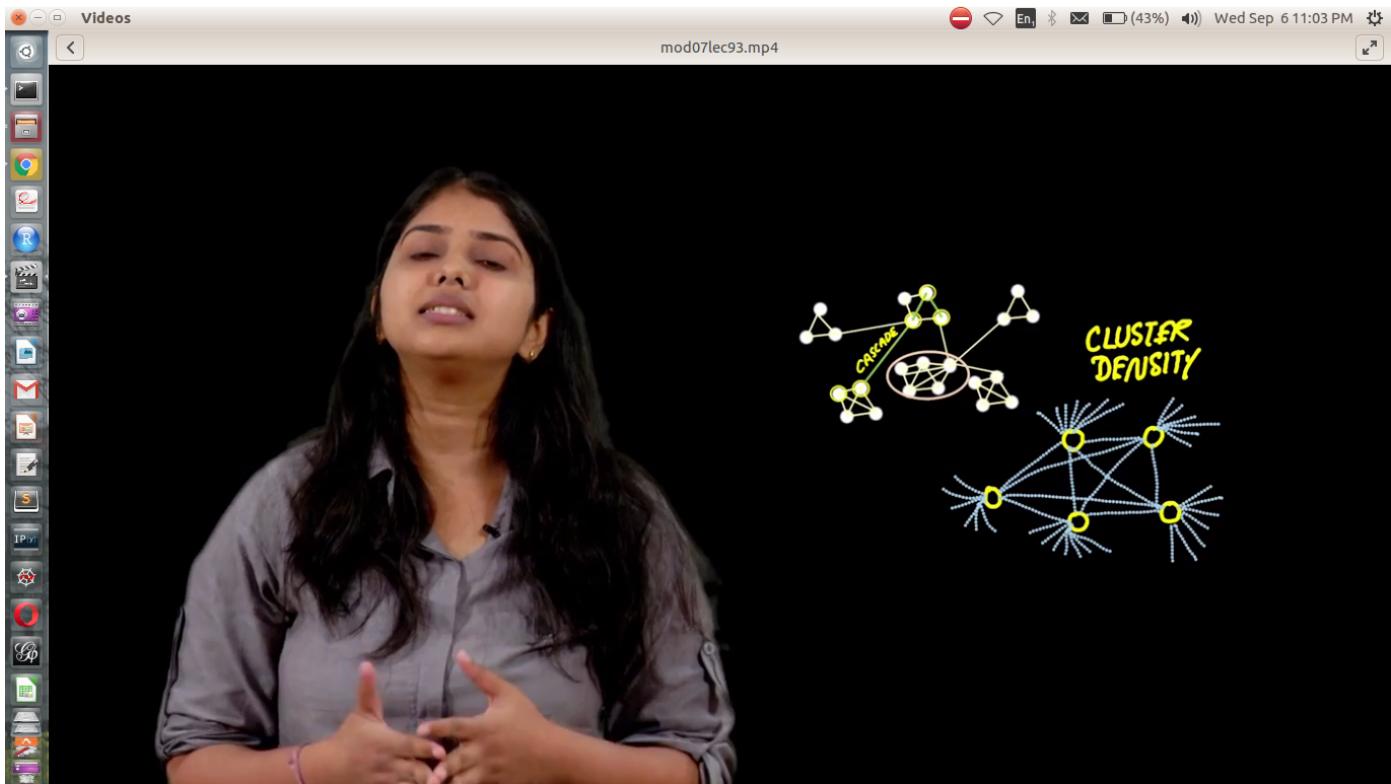
Analogy : Breaking the stick (King and his sons) story

Conclusion : Higher the density of the community, it will be difficult to inject the decision into that community

