Customer Relationship Managemen
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Lecture – 36
eCRM : Components and Strategies

Hello everybody, welcome to the NPTEL Swayam course on Customer Relationship Management. This is Dr. Swagato Chatterjee from VGSoM IIT Kharagpur who is taking this course for you. We are in week 7 and in this week, in the first few videos we will discuss about eCRM, which is electronic CRM the components and strategies.

So, when we talk about CRM; CRM is a strategy which can be applied both in the online world and in the offline world. I am trying to say that customer relationship management can be taken care of in an offline environment as well, but with the advent of internet and internet being available in everybody's mobile phones and are in every corner of the country if not the world. I would say the adoption of electronic CRM or I will say internet based CRM has grown up.

Why did it? Why did it grow up? It has grown up, because people now actually are spending more amount of time in their internet world, they are spending they are the surfing something, they are doing something in the internet, they are watching videos, watching movies; they are spending lots of time on the internet. And, if people are spending lots of time on the internet then connecting at a micro level, connecting one single individual on the internet becomes very easy.

Because, then you can probably do a micro segmentation, you can probably focus on 1 single person and see that what are the problems that this person is facing, what are the various kinds of facilities or services these particular people will be needing. And, you can then give those kinds of services and facilities to them.

You can solve their problems at a personal-level, you can give certain kinds of I would say certain, the loyalty programs or certain kinds of benefits, or certain kinds of service recovery aspects all of these things can be done at a personal level.

So, if this personal vey directed very, very sniper ways means we there is an AK 47 and there is a sniper. AK 47 sprays your bullets. So, whatever you do, whatever when you push; pull the gun of AK 47, then it will spray the bullets and if and if there is certain probability. If you actually spread a lot of bullets there is a certain probability that it will hit the target.

On the other hand, the sniper will not spray the bullet, the sniper is very targeted, but it will obviously, obviously hit the target if you can't put it in in the correct line. So, and it will definitely kill the target.

So, similarly here also the classical mass kind of marketing strategies are basically AK 47. It is a spraying bullet strategy. This higher chance if you spray a lot of bullets, if you do lots of mass marketing, there is a higher chance that people whom you want to target, people whom you want

to actually communicate with will be reached. But, there is also lots of wastage like, in AK 47 does if you spray the lots of bullets gets wasted.
But, if you get the provision to stand still and put a sniper and then hit somebody, then you will be, but that will require a place where you can hide, that will require a place, where you can put your sniper, because it is very heavy much heavier than this thing it is it is a little bit of stability and etcetera.
So, if that kind of situation can be created here also in the internet world wide. Internet gives you the provision to target a person at individual level, then you would probably want to do that, then the wastages will be much lower and you can spend all those money which is getting wasted in a mass merchant, mass marketing kind of situation in a very targeted way. So, that is why this internet based CRM, eCRM came up to be more prominent in the real world situation.

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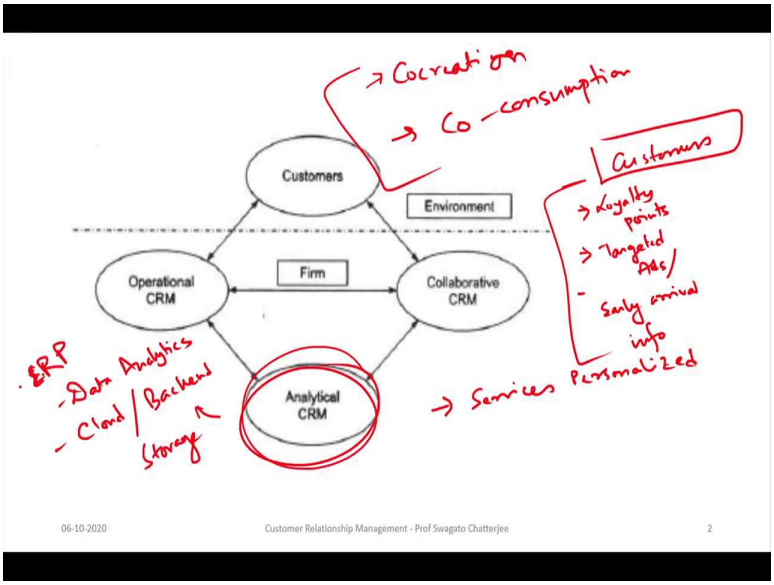

So, when we talk about CRM or eCRM as a strategy. So, there are two interfaces, the customers come at the top, the picture is taken from the book that has been referred. So, that is why the picture is a little bit I would say hazy, but still you can understand that, the customers are at the top. And, the customer is connected with the operational CRM and the collaborative CRM. And, in both of these things in the operational CRM and collaborative CRM, the firm comes up.
What is operational CRM? Operational CRM is the basic CRM that is provided to you like customer service, like probably certain kinds of loyalty programs, loyalty points, repurchase points, certain kinds of discounts, benefits, these are all operational. And, on the other hand there are certain parts which are collaborative. We talked about co-creation fighters for a long period of time.

