Marketing Analytics
Professor Swagato Chatterjee
Vinod Gupta School of Management
Indian Institute of Technology, Kharagpur
Lecture 22
Pricing

Hello everybody, welcome to marketing analytics course. This is Doctor Swagato Chatterjee from VGSOM, IIT Kharagpur who is taking this course for you. This week we will discuss about pricing. And we will start with a special case of pricing which is called skimming. So, what is skimming?

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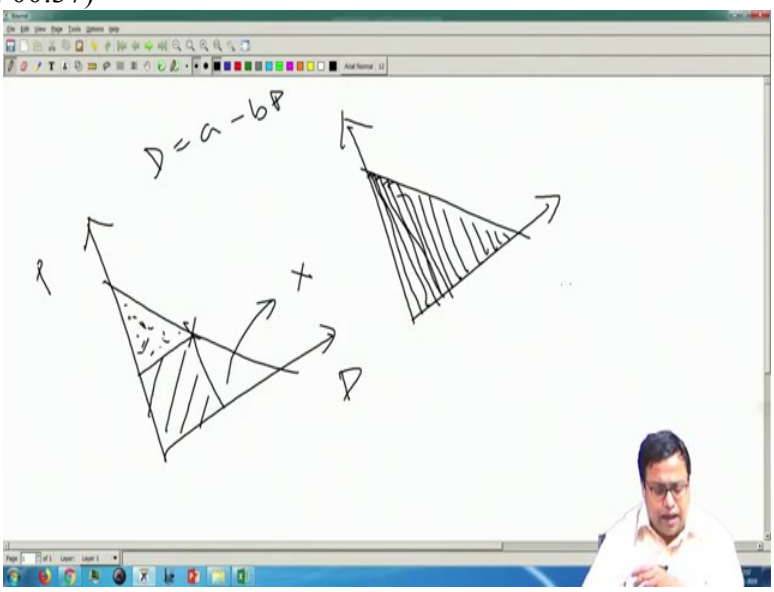

So, let us first discuss that what is skimming. So, if you remember that we have thought about so let us say if D is equal to some D=a-bp. And if this is price and this is demand as price, this is the function that I get, so something like that. And now if I am a monopolist I have to price in such a way something in the middle in such a way such that I can have only one single price. And in that one single price I can I will try to capture maximum revenue. Assuming the unit cost is 0.

But often times you have the capability of having multiple price at multiple time period. And if you have that, think about a situation that there will be some people who are, so if I if I am a monopolist, I price here, then this is the part that I earn. This is the consumer surplus, and this is the part which nobody gets. This is the part that dotted part consumer gets, the shaded part I get and this part nobody gets. So, that is a wastage probably.

But if I am a let us say I have the power to have multiple pricing. What I will do is, the first thing that I will do is, I will price it at a very large price. And when I price it very large price I get this much of the sales. And then in the next time period after this much sales happens, I will reduce the price by a small by delta. So, a delta reduction in the price and then I get a little bit more.

And then further delta reduction in the price and I get little bit more. And if I go on doing that, there I am actually slowly slowly slowly slowly capturing the whole market possible. So, the overall the every revenue the everything that is available all the consumer surplus I can eat it up.

So, that is something that often times the technology companies do. Which is called skimming pricing, they charge it high. And you sometimes wait, there are some people who will wait, theek hai that the price will come down in sometime and then I will buy. And then there are some people who will not wait, they will say that ok.

I will I will I will actually buy I cannot wait I will buy at the very first time whenever the price is there, whatever is the price I can buy. My willingness to pay is much higher because I am probably impatient. I do not have much time to actually wait for this particular product. So, if that is the case then this kind of skimming price walks.

For example let us say somebody come up with a new high H television, and the television is priced very high. And then when the television technology becomes very common, that means more number of people have bought it, then this particular price comes down slowly. And then as it comes down another further more number of people starts buying it.

