Transcript for Session 036

Listen to the podcast session, see resources & links:

http://chandoo.org/session36/

Transcript:

Hey there, welcome back to http://chandoo.org podcast. This is session 36. I feel so happy to be back in India after a very successful, thoroughly enjoyable and deeply entertaining trip to Australia. You've probably heard me speak about my Australian trip in earlier episodes. In the summer of 2015, my family - Jyotsana, my wife, and my kids, Nishanth and Nakshatra, all flew to Australia. It was part vacation and part work. The vacation part was for my family and the work part was for me! Although I was working from Australia, I was running some master classes on Advanced Excel, Dashboards, Data Analysis and Power Pivot in Sydney, Melbourne and Brisbane. We had so much fun there! We did so many things for the very first time in our lives. My kids got to see a whole bunch of native animals - kangaroos, koala beers and lots of other native animals. We rented a car and drove from Sydney to Melbourne on a beautiful coastal highway and saw some really amazing beaches - there were really no people there - you could just go to the beach and enjoy there. We went to several awesome places like that.

We took on a toy-plane ride. I don't know what else to call it. These are old fashioned 2-seater or 4-seater planes. We took a plane ride and saw some really magnificent beaches. Then, for the very first time ever, I did an Australian barbecue. Australians call it barbie - you take some meat and you go the barbecue and grill it - we went to a park where they have beautiful automated barbecues. You just press a button and the barbecue heats up and we cooked some amazing food there. It was a first time experience for me to do that. Towards the end of the holiday/work, we got to experience the Vivid Sydney Festival where there are a lot of installations that deal with light and art. They throw a lot of laser lights on all the popular landmarks like the Opera House and the Harbor Bridge. There are also a lot of installations that show animations, artwork and what not that deal with light and artwork as a combination. It was a really fantastic experience. We experienced Vivid Sydney just before we came to India. We flew to India on Sunday and we went to the festival on Saturday. So, it was a perfect way to end this beautiful experience. But, the most important thing, apart from all these experiences, has to be meeting some amazing Aussies. I met a lot of people during my classes. I made so many new friends. A special thanks and shout out goes to Habiba, Leonie and Matt for sharing their kindness and showing me what warm and nice people Australians are. Thank you so much guys.

Now, I don't want to talk too much about the Australian experience but I just want to share two more updates. These are really important to me and I am just excited about them as equally as the Australians. Although I did like the Australian trip, the one thing that I missed badly was that I was away

from India during the summer and you know what summer is - it is the season of mangoes! And, I was missing mangoes! But, fortunately, we got back just in time. You get some good quality mangoes in the month of June. So, yesterday was the first time that we tasted mangoes for this year! Unfortunately, the mango tree in my house fell down during the storm in October 2014. So, we couldn't enjoy our own mangoes but we bought some mangoes from the market and we enjoyed them yesterday and today. That was the mango part!

The second part is that for the first time ever in my life, I fixed a flat tyre on my bicycle this morning! Fortunately I have been riding a bicycle for about a year but I haven't had any flats until now. I experienced it this morning and I took out my flat kit and since this was the first time I was doing it, I was nervous and I wasn't sure if it was going to fly but it did. Boy, am I glad! Now, I can fix flat tyres. Yay! That's a bit of a personal update. I am really sorry if you have been waiting for a podcast for a while. I have been a little erratic mainly because of the travel as I couldn't plan my podcast recordings well enough. Now that I am back in India, I am hoping to do a lot of podcasts on a regular basis. Today's topic is really interesting and useful for all of you Analysts - **how to do trend analysis using Excel**. Any topic like trend analysis tends to be highly visual and we are talking about an audio podcast. So, I assume that explaining all the visual aspects of trend analysis is not going to be feasible but I am going to try my best and you can chip along and imagine while you are listening. But, don't imagine too much especially if you are driving. Just pay attention to the road and just listen to the audio. Once you go back to the computer or Excel, you can play with it.

Now, on to our topic - how to do trend analysis using Excel. Before we understand the how part, let's briefly talk about what is trend analysis. Trend Analysis is a word that refers to a set of techniques, concepts or principles using which you are trying to find the trend buried in your data. There are lots of methods for identifying trend analysis. Some of them are deeply statistical or technical. Unfortunately, I won't be able to cover them in the podcast medium. I am going to cover trend analysis from a business analysis of data point of view.