And, in co-creation you bring the customers from that side of the table, to this side of the table. And, then ask him that, why don't you create something with me? I have certain expertise, you have certain ideas, you know yourself better, why don't we together create something which will be beneficial for you? So, that is the collaborative CRM.

So, operational CRM and collaborative CRM both come in on the company side. Basically, you bring the customer in the company side and then do collaborative CRM, but both are basically company controlled aspects. And, in the backend of this is where the major strength is your analytical CRM. What is analytical CRM?

So, it is application of all kinds of analytics tools, technology tools and etcetera, which will back up, which will give support to your operational CRM and collaborative CRM. Let me give an example of this thing. So, let's say I am, a retail store Big Bazaar and Big Bazaar has customers. Big Bazaar has customers. And, Big Bazaar…what kind of services Big Bazaar gives to the customers? It gives the loyalty points.

It also gives the customer the let's say certain kinds of very targeted ads or it gives you the early arrival information, it also gives you certain services, very very personalized services. So, this is something that a Big Bazaar can give it to you.

Now, it can also give you certain kind of these are all operational CRM; it can also give you certain kind of collaborative CRM. So, in the collaborative CRM it can give you that why don't you come together and you do your own packing. So, if you remember in the grocery store of Big Bazaar, you or many other big super markets, you can go up ─ you can check the quality of the products. Sometimes they ask you that, okay there are four types of dals.

So, there is toor dal, there is this dal, that dal and it is your choice how will you mix. I will not poke my nose there. There is a packet you can put them, mix them up and then measure them, measure the weight and based on the weight I will give you the price.

So, there are four types of dals are given. There are let's say in a Naturals ice cream shop, you can tell you can go and ask him ice cream shop you can go and tell that okay, give me this one that one and that one this three flavors you put in one scoop and then give it to me. So, there is, that is that part of the thing is collaborative CRM, where you are using collaborations .

It can also be the other way, where the customers are helping other customers like the forums. Online forums that where one customer helps another customer. So, all of these things can be adapted. So, for example, co-creation, co-consumption, etcetera, etcetera this kind of facilities can be created. Now to ensure this co-creation facilities and to ensure this operational field the analytical CRM is needed.

And, analytical CRM will require data analytic skills, huge cloud or huge backend storage, storage means I am saying I am trying to say that it is data storage. You can have a huge amount of data storage, you can have data analytics people, data analytics infrastructure, you can have technology infrastructure, you have to have a very strong ERP. So, all of these things ERP means Enterprise Resource Planning software basically or a system.

So, you have to have all of these things and all of these things together create your eCRM which is an internet based CRM. So, operational, collaborative and analytical these three together, which

comes in the customer space, company space, and in the customer space there is a customer. And, the firm is basically handling all of these things.

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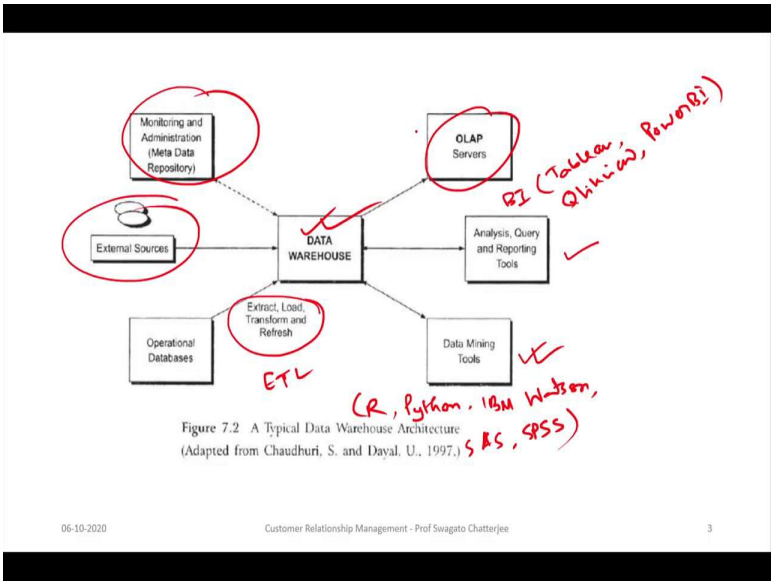

Now, when I am talking about data analytic I talked about analytical skill set, you need an analytical CRM. And, one of the major parts of that CRM is probably one of the major components is the data warehouse. So, what is exactly a data warehouse? Data warehouse is a place where you can keep lots of data.

