

Lec27 Strong and Weak Relationships : Intro

- Hagret and Harry Potter : Hagret knows Potter but potter doesn't know him
- More Weak Friends -> More Jobs

Lec28 Strong and Weak Relationships : Granovetter's Strength of weak ties

- 90% Jobs vacancies are informed by Acquaintances

Analogy

Sir has friends A, B, C, D and E

A,B,C,D know each other as they work in same place. E works in different place hence he doesn't know A,B,C,D

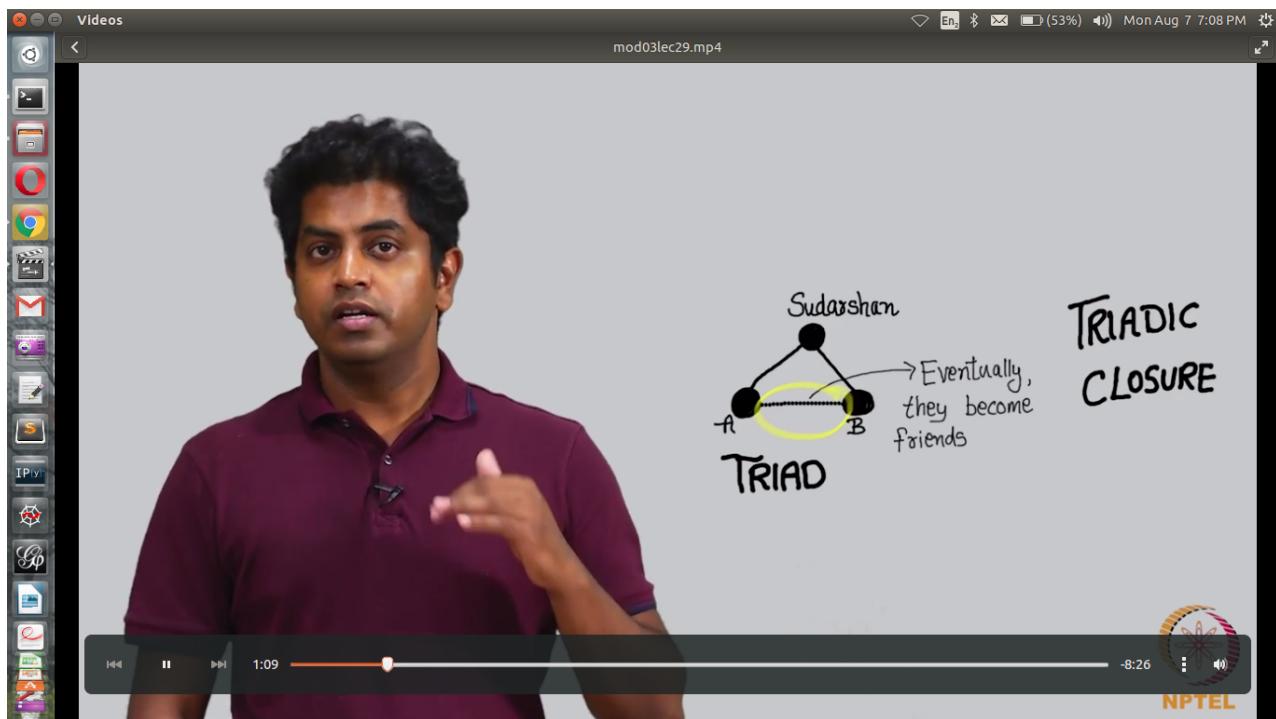
A,B,C and D are stronger ties and E is a weak tie to sir. As E is from a different world, he will give more info

