Learning Analytics Tools

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Lecture No. 4.2

Descriptive Analytics – II

In this video, we will continue the Descriptive Analytics. In last class I mentioned that you have to use data to represent in visualization formats, graphs or plots but can we represent the data using tables? So, have you used tables in your study to represent the data? Or have you used the tables for your day-to-day purpose? Have you used the data in the table format? Have you seen it?

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Please list down where you have seen this data or which data can be reported in tables. After you listing it down, resume the video to continue.

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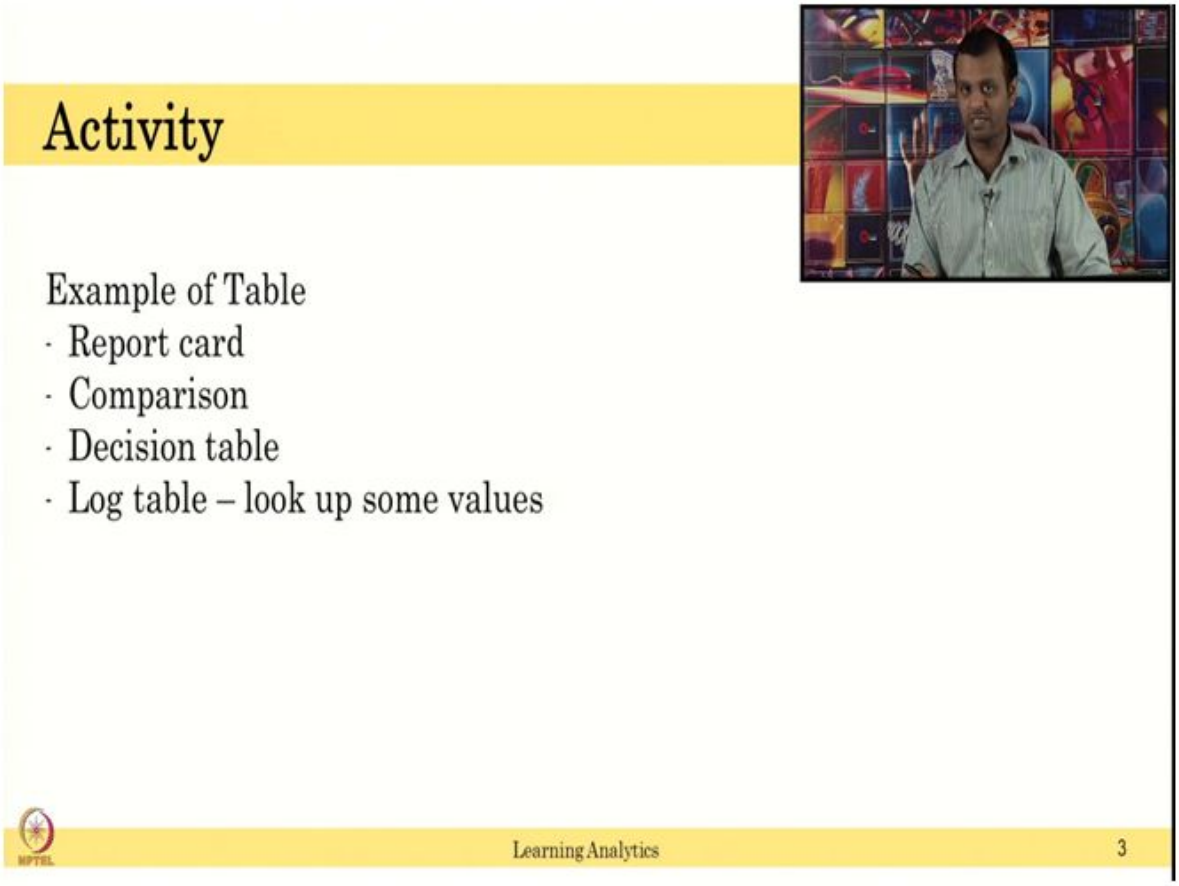

So, these are examples of the table. I am just giving few examples, you might have seen report cards it's better represented in tables because we are not showing a trend or not comparing with someone, it is just a report card of one student or one particular work, one particular task. In report cards, we use a lot of tables.

And if you want to compare two different values say, product A and product B and they use tables, tables are easier way because we can compare these two values and in tables, we can also write text, numerics, different values in a single table. And for decision tables like for logics to take a decision what is the next step, you can represent that in the table and you saw tables in a form of confusion matrix representing our results in a table.

