DSP Lab 1

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1.See the Arduino training manual and finish the labs till class 7.

2. If the diameter of a network with 100 nodes is 2, what is the minimum number of links in this network?

the two node maximum geodesic distance is 2,which means its graph is a node in center and others surround it.so the minimum number of links is

$$100 - 1 = 99$$

3. For a network of 100 nodes, if the degree of every node is at most 2, what is the minimum diameter of that network?

For example,if a network have 4 node with this degree limit,its diameter is 2.Another example is that,if a network have 5 node with this degree condition ,its diameter is 2. Because of this limit,all node of the network would become a likely circle if the number of its node is increasily. So,the answer is

$$100 \div 2 = 50$$

4. For a network of 100 nodes, if the degree of every node is at most 3, is it possible that the diameter of this network is not greater than 5?

No,it is impossible.Because if a node have limit at most 3,it would like a binary tree. But if a binary tree have 4 layer,the most left side node and the most right side node have a distance is 6 which is larger than 5 ,and it only take 15 node. so it's impossible.