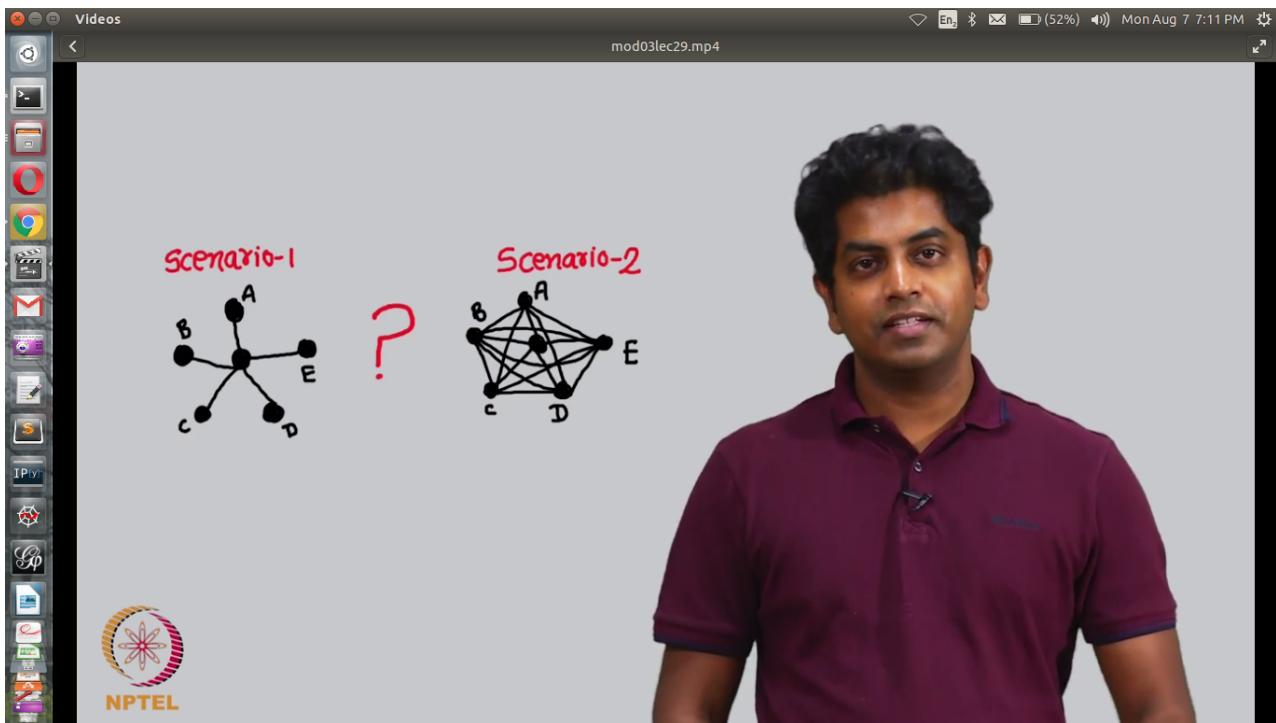
Moral: Keep your acquaintances happy :P

Lec29 Strong and Weak Relationships : Triads, Clustering coefficient, Neighborhood overlap

Triad

- Triad -> Triangle (Triadic Closure)





Reasons for triadic closure(BOOK)

One reason why B and C are more likely to become friends, when they have a common friend A, is simply based on the **opportunity for B and C to meet**: if A spends time with both B and C, then there is an increased chance that they will end up knowing each other and potentially becoming friends. A second, related reason is that in the process of forming a friendship, the fact that each of B and C is friends with A (provided they are mutually aware of this) gives them a **basis for trusting each other** that an arbitrary pair of unconnected people might lack.

A third reason is based on the **incentive**(encouragement/motivation) A may have to bring B and C together: if A is friends with B and C, then it becomes a source of latent(hidden) stress in these relationships if B and C are not friends with each other.

Clustering coef.