So, that is something is called skimming pricing exactly similar to. So, it actually follows the S curve. You actually tried to price it in such a way such that it will also give you a S curve with a the demand or something like that. So, that is called skimming pricing.

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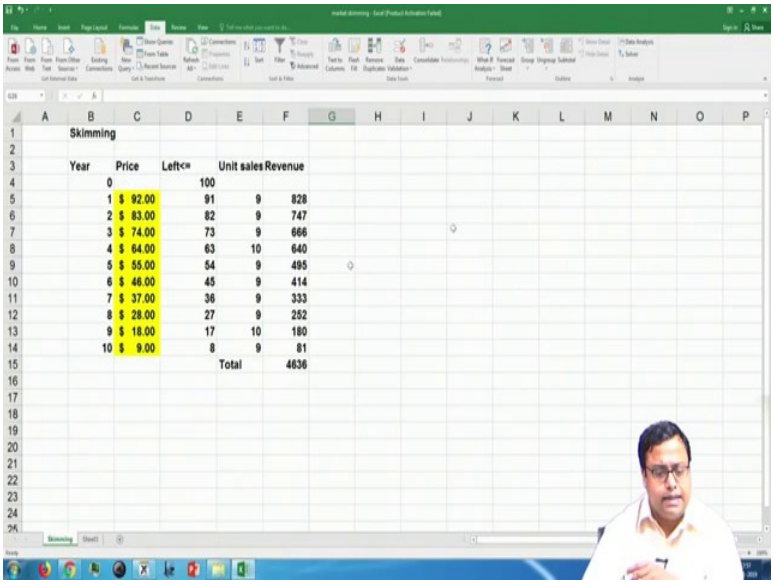
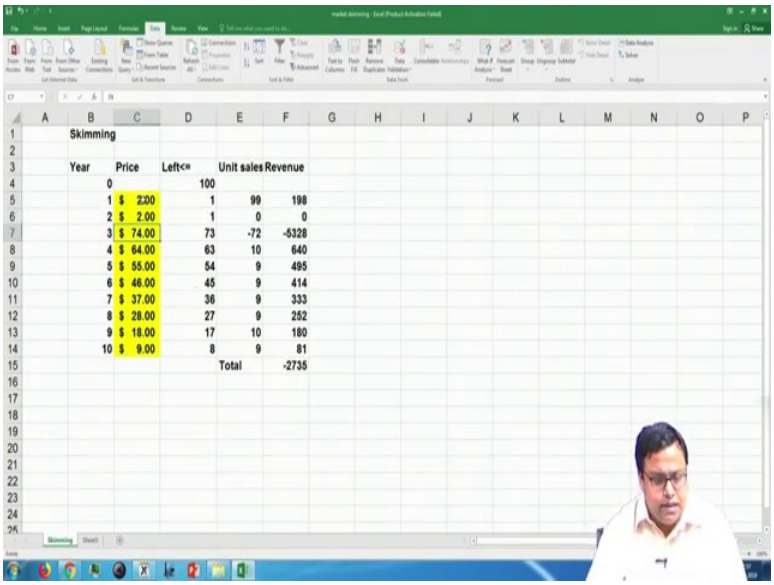
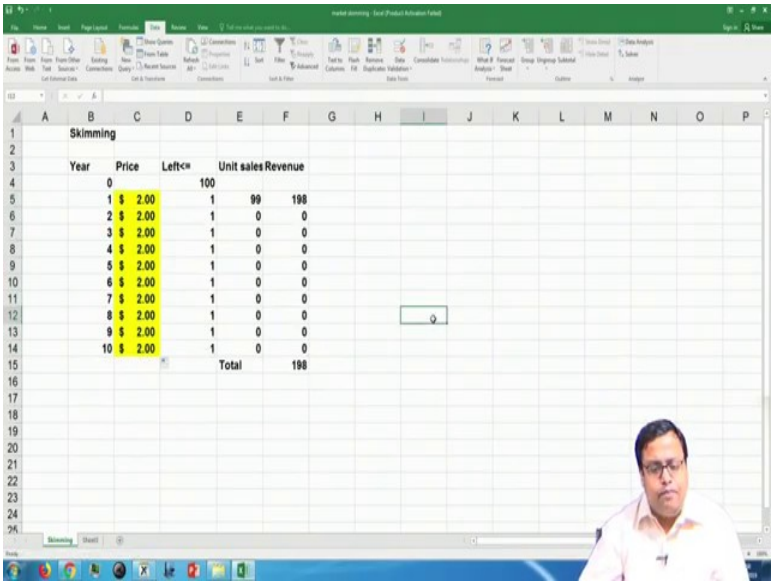


