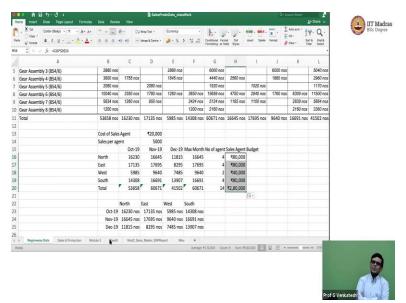
Business Data Management Professor G. Venkatesh Professor Doctor Milind Gandhe Mister Siva Kumar Padmanbhan Indian Institute of Technology, Madras Lecture 9

Region wise revenues working

Professor Venkatesh: That was good. I think we got a good handle of sales trends, sales trends then we saw the thing by gear assembly. We did some product portfolio type of thing. Now, there is also this thing about region, we have some information about regions, regional information. Can we see the regional distribution of revenues? That is the only thing that is missing I think.

Refer Slide Time: 000:41)

| The State | State



You get some color of the regional distribution of revenues, and I think and there is a question about how many agents should we have and all that. I guess regional distribution revenue is important for the sorry agents, sales agents. You got to look at the revenue in the region and according to the revenue you must place agents, either you could do, you could divide revenue by something and then put agents like that you can decide, how many agents in each region.

Professor Milind: Yes.

Professor Venkatesh: We need a regional distribution of revenue.

Professor Milind: Yes.

Professor Venkatesh: One other table I guess? pivot table?

Professor Milind: It is a little bit trickier than that, Okay. Now one of the peculiarities is that this data is now in a different sheet. This is the data that was given us, but you can see...

Professor Venkatesh: It is given it for 3 months, in a different sheet.

Professor Milind: It is given it only for 3 months but more importantly G.V. he has given it to us in a completely different excel sheet.

Professor Venkatesh: Oh, okay.

Professor Milind: Now if we want to look up prices, if we want to look up revenue etc. We will not be able to look it up in this because that data is in a different sheet.

Professor Venkatesh: Oh, oh I see. But you have the name.

Professor Venkatesh: Of course, this is October 2019 and that is written something else.

Professor Milind: Yes. The best thing to do, first thing to do is to remove this data into that sheet.

Professor Venkatesh: How we do this?

Professor Milind: It is possible to look across multiple sheets also. But right now, for the sake of simplicity, we will just copy the sheet into the other sheet that we were working. How do we do that? We go to this tab, and we do a right click. And then we can say move or copy, you can see my screen? You can see the pop up?

Professor Venkatesh: Yeah, yeah.

Professor Milind: You say move or copy and now we will check, we want to create a copy, but we want to create it in the classwork sheet, which is the sheet that we were working in.

Professor Venkatesh: Okay.

Professor Milind: We will call this tab region wise data so that. So, naming tabs etc is quite important, because it helps you keep track of what you are doing.

Professor Venkatesh: Okay.

Professor Milind: Now, let us see what, what do we want? What we want my understanding G.V. is we want a table, where let us say the rows are regions and the columns are, what should the columns be? Months.

Professor Venkatesh: October 2019, November 2019, December 2019 and total, yeah.

Professor Milind: October 2019, November 2019, December 2019.

Professor Venkatesh: And total.

Professor Milind: And the total.

Professor Venkatesh: Yes.

Professor Milind: Now we want to know what the total units were sold in the north in October 19. First thing is that data is not available to us here. We will have to in this data, in this table, we will have to add a total row.

Professor Venkatesh: You cannot do a pivot here, is it? Because the problem is, we cannot do pivot because, well October 19 is better off. It is not an entry in the table, in the column.

Professor Milind: Yes.

Professor Venkatesh: It is a problem of the column. If you had a row with setups over 19 like that, the original entry is a sell entry then you could have done it. We cannot do, this is like the like what we saw earlier, this is like the result of a pivot table.

Professor Milind: Yes, absolutely. There are two options here. One is that we can go back to the ERP try and get data in some nice form.