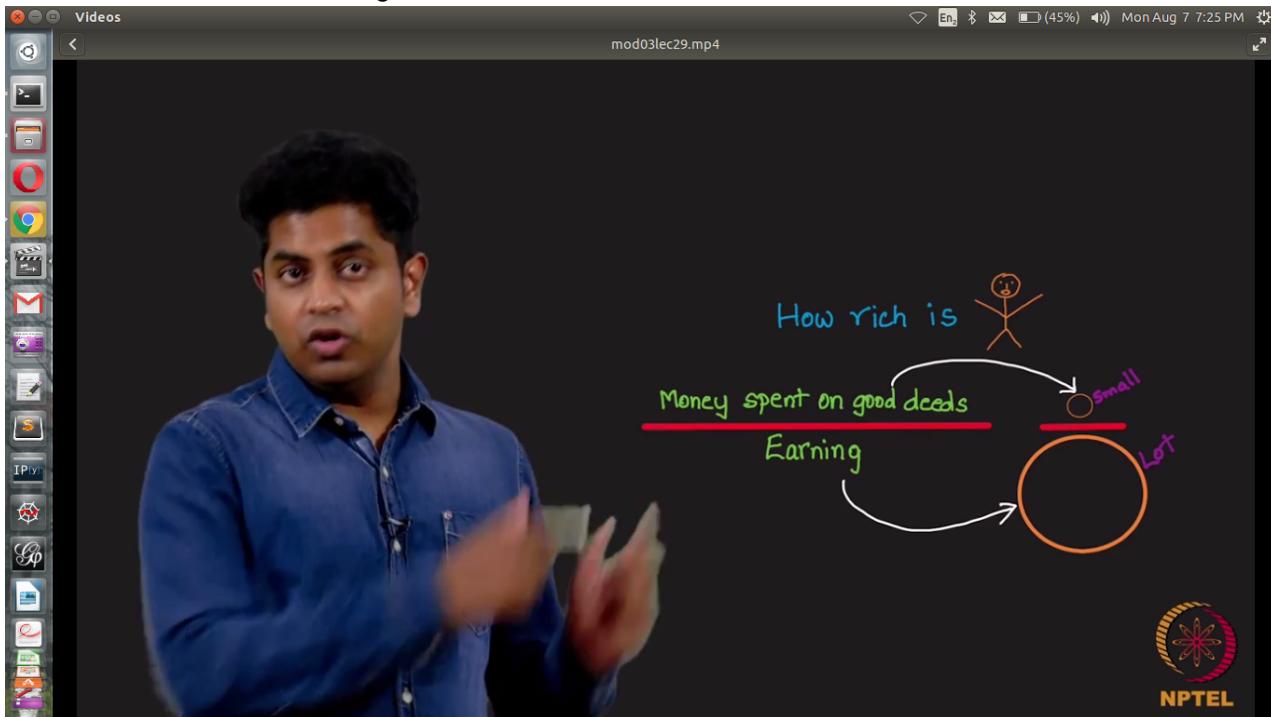
- Clustering coef of a node= no. of friendships between node's friends / Total possible friendships among node's friends
- (Book) The clustering coefficient of a node A is defined as the probability that two randomly selected friends of A are friends with each other.
- (Book) In general, the clustering coefficient of a node ranges from 0 (when none of the node's friends are friends with each other) to 1 (when all of the node's friends are friends with each other), and the more strongly triadic closure is operating in the neighborhood of the node, the higher the clustering coefficient will tend to be.

