Difference Between Label Encoding and OneHotEncoding

◇ 1. Label Encoding

- Converts **categories into integers**.
- Implies **ordinal relationship**, which may not exist.
- Used when the categorical variable has **meaningful order**.

☑ *Example:*

Suppose you have a column called `City`:

City
New York
Paris
Tokyo

Label Encoding will assign:

City	Encoded
New York	0
Paris	1
Tokyo	2

◇ 2. OneHotEncoding

- Converts each category into a **separate binary column** (0 or 1).
- No ordinal relationship assumed.
- Works well for **nominal** data (no natural order).

☑ *Example:*

Same `City` column:

City	New_York	Paris	Tokyo
New York	1	0	0

Paris	0	1	0
Tokyo	0	0	1

📌 Summary Table

Feature	Label Encoding	OneHotEncoding
Output	Integer labels	Binary matrix (0/1)
Assumes Order?	✅ Yes	❌ No
Suitable for	Ordinal categories	Nominal categories
Example Use Case	Shirt sizes (S<M<L)	Cities, countries, gender