

**Social Networks**  
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**Lecture – 15**  
**Handling Real-world Network Datasets**  
**Ingredients Network**

Let us now look at some networks as examples; I just told you that the advent of internet era has resulted in; we having a whole lot of plethora of datasets. Let me start discussing them one by one first and the most interesting dataset at least to me is the following.

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Assume I prepare a dish and I look at all the ingredients in this dish; let say there are 5 items in this particular dish I am preparing.

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And I take all possible ingredients in the world and I put a edge between two ingredients if they are part of a dish.

So, let us say there are some 200 ingredients and I start putting a link between 2 things if they are part of one dish and I keep doing this and I finally, observe how does the graph look like, maybe you think there is definitely some dish where any two ingredients are part of it. So, what I will do is I will look at only those cases which are popular.

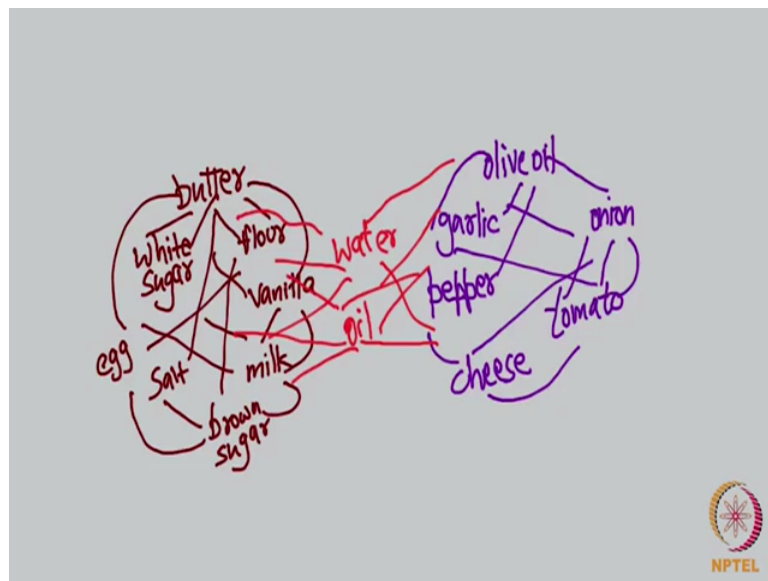
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For example, there are dishes where salt and both are added many dishes one can name. So, I am going to put an edge between salt and sugar, but chili and chili powder and sugar probably there are not many dishes where you have both the both these things one exception could be chili chocolate, but one or two with one or two exceptions it is never used together.

So, there is no edge between chili powder and let say sugar.

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If I look at the entire big network of all these ingredients it is a big network, now what do you expect? Anything interesting; anything at all that is interesting well you will observe that there will be strong communities in this network by communities I mean a bunch of people, bunch of ingredients that are mostly connected to each other and again a bunch of ingredients that are mostly connected to each other, but no connections across.

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Now why even study this? It is plain interesting number one and secondly, may not be in this network in any other network such community structure has a lot of hints on the overall behavior of the system, so will see more such networks and more such properties of these networks in the forth coming examples.