Lec93 : Cascading Behavior in Network - Cascade and Clusters



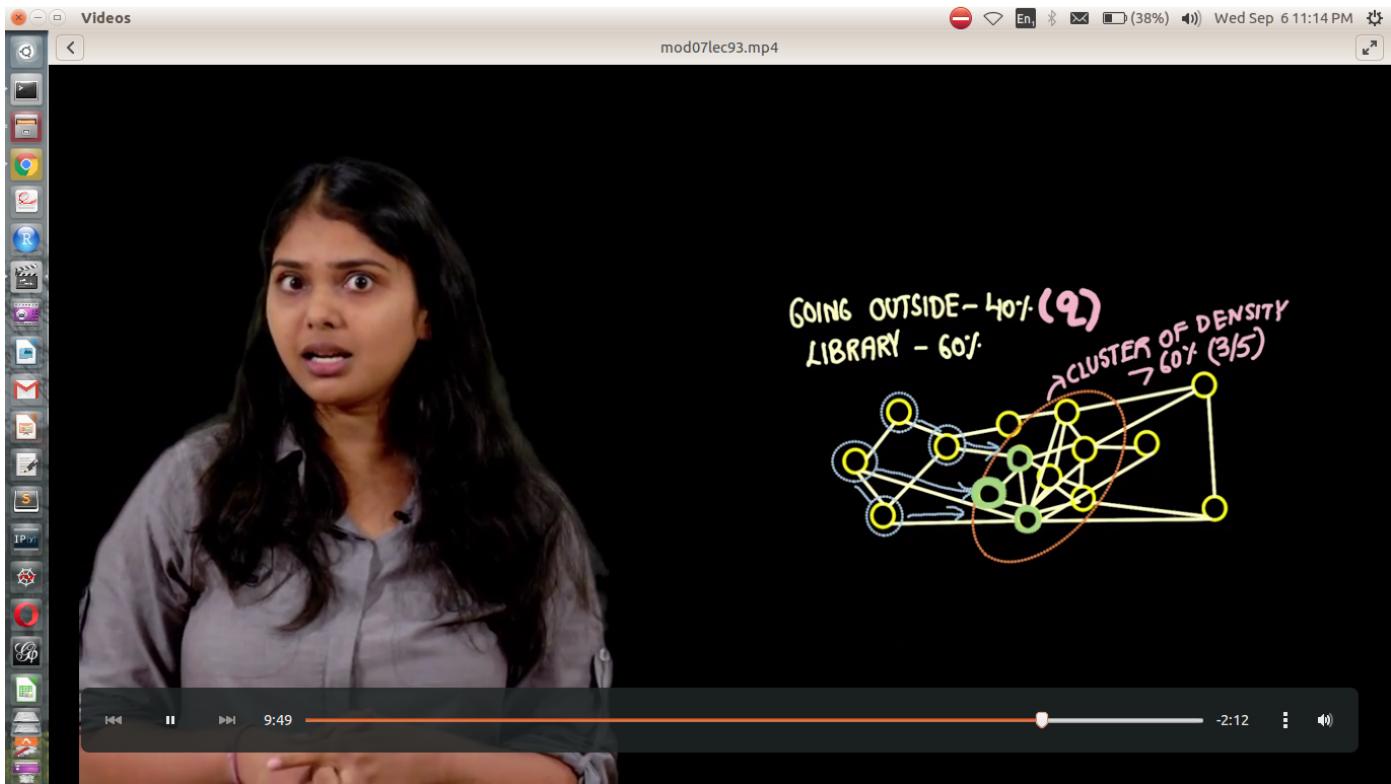
Cluster density, d -> d fraction of this nodes'(each node's) friends should be in the same cluster



Cascade cannot cover the entire network if there exists a cluster of density $>(1-q)$ where q is the threshold of adoption



