Let's recap what we've learned about analytical thinking so far.

The 5 key aspects are:

1. visualization,
2. strategy,
3. problem-orientation,
4. correlation, and
5. using big-picture and detail-oriented thinking.

But why is it important to think in different ways?

* Well because in data analysis, solutions are almost never right in front of you. You need to think critically to find out the right questions to ask.
* But you also need to think creatively to get new and unexpected answers.

**Let's talk about some of the questions data analysts ask when they're on the hunt for a solution.**

Here's one that will come up a lot:

**What is the root cause of a problem?**

* A root cause is the reason why a problem occurs. If we can identify and get rid of a root cause, we can prevent that problem from happening again.

A simple way to wrap your head around

root causes is with the process called the **Five Whys**.

**In the Five Whys you ask**:

* "why" five times to reveal the root cause. The fifth and final answer should give you

some useful and sometimes surprising insights.

Here's an example of the Five Whys in action.

Let's say you wanted to make a blueberry pie but couldn't find any blueberries.

You've been trying to solve a problem by asking,

1. why can't I make a blueberry pie?

The answer will be, there are no blueberries at the store.

There's Why Number 1.

1. You then ask, why were there no blueberries at the store?

Then you discover that the blueberry bushes don't have enough fruit this season.

That's Why Number 2.

1. Next, you'd ask, why was there not enough fruit?

This would lead to the fact that birds were eating all the berries.

Why Number 3, asked and answered.

Now we get to Why Number 4.

1. Ask why a fourth time and the answer would be that, although the birds normally prefer mulberries and don't eat blueberries, the mulberry bush didn't produce fruit this season, so the birds are eating blueberries instead.

Finally, we get to Why Number 5,

1. which should reveal the root cause.

A late frost damaged the mulberry bushes, so it didn't produce any fruit. You can't make a blueberry pie because of the late frost months ago.

See how the Five Whys can reveal some very surprising root causes.

This is a great trick to know, and it can be a very helpful process in data analysis.

Another question commonly asked by data analysts is,

**where are the gaps in our process?**

For this, many people will use something called **gap analysis**.

**Gap analysis lets you examine and evaluate how a process works currently in order**

**to get where you want to be in the future**.

Businesses conduct gap analysis to do all kinds of things, such as improve a product or become more efficient.

The general approach to gap analysis is understanding where you are now compared to where you want to be.

Then you can identify the gaps that exist between the current and future state

and determine how to bridge them.

A third question that data analysts ask a lot is,

**what did we not consider before?**

This is a great way to think about what information or procedure might be missing from a process, so you can identify ways to make better decisions and strategies moving forward.

Exploring Core Analytical Skills