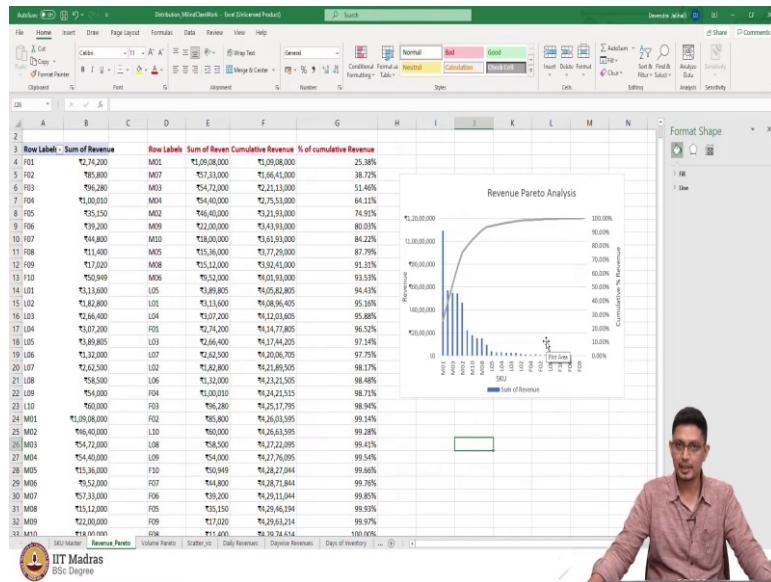


Business Data Management
Mister Swaminathan Rammohan
Indian Institute of Technology Madras
Lecture 11
Introduction to e-commerce assignment

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So welcome back to this tutorial, which is going to be on e-commerce data assignment. So, the idea of this tutorial is to give you some confidence in doing your Week 6 assignment.

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The figure shows a screenshot of a website for "fab Mart". At the top, there is a logo and the text "IIT Madras BSc Degree". Below the logo, there is a navigation bar with links: Home, About Us, Services, Products, Contact Us, Daily Revenue, Daywise Revenue, and Day of Inventory. The main content area features a "Revenue Pareto" section. It includes a chart titled "Revenue Pareto Chart" showing Revenue on the Y-axis and SKU on the X-axis, with a blue bar representing "Revenue". Below the chart is a table with columns: SKU, Revenue, Cumulative Revenue, and % of Revenue. The table data corresponds to the data shown in the Excel chart above. A note at the bottom says: "Hint: Pareto chart should have primary axis in rupees, secondary axis in percentage. The table should have the following columns: SKU, Revenue, Cumulative Revenue, and cumulative percentage of revenue."

SKU	Revenue	Cumulative Revenue	% of Revenue
F01	₹2,74,300	₹2,74,300	100.00%
F02	₹85,800	₹3,60,100	99.54%
F03	₹96,280	₹4,56,380	99.66%
F04	₹1,00,010	₹5,56,390	99.76%
F05	₹35,150	₹6,91,540	99.85%
F06	₹39,200	₹7,30,740	99.93%
F07	₹44,800	₹7,75,540	99.97%
F08	₹11,400	₹7,86,940	100.00%



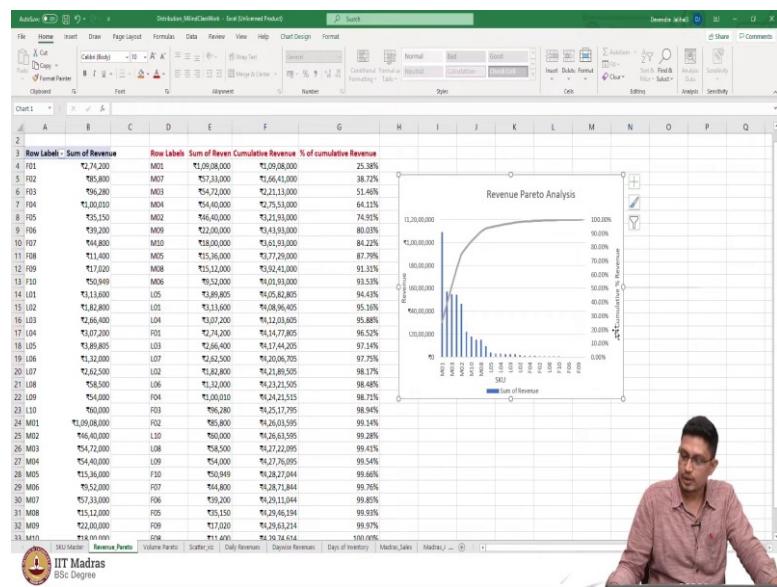
And, you are going to be given some eight to nine questions as assignment and I want you guys to do this assignment in a particular way. So therefore, I am going to take you through a set of questions which you are already familiar with.

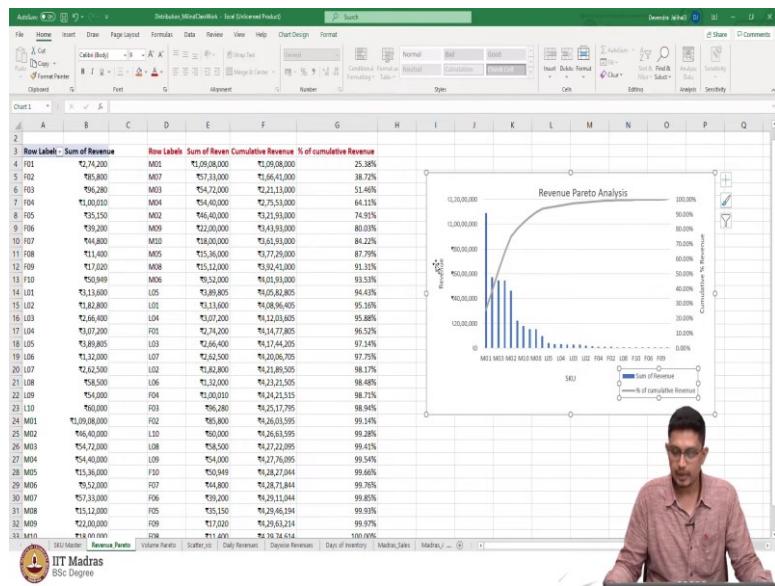
The first question is on creating a revenue pareto. So, create a revenue pareto chart or SKUs pertaining to all three DCs and show the pareto table that has the top SKUs contributing to approximately 80 percent of total revenue.

So, in addition to the questions, you are also given some hints. For example, the pareto chart should have a primary axis in rupees, secondary axis in percentage and the table that you are going to paste here should have the following columns, such as SKUs, revenues, cumulative revenue and cumulative percentage of revenue.

So, this is not something new. You have already gone through this question in the lecture and Doctor Milind had guided you step by step for creating a revenue pareto. I am going to use the same revenue pareto chart which he had done in the lecture video. So, let me go there.

