Softmax Classifier

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Input (example):
$$\begin{bmatrix} 4 \\ 17 \\ 45 \\ . \\ . \\ . \\ 22 \end{bmatrix}$$

Model:
$$\begin{bmatrix} 0.15 \\ 0.8 \\ 0.05 \end{bmatrix} = \sigma(\begin{bmatrix} w_{11} & w_{12} & ..... & w_{1n} \\ w_{21} & w_{22} & ..... & w_{2n} \\ w_{31} & w_{32} & ..... & w_{3n} \end{bmatrix} \begin{bmatrix} 4 \\ 17 \\ 45 \\ . \\ . \\ . \\ 22 \end{bmatrix} + \begin{bmatrix} b_1 \\ b_2 \\ b_3 \end{bmatrix})$$

Softmax function (σ):

$$\sigma(\mathbf{z})_i = \frac{e^{z_i}}{\sum_{j=1}^{K} e^{z_j}}$$