For example, if I ask you that have you go to your kitchen. So, when you cook something, when you cook some food. That food is your, that to cook certain food you have to first get the ingredients of the food. So, what do you do? You generally, let's you want to make certain biryani, let's say. So, you want garam masala, you want rice, you want certain if it is non-veg, then let's say chicken, you need certain 'dahi, curd I mean to say and you need certain other products. So, let's say some salt, some little bit of sugar probably and this and that water blah blah blah. And, you will also need an utensil. You will also need a pressure cooker probably or a certain utensil to make the 'dum' and then you need the stove. So, all of these things are required.

So, what you go, what you do? You go to the market and get the ingredients. Now, for the salt let's say salt or the rice or let's say the garam masala, that you will buy, you will not buy for only that day's preparation you generally buy in a little bit more. Generally, salt will be required 1 pinch or 1 spoon let's say, but you will not go and get a 1 spoonful of salt, you will get at least one 1 kg salt, 1 packet of salt.

So, what will you do with the rest of the salt, or rest of the materials which were not used in today's cooking? You will store them, you will store them in jars and then when there are lots of jars so, that those jars do not get haphazard you put them in a cupboard, this cupboard is a warehouse.

So, when I use data analytics my raw ingredients data analytics is cooking with data. And, the raw ingredient is the data, the raw data. Now the raw data is obtained at a very ample amount of in a huge amount and in an unprocessed amount. So, you have to put it somewhere. So, you put it, put the raw data in a jar. That jar is called databases.

Now, once those, there are lots of such databases, you have to put those jars also in a cupboard, that cupboard is called a data warehouse. So, similarly for the first thing that you need is a data warehouse where lots of data counts from external sources. You generally get data and get stored in external sources. And, then what do you do? You generally from this data warehouse when you have lots of raw data you are or let's say food materials sometimes for cooking purpose, what you have to do is you have to do preprocessing of the food.

Let's say lots of people will come and your mom is cooking. So, she starts the cooking one day earlier. And, sometimes she may make a little bit of food and then keep it aside. So, that at the right moment at the right time she will just fry it and cook it quickly and give it to you.

So, that preprocessed food has also, it has to be also kept somewhere and that is also kept in the in some jar either in fridge, or in the cupboard and that is also. So, if it is let's say 'achar', pickle, I mean to say then it will be kept in a cupboard, but if it is let's say certain material which will get bad, if it is not stored in a cold place, then it is placed in a fridge. Then these, both of these things are data warehouses, you can think about.

Now, to preprocess what you have to do? You have to open the data warehouse, open the database which is the jar, and then bring out the raw food process it a little bit and put it in another jar. So, this process is called extract, which is opening the jars, opening the cupboard, opening the jar, taking out the raw data, that is raw food, that is called extract. Then transform. Then process a little bit and again load it back, so that you can use it further.

So, this process called ETL, Extract Transform and Load basically ETL, that is one procedure that we try to apply. Then with this process we can either, with this kind of a preprocessed food, either we can directly bring them out and serve them, which is analysis query and reporting tools, which directly bring out the raw data or a little bit of preprocessed data and serve them, or we can further cook them, which the data mining tools does.

So, which brings out this food and then you cook it. So, when you cook the raw or preprocessed food and then you serve to this, to the audience in this case the user, that iscalled a data mining tool. And, when you just bring out the raw data and show the current condition, what is the current condition? That is used by analysis query and reporting tool basically, all the BI tools like, Tableau, QlikView, does this. Tableau, QlikView, Power BI, these kinds of guys will do this.

And, data mining tools can be, probably let's say if I am talking about language, it can be R or Python, it can also be let's say IBM Watson, or some other tools, I do not know ─ SAS, SPSS something like that, you can do that. And, then there are monitoring tools and administration tools which take care of the health of the data warehouse.