Let's say that you are running a small business and you are wondering what kind of trend any kind of number represents. Let's take a number that is easiest for us to visualize or relate it. Let's talk about sales numbers. Let's say that you are running a store that sells coffee. You are running a coffee shop on one of the busy streets in a metropolitan city in the world. Let's say that you are running a coffee shop in Sydney. I have been to Sydney recently and so I can't help but think of Sydney when I talk about a large city. So, you are running a coffee shop in Sydney and you are wondering what kind of trend you are receiving in terms of sales. There are many ways to answer this question but importantly, what is it that you are trying to find here.

When you talk about trend analysis, one aspect that is kind of implied but you must clearly specify is the time frame for this analysis. Are you trying to do a trend analysis of hourly sales within a day? Are you

trying to do a trend analysis by days of week? Are you trying to do trend analysis by an individual day within a month or even a bigger time frame? When you are doing trend analysis, one of the implicit or implied aspects is the time axis. We don't really specify it; we just ask for the trend analysis. But, when somebody says that to you, you should really try to answer that question by first asking what kind of time frame they are talking about. What is the granularity? What level of time are we talking about? Are we looking at an hourly trend or trend by second or trend by hours or trend by months or trend by decades? What kind of trend are we talking about here? That will set the frame for your trend analysis.

Now, let's say that from the coffee shop perspective, you were wondering whether you should hire an extra staff member in the morning hours. How do you decide that? If you are experiencing a lot of sales within morning hours then that could indicate that your store is quite busy and you should probably bring in some extra help. In order to make that decision, if you could look at your hourly sales trend or maybe the sales trend by 15 minute blocks from the first hour of the morning - let's say that 7 AM is when you open your coffee shop all the way until the end of the day when you close it - and look at the trend. When you look at this trend, again, another aspect that we don't really specify is what it is that the trend represents. Is it representing quantity, sales or number of customers walking in, number of transactions happening - that is really important.

From my experience - I have never run a coffee shop before but from my experience, it seems that when you talk about a coffee shop kind of example, you should probably look at the trend by quantity or individual transactions or number of customer footfalls rather than looking at the total amount generated. This could be because in the morning you might make $75,000 revenue but that could be because somebody walked in and bought 75,000 muffins. That could kind of tell you that you should hire extra staff but you don't need extra staff to just deliver 75,000 muffins assuming that you have some mechanism of loading them on to the customers hands or their car. Enough chit chat; you understand the point. The two things that are important when we say trend analysis are the **timeframe** and the **trend.**

Once you have the trend, usually trends are represented as a line in terms of graphical representation. It could be very hard to detect the trend from just looking at raw numbers. Whenever somebody asks to see the trend, my suggestion to them would be to draw a line chart. Start with a line chart. When you draw a line chart that depicts the sales trend from morning to evening for your coffee shop, it could kind of give you an indication of when the peaks are occurring. When you look at the peaks, you would understand that these hours or this window of time is when we are experiencing maximum sales or maximum transactions. And, since our capacity is to serve maybe 8 customers per 10 minutes whereas we are expecting 25 customers per 10 minutes in the morning hour, maybe we should bring an extra person to help us in the shop. This is one direction of doing trend analysis to make business decisions.

There are other types of trend analysis too. For example, let's say you are planning to invest in a particular kind of stock. Some types of investors - again, I am not recommending an investment strategy or anything, so don't listen to my podcast if you are trying to figure out how to invest your money - but, one strategy that I see investors doing is that they look at the trend of the stock price movement and, based on that, they come up with some sort of conclusions. Some of these could be highly arbitrary; some of these could be more backed-up with some sort of statistical and technical analysis. But, essentially, you are looking at the stock price movement as a line and you are trying to figure out the right time to invest in it. When you are answering questions like these wherein you are looking at a trend and answering questions about whether to buy this stock or whether our sales are going up or whether we are able to meet our target for new customers and those kinds of questions then the analysis requires two parts. One is the trend analysis part and the second is a very good intuition. Intuition could be gut feel or mind feel or even business knowledge. When you are doing investments in stocks or anything like that, there are usually a whole bunch of variables at play and many of them are not even part of the line. The line only shows what the stock price represents over the last 90 days or the last 180 days or whatever the frame is. It doesn't really capture what is happening in a bigger environment - the government policies around the industry where the stock is running - none of those things are captured by that line. When you look at the line and say that looking at this line you are going to buy 1000 units of the stock the next morning you are essentially looking at the line and making a guess about where it will be tomorrow. But, that guess involves not only understanding the line but also bringing in your own business perspective, knowledge, past experiences and gut feeling into the equation, none of which are easy to capture in an Excel model or any other model.

