Recursion 02

We all know factorial of a number, it's a very easy thing to compute so fact of five is five into four into three into two into one, we all have been doing it from our school days right? Which is actually one twenty. So what is factorial? Let us take a look at it. Factorial of a number let's say six is six times five times four times three times two times one, do you observe that fact of six is six times fact of five, what do I mean? I mean factorial of a number one can compute by computing factorial of a number one less than that multiplied by the number so fact of n is n times fact of n minus one. So let me thing of how one could write a program to compute factorial of a number. That's going to be very easy, if the input is n I will just write a for loop and then for I equals one to n I will say answer is answer times I initializing answer to one, pretty straight forward right? The best thing about computer programming is that one can do the same thing in several ways. I told you how to compute factorial of a number, I will now tell you how to compute it in a way that is slightly complicated but I am going to introduce to you all a very important programming idea called the recursion. Remember how I defined factorial of a number? We observed that factorial of n is n times factorial n minus one so how about this, I define fact function and then all that I do is written n times fact of n minus one whenever n is greater than one if it is any if n is equal to one I simply written one and that's what this programme s doing now wait a minute I am I am defining a function and calling a functions name within the same function isn't that weird. There is actually nothing weird about it every programming language gives you this facility, the facility of calling the same function within itself and python also gives you this facility as you can see this programme will simply give you factorial of a number. Try to understand what is happening here, you are computing a function by giving as a input a number and the function is calling another instance of itself. I am sure my terminologies are sounding complicated but you will get used to it as you see more examples on recursion.