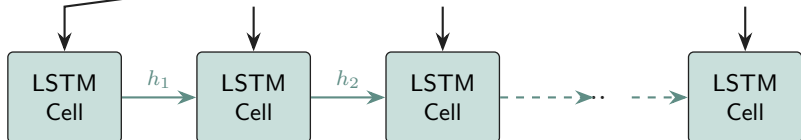


Item Sequence (Embeddings, 64-dim each)



Item Embedding Layer (64-dim)



h_T (128-dim)

Dense(128→64, ReLU)

Dense(64→num.items)

Softmax

Next Item Probabilities

LSTM Cell:

$$\begin{aligned} f_t &= \sigma(W_f \cdot [h_{t-1}, x_t] + b_f) \\ i_t &= \sigma(W_i \cdot [h_{t-1}, x_t] + b_i) \\ \tilde{C}_t &= \tanh(W_C \cdot [h_{t-1}, x_t] + b_C) \\ C_t &= f_t * C_{t-1} + i_t * \tilde{C}_t \\ o_t &= \sigma(W_o \cdot [h_{t-1}, x_t] + b_o) \\ h_t &= o_t * \tanh(C_t) \end{aligned}$$