The same applies when you are using trend analysis to do forecasting for your business data. It could be sales data, it could be budgets, it could be YTD analysis, it could be target analysis or any of those kinds of places where people tend to use trend analysis. So, I want you to be sensitive to these aspects.

Now that we know a little bit about what trend analysis is and when you would use it, let's talk a little bit about types of trend analysis and how to do them in Excel. Essentially, when you talk about trend analysis, you are essentially talking about various types of lines that you can see in a situation. Let's start with something very simple. You could experience a straight line. This is very much true with situations wherever you have set up where one thing changes and the other thing directly changes in proportion. A good example is that let's say that you are able to sell 8 coffees in 10 minutes with one employee. If you bring in another employee, you will be able to potentially make 16 coffees per 10 minutes. This is basically a linear relationship - 1 is giving you 8 coffees so if you have 2 employees then you would be able to have 16 coffees. It is the same with 5 employees; they would give you 40 coffees per 10 minutes. Would you be able to sell all 40? That is another part of the equation and we don't know that. **A trend analysis where you are studying simple straight lines or lines that are sloped up or sloped down is called linear trend analysis**. We will understand this in a few minutes.

The second type of trend that you can expect is **curves**. There are various types of curves. A curve could be a simple equation kind of curve wherein you have a second order equation or a third order equation or nth order equation. I will explain what these mean in a minute. It could be some sort of complex equation like a sine wave or some of those kinds of things. Essentially, a curve is not a line but it is governed by some sort of algebraic or some other type of equation. To give you an example, let's say that you are studying some sort of biological thing like how a bacteria or virus would grow in a petri dish. When you are looking at the petri dish and trying to figure out how fast the virus is growing, you would do some initial steps. You would start with maybe one sample of virus and count the time for it to double. Let's say that this takes 10 minutes. After 10 minutes you would have 2 viruses in that bowl or petri dish. Then, after 20 minutes, you would expect to see 4 and after 30 minutes, you would expect to see 8. It is essentially doubling every 10 minutes. This kind of curve when plotted would be called an **exponential curve** where the growth rate would be dramatic within a factor of time. To give you a real life example of that, if you are trying to study the growth of any social networking websites like Facebook or Instagram or Pininterest, their growth rate would mimic an exponential curve in the initial periods. Once you reach a saturation point - like Facebook is now kind of available for everybody around the globe and so there is really no way that they can grow exponentially now but for the initial 3-4 years of their lives, Facebook has been growing exponentially. There has been some sort of an exponential behavior. It is because social media is like a virus! These are nothing but curves. A curve would be governed by some sort of an equation.

When you are looking at a curve trend analysis, you are trying to ask what equation best represents the curve. Then, you use that curve to figure out what happens in the future or what happened in the past or what happened in the periods when you don't have data, i.e. calculating missing numbers etc. This is one type of trend analysis. So, we have linear and we have curves.

The third type of trend analysis which is highly relevant for many business situations is what we call a **cyclical trend**. This is when a particular trend will re-appear every n amount of time. It could be several hours, months or years. To give you an example, going back to the coffee shop, the trend of daily hourly sales would kind of repeat every day. If you are expecting a lot of sales around 8 AM - that's when a lot of people are going to office and they stop by the store and pick up a coffee - you could be sure that at 8 AM or around the same time the next day, you would experience another peak. This is because your business is of that nature where there is a natural peak occurring at 8 AM and maybe there is one more peak occurring at lunch time when people might have lunch and then pick up a coffee. There may be another smaller peak towards the end of the day and that's it. You are not going to have a peak unless something highly unusual happens at 9 PM. So, a cyclical trend would be a cycle or a same type of pattern repeating after x amount of time; it could be one day or it could be several months. To give you another classical example, if you selling something like toys or candy or gifts, you could expect to see a peak around the holiday season from late November to early January. That's when a lot of people would buy toys or gifts or candy or chocolates or things like that and so you could expect to see a nice peak around that time and maybe a smaller peak around an intermediate holiday like Easter season or another festival depending on where you live, the kind of business you operate and the kinds of festivals

that people are celebrating and the cultural impact of those things. So, a cyclical trend is essentially looking at the trend to find out how big your cycle is, the impact of those regular events and trying to study that so that you could figure out what would happen in the future or what has happened in the period when you don't have data.