Professor Venkatesh: In some regenerated form, yeah.

Professor Milind: But this problem is a relatively small problem. We can just try and quickly do it without, without getting that.

Professor Venkatesh: Okay.

Professor Milind: We can see that we have north 16,230 numbers in October, east is 17,135. West has 55,985, and south has 14,308. Now, one of the things you can do G.V. is we can copy this.

Professor Venkatesh: Now, we should not do that, vlookup or something.

Professor Milind: No, in this case, we will have to copy.

Professor Venkatesh: Why cannot you look up? [Not Audible].

Professor Milind: Because what you want, here everything is in columns. And I want to copy this in rows. Everything is in one row. Here, I want it in one column.

Professor Venkatesh: Why do not you went to right north, east, west, south in the column and [Not Audible].

Professor Milind: Because the format, which they want to review.

Professor Venkatesh: That you can write and then you can transpose them, can you transpose?

Professor Milind: I was going to do it at one part, but you are right, we can do it like that, we can write.

Professor Milind: Okay, we will keep it. We will do east.

Professor Venkatesh: You can just say equal to and point it to that.

Professor Milind: West, south.

Professor Venkatesh: Why do not you say that for even for north labels, why do not you say equal to and point it to that, that way you can just write.

Professor Milind: Then I will not be able to drag it.

Professor Venkatesh: We can, no, no, not there. Point it to that, point it to the north of the previous table.

Professor Milind: And here, I am going to say October 2019.

Professor Venkatesh: Here you must write. There is no choice.

Professor Milind: Here there is no choice. And now here, I would say just, this would be here.

Professor Milind: But now you see, we have got this. This is a good starting point. But what, what we have important to shift? Is a transpose. Now, the good news is that excel will allow us to do this very easily. Which is, we can just cut this table and we paste it.

Professor Venkatesh: By pasting your transpose.

Professor Milind: You must paste it as values. What you have to do is go into paste special, instead I want paste values. And when you are pasting it, you transpose.

Professor Venkatesh: Yeah.

Professor Milind: And you got what you wanted.

Professor Venkatesh: Yeah.

Professor Milind: This way, you have now got, now what we need to do is to, so first here let us add a total row. Now, the next problem G.V. that Archana was trying to solve before that she wanted to figure out how many sales agents to have?

Professor Venkatesh: All right correct.

Professor Milind: And what I remember discussing is that the number of sales agents will depend on the maximum volume that the region sells in a month. We must design the number of sales agents for the busiest month, in some sense.

Professor Venkatesh: Yeah, I thought he said some 5000 units a person can sell in a month or something.

Professor Milind: Correct, correct, but that is in the busiest month. So, not in an average month. We need to find out what is the maximum sale over these last 3 months.

Professor Venkatesh: Oh, okay I see.

Professor Milind: And figure out what is the max monthly sales?

Professor Venkatesh: Okay.

Professor Milind: Now, if you want to compute max, excel has a function called Max, and it will tell us, so in this case, it is 16,645 which is what happened in November.

Professor Venkatesh: Right, right you cannot take average because, the guy must be able to handle the maximum peak.

Professor Milind: Correct. If you just drag this, then we have got the max monthly sales. And note that it may not necessarily in this case it all happens to be November. But it could be something else. I just have an example, [Not Audible] this was 20,000, then it could be [Not Audible].

Professor Venkatesh: Correct I understand.

Professor Milind: Now, let us go back. You said the sales per agent is 5000.

Professor Venkatesh: Yeah.

Professor Milind: Sales per agent, so we will create a cell, and, in that cell, we just say 5000. And then we can compute number of agents needed.

Professor Venkatesh: Okay.

Professor Milind: So, what do we do? We do this, divided by and this of course, we will have to for D14, we will have to put \$ \$.

Professor Venkatesh: Yeah.

Professor Milind: But you cannot clearly have 3.3.

Professor Venkatesh: Take ceiling, take ceiling of that.