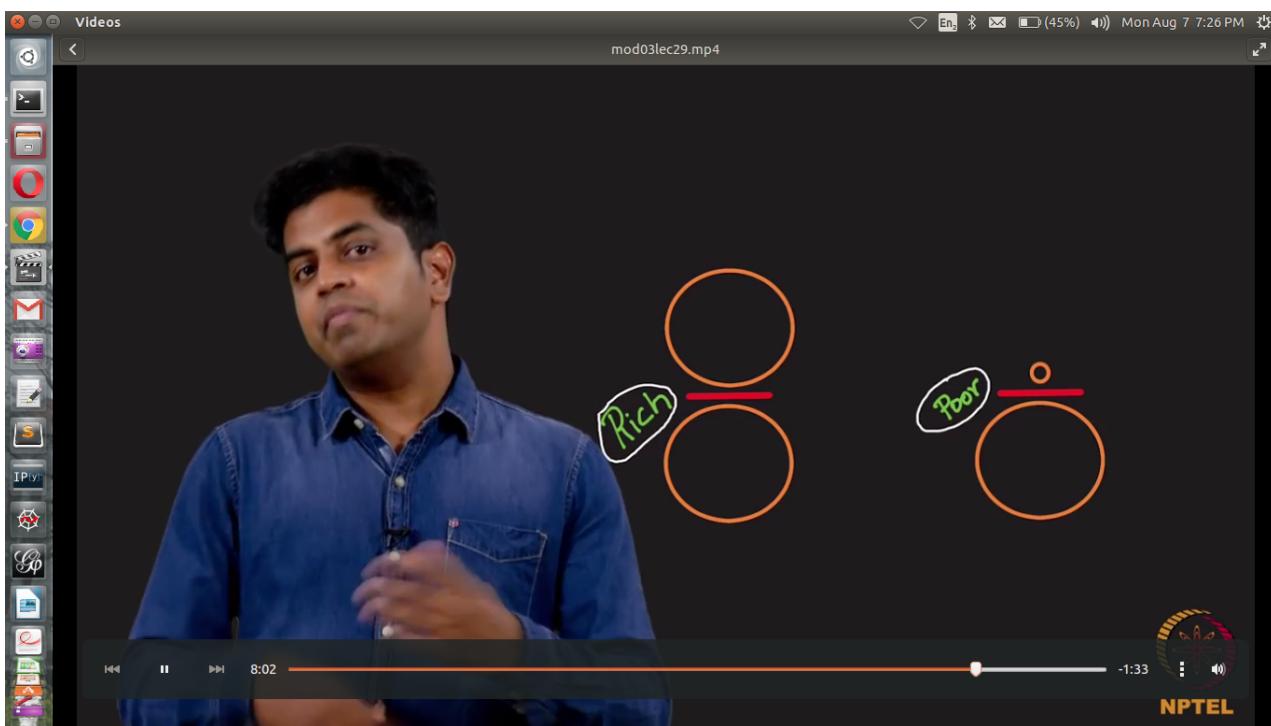
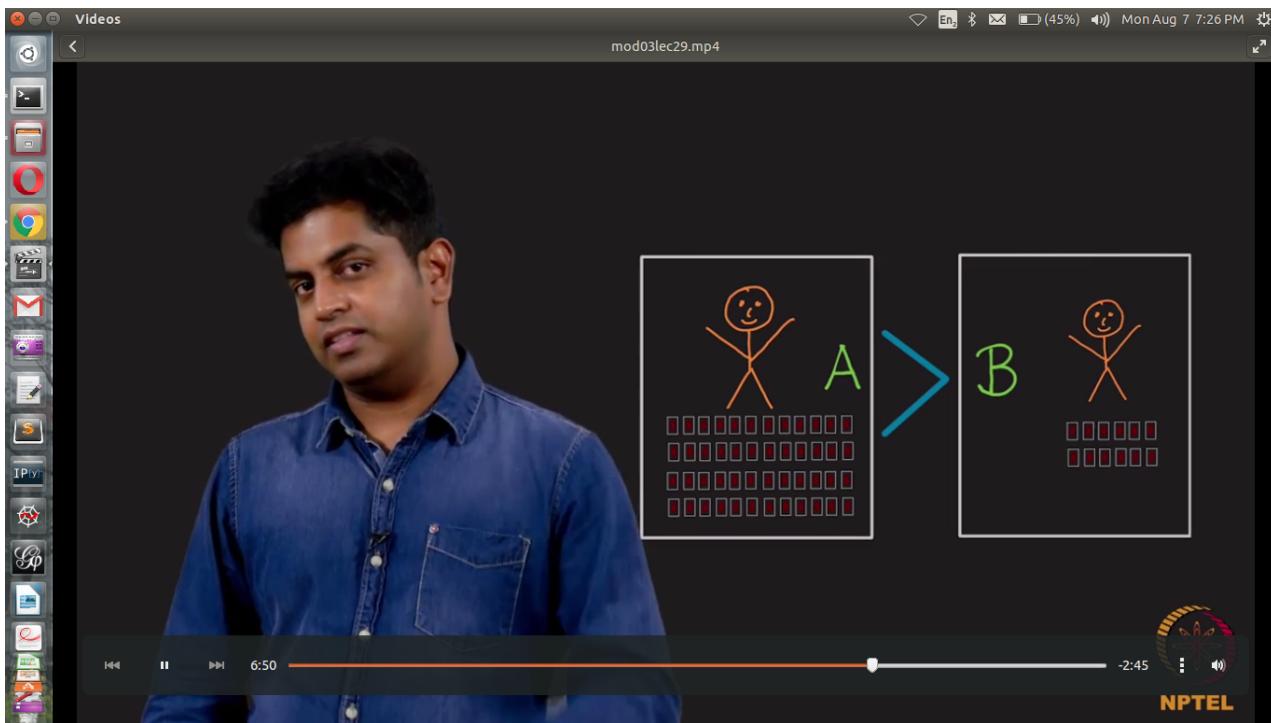