So, let's say everyday your mom cleans it or or or checks that whether any dust is there, whether the data warehouse, the whole cupboard is working properly or not. So, that is the monitoring and

administration tools work. And, then there is an OLAP server which is when lots of data warehouses are there, you need a server to keep that, which is somebody else's.
So, your store room there is, that can be a, there can be a cupboard in your kitchen and there can be a separate store room. So, that separate store room is called a server. So, this is a typical data warehouse architecture that I can show you here. And, this kind of architecture you don't have to be a data scientist or data analyst or anybody who is a technical person to understand this.
This is a very basic understanding that for, think about your kitchen, whatever is your kitchen exactly that thing is represented here, but this is must for this particular facility is absolutely must for a electro, the for a internet based CRM system. You have to have a strong backend data system, which can give you data, which can give you record data at the right moment at the right time. And, for that sometimes we have to preprocess the data and keep it in and store it somewhere.

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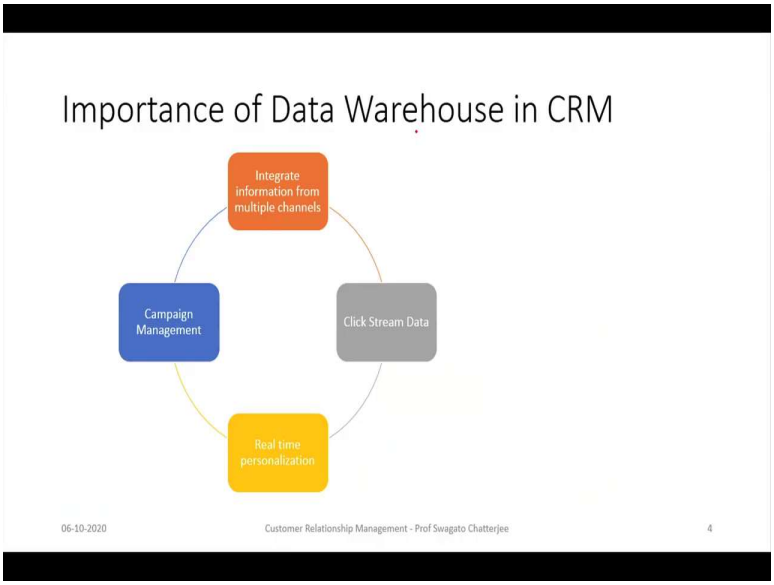

So, that is the second aspect so one major aspect of analytical CRM. What is the importance of this data warehouse in CRM? It can integrate information from multiple channels. So, you can buy food from the market, you can put the groceries, you can put the vegetables, you can bring in the different kinds of probably products and then you can put them, all of them in the cupboard. So, you can get the data from multiple sources, process them and create a database and put it in the data warehouse.
So, in integrate information from multiple channel is possible. Then there is a click stream data. Click stream data means, basically in a in a E-commerce setup. E-commerce means, electronic commerce, when you are doing internet based purchases or it it can be any website setup.
You might want to know then from which page to, which page to, which page my customers have, why that is important sometimes there is an optimal path way. We say in a customer context in a

B2C context, that people have a optimal, people have a purchase decision making path. First they will do a need-recognition, then, they will do information search, then they will do evaluation of alternatives, then they will actually purchase something and then they will be post purchase behavior.

All these five steps are if you can track a particular person's behavior by his cookies, by something else, then you will know that this particular track, this particular traffic can be tracked over time. Let's say, you login in Amazon, okay? And, I know that okay, whatever, whatever this thing is coming up, your Amazon account is already logged in, so I can track your purchase patterns.

So, in the app or on the internet you first go to page 1, then you go to page 3, then you go to page 7, page 8, page 5, page 6, and then 7. So, if I know that oftentimes, most oftentimes you choose 1, 6, 7, 10, this 4 pages and then you have more purchase. Then all my interest will be to push you towards that path, there can be one strategy, I am not saying that is the only strategy that you can apply.

Now, if I have your click stream data, if I know that which page then which type of page, if not exactly the page number or page exact page, but at least the page type. For example, let's say if you go first to the product page, then the competing product page, then the review page, then this page, that page and then you will buy.

If, I know this path, by chance let's say by chance in a in the next session, when you are actually logged in and you are checking something you for a particular product you went to product page and then it is competitors page, and then you went to some recommendation page, instead of coming to the review page, I might push the review or pop up the review or do something in the website so, that I can bring in back, you towards this path.

So, these kinds of facilities can be created when you can track the click stream data and that is important click stream data is a huge amount of data, your every step in the website is being tracked. And, when you track every step for one 30 minutes session, forget about 30 minutes one 5-10 minutes session in Amazon that you can. You will search this page, that page, then 5-10 minutes you probably in Amazon you probably go through around 50 pages.

