Neural Nets for Data Science

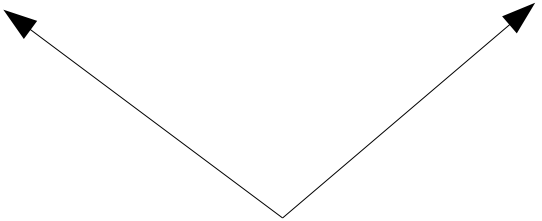
- Why neural nets?
  - Make “intelligent” decisions.
  - Reduces amount of feature engineering.
    - NNs figure out what is important.

  - Ex. Image classification is based off of each pixels value as an input feature

Neural Nets in Python

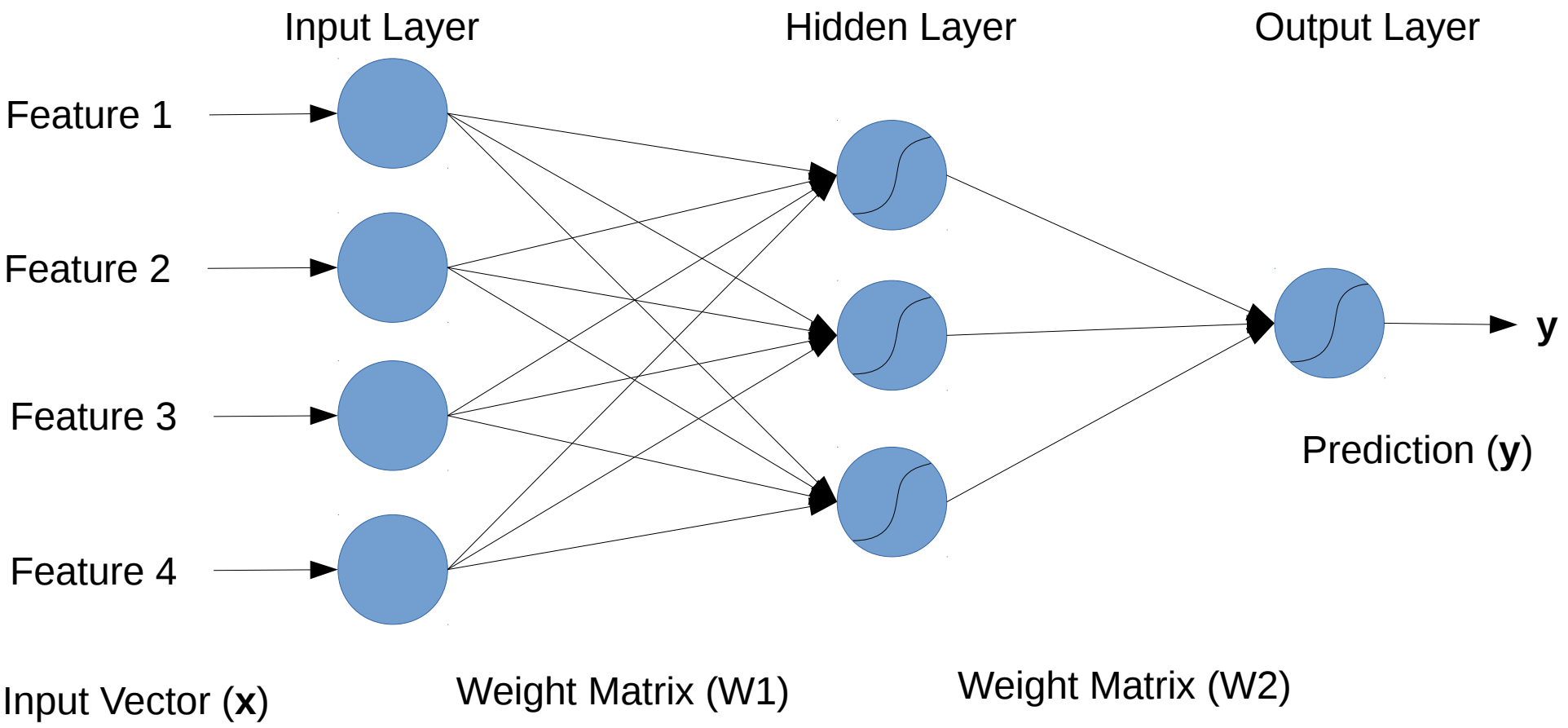
Neural Net Libraries

High Customization (Explicit)	Easy API (Development Speed)
• TensorFlow • Theano	• Keras • Lasagne



There are many more!

Neural Net Architecture



$$f2(\, f1(\mathbf{x} * W1) * W2) = \mathbf{y}$$

“Hello World” of Deep Learning

- Hand written digit recognition
  - 55,000 training images
  - 10,000 test images
  - State of the art performance 99.8% accuracy!