Professor Milind: So, the way to do there is a function called round up.

Professor Milind: It will give you the next integer. It will give you the integer that is above 3.3.

Professor Milind: And we want 0 decimal points, 0 digits after the decimal point.

Professor Venkatesh: Correct.

Professor Milind: We will put 0.

Professor Venkatesh: You cannot have fractional agents.

Professor Milind: Correct.

Professor Venkatesh: As an example, if I put one here, let us just see what happens. I would have got 3.4.

Professor Venkatesh: And that is not true.

Professor Milind: But that does not give us that. We will make this is 0.

Professor Venkatesh: We need four agents, yeah.

Professor Milind: What this tells you is that you need, four agents in each region, except in west, where you can do with two.

Professor Venkatesh: The interesting thing is that if you are done total, just do the max for the total and do the number of agents, if you do the total?

Professor Milind: Instead of Max, you do the total?

Professor Venkatesh: No, no, I am just saying just take the max of the totals, just drag that 16,691.

Professor Milind: Okay.

Professor Venkatesh: I just want to and drag that four thing also down. You got 13 but 4 to 6 time 14. You cannot have 13 agents, I mean it looks like you can have only analysis of the total, you have got 13 agents but clearly of the, if I manage with 13. Because how do you distribute the agents you know, you need.

Professor Milind: Across the distributing regions.

Professor Venkatesh: When the agent is going to sit in some city, you will sit in Bombay or Pune or whatever. You got Delhi, Chennai, whatever it is regionally they will be okay then.

Professor Milind: Yes.

Professor Venkatesh: We will need 14 agents. This so 13 is, so actually you are going to get 14, because you must sum up 2424, you got 14.

Professor Milind: Correct.

Professor Venkatesh: The assertive number of sales can [Not Audible].

Professor Milind: Yeah.

Professor Venkatesh: Yeah 14, yeah so if you take 14, if you divide 60,671 by 14 you get the effective sales per agent.

Professor Milind: That is Correct. That is one way of looking at it, yes.

Professor Venkatesh: Will not get which will not be, which will not be 5000 just write, you will get something else, you will get 4000 something.

Professor Milind: We can I can do this for each region.

Professor Milind: But the other thing that Archana wanted G.V. is, what is the financial outlay? If you remember? That is what she wanted.

Professor Venkatesh: Yes.

Professor Milind: And what she had told us I think was that cost of sales agent, she had said was 80,000 rupees No?

Professor Venkatesh: Per month 1000 to 20,000 rupees.

Professor Milind: Yeah.

Professor Venkatesh: 20000 a month.

Professor Milind: And let me, so now financial outlay.

Professor Venkatesh: Sales, sales agent budget you can say sales agent budget.

Professor Milind: Sales agent budget. And this would be number of sales agents into salary per agent.

Professor Venkatesh: Yeah.

Professor Milind: One of the things I wanted to point out G.V. is that when we are using some constant number like salary of the agent, or sales per agent, one thing I could have done was instead of doing it like this, I could have just said G16 into 20000.

Professor Venkatesh: Now, that is not a good idea.

Professor Milind: That is not a good idea. Always the good idea is to put the constant in a different cell and then you refer excel so that, you can always change things easily.

Professor Venkatesh: Yes, yes.

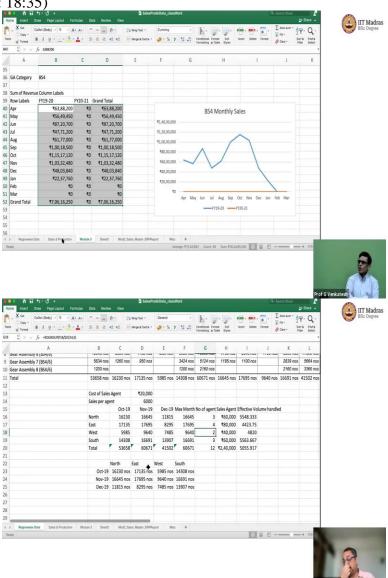
Professor Milind: We will drag it now. We know that we need about 280000 rupees per month just for sales agent.

