Business Data Management
Professor G Venkatesh
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Indian Institute of Technology Madras
Lecture 6
Pareto Analysis II

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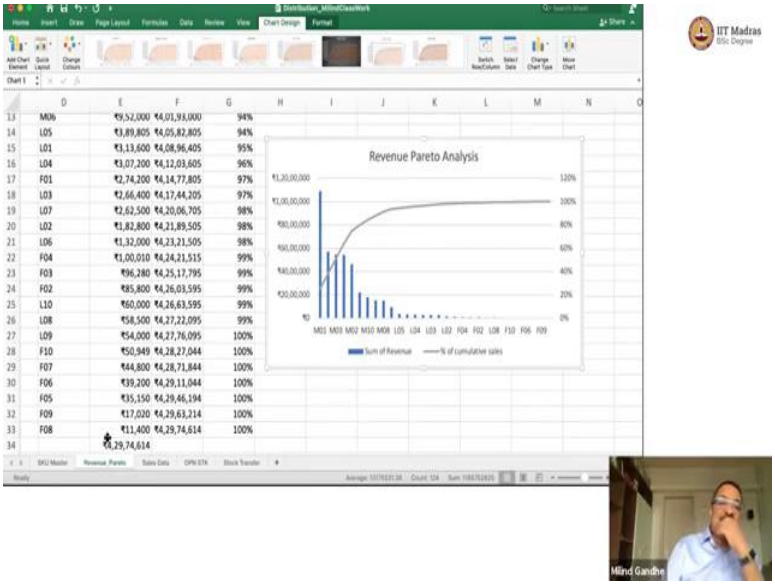

Professor Milind Gandhe: Now, again I am little curious. G V, we did this for revenue, what will happen if we do this for volume?

Professor G Venkatesh: It should be a pareto again you will get. I am not sure you will get it 80-20. But we will get something, we will get a pareto, some kind of pareto we will get we will see.

Professor Milind Gandhe: Let us try, let us try, because 20 percent really gave 80 percent. So, let us see if this principle actually holds. So, we will select.

Professor G Venkatesh: Units FMCG will start showing up more and more units are from FMCG.

Professor Milind Gandhe: I think so because that is a lot of volumes.

Professor G Venkatesh: Correct, so again, you are creating a pivot table.

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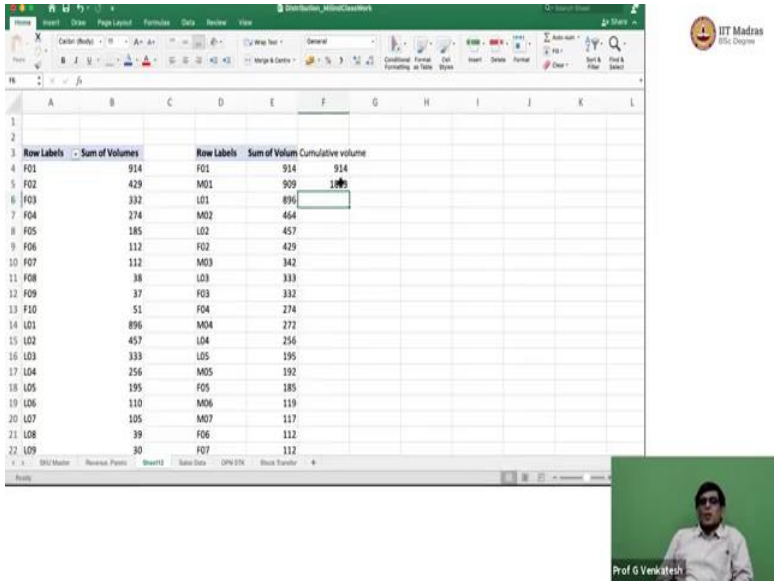