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So, we have mentioned that tables can be used for data presentation, still why we are talking about using graphics or visuals to represent data?

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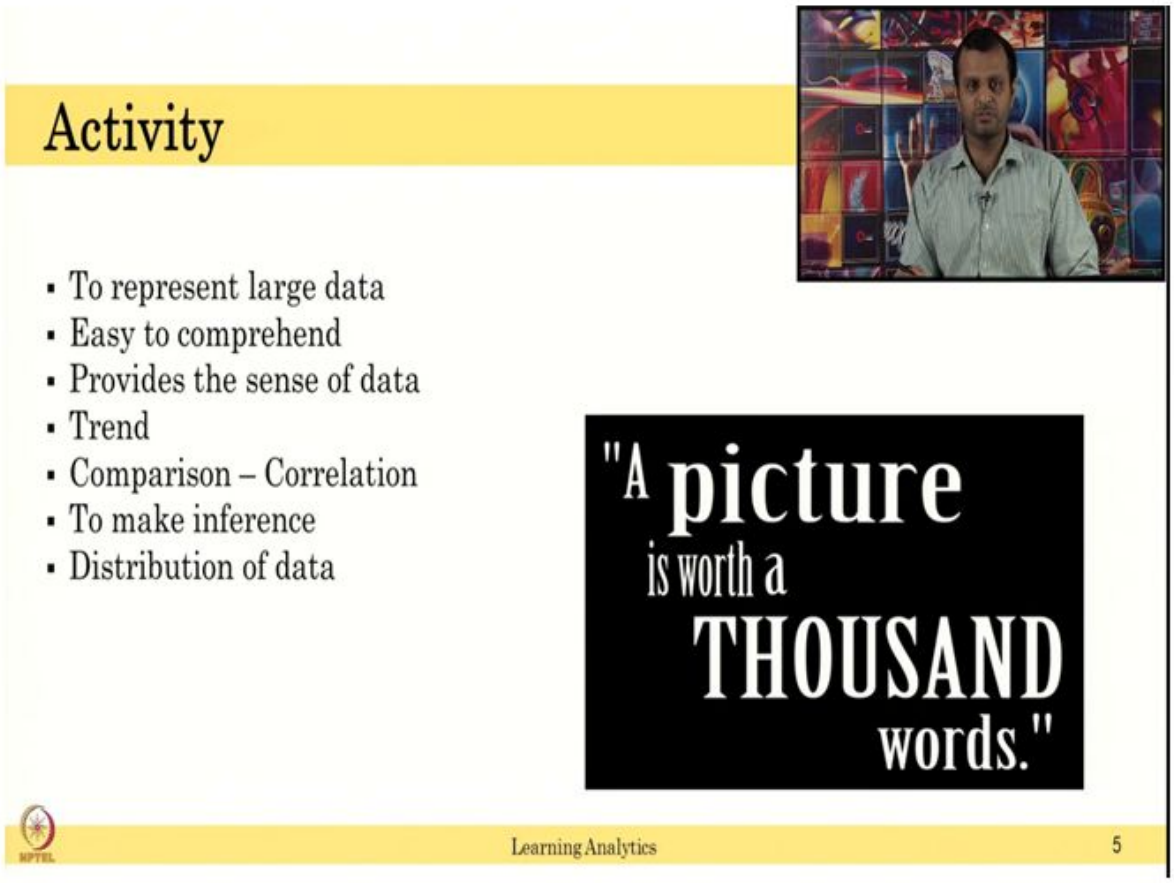

So, the main purpose is to represent large data, table data can be shown for say, 50 students data. But the data for the last 5 years this data can be overwhelming, it is too much data. How to present this data make any inference from the data? Instead, you can represent the large data in terms of statistical values like a mean, average in a graph, so the user or the viewer can understand what the data means and get a sense of the data.

And graphs are easy to comprehend so you can say this particular data trend 2015 is doing well compared to 2016 something like that. Also, it provides a sense of data and you can show the trend in the data changes over time, you can compare the data and do correlation like what is the correlation between attendance and performance, can we see any comparison between these two variables or you can use these graphs to make inferences. The table is good you can make inferences but graphical representation is easy to make inferences.