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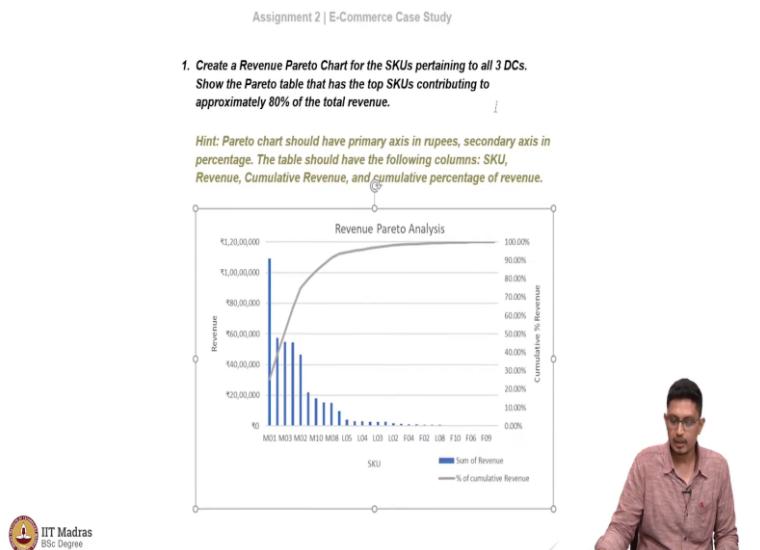




And this was the chart that was created by Dr. Milind. And if you look at this chart, it is beautifully done. It has a title. So, the title says revenue pareto analysis. And it has a primary axis, which is revenue. Secondary axis, which is cumulative percentage of revenue and the x-axis is, is nothing but SKU.

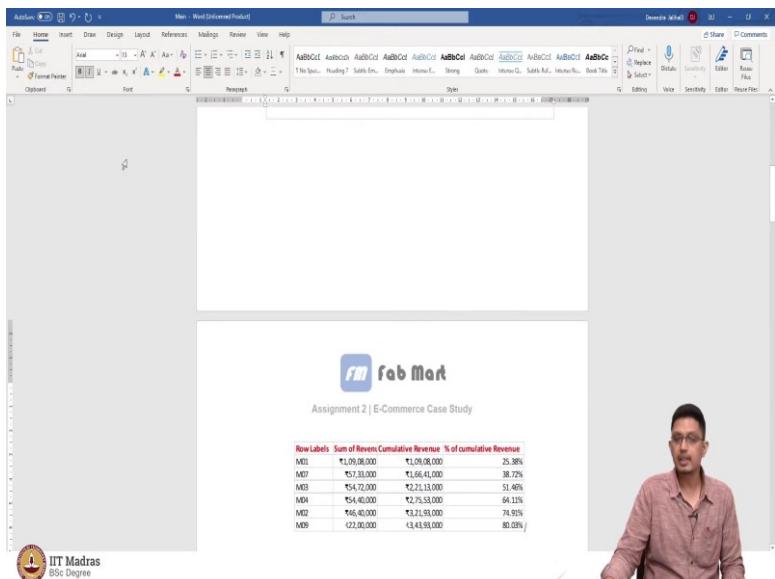
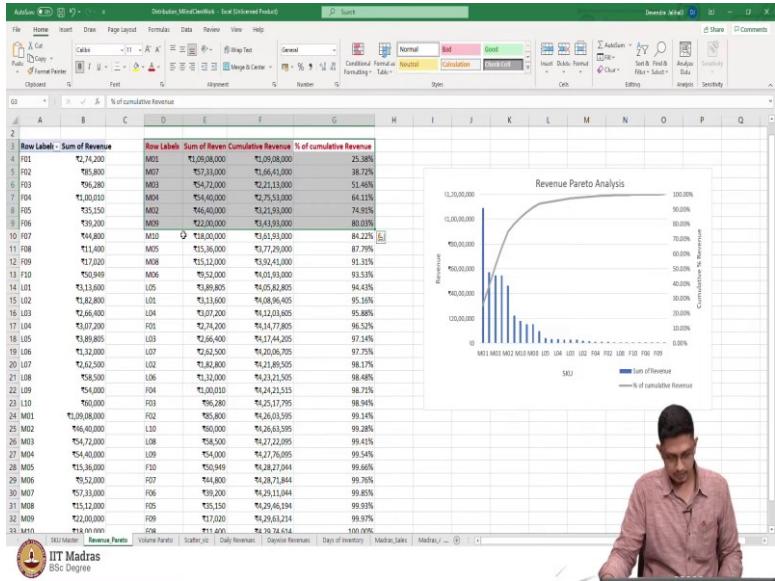
So now you have a legend, you have an x-axis, you have a primary axis, you have a secondary axis and in top you also have the chart title. So, this is how I want you to copy and paste the revenue pareto.

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And then you copy and you paste it as a picture. And you can align it to the centre. So, the second thing that was expected from the first question was the top SKUs that contribute to 80 percent of the total revenue.

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So, if you look at this table, so approximately 7 SKUs or 6 SKUs contribute to 80 percent of the total revenue. So, I am going to copy the entire table that is corresponding to 80 percent of the total revenue, go to this sheet at the center and then paste this again as a picture. There are some advantages of pasting graphs and tables and picture.

For example, if you paste it with source formatting, in case you do not have access to the Excel file, some of your graphs and tables may not work. And also, if you are printing your report, the resolution is better when you paste it as a picture.

So that was the first question, it is neatly done. You have the revenue pareto and you also have the table which shows the top SKUs contributing to 80 percent of the total

volume. So, you have also seen how to format the graph so that you get it in a particular format and paste it.

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The screenshot shows a Microsoft Word document. On the left, there is a table with columns: SKU, Volume, and Revenue. The data is as follows:

SKU	Volume	Revenue
M01	914	₹1,74,200
M02	429	₹5,800
M03	332	₹6,280
M04	274	₹1,00,010
M05	185	₹35,150
M06	112	₹39,200
M07	112	₹44,800
M08	38	₹11,400
M09	37	₹17,020
M10	51	₹50,945
L01	896	₹13,160
L02	457	₹1,82,800
L03	333	₹2,66,400
L04	256	₹3,07,200
L05	195	₹3,89,805
L06	110	₹13,2000
L07	105	₹2,62,500
L08	39	₹58,500
L09	30	₹54,000
L10	20	₹60,000
M01	909	₹1,09,08,000
M02	464	₹6,40,000
M03	342	₹54,72,000
M04	272	₹54,40,000
M05	192	₹15,36,000
M06	119	₹3,52,000

Below the table, there is a question:

2. Create a single scatter plot for all the SKUs between the volume and revenue. Identify 2 outliers, one in terms of revenue and the other in terms of volume (write down their values).

Hint: If your revenue outlier is L01, write L01 (10,00,000 INR), and similarly if your volume outlier is F05, write F05 (350).

