Activity: MLP Structure

ML for Health, Week 3

Part I

For each of the following, determine (a) how many logistic regression models and (b) how many parameters are contained in the model.

1. Logistic regression with 3 input features
2. An MLP with 3 input features and 1 hidden layer with 6 hidden units
3. An MLP with 3 input features and 2 hidden layers, each with 6 hidden units
4. (challenge) An MLP with 3 input features and 3 hidden layers with 6, 2, and 6 hidden units, respectively

It may be helpful to draw or create graphs for these models. For this activity, bias/intercept parameters may be ignored.

Part II

The MLP at right is designed to predict ICU mortality from systolic blood pressure on admission.

Parameter values are given next to the corresponding edge in the graph.

Calculate z, h_1, h_2, $\sigma(h_1)$, $\sigma(h_2)$, and p for the following SBP values:

- 120, 300, 40