These are **three basic types of trends** - **straight line, curve and a cyclical trend**. There is also one more which is strange. **Anything that you can't really explain by a known algebraic or mathematical equation could be essentially called a strange trend**. These could be either random data or data that is highly unstructured or the equation itself is very difficult to capture. To give you a very simple example, the one that I am looking at right now - as I am recording this podcast my audio recording software generates a wave pattern of my audio and it does this continuously as I am talking. Looking at the wave, I can't really figure out what that wave really looks like. The only way to understand that wave would be if you were to look at the same audio text and if you are familiar with my voice - the pitch frequency and all the kinds of nuances and language things and other things that I bring to the equation like the umm's and but's and aah's - if you are familiar with all of those, only then can you make sense of that equation. Even then, you would probably not be able to draw an equation for another sentence. If you know all of these curves and if I ask you what my voice would look like if I said 'hello world' you would probably not be able to produce that curve with a very high accuracy. That's because these are where there is a lot of complexity involved and studying them would require a lot of computational power or even a lot of imagination and higher focus into the mathematics behind it which is not something that we are going to talk about in this podcast. These are what, in my opinion, the **four trends are - linear, curves, cyclical and strange.** We are going to study the first three; we are not going to talk about the strange curves because they are strange by definition and so there is nothing that we could do to analyze them or figure out what would happen in the future given that it is a strange trend.

How do we do the trend analysis in Excel? The steps are like this - I am going to say the steps for linear and cyclical curves. For a linear trend, it is very simple. No matter what trend you are looking at, whether you are looking at linear or curve or cyclical, the very first thing that I would recommend is to take all your data and create a line chart from it. This is the first step. Take the data and make a line chart. When you are making the line chart, make sure that you are looking at the trend at the right frequency level, i.e. whether you are looking at hourly sales or daily sales or monthly sales. You need to decide that and look at it. If you can't figure out what trend to look for, you could alternatively create a pivot table from it and then use the grouping feature so that you could do some ad-hoc analysis first. What is the purpose of this? When you are looking at a trend, if you don't know what the data really looks like then finding the trend could involve a lot of false starts. To avoid all that, plot the data and look at it. If it looks more like a straight line then you need to do a straight line analysis. If it looks more like a curve then you need to do curve analysis. If it looks more like a cyclical pattern (same pattern is repeating regardless of whether it is ugly or uneven), i.e. if the pattern is repeating every x amount of time then you need to do the cyclical analysis. If you can't really make sense of it, maybe try to do a curve analysis. If all the curve analysis results are highly ambiguous and not close to the real data then you can call it strange behavior. This is the first thing - create a line from the data and look at the line to

figure out what analysis you want to do. This way you could quickly decide between one of the three analyses or write off this data as data that cannot be analyzed because it has too much noise in it.

Once you figure out what analysis you want to do - let's say that the analysis should be linear - you could use several functionalities within Excel. When you are looking at the line chart itself, you could add a trendline and make it a straight line or linear and Excel will try to fit a line along with your data and it will give you the best guess for that line. The line may not pass through all the data points that you have but the line would be close enough that Excel can figure out for the given data. With that line, you could then go ahead and analyze it and use it for forecasting. When you are doing a trend analysis, you can also add the equation to the chart so that Excel will show you an equation. That equation would be an algebraic equation - a mathematical equation that would go something like:

$y=mx+c$

m is the slope, x is your time axis and c is the constant. Looking at this, you could figure out the value 6 months down the line or the value three months before the data that you have or even do some sort of analysis. In real life, you would rarely experience a linear trend because nothing is so straightforward. Everything has lots of variables built into it. That's your linear analysis.

The second type is curve analysis. Again, when you are doing trend analysis by adding a trendline, you could switch the line type from a straight line to a curve. When you are doing a curve, you could play with multiple options. You could choose an exponential or logarithmic curve. You could choose a first or second or third order curve, polynomial equation with an order of 2 or 3 - essentially the equations are going to be something like:

$mx^2 + m_1x^2 + m_2x^2 + c$

Essentially, Excel is trying to square the value and then come up with some sort of a relationship and it will give you a best guess for that curve.

