# Explanatory Notes for 6.390

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## Applications: Visualization and Interpretability

We've discussed some ways to **abstractly** test whether our clustering might be **accurate** the data.

But, when it comes down to it, often, the **quality** of a clustering is based on how **useful** it is. So, what sorts of **uses** does clustering **have**?

Well, we're organizing our data into **groups**: this **simplifies** how we look at our data. And it allows us to **view** at our data, and **understand** what's going on.

In short: clustering allows humans to more easily make sense of data.

**Concept 1**

One of the the main **goals** of **clustering** is to make it easier for humans to **understand** the data.

This happens in two ways:

- We can **visualize** the data: we can **see** it, and more easily use our **intuition** to make sense of it.
- We can **interpret** our data: by seeing what sorts of **groupings** we create, we learn about the **structure** of the data.

So, machine learning experts judge partly based on how well a clustering **helps** them **achieve** these two goals.

**Evaluating** clusterings is **subjective** for exactly this reason: what is **good** "visually", or is the **best** "interpretation" of data, is often up to **debate**.

So, **human** judgement is important for this type of **problem**.