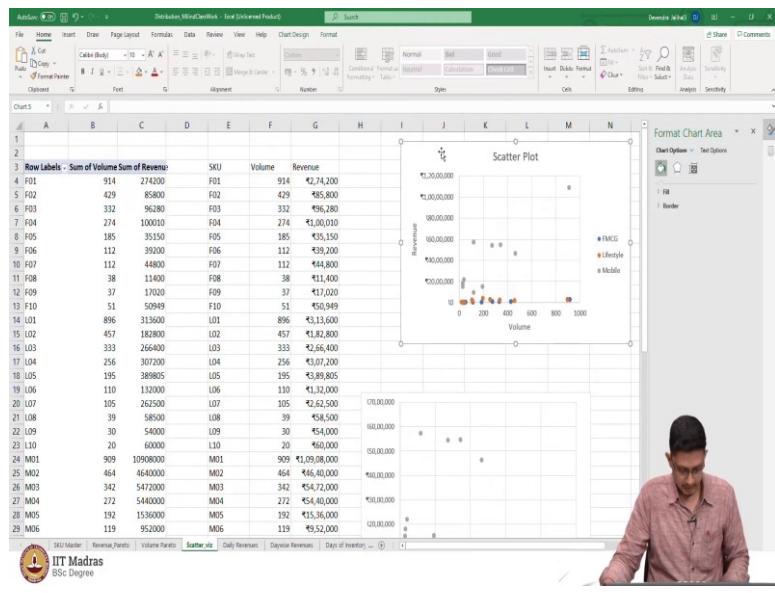
a. Revenue outlier: M01 (10,908,000 INR)
b. Volume outlier: F01 (914)

A video player interface is visible on the right side of the slide.

The second question is on creating a scatter plot for all SKUs between volume and revenue. So, you are going to create a scatter plot, and on the x-axis, you are going to have volume and y-axis, you are going to have revenue. And by means of this scatter plot, you are going to identify two outliers, one in terms of revenue and the other one in terms of volume.

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The screenshot shows a Microsoft Excel spreadsheet titled "Untitled Microsoft Word - Test (Document).xlsx". The data is identical to the one shown in the Word document above. To the right of the data, there is a scatter plot titled "Scatter Plot". The x-axis is labeled "Volume" and ranges from 0 to 1000. The y-axis is labeled "Revenue" and ranges from ₹0,00,000 to ₹1,00,00,000. The plot shows numerous data points as small squares. Two specific points are highlighted with larger circles: one at approximately (914, ₹1,09,08,000) and another at approximately (429, ₹5,800). A legend on the right identifies these points as "Lifestyle" (green circle) and "Mobile" (orange circle). A video player interface is visible on the right side of the slide.



So, let me go there, this is the same Excel sheet which Dr Milind has used. So, this is the scatter plot. So, let us add some beautification to this chart. Let us add axis title, chart title, legends. So, the chart title is scatter plot. So, you can give better names, in case you could think of something.

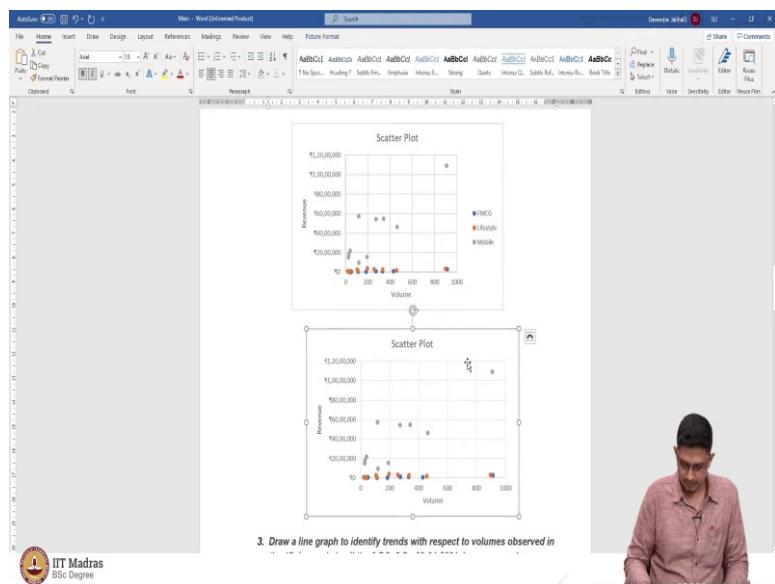
So here, the primary axis, or the y-axis is going to be revenue and the x-axis is going to be volume, and you have legends. And note, the y-axis has a particular format, that is, the currency format. And here you could identify the outliers. For example, this particular point is the outlier with respect to revenues. So, this is, revenue here is 1,09,08,000. So, let us see which is going to, I think it is here.

So, M 01 is giving you a revenue of 1,09,08,000. So, M 01 is the outlier with respect to revenue. So, the other outlier with respect to volume is this particular point. So 914

units have been sold of this FMCG product. So, it is nothing but F 01. And 914 is the value. Here, for M 01, the value is 1,09,08,000.

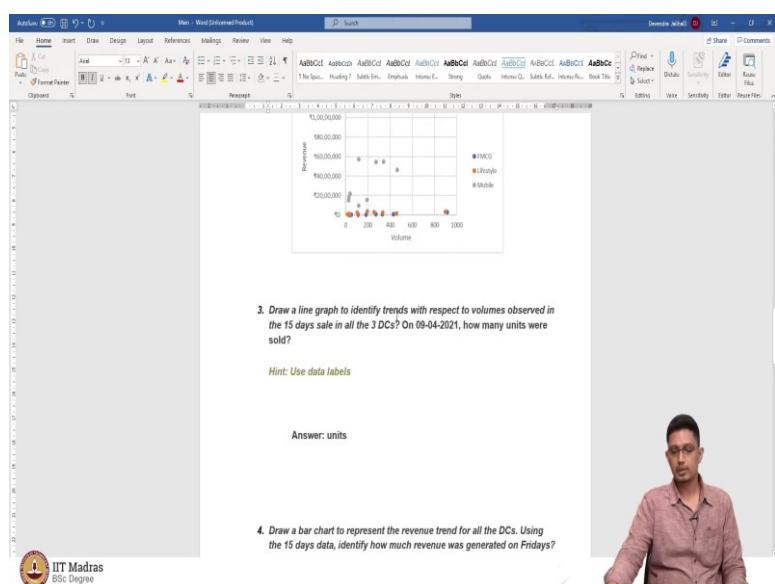
So, copy this graphics, go to the word document, and here, we already have given the values. F 01, is giving 914 units. And this is the outlier, with respect to volumes. With respect to revenue, we have M 01 as the outlier, with 10 lakhs, with, the units are wrong here. Or maybe, I gave western units. Let us make it Indian. So now it says 1,09,08,000 Indian rupees.