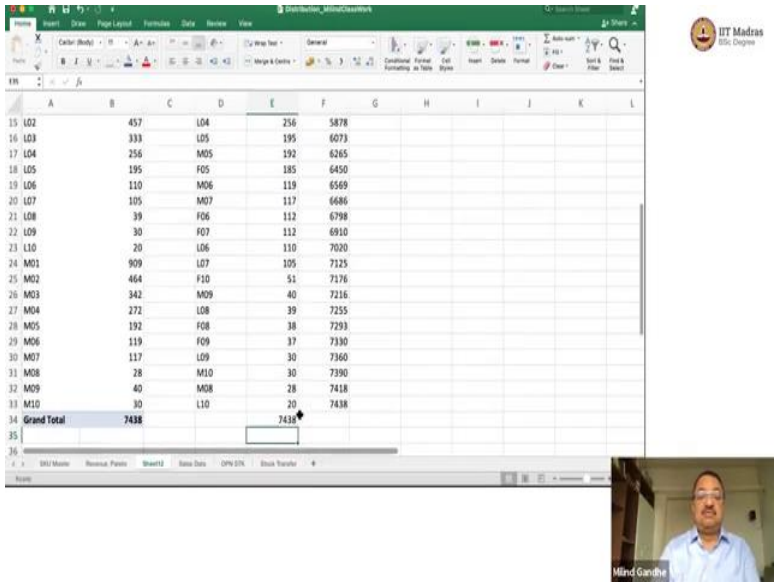

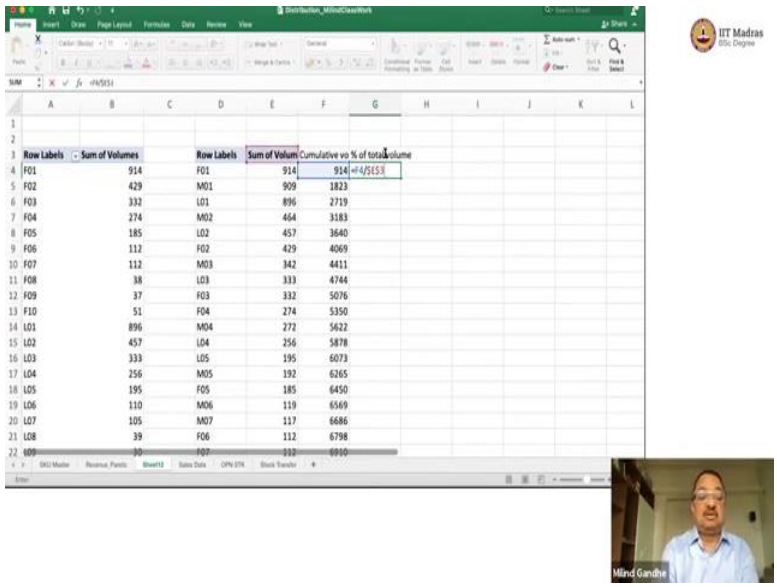

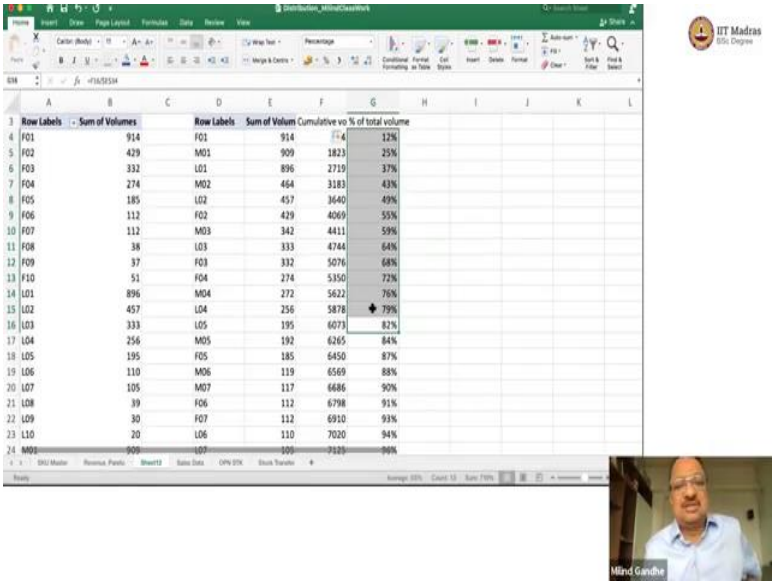

Professor Milind Gandhe: Pivot table that is similar to the first one, once again have SKUs in rows. And this time instead of revenue, I am sorry, I am sorry, I picked up the data from the wrong sheet. So, I should have picked it up from here from sales data. Not from a SKU master.

So let us now insert a pivot table. And we will take SKUs as the rows. And instead of last time I had taken revenue, sum of revenue as the computed values, now I will take sum of volumes. Again, it is too small.