	A	B	C	D	E	F
1		Skimming				
2						
3		Year	Price	Left<=	Unit sales	Revenue
4		0		100		
5		1	$ 92.00	91	9	828
6		2	$ 83.00	82	9	747
7		3	$ 74.00	73	9	666
8		4	$ 64.00	63	10	640
9		5	$ 55.00	54	9	495
10		6	$ 46.00	45	9	414
11		7	$ 37.00	36	9	333
12		8	$ 28.00	27	9	252
13		9	$ 18.00	17	10	180
14		10	$ 9.00	8	9	81
15					Total	4636



	A	B	C	D	E	F
1		Skimming				
2						
3		Year	Price	Left<=	Unit sales	Revenue
4		0		100		
5		1	$ 2.00	1	99	198
6		2	$ 2.00	1	0	0
7		3	$ 74.00	73	-72	-5328
8		4	$ 64.00	63	10	640
9		5	$ 55.00	54	9	495
10		6	$ 46.00	45	9	414
11		7	$ 37.00	36	9	333
12		8	$ 28.00	27	9	252
13		9	$ 18.00	17	10	180
14		10	$ 9.00	8	9	81
15					Total	-2735



So, what we have here is the dataset. And I say that let us say the price is some random number 2 for all the 10 time periods. And what happens is that the demand function is basically, so how many prices left. The prices left is C5-1. What is C5? C5 is basically this value is price - 1. This many persons are left. So, price - 1 persons are left means demand is 100 - D4 - D5. So, 100 - this and this one is basically this one is D5 - D6 and so on.

So, what did I write here so this is my, this many persons are left means that these many persons will have, I would say willingness to pay lower than this value. So, how many persons have willingness to pay up to this value. That is the number that I am getting as 1.

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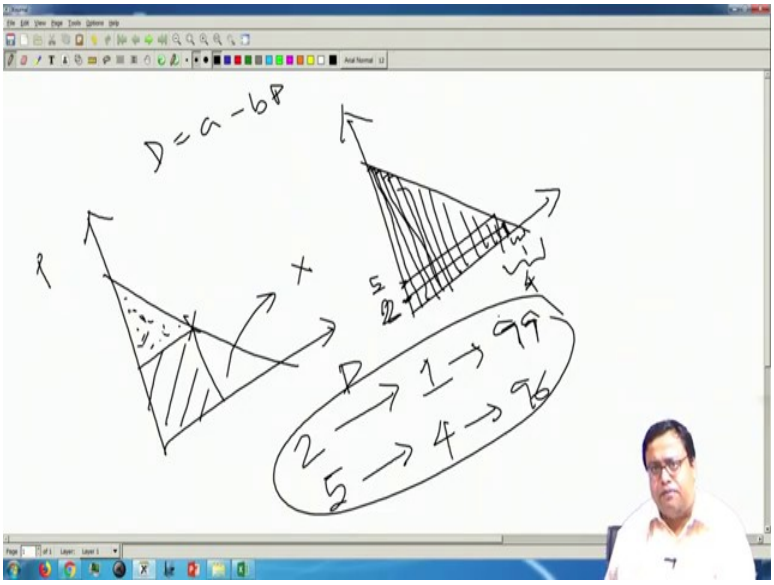

