

Vocab, Hyperparam

- Words \leftarrow list of words.
- stoi + itos.
- Build dataset
- block_size = 3 (3 char to predict 4th char)
- $X = []$ \leftarrow i/p to NN
- $Y = []$ \leftarrow labels
- First 5 words - 32 context examples.
- X shape $\rightarrow [32, 3]$ [examples, block_size]
- Y shape $\rightarrow [32]$

i/p
labels-

NN - takes X as i/p & predicts Y

Embedding lookup table - C

- 27 possible characters in a 2 Dimensional space
- $C = [27, 2]$ - initialized randomly to begin
- \rightarrow each of the 27 characters will have a 2 Dimensional embedding

- Embed all integers in i/p X

- Example to embed 5th char simple $\rightarrow C[5] = 1 \times 2$

- how to embed $[32, 3]$ integers stored in X ,
using lookup table $C \Rightarrow C[X]$

$[32, 3] \rightarrow X [27, 2]$

$[32 \times 3 \times 2]$

- each of the characters in X is converted to a 2D embedding per mapping \rightarrow in C

one-hot encoding of char = $[1, 27]$ $\rightarrow [1, 2]$
dot mult with $C [27, 2]$

$[27, 3] \times [27, 2] =$
 $[32, 3, 27]$

$C[X]$ is our embedding