Professor Venkatesh: Which is reasonable I think no? Given that, I do not know, I do not recall revenue per month, but it is in crores.

Professor Milind: it is in crores; it is in crores.

Professor Venkatesh: It might like 1 percent; it looks like it is like 1 percent.

(Refer Slide Time: 18:35)



Professor Milind: And what is the revenue per month, we had it here no? Where did we go? It is here, here this is like should not. Well, it is not in crores, inside in the 3 months it is in crores, but otherwise it is in about 60 to 80 lakhs range.

Professor Venkatesh: 3 lakhs out of 60 lakhs is about 5 percent, 5 percent oh, that is a lot.

Professor Milind: It is a lot, no? If, if the revenue goes up to 1 crore, then it is above 3 percent.

Professor Venkatesh: No, overall sales budget of sales budget including travel everything else, they will have other cost, like channel management triangle. The overall cost of 7 to 8 percent might be okay, I think.

Professor Milind: Yes.

Professor Venkatesh: Anyway, 5 percent looks like a lot. Anyway, we will percent it, we will see what she has to say. Maybe they do not do 5000, anyway it is not 5000, looks like it is 4000. Maybe you should decrease it. Instead of 5, if you should do some 6 or 7 or something else and see what happens.

Professor Milind: Okay, let us do 6. We do 6 then it will drop. Then you do not need 14 agents, you can do 11 agents.

Professor Venkatesh: 6000 the effective number might be still only 5000. When you saw that when you 5000 you got 4000 something.

Professor Milind: Effective volume handled will be, it is going a little above 5.

Professor Venkatesh: It is all right, let it be, this is okay. East is got 6000.

Professor Milind: East needs at least one agent more.

Professor Venkatesh: Yeah, we can give one more agent, give one more agent put 4 there.

Professor Milind: Okay, I can do that.

Professor Milind: Correct, I am playing around like this but then it became 4402, it is to less now, whatever something great some, some tweaks like this they can do and figure it out, yeah.

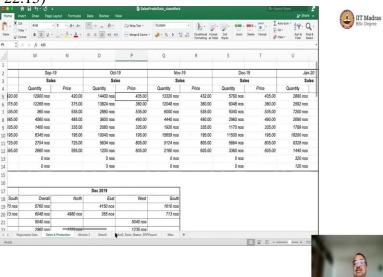
Professor Milind: And now the other thing is that let us just take a pause to compute region wise revenue for 3 months, to compute region revenue for three months. G.V. all of this that we did was essentially for sales?

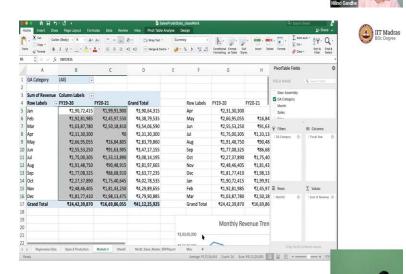
Professor Venkatesh: Yeah, sales.

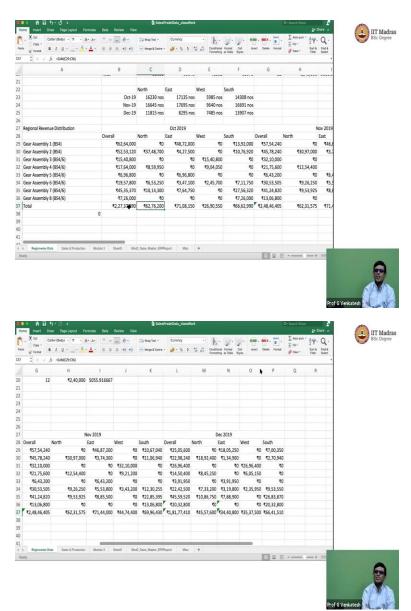
Professor Milind: Not for revenue. Let us try and do it for revenue, how do we do that? For revenue we will need price, no?