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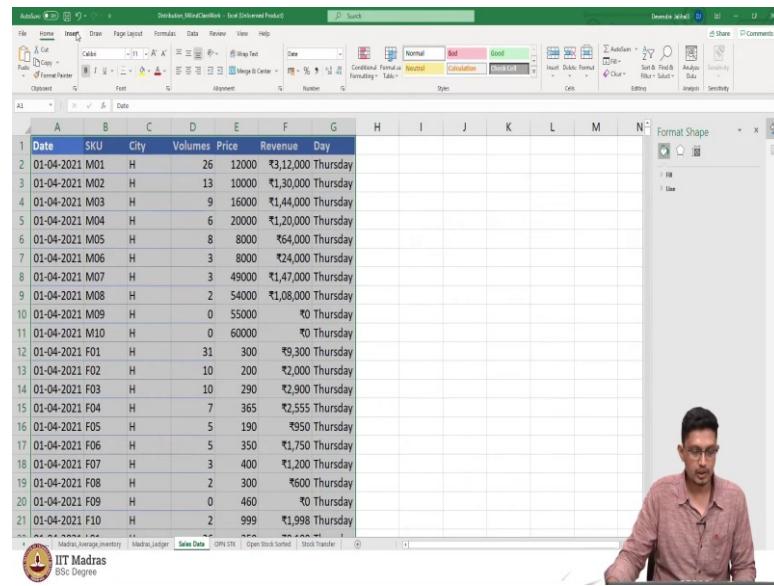
So now let us paste the graph, or the chart as picture. Go to paste. So again, it is neatly pasted. You could remove this.

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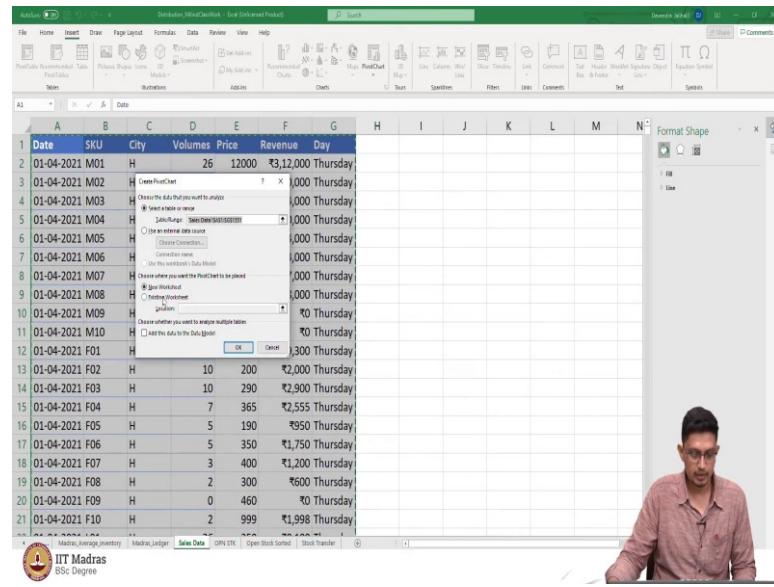
So, we have another question. So, draw a line graph to identify trends with respect to volumes observed in the 15 days of sale in the three DCs. And on 9th of April, how many units were sold? So, this is the question we are trying to answer. Again, we will go to the same Excel.