Now, we will do the same thing we need to do the sorting.

Professor G Venkatesh: Cumulative. Cumulative volumes.

Professor Milind Gandhe: So first, we will just do a, we will do a select, copy. Now let us see if we can do a paste special, paste special and a keep source formatting, yes, you are right. So let us do that.

Professor G Venkatesh: This case, of course we need to because it is not…

Professor Milind Gandhe: Yes. In that in that case, we need it, because we want a currency format. Now we will do, we will sort it. So, sort, largest to smallest, sort, and then we need to do cumulative like for cumulative volume. Why would they be interested in cumulative volume G V?

Professor G Venkatesh: Pareto.

Professor Milind Gandhe: I think it will dictate the load on their delivery boys, I think because irrespective of the prices of the item, the delivery person has to carry. So, we have to

do cumulative. So for the first one, we just look at the volume of the first. So now interesting here GV, you can see the first item is not a mobile, it is FMCG.

Professor G Venkatesh: FMCG, only.

Professor Milind Gandhe: No fashion, you are right, it is fashion, F is for fashion, No F is for FMCG. L is for lifestyle, I am surprised actually you know, most of the times people are buying soap. And then the next volume is next one is mobile. Next one is mobile, yes. And it is M01 actually, good price. So, now you can see this is where we get interest in M01 is coming from. It is good price and very high volumes. Is not it?

Professor G Venkatesh: They sold 909 units at 12,000 or something? I do not know, what was the price for one.

Professor Milind Gandhe: 12000 rupees. Correct 12000 rupees price.

Professor G Venkatesh: It is a killer product. Now, you can drag it.

Professor Milind Gandhe: Now, I will just drag it, and once again let us do this. Let us have sum so that so 7438, 7438 that matches. Now, let us compute percentage of total volume, and that is going to be cumulative volume divided by 34 (cumulative volume/34), dollar E, dollar 34 (E34). But what was interesting G V, was when we were looking at the price thing, right? The revenue, the revenue pareto, the topmost item was giving us almost 25 percent of the of the total revenue. Now here the top most item is only giving us 12 percent.

Professor G Venkatesh: This is not going to give you 80-20, I am 100 percent sure.

Professor Milind Gandhe: Look like, let us see this, it is almost, how much? Almost 13 items are needed to hit 80 percent.

Professor G Venkatesh: So, 13 out of 30, it is about 45 percent almost. (13/30 = 0.43) So, this is not a Pareto.

Professor Milind Gandhe: This is not a pareto.

Professor G Venkatesh: Nearly half the items you need to get to 80 percent. So, it is a like a flatter curve. It is not a steep curve.

Professor Milind Gandhe: Actually, maybe, maybe good idea to visualize this and then compare two graphs...

Professor G Venkatesh: Let us plot it, plot it.