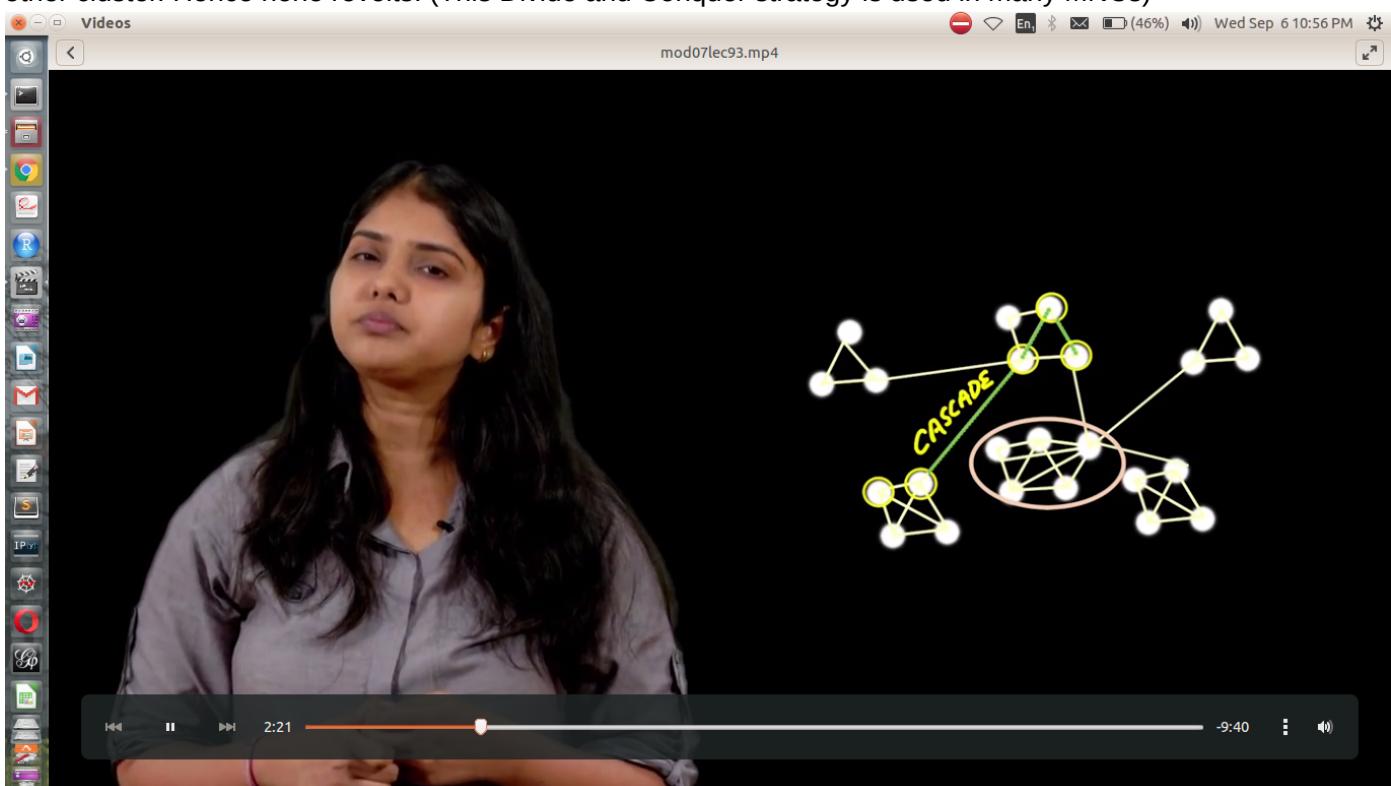
Proof



Revere Statement is also True : Incomplete Cascade \Rightarrow cluster density $> (1-q)$

Lec94 : Cascading Behavior in Network - Knowledge, Threshold and the Collective Action

Every cluster wants to revolt. As there is weak tie between the clusters, each cluster is suspicious about the other cluster. Hence none revolts! (This Divide and Conquer strategy is used in many MNCs)