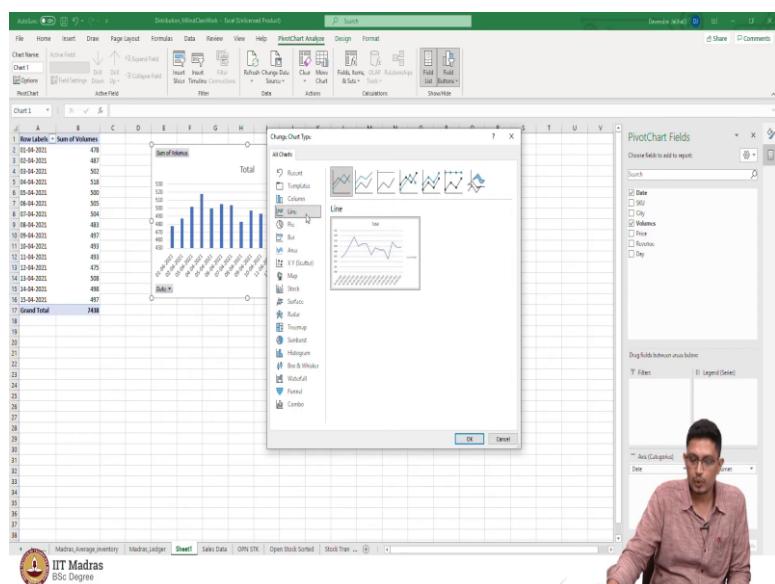
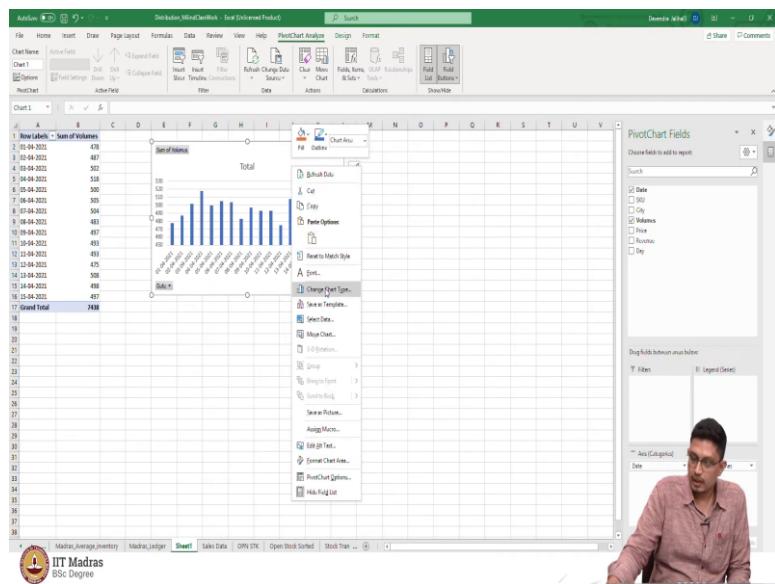
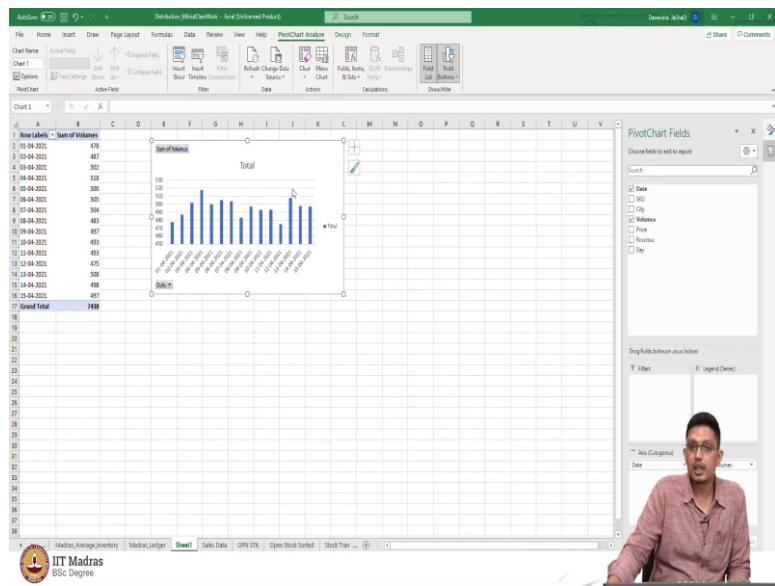
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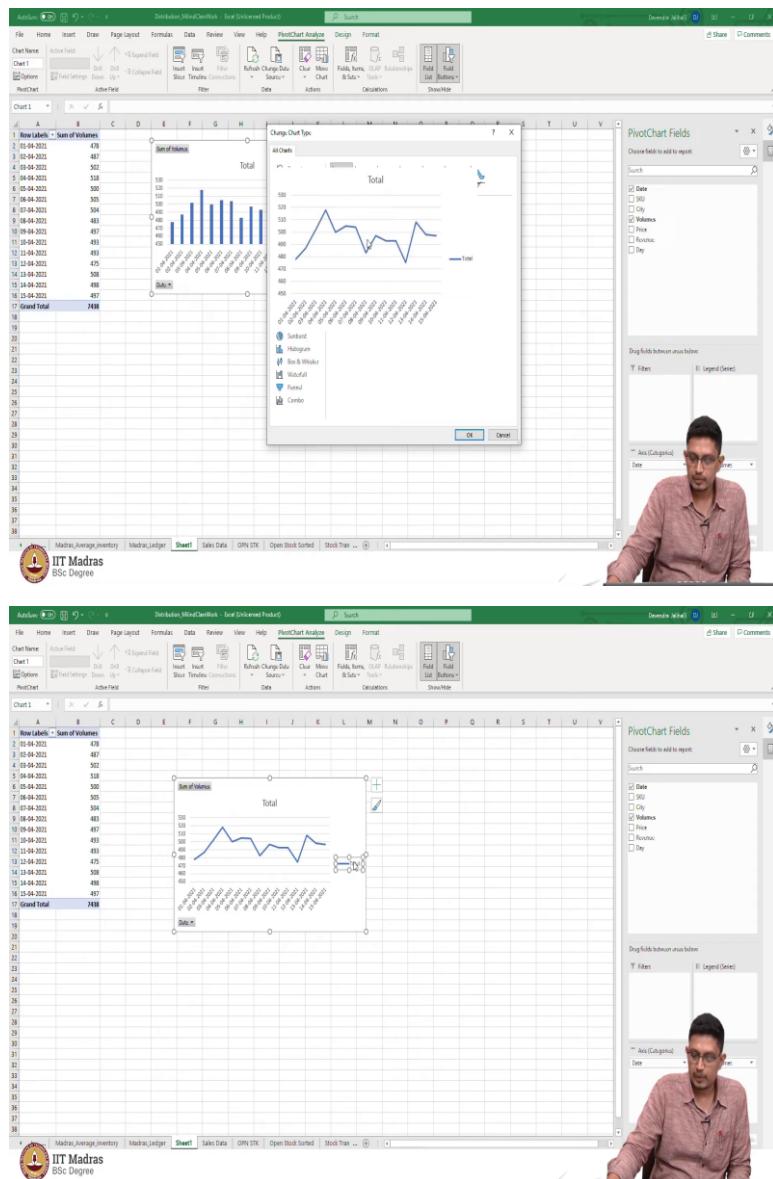


A screenshot of Microsoft Excel showing a data table. The table has columns labeled Date, SKU, City, Volumes, Price, Revenue, and Day. The data shows sales from April 1st to April 21st. A video overlay of a man in a pink shirt is visible in the bottom right corner of the Excel window.

Date	SKU	City	Volumes	Price	Revenue	Day
01-04-2021	M01	H	26	12000	₹3,12,000	Thursday
01-04-2021	M02	H	13	10000	₹1,30,000	Thursday
01-04-2021	M03	H	9	16000	₹1,44,000	Thursday
01-04-2021	M04	H	6	20000	₹1,20,000	Thursday
01-04-2021	M05	H	8	8000	₹64,000	Thursday
01-04-2021	M06	H	3	8000	₹24,000	Thursday
01-04-2021	M07	H	3	49000	₹1,47,000	Thursday
01-04-2021	M08	H	2	54000	₹1,08,000	Thursday
01-04-2021	M09	H	0	55000	₹0	Thursday
01-04-2021	M10	H	0	60000	₹0	Thursday
01-04-2021	F01	H	31	300	₹9,300	Thursday
01-04-2021	F02	H	10	200	₹2,000	Thursday
01-04-2021	F03	H	10	290	₹2,900	Thursday
01-04-2021	F04	H	7	365	₹2,555	Thursday
01-04-2021	F05	H	5	190	₹950	Thursday
01-04-2021	F06	H	5	350	₹1,750	Thursday
01-04-2021	F07	H	3	400	₹1,200	Thursday
01-04-2021	F08	H	2	300	₹600	Thursday
01-04-2021	F09	H	0	460	₹0	Thursday
01-04-2021	F10	H	2	999	₹1,998	Thursday





