PAGE RANK: HOW DOES GOOGLE WORK? 06

Before we move to the programming screen cast of page rank i will be telling you how can you draw graph using networkx. I hope you are familiar with the networkx library we have simulated in the joy sixth degrees of separation so if you haven't gone through the videos of networkx i will recommend you to go through the videos of networkx first. So first of all let me show you how can you draw graph using networkx. As and always we will be importing the concerned library we will be importing networkx here so i will write import networkx as nx next i will showing you carious graphs that are available in networkx so first of all is the barbell graph so i will write nx dot barbell graph and in this you need to supply two parameters apply four and two we will be getting to know why i am supplying these two parameters here then i will write nx i should initialise the g variable here as this so that i can draw it barbell underscore graph and the two parameters now i will draw this graph nx dot draw G as you can see we have the two communities here we have two communities as which comprises of four nodes so in this particular community we have four nodes and in this particular community we have four nodes so next if i write four and three then what happens see, see we have four nodes here four nodes here and in between we have three nodes in this particular graph we wrote two and we had two nodes in between the two communities, so what does the first parameter represents here, it represents the number of nodes in the particular community and the second parameter represents the number of nodes in between the two communities so we will draw it again so you will get the clear idea of what is happening here so this time i will draw i will write five and three and then draw it so five nodes here five nodes here and in between we have three nodes and this is how barbell graphs works. Next i will be telling you some more graphs next will be drawing a complete graph so i will write G is equal to nx dot complete underscore graph and in this particular thing you need to supply what are the number of nodes so i will just supply four here let me draw it nx dot draw and G so i have a complete graph and it comprises of four nodes so those who don't know what is the complete graph, in complete graph we have each node that is connected to its n minus one node for example if i pick this particular node it should be connected to rest of the three nodes so here i pick this node and it is connected to rest of the three nodes so basically it is connected to the rest of the node except the node itself that graph is called complete graph. So next basically it has every possible edge that can be present in the graph except the parallel edges and the self loads next we need to do i will show you how can you draw a cycle graph. I will write nx dot cycle graph and in this also i need to supply what are the what is the number of nodes here so i will write five let me show you next you write nx dot draw G. So we have a cycle of five nodes so what next there is another graph available in networkx that is ladder graph so i will write nx dot ladder underscore graph and you supply one parameter here and let us see what does this parameter do and nx dot draw capital G so we supplied five and we have five nodes on each of its parallel edges we have five nodes here and five nodes here in this way you can draw a ladder graph next is path graph so i will write G is equal to nx dot path underscore graph and supply the number of nodes present in this path graph i will say six nx dot draw capital G so you have a simple path comprising of six nodes then i will draw a star graph so what we will do? Will do nx dot star underscore graph and then i supplied a parameter here let us find out what does this parameter do. And then let

me draw this particular graph so since we supplied five here we have five nodes as the sink nodes i hope you know the what is sink, it doesn't have any outgoing edge so there is a hub node at this centre of this star graph and we have five nodes as the outer sinks we as the outer nodes we have one two three four and five as the outer nodes and we have one sink so whatever parameter you supply here that becomes the outer nodes and there is one hub node so in this particular graph there will be n plus one there will be parameter plus one number of nodes so if i supply four here then there will be five nodes in the graph one will be hub node and the four node and there will be four outer nodes so let me draw it again so we have four outer nodes and we have one hub node here so what next we need to do here is, next is we can draw wheel graph also so i will just write G is equal to nx dot wheel underscore graph and you supply one parameter here again so you will draw this graph so we have wheel sort if thing it is basically four node graph and it looks like a complete graph also so it is a complete graph so we will do it five nodes and let us see what happens so in this particular thing we also have five nodes one two three four and five and we have one two three four five six seven and eight number of edges here so you can see that it basically doesn't correspond to a complete graph it has a central node and it is connected to each of its nodes so let me do it for six graph or six node graph. So here also we have a central node and it is connected to its n minus one node so this is how wheel graph works then we also have some random graphs present networkx so let me show you one instance of random graph and will be using this random graph for our implementation in page rank so i will just write g is equal to gnp underscore random underscore graph and here i have first parameter as the total number of nodes for example i wrote five and then there is a parameter that is the probability of edge creation next parameter is the probability of edge creation i just wrote point five so with probability point five it will make an edge between two nodes and with probability point five it will not make edge between two nodes so the probability is equal. So next sorry i didn't write nx here that's why it is showing an error. So next i need to draw this particular graph so you can see we have five nodes here and it has drawn their edges randomly so let me draw it again it will show different graph because this si a random graph and it is making edges randomly so let me draw it again see now we have a completely different graph. So we will be using this particular graph for our implementation of random walk method in page rank. Thank you.