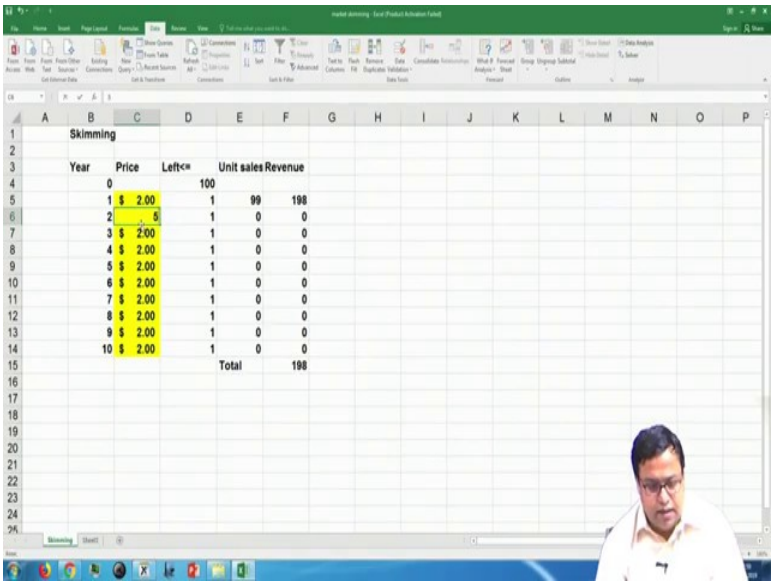

So, willingness to pay up to this value means that this is basically in the other words the 1 month proxy of the demand function. So, if I price it at 2 dollars, how many persons will not buy it? 1 Person. If I price it at 5 dollars, how many persons will not buy it? 4 persons Okay.

So, so then basically the price here if this is the pries which is 2 dollars, how many persons is not buying it, this part, part is 1 when it is 5, this part is 4. So, in other words, I am trying getting a demand function here. Where the price goes up, that what is the demand then at 2 2 price, the demand is 99 if there are 100 total persons.

At 5 price the demand is 96 and I am getting a demand function from here. So, that is something a version of that is something that is written here.

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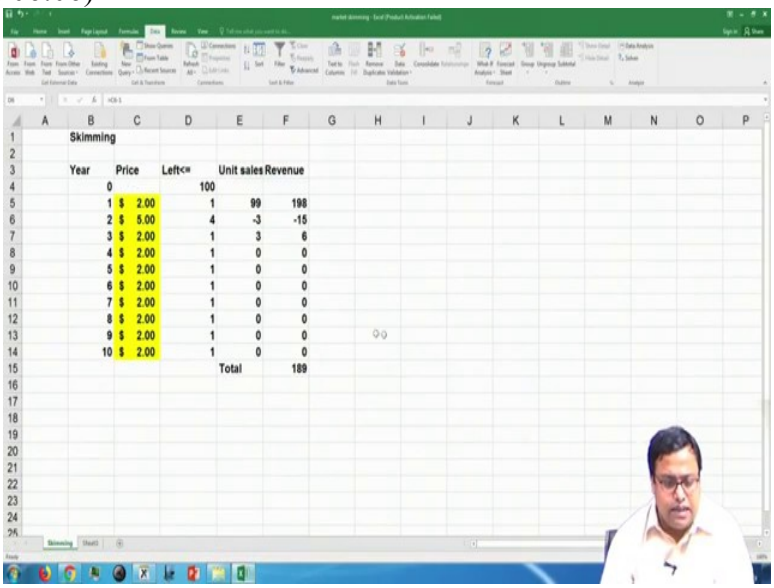

