This tutorial covers qualitative and quantitative data. First, we'll define them, we'll go through some examples, and we'll also talk about nominal and ordinal data. Qualitative data is also known as categorical data. So both words are used, but they mean the same thing. With qualitative or categorical data, it's descriptive. We can't use it for arithmetic. So if there are numbers involved, then those numbers-- it doesn't make sense to really add or subtract them. Like a zip code-- it wouldn't make sense to find the mean of the zip code because that wouldn't really give us anything meaningful.

On the other hand, we have quantitative data. That's also known as numerical data. So here we're typically talking about quantities. If there's numbers involved, then those can be used for arithmetic. So when we're talking about height, it does make sense to find the mean height of a group of students. Depending on whether you have qualitative or quantitative data, you would use a different type of display and statistical method. So that's why it's important to note the difference so you can make the right choices regarding your displays and statistical methods.

For the first example, we'll look at the question-- what is your favorite color? Will that yield qualitative or quantitative data? So a favorite color is going to be something like blue. So that's a descriptor. It's not a quantity. So in that case, we would have qualitative data.

Now if we were looking at the Pantone scale-- so here's an example. The Pantone scale is assigning numbers to each of the different shades of colors. So here, even though there is a number, it doesn't really make sense to add and subtract these values. So it's still going to be qualitative data.

The second example says, will the question "what is your height" yield qualitative or quantitative data? If we were giving answers as descriptors, like short or tall, then it would be qualitative data. We're only describing our height, we're not giving a quantity for it. If the person answered with something like 55 inches, in that case, it would be quantitative data. Because it's giving us a quantity and we can use those numbers for arithmetic.

Another thing we can talk about is nominal level of measurement and ordinal level of measurement. So with a nominal level of measurement, or nominal data, that's when you have qualitative data with characteristics that cannot be ranked. So if your qualitative data is males and females, sure, you can assign a number to that. You can have females be 1, and males be 2. But those numbers wouldn't have rankings. It wouldn't be saying anything about the rank of your qualitative data or its

characteristics.

On the other hand, if rankings do matter, then we have ordinal data. And the rankings-- and the order-- ordinal, order-- the data rankings matter. So for example, level of satisfaction. In this example, students are asked to rank their satisfaction with the recycling program on a scale from 0 to 7. And here 0 is less than 7, and that matters for us. So our data has an order and it can be ranked, and that's important.

One thing to be aware of is that for nominal data, it only makes sense to record the mode or the most common category. In the example before, with females and males, it would make sense to report the most common, whether the males is more common, or the females. It doesn't make sense to report the mean or the medians.

Here we have some extra examples to decide whether it's qualitative or quantitative data. So first with blood type, that's going to be an example of qualitative data. So it's a description, it's telling something about yourself, but it's not something that can be added or subtracted or used for arithmetic. On the other hand, number of kids is quantitative data. A telephone number, even though it's a number, is still qualitative data. Because it does not make sense to add or subtract those values. And here income-- income is going to be quantitative data, because again, it's a value that is giving us a quantity, it's telling us how much you make. And that's a value that you could add and subtract, and do the mean, and other measures of arithmetic with it.

So this has been a tutorial on qualitative and quantitative data. And we also discussed nominal and ordinal levels of measurement.