When you are doing a curve analysis, you may want to try out a couple of things to see which curve is closest to your data. How do you measure this **closeness to the data**? This is where a concept called r^2 value comes into the picture. Whenever you are trying to draw a line that is close to your data, in a statistical way, you could find the distance between your line and the line that the actual data represents and square all these distances because some distances could be positive and some distances could be negative and that number is called r^2 in a very loose way. I am not giving you the exact statistical definition of r^2 here. So, r^2 tells you how close the trend analysis that you have done is to the original data. If r^2 is close to 1 it means that your data and your trend are really well aligned. If the r^2 is closer is 0 then it means that it is a poor fit of the trend analysis. When you are looking at multiple options like linear or curves, you should play with different r^2 values, i.e. different types of options, and see which one gives you the best r^2. Wherever you find a good r^2 value - it could be 0.9 or 0.97 or 0.89 or

one of those kinds of values then that kind of closely mimics your real life data. That's about curves and linear trends.

What about **cyclical trends**? When it comes to cyclical trend analysis, there are two steps essentially. I am kind of simplifying it here but when you do it in Excel you may have to do a bunch of steps to do this. The first step is to **find the cycle**. A cycle is nothing but how often the pattern is repeating. Let us say that you are doing your coffee shop analysis and you are trying to look at the peaks and figure out what would happen tomorrow then your cycle length is essentially 24 hours. So, as a first step, we want to find out that frequency. Once you find out the frequency, the next step is to calculate moving averages with that cycle length. So, instead of looking at hourly figures, you are now going to look at 24-hour moving average or in other words, daily sales. We need to do two steps when you are doing cyclical analysis. You need to first **isolate the cycle** and then **calculate moving average**. Once you calculate the moving average, you then plot the moving average and then figure out the trend that moving average is representing. When you plot the moving average, if you see a line then it means that, in general, you are having a linear trend of the cycle. If it is representing another curve, you are having curved cyclical behavior. To give you one simple example, let's say that you opened this coffee shop recently and because your coffee is so good and people just love it, new customers are coming to your shop everyday through word of mouth or advertising. So, you would experience a peak every day at 8 AM in the morning but also your overall daily sales have been growing in a linear way. You are experiencing 10-15% more sales every day. So, in general, your trend will look like a line but with a lot of up and down movement because of the peaks at 8 AM and lows at 3 PM in the afternoon. This is how you would do a cyclical trend analysis. You will isolate the cycle, find the real trend and then come back and put together both pictures.

How do you do this isolation and trend analysis in Excel? To isolate, you can calculate moving averages which is very simple in Excel. You would use simple relative references to calculate moving averages. In the show notes on this podcast which can be accessed at http://chandoo.org/session36, I am going to paste a link to moving average calculation techniques so that you can go and calculate moving average. So, you calculate moving average and then plot it as a chart and use the moving average data to find out what other trends are buried. Sometimes the moving average itself could contain another cycle. For example, looking at the coffee shop, there is a trend within a day (8 AM peak) but you could also experience another trend. You could also have more sales on weekdays compared to weekends because your coffee shop is located in a business district and not many people go there on the weekends. So, there are two cyclicalities here - one is daily cyclicality and another is a weekly cyclicality. Sometimes, you may have to go through a bunch of moving averages before finding your big picture trends. This is where a bit of playing with data, understanding the business this is and the kind of numbers these are will help you. You need to find those individual cycles, isolate them and then find the overall trend and use that information to figure out what is going to happen in the future.

You might be thinking all of this - the linear or curve or cyclical analysis - is done through charts; isn't there a formula? Well, there are some formulas in Excel that will help you with trend analysis as well. There is a formula called **LINEST** which will do a linear estimation for you. There is also a **FORECAST** formula and **TREND** formula. All of these formulas are built in Excel so that you could do analysis. Apart from these techniques, there are also some additional techniques. That's because the simple techniques like linear or curve would assume that your time is the variable. For example, a simple analysis with daily sales or daily stock price is essentially assuming that the day number would somehow tell Excel what the price of the stock would be. That's the equation that Excel will generate:

Stock price = day number * 93 +27

It is somehow telling me that as we progress into the future, the stock price is going to be more. But, that's not the reality. The stock price would depend a lot on other aspects like the dividend, revenue, profit, operational expenses, staff, market competition and position and lots of other things and sometimes some completely arbitrary stuff like the mood of investors. So, when you want to do a real forecasting or real analysis that's where you get into regression and those kinds of things where you actually bring those variables and not the date variable and try to use those variables to figure out the true nature of this data and explain it through those variables and then do the **regression analysis**. That is what I would call slightly advanced. We will probably save that for another podcast episode and I will talk about it in that episode.

