PAGE RANK: HOW DOES GOOGLE WORK? 05

Hello all welcome to the programming screen cast of page rank i hope it is now clear to all of you what is page rank. Page rank is basically an algorithm that is used to wrap notes in a given graph. In this particular programming screen cast i will be telling you how can you find out page rank from random walk method using random walk method so first of all let me tell you what is random walk method. As the name suggests when you have to traverse the graph randomly it's called the random walk. You pick any node from the graph randomly and look for its out links and traverse one of its out links randomly. Then you look for the out links of the present node and then traverse one of this out links randomly. In this way you traverse the whole graph if it is connected obviously so i will be giving you an example and it will become clear to you what is random walk so as you can see we have been given a graph here in which we have ABCDEF and G as the set of nodes. So first of all i will initialise the counter of each of the nodes so i have initialise the counter of each node as zero then i will pick a node randomly from the given set of nodes so i picked A here and i incremented its counter two then i look for neighbours of A, what are the neighbours of A? We have B we have F and we have G we have to pick a node randomly from the neighbours of A so we will pick the node randomly and we have selected F and we have implemented its counter two then we will look for the neighbours of F. What are the neighbours of F? We have G, we have E so we will pick a node randomly from the set of neighbours of F and increment its counter too we have picked E and we have incremented its counted too then what are the neighbours of E we have A, we have C, we have D now we have to pick a node randomly from this particular set, what is the set here? Set is A C and D will pick a node randomly and we have picked A and incremented its counter so now we have A two B zero C zero D zero E one F one G zero so what do you think here? Is this the final page rank? The values that we have mentioned here, no we have to keep iterating it this random walk method. We have keep re iterating it as many numbers of times as we can and at the end our page rank values will be same as the actual page rank values. so next we will look for the neighbours of A, so what are the neighbours of A we have again G we have F and we have B so we will pick a node randomly from this set so we have picked B and we have incremented it counter too then what are the neighbours of B we have only C as the neighbour as B so we will traverse C and increment its counter so we have traverse C and we have incremented its counter too then as you can see C is sink care what do i mean by sink? C has a sink care it has no outgoing edges so what we can do here? If we encounter sink in graph we will pick a node randomly from the given set of nodes so we will pick a node randomly from the given set of nodes. What is the set here ABCDEFG you can pick any node from the nodes of the graph so next we picked D here so D we picked D and we incremented its counter too then we will look for the neighbours for D. What are the neighbours? We only have C has neighbours of D so we will pick C and we increment its counter we picked C and we incremented its counter then we again came to C and it is a sink it has no outgoing edges so next we need to pick a node randomly from the set ABCDEFG so we picked F and we incremented its counter then we will look for the neighbour of F so what are the neighbours of F? We have E and we have G so next we picked G as the node and we incremented its counter too so in this way you keep on traversing the graph for many number of iterations and at the end the values we have

shown here will reflect the page rank values yes so how can you be sure of this method? Well will be simulating it will be implementing this and will be showing you that this random walk method actually reflects the right page rank values so let us move towards the programming screen cast of this page rank implementation and you will be getting the clear idea of how this method works in practice. Thank you.