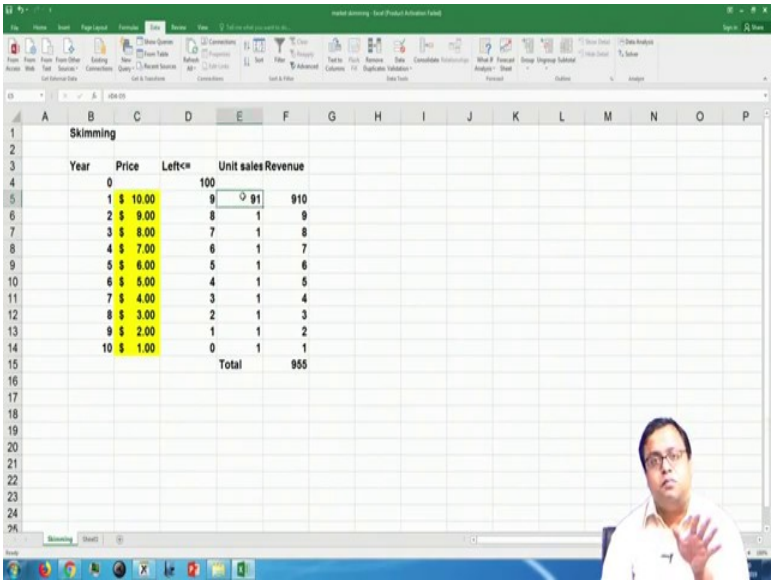

So, let us say if I price 2 dollars, so let us say I will do I told you skimming price. So, slowly the price will come down. So, let us say 10 dollars, 9 dollars, 8,7,6,5,4,3,2 and 1 dollar. This is the case then 91 persons buy and then 9 persons are left. And then the rest for this one 9 dollars, there are how many persons will buy actually at 9 dollars, 91 - 1 basically 90 persons will buy.

But out of them 91 persons have already bought it. So, 92 persons will buy at it at 9 dollars. So, 91 persons have already bought it. So, one person is buying.

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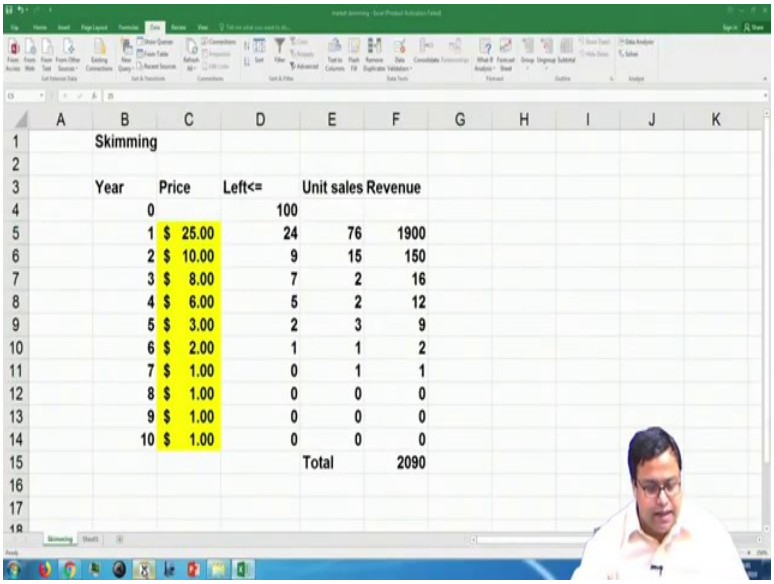
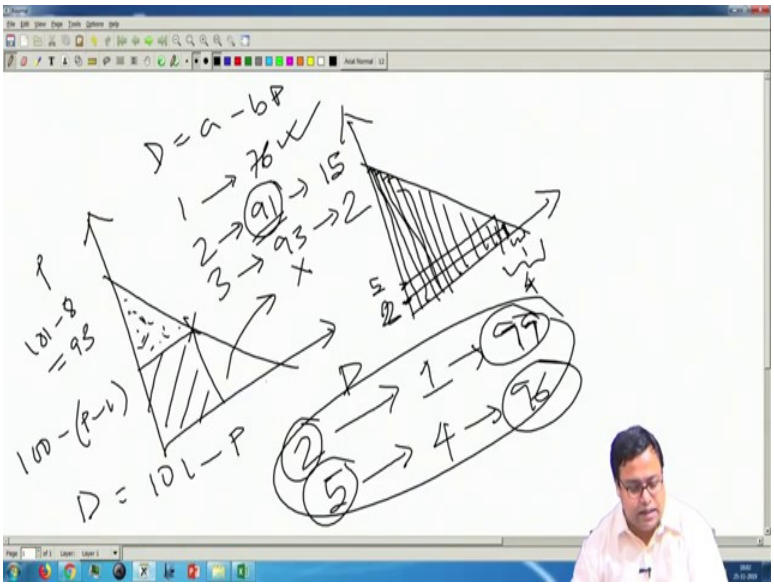