Once you do the trend analysis, what should you do next? The thing to keep in mind when you have finished your trend analysis is that trend analysis is probably the first part of your journey to explaining the data. It is not the end; it is the starting point. You should feel curious about what trend analysis generates and go ahead and figure out why it is coming up like this and what it means. Many people confuse trend analysis and forecasting with figuring out what is going to happen. In my opinion, using trend analysis or even forecast analysis just to figure out what would happen in the future and then rely on those numbers is almost foolish. It is because many kinds of business data are extremely hard to predict. If you take anything like the sales of Microsoft Corporation, you could take any amount of previous data and with all of that, it is highly unlikely that you would be able to produce a realistic number that will closely match what Microsoft is going to sell next quarter or next year. You may be able to make a lucky guess; maybe you will enjoy some amount of beginner's luck! But, in the long term, you would see that this is a hit or miss for a good part. So, relying purely on data analysis to predict the future especially with respect to complex business data is very hard. Unless you could somehow capture all the variables involved, you will not be able to do a good enough job. To do it in a controlled environment is another story. If you want to really analyze how many visitors would click on the orange colored button versus a blue colored button on a website it is a **controlled analysis**. You could run it as a test on two different sets of random populations and then come up with the conclusion that maybe the orange one is working better. Since you are running it as a test or experiment, you will be able to find what confidence you can have for the orange versus blue and then use it in the future. Or, you could run thousands of such experiments and figure it out. That's a different thing. But, when it comes to real life situations, you may still not be able to predict. Even with controlled analysis, once you decide on the orange button and then launch it, you might find that people are not clicking it enough because there is

something else that has changed in the outside atmosphere. So, keep all these aspects in mind. When you are doing trend analysis, use it as a start point to explain the data and dig deeper to find why things are changing, what has been causing the change, what are the real variables behind it etc. That's the first part.

The other aspect that I also want to mention is that anytime that you are bringing more variables to explain the trend keep in mind the key acronym in business world - **GIGO** - which stands for **garbage in, garbage out**. Let's say that you trying to analyze the stock price of Apple and you are trying to bring in other information and maybe the number of cell phone companies that are competing with Apple as one of the variables - I am not saying that it is garbage input - but, it could turn out to be garbage input when you figure out your analysis. This could be because for any analysis that you do, each column becomes one variable, and Excel is trying to pay the same amount of attention to each variable when you are doing the regression or trend analysis. So, it might turn out that if one of the columns is complete garbage or useless information then it could kind of skew everything and you might get wrong results. So, don't input garbage data into your analysis models because that can create garbage output.

Again, when you are looking at the trend analysis, look at the r^2 so that you could get a quick sense of whether the trend analysis is decent enough or not. Only if it is decent, you would go into the next stage and try to figure out what's going on.

That's a little bit about trend analysis. I know it is a very hard concept and trying to visualize all those lines in an audio podcast in your mind and imagining how they would look and how you would do such an analysis is hard. But, I hope that the information that I have provided is useful to you and you will go and do some trend analysis. With respect to resources, I have some useful links and material for you. Please visit http://chandoo.org/session36 for accessing all the show notes, resources and ideas mentioned in this podcast. That's about it for trend analysis. I hope you enjoyed this podcast. Go ahead and visit http://chandoo.org/session36 for the show notes. If you are happy with this particular podcast or with any other podcast so far - let me be a bit selfish and ask you for one favor - please go ahead and drop us a review on iTunes. If you go to your iTunes on your iPhone or from any other smart phone and search for http://chandoo.org, it will show the podcast. Just drop us a review there - anything that you've got to say about it - all the nice things and feedback will help me improve this podcast and reach out to more people and make them awesome. Thank you so much. I hope you enjoyed this podcast. See you again next week. Bye.