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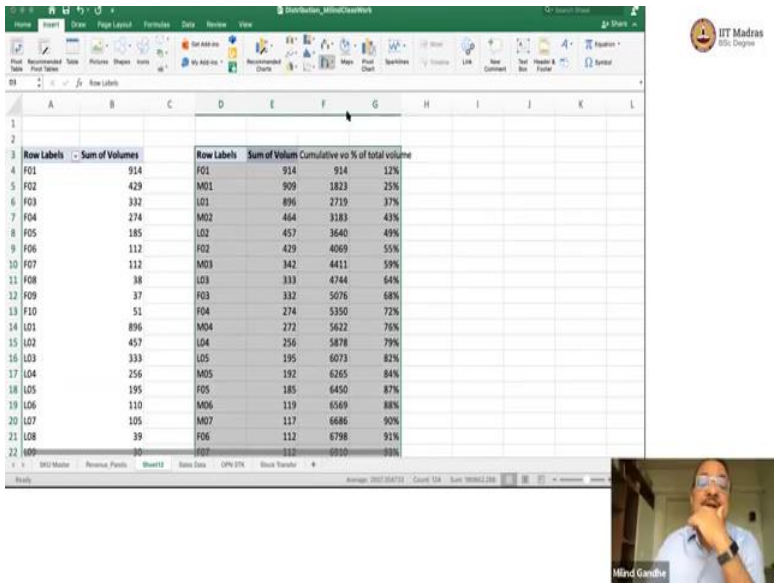
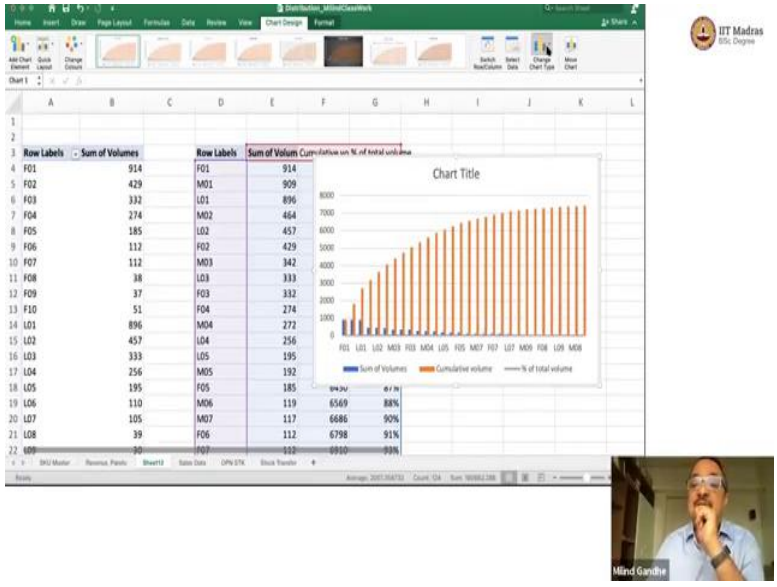
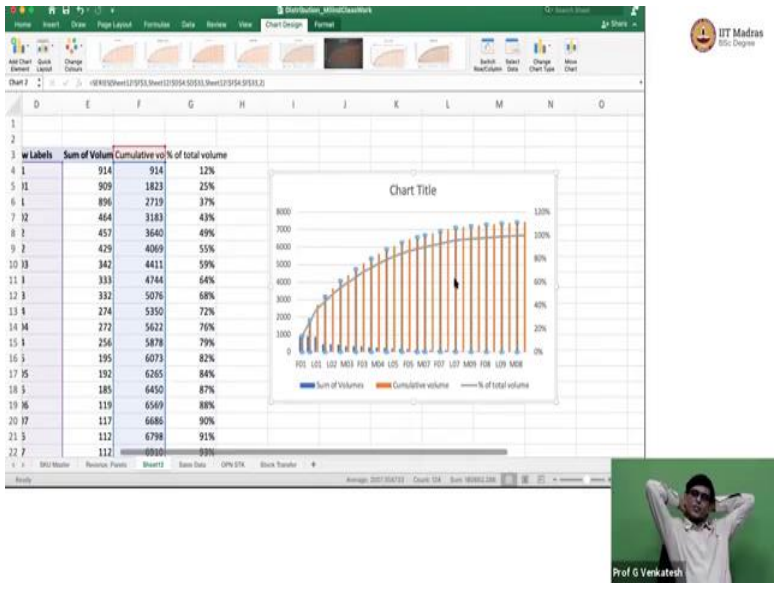
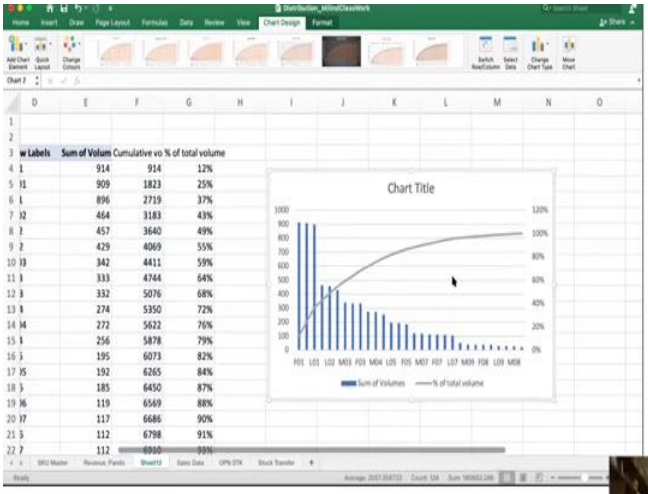
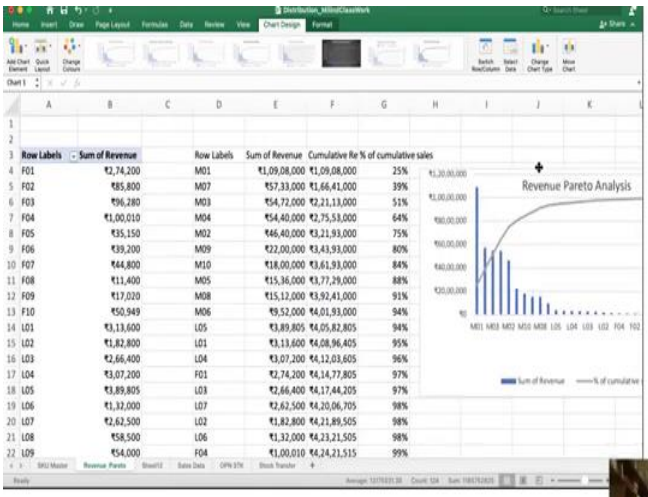




