# MaxAbs Scaler

## 4. MaxAbs Scaler

**How it works:**

Divides each value by the maximum absolute value in the dataset. This keeps the sign (positive or negative) of the data intact.

**Steps:**

1. **Find the maximum absolute value:**

$$M = \max(|x|)$$

2. **Scale each value:**

   For every $x_i$:

$$x_i' = \frac{x_i}{M}$$

**Use Case:** When working with sparse data (e.g., text or image data) and you want to preserve the sparsity structure.