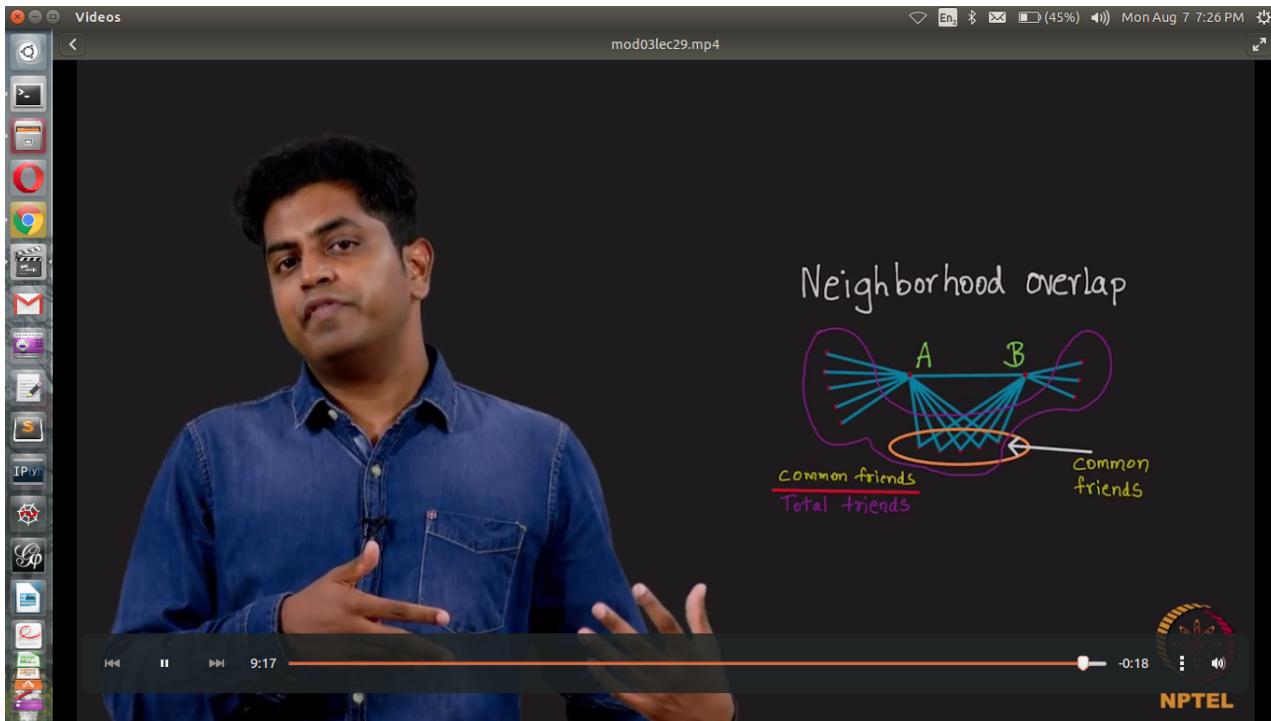
- Suicide survey -> People with Less Clustering coefficient are more prone to suicide

Neighborhood Overloop

- Neighborhood between A and B = Common friends / Total friends (A-intersection-B / A-union-B)
- Common friends are the strength of the cluster