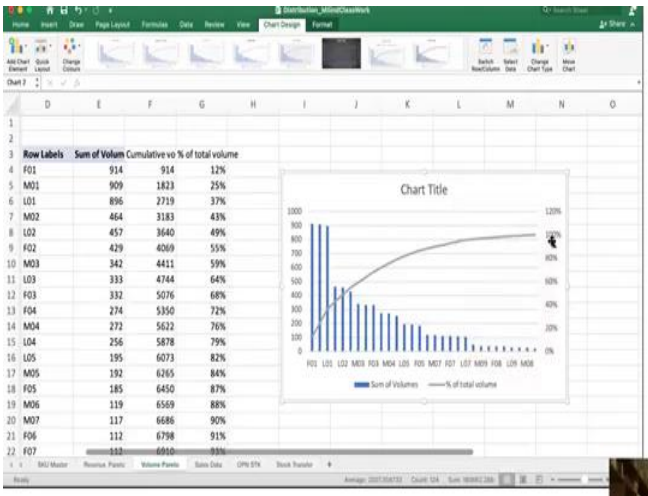




w Labels	Sum of Volum	Cumulative vo	% of total volume
1	914	914	12%
I1	909	1823	25%
L	896	2719	37%
I2	464	3183	43%
2	457	3640	49%
2	429	4069	55%
I3	342	4411	59%
3	333	4744	64%
3	332	5076	68%
3	274	5350	72%
I4	272	5622	76%
1	256	5878	79%
5	195	6073	82%
I5	192	6265	84%
5	185	6450	87%
I6	119	6569	88%
I7	117	6686	90%
5	112	6798	91%
7	112	6910	93%



Row Labels	Sum of Revenue	Row Labels	Sum of Revenue	Cumulative Re	% of cumulative sales
F01	₹2,74,200	M01	₹1,09,08,000	₹1,09,08,000	25%
F02	₹85,800	M07	₹57,33,000	₹1,66,41,000	39%
F03	₹96,280	M03	₹54,72,000	₹2,21,13,000	51%
F04	₹1,00,010	M04	₹54,40,000	₹2,75,53,000	64%
F05	₹35,150	M02	₹46,40,000	₹3,21,93,000	75%
F06	₹39,200	M09	₹22,00,000	₹3,43,93,000	80%
F07	₹44,800	M10	₹18,00,000	₹3,61,93,000	84%
F08	₹11,400	M05	₹15,36,000	₹3,77,29,000	88%
F09	₹17,020	M08	₹15,12,000	₹3,92,41,000	91%
F10	₹50,949	M06	₹9,52,000	₹4,01,93,000	94%
L01	₹3,13,600	L05	₹3,89,805	₹4,05,82,805	94%
L02	₹1,82,800	L01	₹3,13,600	₹4,08,96,405	95%
L03	₹2,66,400	L04	₹3,07,200	₹4,12,03,605	96%
L04	₹3,07,200	F01	₹2,74,200	₹4,14,77,805	97%
L05	₹3,89,805	L03	₹2,66,400	₹4,17,44,205	97%
L06	₹1,32,000	L07	₹2,62,500	₹4,20,06,705	98%
L07	₹2,62,500	L02	₹1,82,800	₹4,21,89,505	98%
L08	₹58,500	L06	₹1,32,000	₹4,23,21,505	98%
L09	₹54,000	F04	₹1,00,010	₹4,24,21,515	99%