Professor Venkatesh: Yeah.

(Refer Slide Time: 22:15)







Professor Milind: Price is available in this sheet for us. Now the problem is that we may not know, I do not know if the price varies by month. I think price varies by month. We were looking at October.

Professor Venkatesh: I do not think it will vary. Even if it did vary.

Professor Milind: No, no it is varying by month, it is varying by month.

Professor Venkatesh: Marginal is varying, else we just take the average of the three.

Professor Milind: Or we can just look it up exactly. See, what I was thinking we can do is we can just look up the price here and do a sum product.

Professor Venkatesh: Average price you are doing?

Professor Milind: No, we will do the revenue, the sales into price are equal to revenue, no?

Professor Venkatesh: Sales into price, Okay.

Professor Venkatesh: You have got a sales table and you have got the sales in this table, you created this table, this table as the sales.

Professor Milind: We have to look at this table because we cannot create this table.

Professor Venkatesh: Why not?

Professor Milind: Because this void is quantity, this is a mixture of quantities.

Professor Venkatesh: But okay, but can I find the average price, that is not good enough?

Professor Milind: No.

Professor Milind: Because that will be weighted average of price.

Professor Venkatesh: That is a pain. That is not correct. I get it, alright.

Professor Milind: Now, the simplest way to do it is to say let us compute the regional revenue distribution. The regional revenue distribution. And then we will have.

Professor Venkatesh: Put the gear assembly.

Professor Milind: No, no we will write.

Professor Venkatesh: Three months only we need, October, November, December.

Professor Milind: Correct, D what happened?

Professor Venkatesh: It is not D1, it is B1. There is a problem because of merged cell, yep.

Professor Milind: Okay and then just copy B2.

Professor Venkatesh: So, you are just copying the table but instead of numbers, there you are

going to put.

Professor Milind: Revenue.

Professor Venkatesh: Revenue and the revenue is going to be computed by taking the number

and multiply it by the price. The price will get everything.

Professor Milind: Yes.

Professor Venkatesh: And since they are all in the same because they are column wise. You can

get it, the look up.

Professor Milind: Correct. Here what we will do is we take the ABD quantity, which is going to

be C3. And you multiply it by sales and production will give us the price.

Professor Venkatesh: Yeah, yeah.

Professor Milind: And this is coming out to be 0, because we sold 0 units. So, hopefully if I drag

it then I will get the correct.

Professor Venkatesh: Yes.

Professor Venkatesh: 3748700 is correct or not?

Professor Milind: Let us check that. We are looking at 9865 units into 380.

Professor Venkatesh: Just do it in one cell 9865 into 380, take a free cell of excel and do it.

Professor Milind: Yeah. How much was it?

Professor Venkatesh: 9865 into 3.

Professor Milind: 3748700.

Professor Venkatesh: That is great, checks good.

Professor Milind: Now, the only thing is the price is not going to change by region. So, we should put the \$ here. If you see here, if I go to this sheet this price is not varying by region.

Professor Venkatesh: No, it is.

Professor Milind: We put a \$ here and now the entire column, I can drag.

Professor Venkatesh: Sum, I guess.

Professor Milind: I have put a sum. This tells us that here is simply one in October 2019 gave me a total revenue of 62 lakhs, and so on. And I can also then do.

Professor Venkatesh: But when we did that, when we, when you said that 60 lakhs per month, so this is showing 62 lakhs, just of gear assembly 1. I think that revenue you are seeing was not, correct? When we were looking at the revenue earlier.

Professor Venkatesh: The bottom is the total value.

Professor Milind: We can select everything. Now, you will get it.

Professor Venkatesh: Yes.

Professor Milind: In a single month, you are looking at almost 39 sorry.

