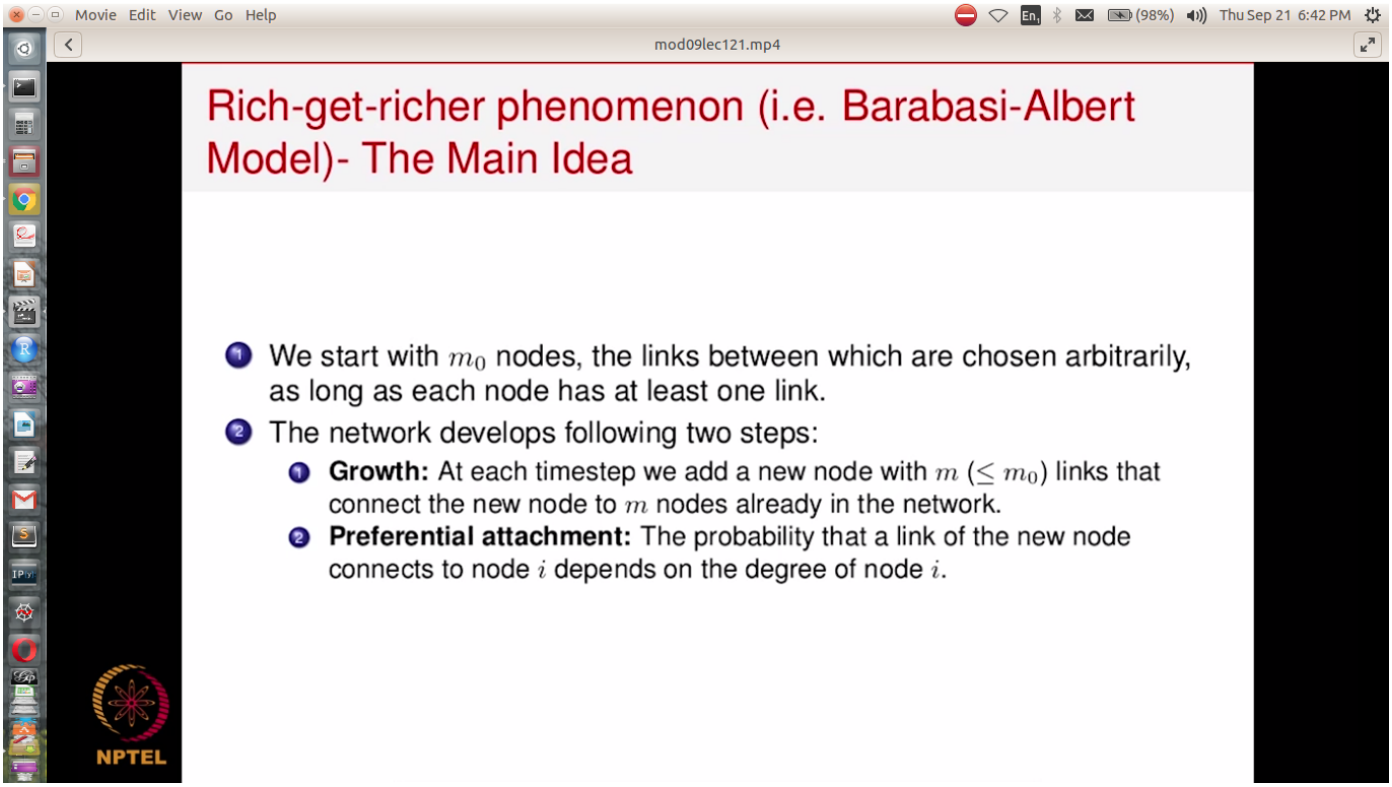
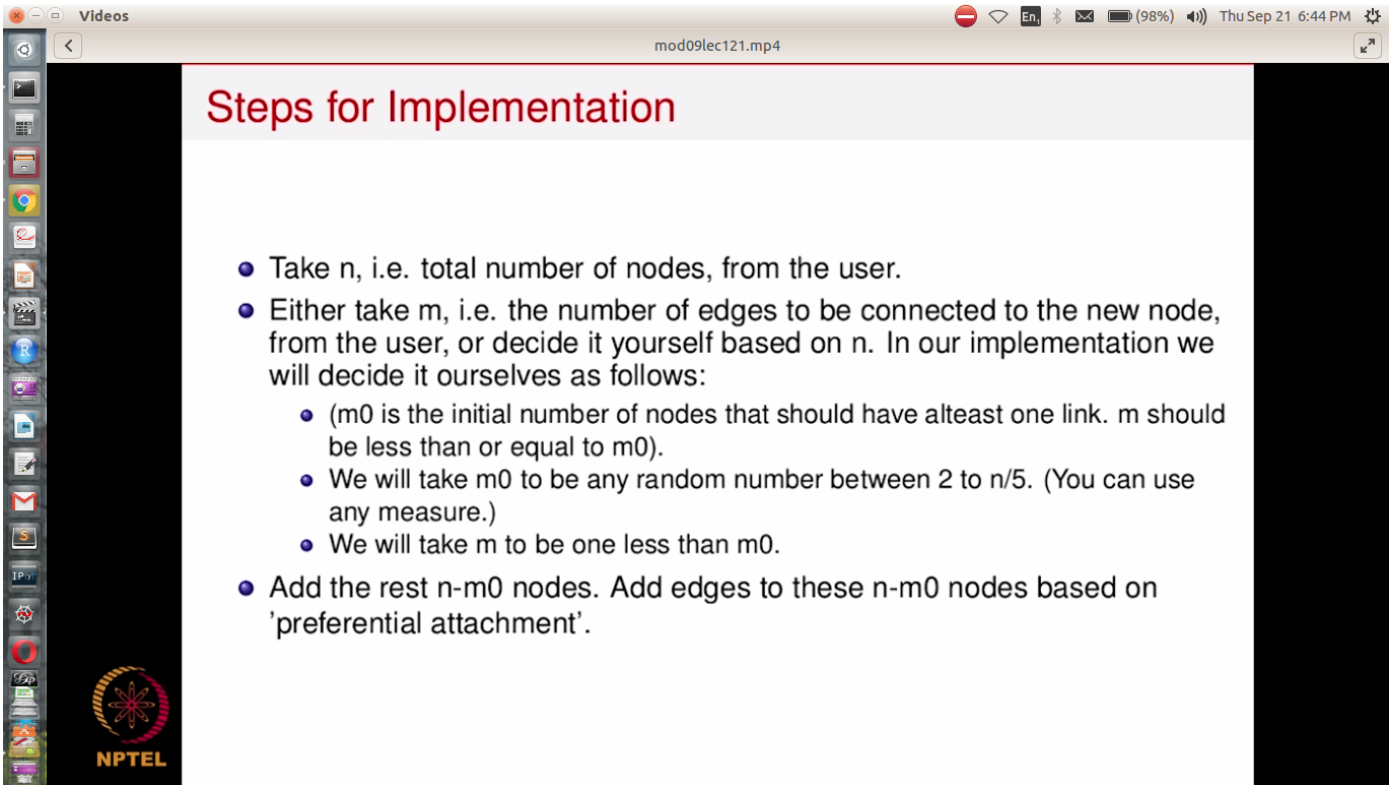
Lec121 Implementing Rich getting Richer Phenomena (Barbasi Albert Model) - I





Steps to be followed for Preferential Attachment

For all $n - m_0$ nodes, repeat the following:

- Add the node.
- To add the edges, do the following:
  - Preprocessing:
    - Get a dictionary of degrees (since preferential attachment will happen based on degrees).
    - Maintain a dictionary of probabilities. (The probabilities have to be assigned based on degrees. More the degree, more the probability. Precisely, probability[i] = Degree[i]/Sum(degrees of all the nodes)).
    - Maintain a list of lists for maintaining cumulative node probabilities.(This is for choosing a node based on probabilities)
      For Example,
      Probabilities = [0.2, 0.3, 0.5]
      $--> $ Cumulative Probabilities = [0.2, 0.5, 1.0].
  - While *edges_added* are not equal to m:
    - Choose a random number from 0 to 1.
    - Whichever node has cumulative probability more than this random number, the edge will be connected to that node, if not already added.
      If r = 0.4
      $--> $ Node 2 will be chose out nodes 1, 2 and 3.