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SPEAKERS

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Hello, and welcome. In this video, we're going to be talking about the median. The median is a type of average. So it's a measure of central tendency. And it differs from the mean in one very important characteristic, which is that it is not influenced by outliers. So a very popular median is one that looks at median household income. And that's really useful in Canada in the United States. Because if we want to understand a central measure of a typical Canadian or American household, we might not want it influenced by the very richest members of our society, which will pull the mean upwards. And so I'll show you the median today. And you can understand how it's not influenced by the big money makers like Bill Gates and Elon Musk. As the slide says, the median is a different kind of average, it's a different measure of central tendency, or middle this. How do we find the median, or what exactly is the median that it is the midpoint of a series of values, where half the values lie below the median and half the values lie above the median. As I mentioned before, the median is not as influenced by extreme values. So if we're looking at household income in Canada, the very richest households are not going to have a greater weight than any of the other households because we're kind of ignoring the number value and just focused on whether there's a value there or not. Now the best way to illustrate the median is to work through an example. Now here we have the Toronto Maple Leafs, player salaries on a stem and leaf plot. And we have been given a recipe to find the median. And the recipe says we should list all the values in order. Fortunately, the stem and leaf plot has all our values in order. And the stem, remember the first column is the stem, this is in millions of well, US dollars, even though they play in Canada, they're actually paid in US dollars. And the leaf is hundreds 1000s or a 10th of a million. So we've got all our player salaries in their order of value. Next, we want to find the middle score. In order to find the middle score, we have to know how many scores there are. So if we look at our stem and leaf plot, we can see that we've got eight players here, seven, eight players make less than 1,000,007 players make between one and 2 million. We've got two players making two to 3 million to their three, they're one making between seven and 8 million won making between 10 and 11,000,002, making between 11 and 12 million. If we sum them all up, we get 26. So the Maple Leafs have 26 players. Now we want to find the middle score. So the middle score is going to be well 26 divided by two equals 13. We've got a bit of an issue here we've got an even number of values. And the middle is going to be 13.5. Since we're starting at one that's starting at zero and 13.5 would be like you know 26 plus one divided by two. So that's not really going to work

for finding the median value. Because we're gonna want a value there is no value at 13.5, there's a value at 13, there's a value at 14, but there's no value at 13.5. And so when we have a situation where there an even number of values, right, even 26, even, we're going to find the two middle values. And that should not be the mean that should be the median. Now, how do we find the 13th, and the 14th value, those are going to be the two middle values, 13, and 14. To recap, we listed the values in order, we did that by just demonstrating that we have a stem and leaf plot, where this is going to be our very first observation is right there. Our second observation is there and so on, we found the middle scored, I did that. And computer programs can do this for you. And there's a whole bunch of different ways that they do it. But I took we counted up all the different how many values there were, we found there were 26 values, I found the midpoint, or maybe I added one divided by two and found we had 13.5. Always a problem when we have these even numbers. And so I'm going to take the 13th and the 14th value, because of course that 13.5 We don't have a value that we can call the median. Let's look at a different example. Here we have the five highest paid Toronto Raptors salaries. And we also have it in a stem and leaf diagram where we've got 10s of millions as our stem and our leaf is millions, or a 10th of 10 million. And so if I wrote this out, we'd have 16 million 16 million 19 million 20 million 33 million. We want to find the middle score. This time we have an odd number of values, we've got five values. And so the finding the middle is pretty straightforward given we only have the five values, and the median is going to be 19 million. So there's a more simple example, where finding the median is quite straightforward. Just list the values in order from lowest to highest and then and then choose the middle value. That's your median