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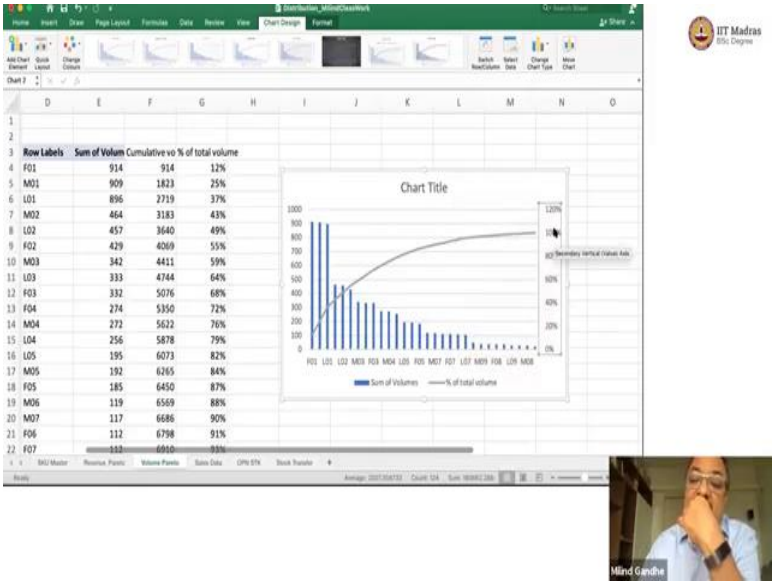

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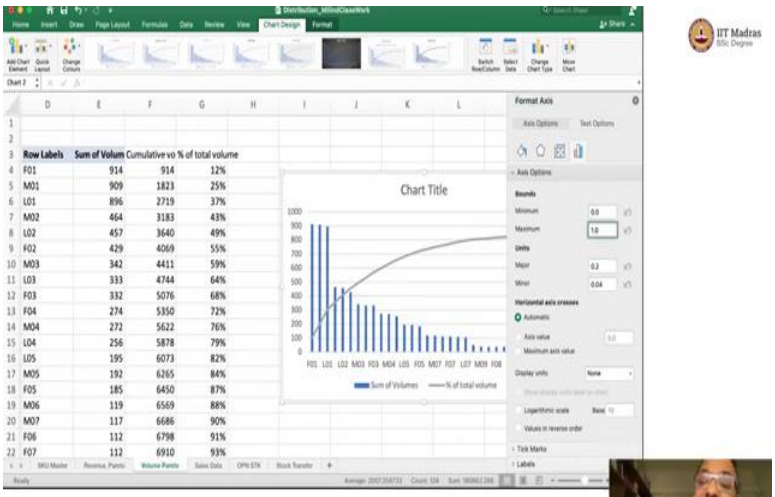

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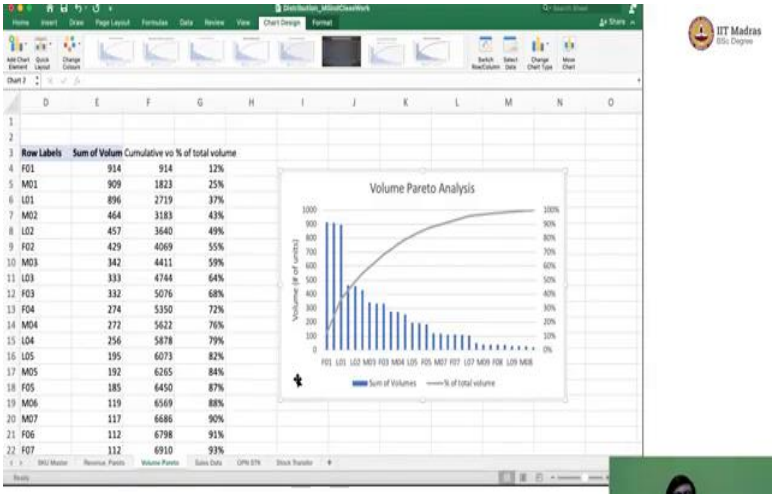

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Professor Milind Gandhe: Same way we did the other one. And then insert recommended chart. So, in case you do not want to use the recommended chart, then there is also concept here G V called a combo chart. And the combo chart will also allow us to insert a similar chart, we want to experiment with it?

Professor G Venkatesh: Yes, try it, why not, let us try it.