And, in those 50 pages, when you came in when you went back, in what part of the page you waited, you read a lot, how quickly you scrolled down, what is the bounce rate, what is the arrival rate? Everything will be tracked. And, that creates a huge amount of data. And, if you can do that ─ create that kind of data for every customer you need huge data spaces. And, you can. You have to store that data for some time so that it becomes usable.

So, that requires a data warehouse. Unless you have a data warehouse, unless you have a huge warehouse, where you can put all this data you will not be able to take care of this kind of advantage. So, you need huge data storage. You can also do campaign management. Let's say, you are running a very targeted campaign as I was telling ─ the sniper, if you want to do a sniper, if you want to. Now, you understand that you are not killing one single person who is using a sniper, you are killing thousands of millions of people.

So, by killing I am saying targeting. So, let's say, every person will have a different marketing campaign that you are trying to target with. So, that also requires lots of data trenching and a very

personnel level and that requires a huge amount of data warehouse. And, then real time personalization, now all of these things that I told just the one that that you can collect data from multiple channels, you can target a person at a personal level, or you can collect data at every step whatever he is doing.

All of these things are required to create. Sometimes to create information at a, then and there type, means it has to be done real-time basis. Now, let's say you want to give me a recommendation of a food, ok? I am in Swiggy, I am scrolling down and you want to give me some recommendations.

Now, if you want to give me some recommendations, you have to give me recommendations at that moment when I am actually in this session. If I book, if I give second order or if I move from Swiggy to Zomato and then give some order for Zomato the Swiggy is losing.

So, if you want to track me, you have to track me. You have probably, you have 2 minutes, 3 minutes time, sometimes not even that. In Amazon it takes you, have to come up with a recommendation as I was telling, let's say in the product when we see the product, there are recommendations that come in the bottom or on the right side. This recommendation has to be launched in millisecond, because this particular website will launched in 1 second, 2 second in certain other countries, where the internet speed is much higher, less than a second.

So, if you have to come up with recommendations for a real-time basis and to have that real time basis information, lots of data crunching has to be done in a preprocessed way, you cannot do at that time and you have to save those data. So, that is why you need a data warehouse. So, there are lots of applications of data warehouse, I can spend probably another 10 minutes on that part but I will stop here.

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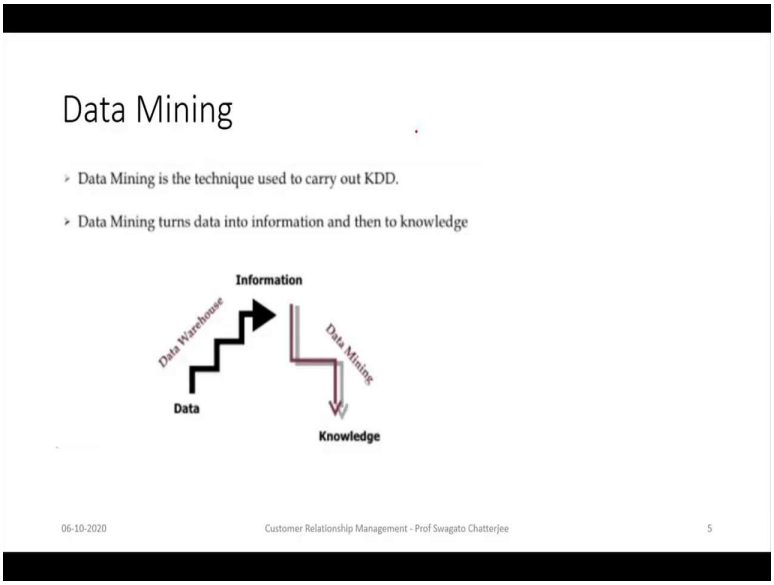

Then comes the data mining, as I was telling that data warehouse has multiple parts: one is second part is called data mining. What is data mining? Data mining is the technique used to carry out knowledge discovery. So, you have to create information, data mining turns data into information and then to knowledge.

So, you have raw data, which is very unstructured, you have no idea how to process them. You use data warehousing procedures like, ETA, land free processing and etcetera. And, make certain information out of it; and then you mine those information to create knowledge.

So, that is the basic process of data mining. So, first from the raw data you so, it is like as I was again, again and again talking about this preprocessing and etcetera, the cooking of the data part. Let's assume, that in the in you have been given certain bottle gourd. Now, bottle gourd or let's say potato, raw potato or let us say raw onion they are food, but you cannot eat them like this.

