**Benefits of**np.log1p**(Logarithm + 1 Transformation)**

np.log1p computes the natural logarithm of **1 + x**, where x is the input value. It is particularly useful for handling skewed data, zero values, and small numbers. Here’s why it’s preferred over np.log in many cases:

**1. Handles Zero Values Gracefully**

* **Problem**: np.log(x) fails when x = 0 (throws -inf or errors).
* **Solution**: np.log1p(x) works for x = 0 because it computes log(1 + 0) = 0.

import numpy as np

print(np.log(0)) # → -inf (or error)

print(np.log1p(0)) # → 0.0 (safe)

**2. Reduces Skewness in Positive Data**

* **Use Case**: Right-skewed data (e.g., income, house prices, sensor readings).
* **Effect**: Makes the distribution more Gaussian-like, improving model performance.

import seaborn as sns

data = [0, 1, 10, 100, 1000]

sns.histplot(np.log1p(data)) # Less skewed than raw data