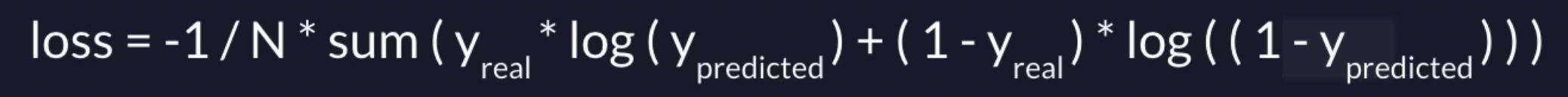
* Supervised Learning
  + uses labeled inputs to train models
  + inputs go into model (feature vector)
  + Qualitative – categorical data
    - infinite numbers of categories and groups
    - One hot encoding
  + Nominal data – no inherent order
  + Classification – predict discrete classes
    - Binary Classification – something or isn’t “0,1”
  + REGRESSION – predict continuous values
  + How can we make the model learn?
    - Training dataset
      * Feed into model
      * Loss - whats the difference with results and initial value
        + Difference between prediction and actual label
        + L1 Loss = sum(|yreal - ypredicted|)
        + L2 loss = sum((yreal-ypredicted)^2)
        + Binary cross-enthropy loss

Loss decreases as the performance gets better

* + - Validation dataset
      * Reality check during or after training to ensure the model can handle unseen data



* + - Testing dataset
* Unsupervised Learning
  + use unlabeled data to learn about patterns in the data
* Reinforcement learning
  + An agent learning in interacting environment from rewards and penalties.