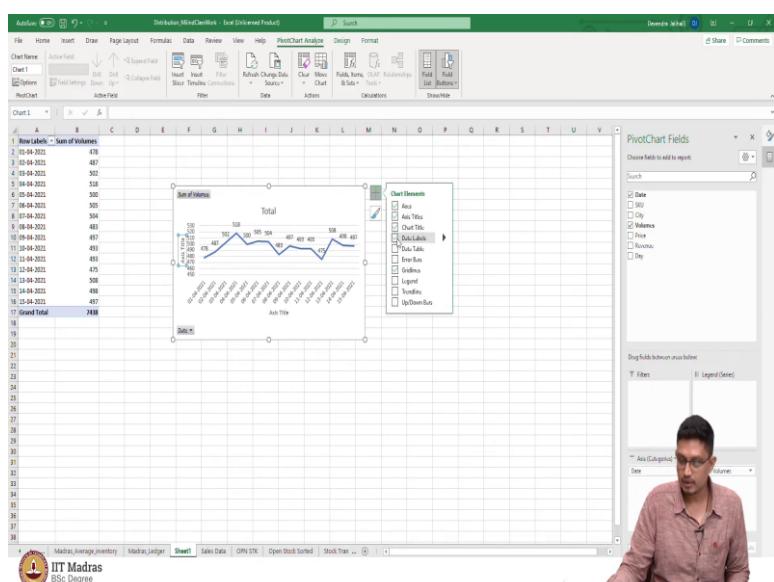
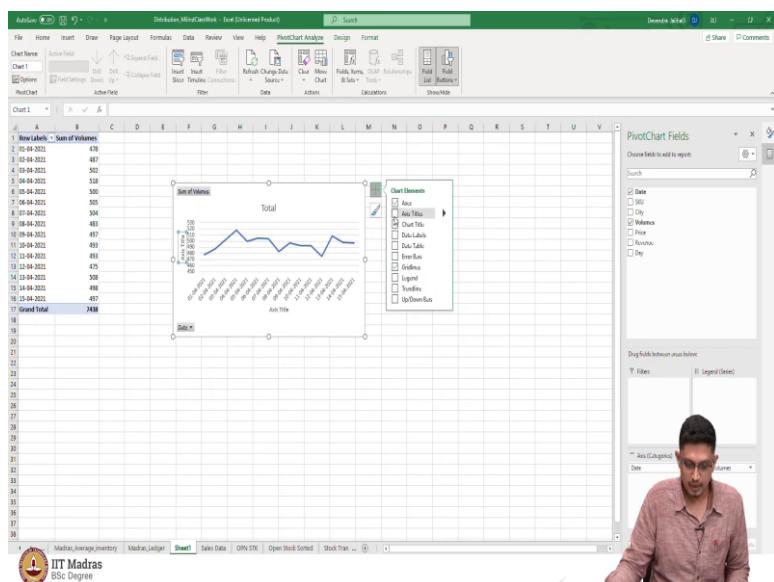
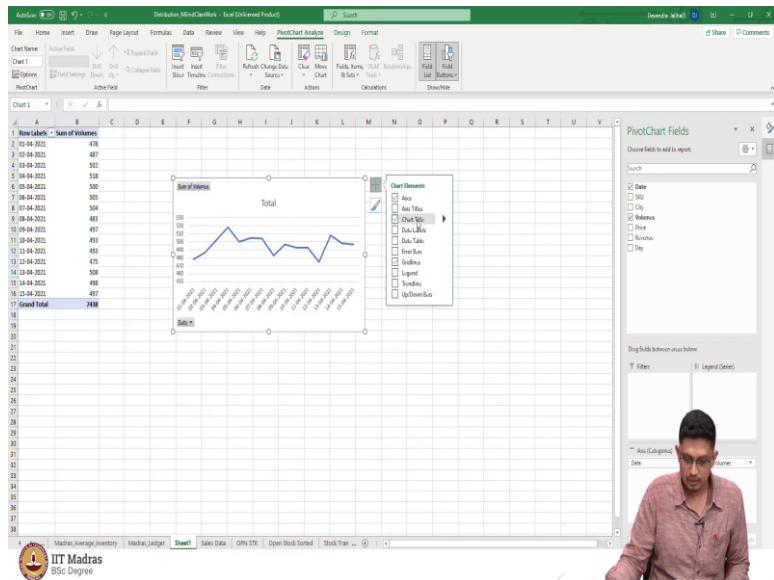


So now let me do the analysis for this particular question. So as usual, we go to the sales data. So select the entire table. There are smarter ways of doing this, which you already know. And then go to insert, go to pivot chart, create a new sheet. And here, the question is 15 days of sales.

And you are looking on a particular date which is 9.04.2021. So, let us have the x-axis as date. And then you are interested in knowing the volumes. So, sum of volumes. And do you not think line graph is a better representation of the growth or looking at the trends.

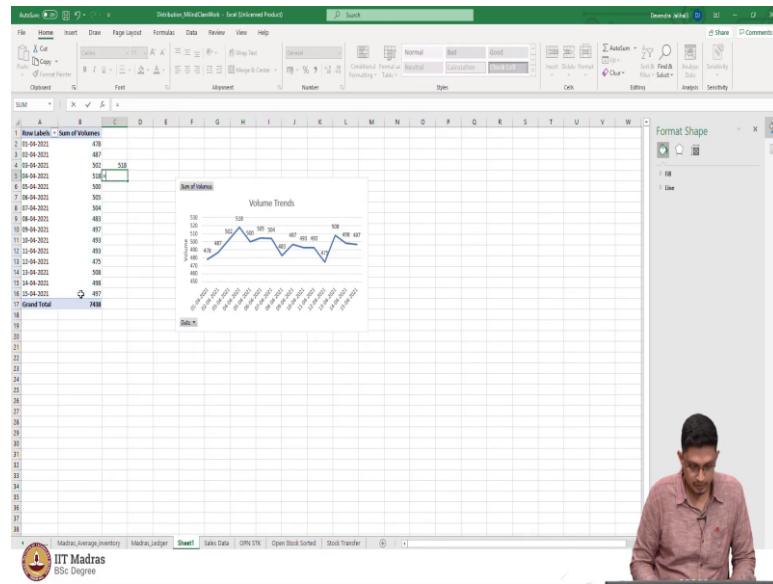
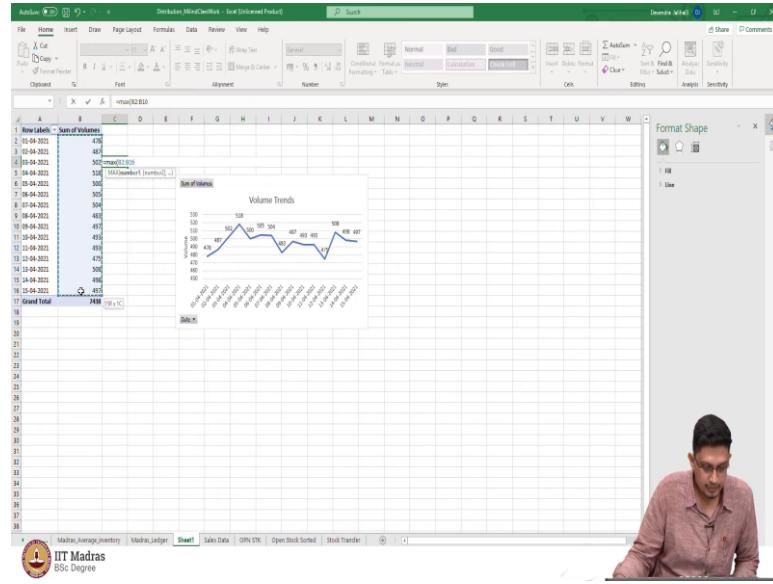
So here, we have got a bar chart. So, let us change it to a line chart. Right click on the graphic, click, select this option change chart type. Go to line, select this particular option, click okay. So again, we will play with the graphic to make it beautiful.