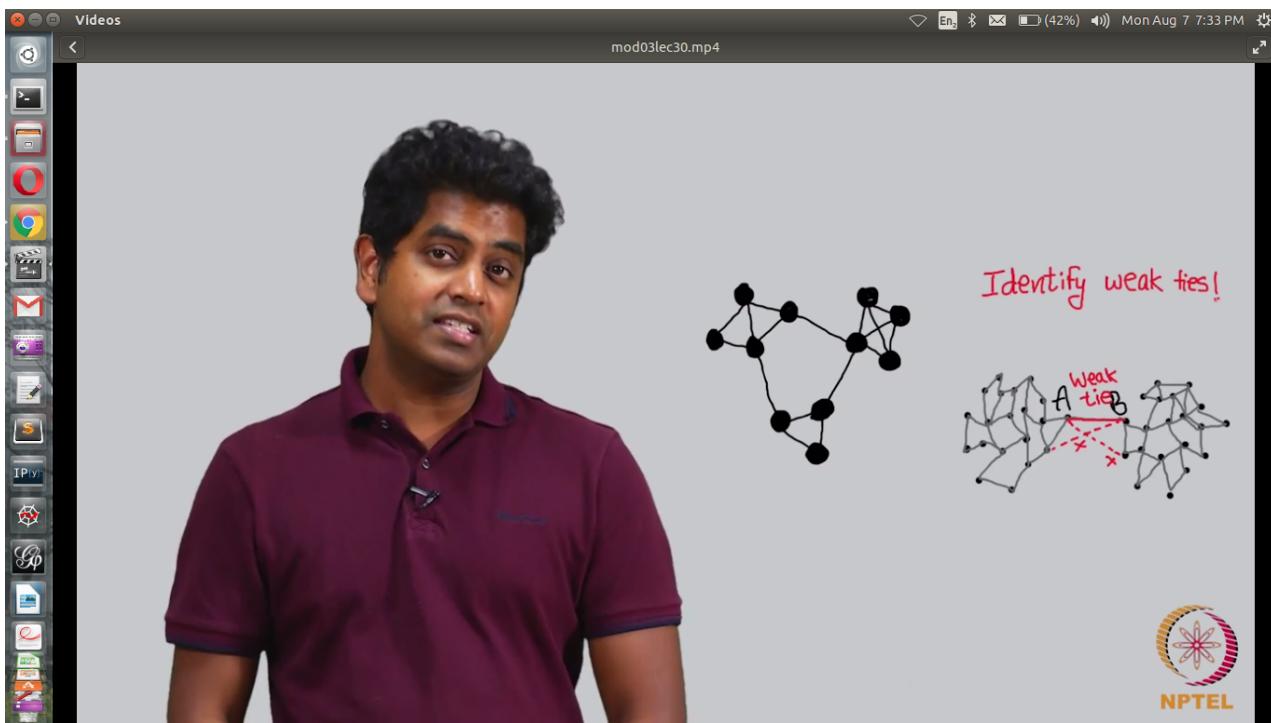




Lec30 Strong and Weak Relationships : Structure of weak ties, bridges and local bridges

Weak Ties

- If A-B is a weak tie, then triadic closure had happened resulting in more friendships between the two clusters



Book

networks-book.pdf 65 of 833

3.2. THE STRENGTH OF WEAK TIES 51

137.359

Thumbnails

62

63

64

65

Figure 3.4: The A-B edge is a local bridge of span 4, since the removal of this edge would increase the distance between A and B to 4.

Bridges and Local Bridges. Let's start by positing that information about good jobs is