Professor Milind Gandhe: But, this one a percentage of volume…

Professor G Venkatesh: Oh, yes. it put all bar, made bar chart…

Professor Milind Gandhe: So, this is not a good one, No? Maybe we will change the chart type, or we can go back to the recommended chart. This is not a good one.

Professor G Venkatesh: We want line chart for the percentage I think that was nice, a little smarter so smart. And now you can again delete this cumulative.

Professor Milind Gandhe: Yes, I will delete, the other thing I could have done actually was if I had hidden the column G V, I think this could not have come. But you can see how the shape, you can see is much more much flatter.

Professor G Venkatesh: Just go back to the other sheet, you can see the difference between this and that, but this one is looking very flat, that was looking very steep. So, you can see how steep it is, very steep.

Professor Milind Gandhe: Compared to the previous graph, This is much flatter.

Professor G Venkatesh: Gradually, this is does not show pareto.

Professor Milind Gandhe: Compare to pareto, only one thing G V I do not like, and let me see if I can change that, see on the right-hand side, I do not think they should go to 120 percent, what is the meaning of 120 percent. So let us see if we can adjust that.

Professor G Venkatesh: How did it cross 100 percent even?

Professor Milind Gandhe: It does not actually the, the line itself does not cross 100 percent, but a scale goes to 120 percent. So, what we need to do is look at this. So, this is what is called a secondary vertical value axis, if we right click and we can then format this axis.

And it says, what are the bounds? So, you want right now this axis is going from 0 to 1.2, which is 120 percent. I want it to go from 0 to 1. Now, it looks good, and then we will name this also. Always good idea to give a good name.

Professor G Venkatesh: This is volume pareto analysis.

Professor Milind Gandhe: Just one name pareto. So, in this case GV, maybe also good idea to label the primary axis because see in that in the other one, it was very clear that we were looking at revenue, because it was in rupees, here it is just some random number, we do not know what are the number is.

Professor G Venkatesh: Yeah, you do not know what it is, you have to label it I think.

Professor Milind Gandhe: What we can do is? We can add a chart element. And we can say we will label the, this is the vertical axis, primary vertical. So, we will say this is volume number of units, now it looks good. Now, we will be go and show this to Omkar, I think.

Professor G Venkatesh: The basic principle here, which you illustrated with your Excel sheet is that whenever somebody asks a question, which is the best, right? If they say, which is the best of which is doing well? What is doing well, in terms of revenues, what is doing well, in terms of units. Then the answer to that question comes from try to find the, sort it, do a cumulative, partial cumulative, keep on adding the partial sums, then do a graph.

And this graph, you will see whether it looks like 80, 20 Pareto rule is coming or not. If it is giving a pareto type rule, then you can take the first top 20 percent and say these are the ones you should focus on. That is the idea right?

Professor Milind Gandhe: Yes.

Professor G Venkatesh: If I give could be 10 percent, giving you 80 percent also possible?

Professor Milind Gandhe: Yes.

Professor G Venkatesh: Could be 25 percent, giving you 80 percent, that is also fine, right?

Professor Milind Gandhe: Correct, in some cases even 45 percent.

Professor G Venkatesh: But some, if it is like that a unit volume graph where, you know half the items are giving 80 percent, then it is not saying much. It is like focus; you have to focus on half the SKUs. It is not saying much.

Professor Milind Gandhe: Yes.

Professor G Venkatesh: So, basically, any if some question is asked, which, which of my products are doing well, in terms of revenues, or volume or whatever? The answer to that

question comes by first computing this cumulative revenue and doing a percentage and plotting that, that is what you have said?

Professor Milind Gandhe: Yes.

Professor G Venkatesh: And then trying to see whether there is a Pareto rule sitting there, some kind of Pareto rule sitting there. And so, which means you can focus on the first top few items, which are contributing most of them. And once a revenue means 80 percent of the revenue in this case, right?

Professor Milind Gandhe: Yes.

Professor G Venkatesh: Interesting, interesting I think it is a very interesting insight, I think for our students, how to go about answering questions, because many times what is doing well, they will ask this question, but that is a descriptive question, convert that numerically to simple thing, you need to do this right. So, this is a way of converting that into a numerical thing to do, right?

Professor Milind Gandhe: Correct.

Professor G Venkatesh: As usual, but I was thinking...