

Embedding (Token → Vector Mapping)

- What it is?

A lookup table that maps tokens to dense vectors.

- Goal:

To represent discrete tokens in continuous space.

- Math:

Embedding matrix:

$$E \in \mathbb{R}^{V \times d}$$

Token embedding:

$$x_i = E[\text{token}_i]$$

- Conclusion:

Embeddings allow models to learn semantic relationships between tokens.