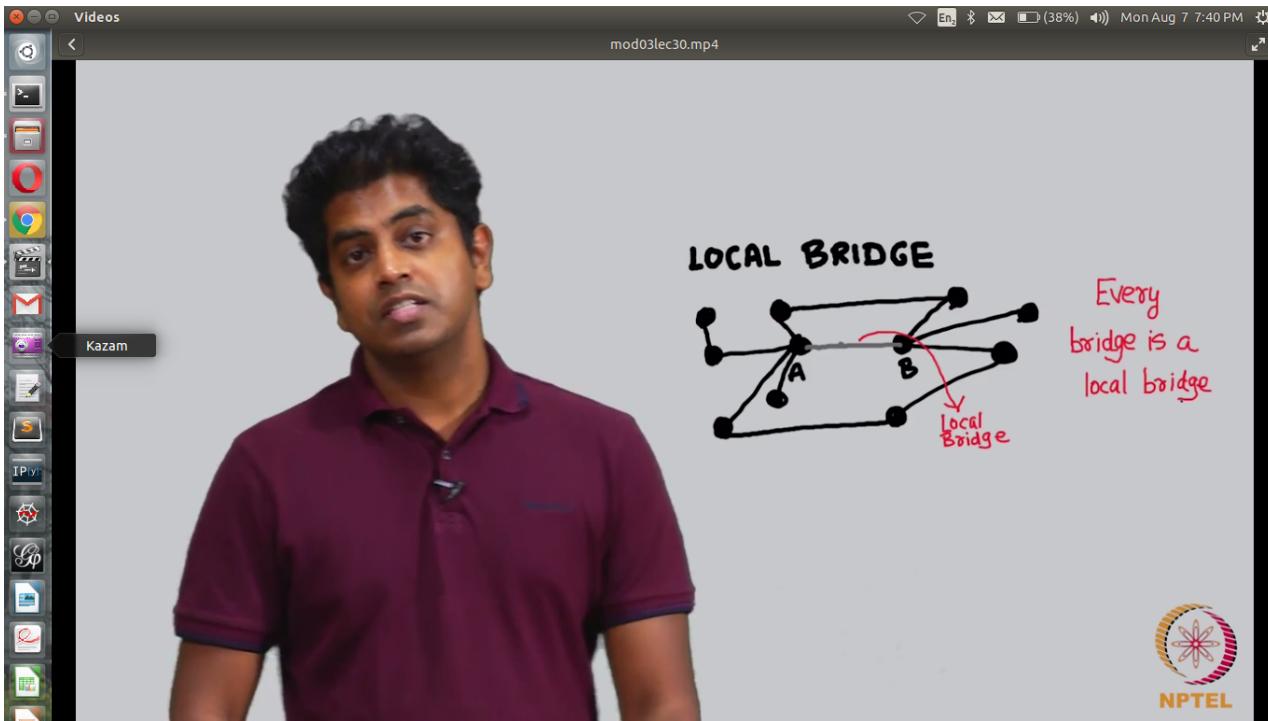
- In the above fig, We say that **an edge joining two nodes A and B in a graph is a bridge if deleting the edge would cause A and B to lie in two different components.**
- We say that **an edge joining two nodes A and B in a graph is a local bridge if its endpoints A and B have no friends in common — in otherwords, if deleting the edge would increase the distance between A and B to a value strictly more than two.**
- We say that the span of a local bridge is the distance its endpoints would be from each other if the edge were deleted
- Thus, in Figure 3.4, the A-B edge is a local bridge with span four; we can also check that no other edge in this graph is a local bridge, since for every other edge in the graph, the endpoints would still be at distance two if the edge were deleted.
- Notice that the definition of a local bridge already makes an implicit connection with triadic closure, in that the two notions form conceptual opposites: an edge is a local bridge precisely when it does not form a side of any triangle in the graph.