Also, the distribution value of the data can be shown easily in the graph or the plots or the visualizations. And do not forget that these words like "A picture is worth a thousand words." So, you can have a long table, give all the information in the table a user wants, but just a picture is enough to talk about all the data.

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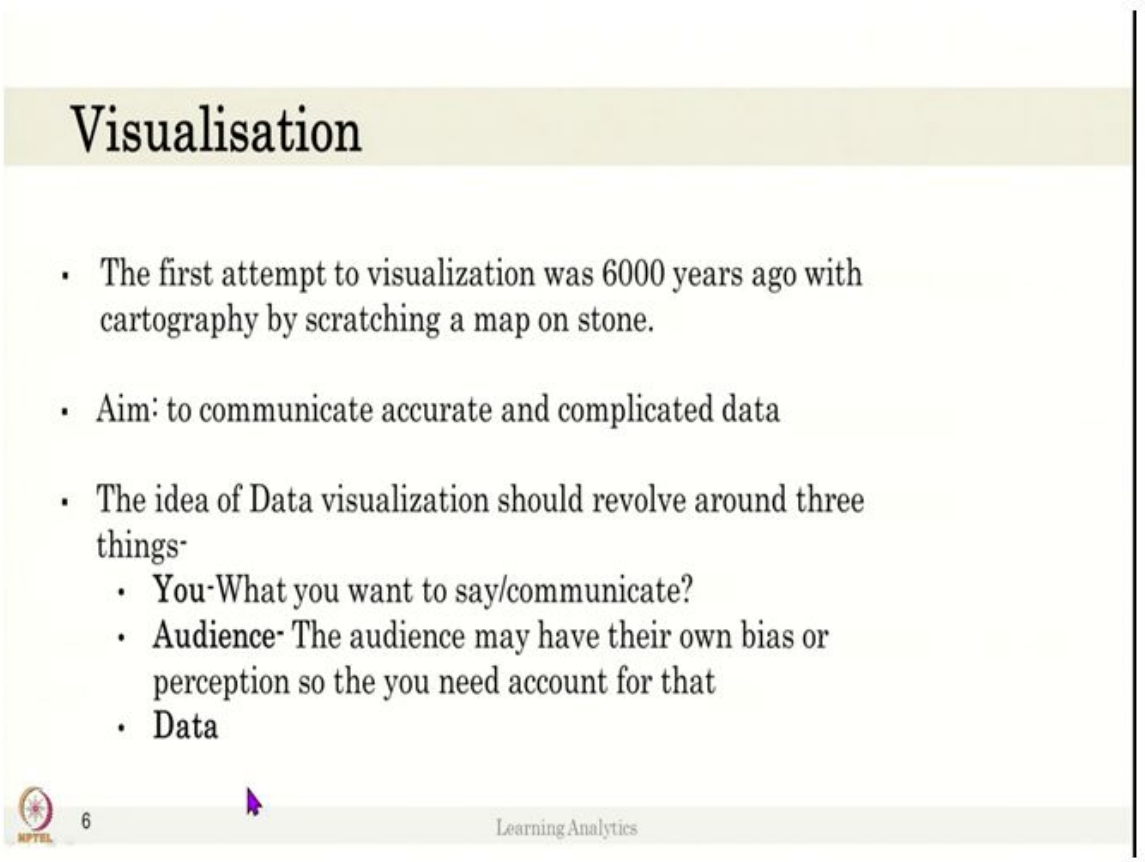

So, what is this visualization? It is not new, the first attempt to visualize session was 6000 years ago with cartography by scratching a map on the stone. So, the aim of visualization is to communicate, accurate and complicated data in a format where the user can understand easily. If you have complicated data in a table with a lot of comparisons and a lot of inferences within the table it is tough to communicate with the end-user.

The aim is to communicate this complicated data but in an easier representation for the user. The idea of data visualization should revolve around 3 things. So, when you talk about I want to have some data in the graph formats what are the 3 important things you have to see?

The first is what you want to communicate that is basically your research question, what you want to highlight in this particular topic. The next is the audience, you may say the audience may have their own bias or the audience may have own perception so you have to consider the data should remove all the audience bias, they should have all the values included, all the outliers have been removed, or you have to represent all the information in the graph itself. And most importantly the data.

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To summarize, in this video we saw what is tables and what are the visualizations and this video is for motivating that we have to use visualizations what to consider when you do visualizations. Thank you.