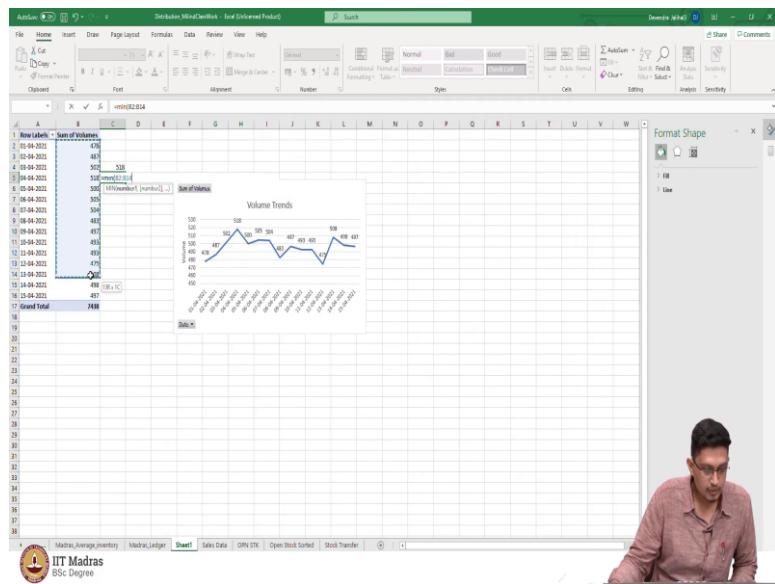
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Click on this plus, you could add chart title, axis title, data labels, and so on. So, it is done.

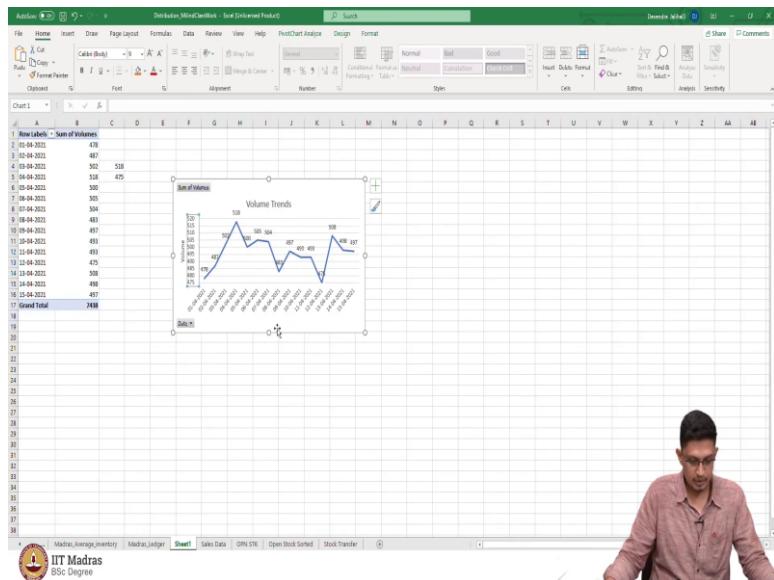
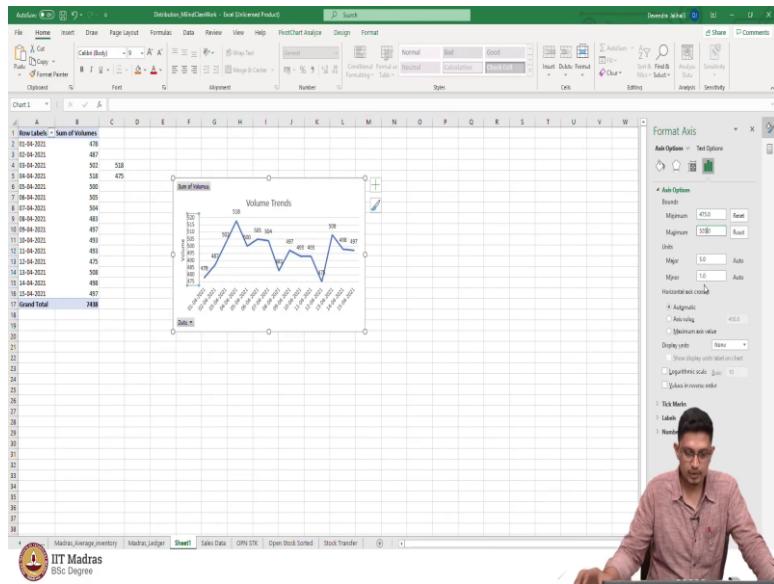
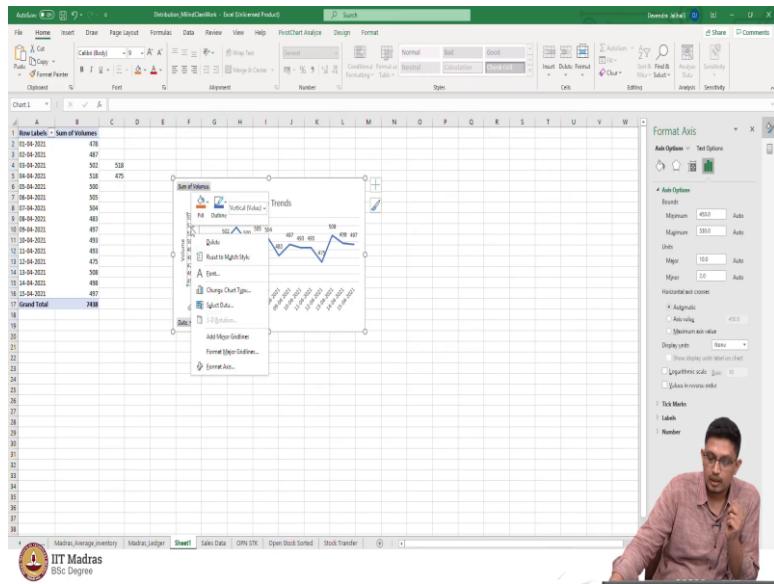
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So, let us change the axis title. In fact, you do not need an axis title for dates. It is obvious. So, let us add the axis title for the y-axis, which is nothing but volume. So, you could give a nice name to this particular graph, volume trend. And you could also play with the axis. For example, let us say, let us calculate the maximum sale that has happened. I am using this max function. And I am also trying to find the min function. I am using the min function. So, the sale has happened between 475 to 518.