Bridge

- When u remove the bridge, the graph becomes disconnected

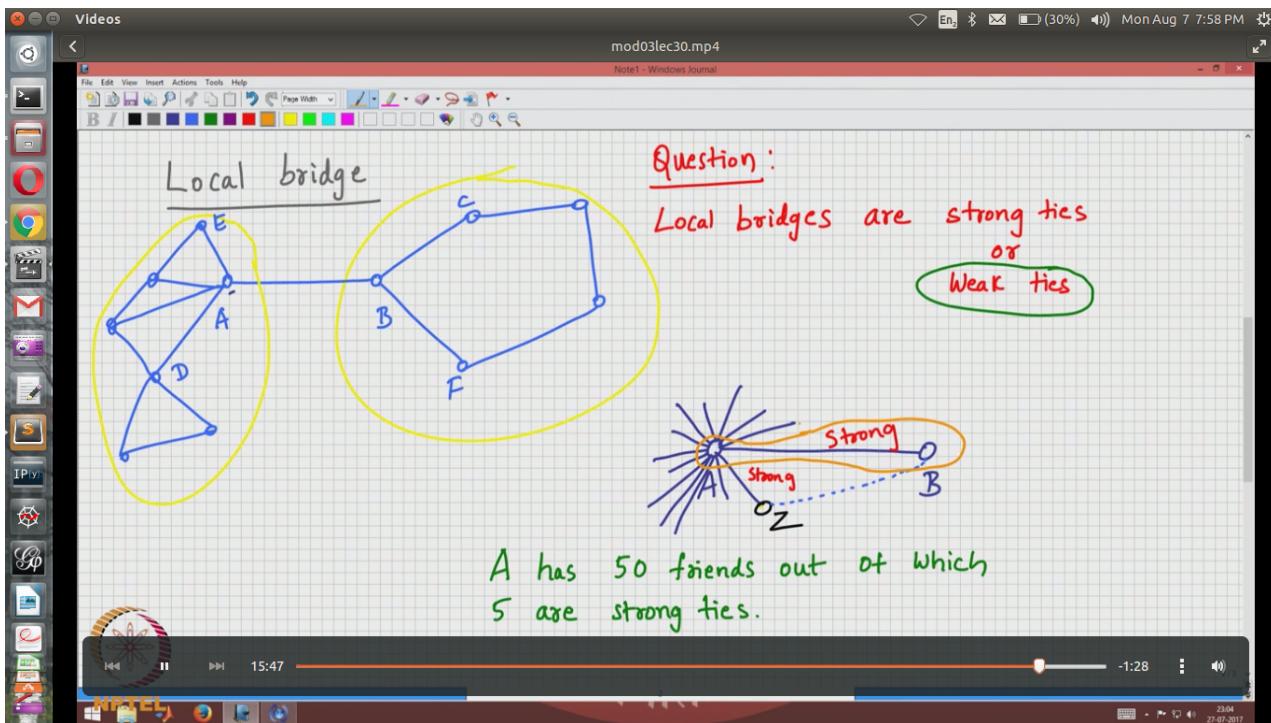
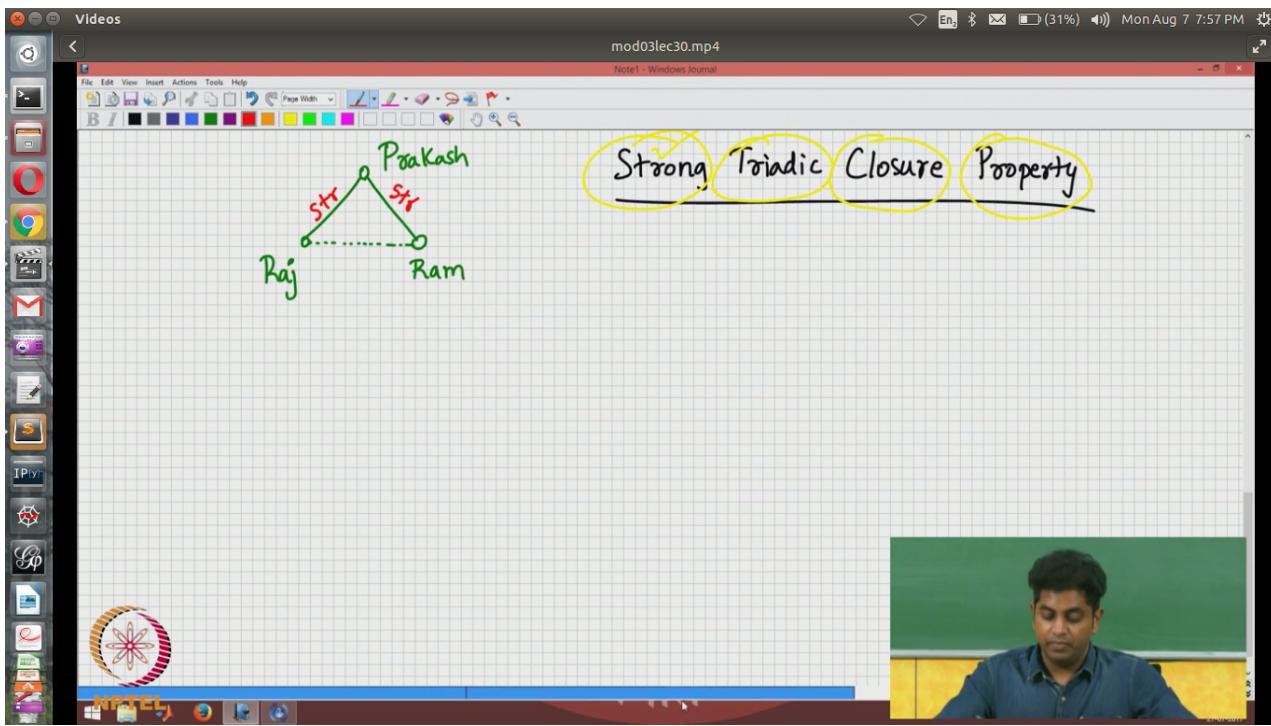
Local Bridge

- Weak bridge is a local bridge
- Local bridge is an edge with no triads on either side(A doesn't know B's friends directly and B doesn't know A's friends directly)(A and B doesn't have common friends)



=> Local bridge forms a weak tie and weak ties are local bridges

- Friendships between clusters is a weak one!



Conclusion : Local bridge is a weak tie

Lec31

- Local bridge is turned out to be weak tie!
- Neighborhood overlap higher -> less probability for the local bridge; else a local bridge
- Lesser the phone call duration -> more chance for local bridge