Professor Venkatesh: 2 crores, to come up. 2 crores, put the commas convert the currency. We are doing about fourth rows, 4 crores. The lowest is about 2 or 2.6 but that is a lean month. But approximately 3 to 4 crores.

Professor Milind: This column you should ignore G.V. Because this is the sum of Jan 19 and Jan 20.

Professor Venkatesh: 1.9 the lowest is 1 crore, lowest is 1 crore. We should take I think 1.9 to 2 crores you can take, that looks like 2 crores.

Professor Milind: Correct.

Professor Venkatesh: 2.4 lakhs whatever we calculated as a percentage of 2 crores is one point something percent, fantastic.

Professor Milind: Yeah, that is, that is possible, no?

Professor Venkatesh: Possible, very good.

Professor Milind: Of course, if I do this then tells you that, this is 14 crores? Sorry, this is.

Professor Venkatesh: Yeah, because it is 4, so I am double counting that?

Professor Milind: This total is 14 crores. How can I get that wrong? This seems to be very high. How did this happen?

Professor Venkatesh: It is only 1125 units, what is the price? There is something wrong with it. It is, what is the thing, what is it saying? C4 A2.

Professor Milind: Sum C32... These two numbers are varying.

Professor Venkatesh: Because you have sold 11200 numbers, at what price?

Professor Milind: This is coming into the wrong place. D4 into Q6, it should not be Q6 no? This is the problem, and this is, this should also be dollar. See the problem if you do not put dollars correctly.

Professor Venkatesh: But if you have some number sense, see now you know, because you know the checking right you know the totals.

Professor Milind: Now, you are okay.

Professor Venkatesh: You know the totals should be in the 2-crore benchmark if it comes, you know immediately something is wrong. We fixed it anyway, that is good. So, now what?

Professor Milind: We can copy once again for November. Only thing we must check that is important to check is that if the dollar has gone to the right place. Now this is still looking up dollar P5, which is wrong. Because P5 is so if you look at dollar P5, it is the price for your assembly one, in October. You want the price in November. It must be R5.

Professor Venkatesh: This you must do manually. There is no obvious way to be done, unfortunately.

Professor Milind: We will do that.

Professor Venkatesh: Once we do that than the rest can be copied.

Professor Milind: The same thing, we will have to repeat for December. And then we must check the, so this is now looking at R5 we needed to look at.

Professor Venkatesh: E5 yeah.

Professor Milind: Why is this coming some value? N10 why is this [Not Audible] value.

Professor Venkatesh: 4 years dot in there.

Professor Milind: Correct. Now, it is looking. We are saying that the total sales in December is 1 crore 81 lakhs, 14 crores in total sales in November is 2 crores 48 lakhs and total sales in October is 2 crores, 27 lakhs.

Professor Venkatesh: Right.

Professor Milind: But what is interesting now, we have got is G.V. we also have got the regional sales.

Professor Venkatesh: We got the regional sales.

Professor Milind: You know out of these 2 crores 27 lakhs, 62 lakhs roughly are coming from north, 71 lakhs from east, 26 lakhs, 27 lakhs almost from west and roughly 67 lakhs from the south.

Professor Venkatesh: West, nothing strange very strange that we are not getting any revenue from West.

Professor Milind: Correct.

Professor Venkatesh: Only a big, such a huge automotive place.

Professor Milind: Correct.

Professor Venkatesh: I know [Not Audible] that is the case.

Professor Milind: We could have asked Siva actually, why that is.

Professor Venkatesh: ACE Gears they may not have customers, maybe Mahindra is not a customer.

Professor Milind: Or you know Feat, Tata Motors may not be a customer.

Professor Venkatesh: Correct.

Professor Milind: Or the other thing it could be happening G.V. is maybe they are doing trucks.

They are doing good vehicles and not passenger vehicles.

Professor Venkatesh: Goods vehicles, good vehicles Tata's is in Jamshedpur, no?

Professor Milind: Correct.

Professor Venkatesh: That is right.

Professor Milind: Maybe it is good vehicles.