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Assignment 2 | E-Commerce Case Study

Volume Trends

Date	Volume
01-Apr-2023	475
02-Apr-2023	475
03-Apr-2023	500
04-Apr-2023	500
05-Apr-2023	518
06-Apr-2023	500
07-Apr-2023	490
08-Apr-2023	480
09-Apr-2023	475
10-Apr-2023	475
11-Apr-2023	485
12-Apr-2023	485
13-Apr-2023	495
14-Apr-2023	495
15-Apr-2023	495
16-Apr-2023	495
17-Apr-2023	495
18-Apr-2023	495
19-Apr-2023	500
20-Apr-2023	500
21-Apr-2023	500
22-Apr-2023	500
23-Apr-2023	500
24-Apr-2023	500
25-Apr-2023	500
26-Apr-2023	500
27-Apr-2023	500
28-Apr-2023	500
29-Apr-2023	500
30-Apr-2023	500
31-Apr-2023	500

Answer: 497 units

Hint: Use data labels

So if you want more ups and downs in your graphic, just click on the y-axis, right click, go to format axis, and here you have the range, minimum and maximum. For example, you could change this range from 450 to 475 and likewise, you could change the graphic from 525 to 520.

So now you have a better variation in the data. So the now the answer to this question is, on 9th of April, there are two ways to do that. So first you go here and check. On 9th of April, 497 units were sold. That is also seen here. Copy this graphic, paste it here. Now, as usual, it is better if you paste it as a picture and let us mention the units. On 9th of April, 497 units were sold.

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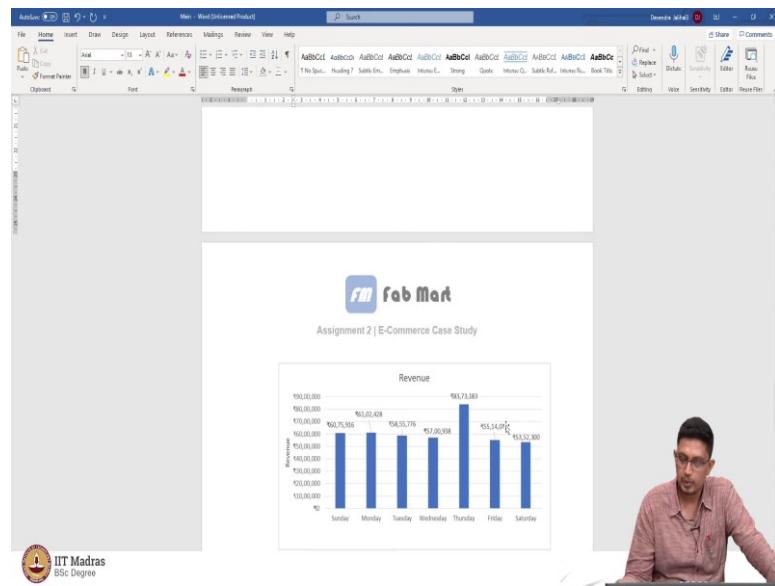
Assignment 2 | E-Commerce Case Study

Revenue

Category	Revenue
Fab Mart	83,73,183 INR

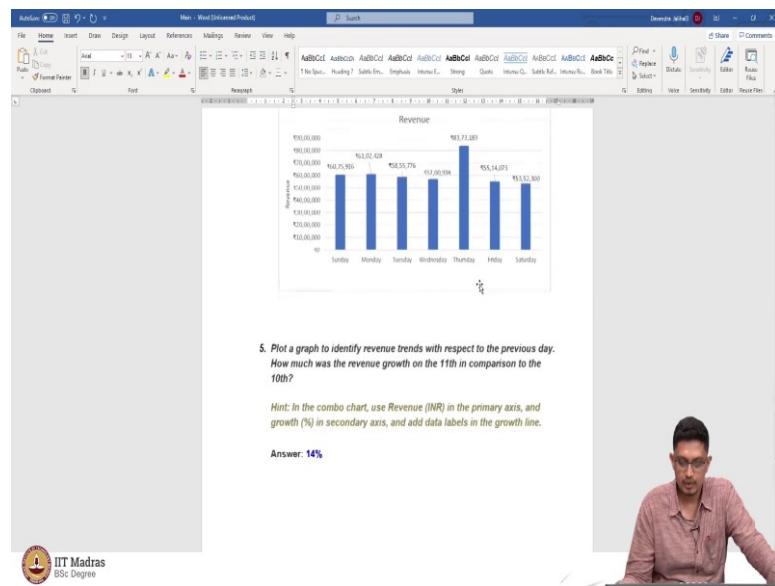
Answer: 83,73,183 INR

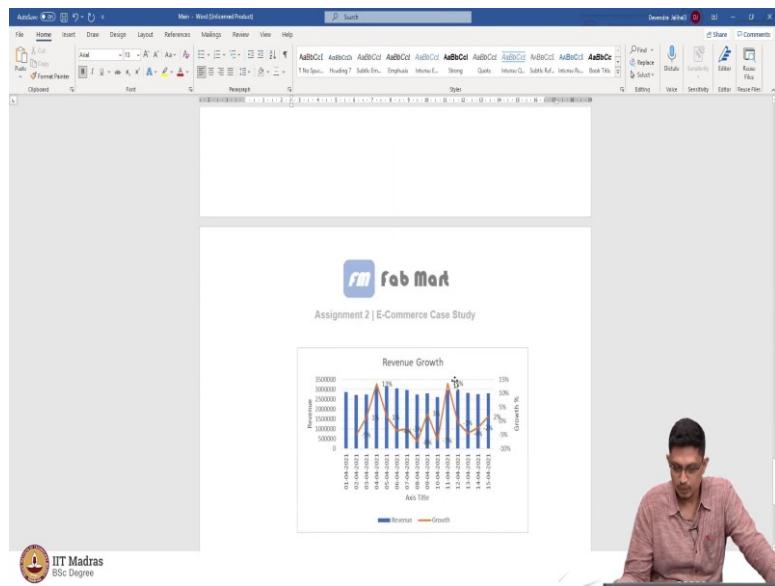
Hint: Use data labels



So similarly, the next question is on a bar chart for representing revenue trends of all DCs. And here, we are particularly interested in knowing the 15 days sales data. We want to know how much revenue was identified on Fridays. So, on Friday, you see that 55,14,073 rupees were generated. So, that is the answer to this question. So, you know how to do this, that has been covered.

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So next is the growth chart. This was again covered. So here, we want to see the growth on 11th in comparison to the previous day. And the answer to this is 14 percent. So, you could see that here.

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6. Create a ledger for the Madras DC, and mention the closing stock of F01, M01, and L01 on 15.04.2021.
Answer: F01: 9; M01: 2; L01: 20

7. Calculate the average days of inventory for F04, M04, and L04 for the Madras DC.
Hint: First calculate the average open stock and average sales using the 15 days transactions and compute the average days of inventory.
Answer: F04: 4.98; M04: 1.75; L04: 3.87

And the next question is coming from the ledger. On 15th, how much is the closing stock for F 01, M 01 and L 01. So, these are the answers to these questions, 9, 2 and 20. And similarly, calculate the average days of inventory for F 04, M 04 and L 04, for the Madras DC. So, the answers are 4.98, 1.75 and 3.87. So, this is the format with which you will have to submit the assignments and we will do the evaluation and get back to you. I wish you all the very best. Thank you.