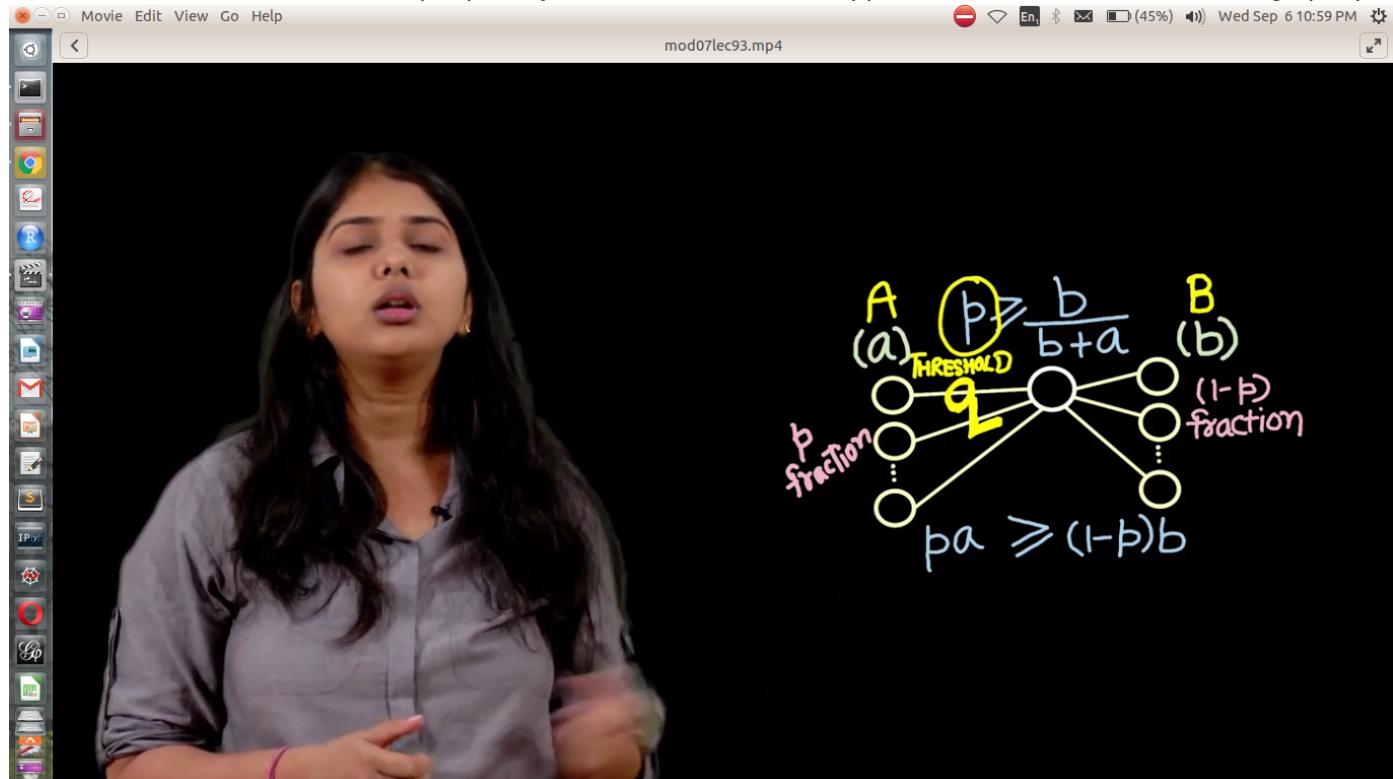


How to model such situations? (Qn. Collectively revolt or not?)

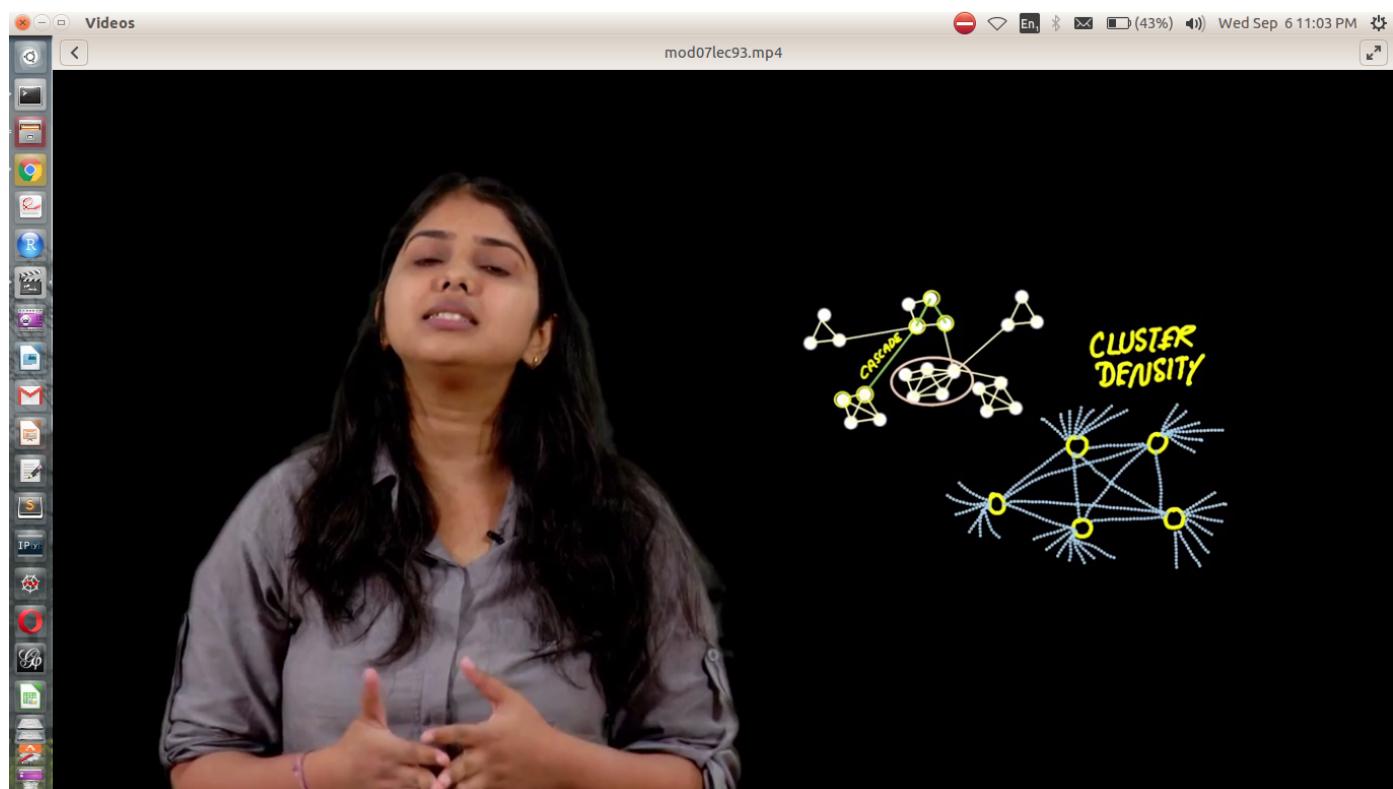
- Individual Threshold - Each person has different intrinsic threshold
- Friend's Threshold

3 Cases:

Threshold - 3 :It needs two more people to join case 1 : No revolt happens because there are no enough people



case 1 : No revolt happens because there are not enough friendships for each node. Each node assume their adjacent nodes will not join them(Because they don't about their adjacent node's threshold)



case 1 : Revolt can easily happen