What are the scaler outputs for

1. Min-Max Scaler for Bounded Input Ranges

- **Imagine:** You are drawing on a piece of paper with a ruler. Your drawing needs to fit exactly inside a box that's 10cm tall and 10cm wide.
- **What it does:** Min-Max Scaler makes sure all your measurements fit within the box, like between 0 and 1.
- **Why it's good:** It's great for keeping everything in a neat, specific range so no number is too big or too small. This helps computers compare things easily.

2. Standard Scaler for Gaussian-Distributed Data

- **Imagine:** You're baking cookies, and most of your cookies are around the same size, but a few are bigger or smaller. Most sizes follow a nice bell curve.
- **What it does:** Standard Scaler adjusts all the cookies so their average size is 0 (centered) and they're measured in "standard units" of size.
- **Why it's good:** Some tools, like cookie molds (models), work better when everything is evenly spread and fits a bell-shaped pattern.

3. Robust Scaler for Outliers

- **Imagine:** You're measuring the heights of kids in a class, but one kid is wearing stilts and looks super tall.
- **What it does:** Robust Scaler ignores the super tall kid (outlier) and focuses on the heights of most of the class.
- **Why it's good:** If you don't want big surprises (outliers) to mess up your calculations, this scaler keeps things fair.

4. MaxAbs Scaler for Sparse Data

- **Imagine:** You're cleaning a giant room with just a few pieces of trash here and there (sparse data).
- **What it does:** MaxAbs Scaler measures the largest piece of trash and compares all other pieces to it. It leaves empty spaces untouched.
- **Why it's good:** It works great when most of the data is empty but you still want to measure things like text documents or images.

5. Normalizer for Row-Wise Normalization

- **Imagine:** You're sorting candies into bags. Each bag has candies of different shapes and sizes, but you want each bag to feel "balanced" in weight.
- **What it does:** Normalizer makes sure each bag (row of data) is scaled evenly, so no bag feels heavier or lighter than the others.
- **Why it's good:** It's helpful when comparing rows (like clustering candies into similar groups) and you need each row to be balanced.

In short:
- **Min-Max Scaler:** Fit numbers inside a box.
- **Standard Scaler:** Adjust data for patterns like a bell curve.
- **Robust Scaler:** Ignore extreme surprises.
- **MaxAbs Scaler:** Keep empty spaces intact while scaling.
- **Normalizer:** Balance rows of data evenly.