	A	B	C	D	E	F	G	H	I	J	K
1		Skimming									
2											
3		Year	Price	Left<=	Unit sales	Revenue					
4		0		100							
5		1	$ 25.00	24	76	1900					
6		2	$ 10.00	9	15	150					
7		3	$ 8.00	7	2	16					
8		4	$ 6.00	5	2	12					
9		5	$ 3.00	2	3	9					
10		6	$ 2.00	1	1	2					
11		7	$ 1.00	0	1	1					
12		8	$ 1.00	0	0	0					
13		9	$ 1.00	0	0	0					
14		10	$ 1.00	0	0	0					
15					Total	2090					
16											
17											



So, let me give you another picture. So let us make it, there is a 25, 10 then let us say 8, and then 6 then let us say 3, then 2 and then 1,1,1,1. So, now understand the problem careful. Now, when the price is 25 dollars, when the price is 25 dollars what is the demand? The demand is basically 100, so see when we has 2 dollars it is 99.

That means the demand is basically 100 - price - 1, something like that, fair enough. So, 101 - price, when it is 5 dollars it is 96 means 101 demand is equal to 101 - price. So, when I first

create a price of 25 dollars 76 persons buy. In the second time period if I put a 10 dollars price, then how many will persons will buy? 101 - 10, 101 - 10 comes up to how much? 91.

So, in the second time period, 91 persons could have bought. In the first time period 76 persons have already bought it. That is why out of this 91 persons 76 persons have already bought it. That is why only 15 persons buys in the second time period. So, that is the value that I am getting here 15.

The third time period 8, so 101 - 8 is how much? 101 - 8 is basically 93. Where off, so in third time period 93 persons could have bought. But 91 persons has already bought. So, only 2 two persons will buy now. So, that is the value that I am getting here 2 and so on, fair enough. So, this is the unit sales that is happening and then this is the price revenue that is price × unit sales and this is the total revenue.

So, I have to find out what should be this pricing, as simple as that. It is a very simple thing how much should be the pricing here. So, what do I do? So this is something what is important we have to create this particular chart. What is my job then? I go to solver, check what I have written. The solver I first try to maximize this by changing what, by changing C5 to C14, these values is something that I want to change.

And what are the constraints that I put C5 to C14 should be between 1 to 100 because the maximum possible demand is 100 and I have also told they has to be integer, you can actually remove that. They need not have to be integer. But I have written that they has to be integer.

So, now I choose GRG nonlinear and try to solve it. So, if I try to solve it, it give me some value. And it give me 91, 82, 73 and the total revenue is 4636. So, you can clearly see that the price is slowly coming down from 91 to 9. So, this is the type pricing that I called as skimming pricing where the first time period they are charging 91 dollars and getting 10 guys.

The second time period they are charging 82 dollars getting another 9 guys and slowly slowly slowly they are increasing their sales by reducing the price. They are not doing it in one go. So, that is called market skimming which can be used to get higher revenue. Thank you, we will discuss other models of pricing in the next video.