You have to cut the, peel the skin and you have to cut, chop them, onion you can eat probably without cooking, but potatoes we have to boil it or do something, bottle gourd you have to boil it or do something, do some kind of preparation has to be done. So, that part that peeling and etcetera. When you peel and make it ready for the cooking part that, from from the raw food, it become preprocessed food.

So, from data it becomes information. Now, I can do something with this food — then you cook the food. And, when you cook the food it becomes actually eatable something. So, when you cook that information it becomes actually implementable with a certain kind of knowledge, which you can consume. Information you cannot consume information is just there, when that information can be transferred to be a knowledge, you can consume that knowledge, you can use that knowledge. So, that is the part that is the job of data mining.

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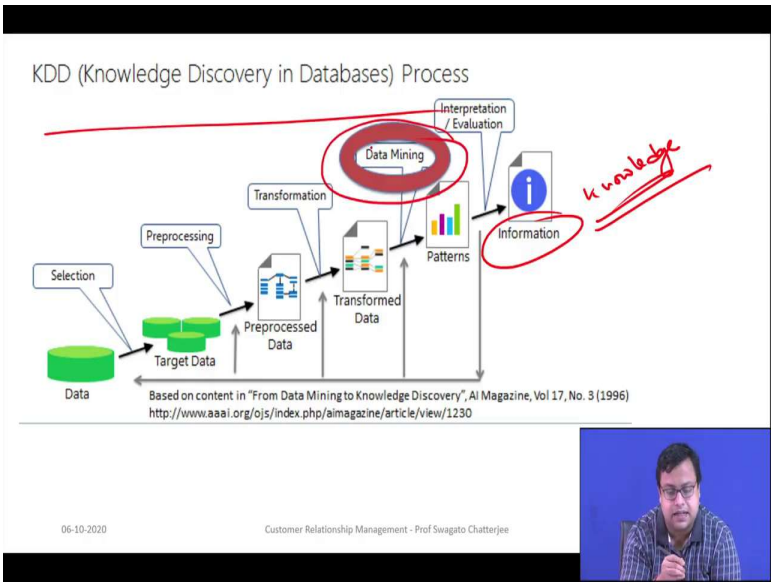

There are, in the knowledge discovery in databases process, there are various steps, from the data you have to do selection it is like from lots of raw food that you have in your house, you have to select certain food with which you will do biryani. For biryani you will not bring out brinjal probably, you will not bring out certain let's say the certain other vegetables. Let's say beetroot or let us say carrot, probably you will not give in the biryani. You will select certain data.

So that, the first step is selection. so to target the data. With that targeted data with that with the materials that you need to make biryani you will preprocess. So, that preprocess will create a preprocessed data and sometimes you transform it a little bit to create transformed data.

Preprocessed data is like let's say, let's say the chillies, you have to break the head of chillies, you have to peel the potato, you have to remove the skin of onion that is preprocessing. Further, preprocessing means if the major shape of the product remains same. You have not transformed the whole nature of the product, but you have made a little bit of change in the dataset.

Now, you change the product. For example, let us say the garam masala, if you had a certain garam masala which is full you break them you, you actually break them and make a dust out of it. So, that is called transformation, you transform the product probably let's say, before you create the biryani in in West Bengal we generally use the potato in biryani.

So, what we will do is we will break and probably fry the potato a little bit, we will make it half and half fry it or for biryani we will require rice semi cooked rice to make the 'dum'. So, you will make the semi cooked rice. So, these are the part of transformation. Then, you will do data mining, where you will put all the materials and then cook the data as I was telling till nowas . And that, from that cooking of the data you will basically bring out certain kinds of patterns out of it. And, then you interpret and interpret and evaluate and that will create information. I would say, different people use this term information term, is very basically being used in a different way, I would say this is knowledge, not information this is probably knowledge.

So, that is the 5 steps 4, 5 steps that you use in the knowledge discovery process. I told that data mining is used in the knowledge discovery process; this is exactly what knowledge discovery means. Now, what exactly is data mining? What are the various data mining tools that we have, what can I do to do data mining? I will be discussing it in detail in the next video ─ but, only in the broader way

. This particular understanding of this particular thing will require, let's say, an introduction to business analytics kind of a course. And, in a marketing context it will be heavily beneficial to you. If you, after doing an introduction to business analytics course, you do another course called marketing analytics which applies all of these things in the knowledge discovery process of marketing context. So, that might probably be helpful for you people.

Thank you very much for being with me in this video. See you in the next video.