

Deep Learning with Keras



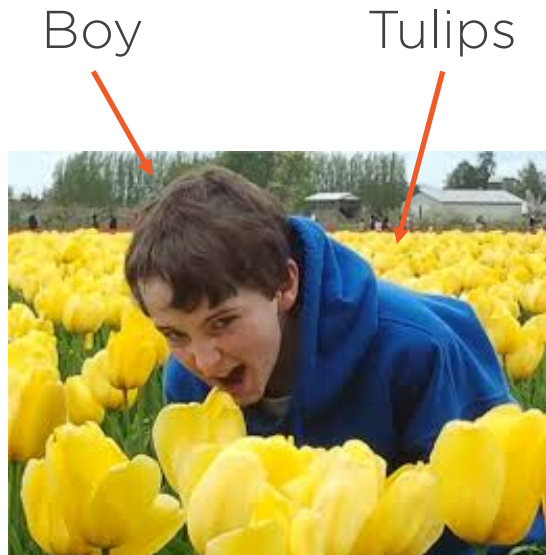
Jerry Kurata

CONSULTANT

@jerrykur



Deep Learning Examples



“Boy playing in Tulips”

*Love it. What a great place.
If you don't mind waiting forever.
Nice tablecloths.*

Negative sentiment detected



Right lane is clear.

Change lane



Keras

Keras is a high-level neural network API, written in Python and capable of running on top of TensorFlow, CNTK, or Theano.



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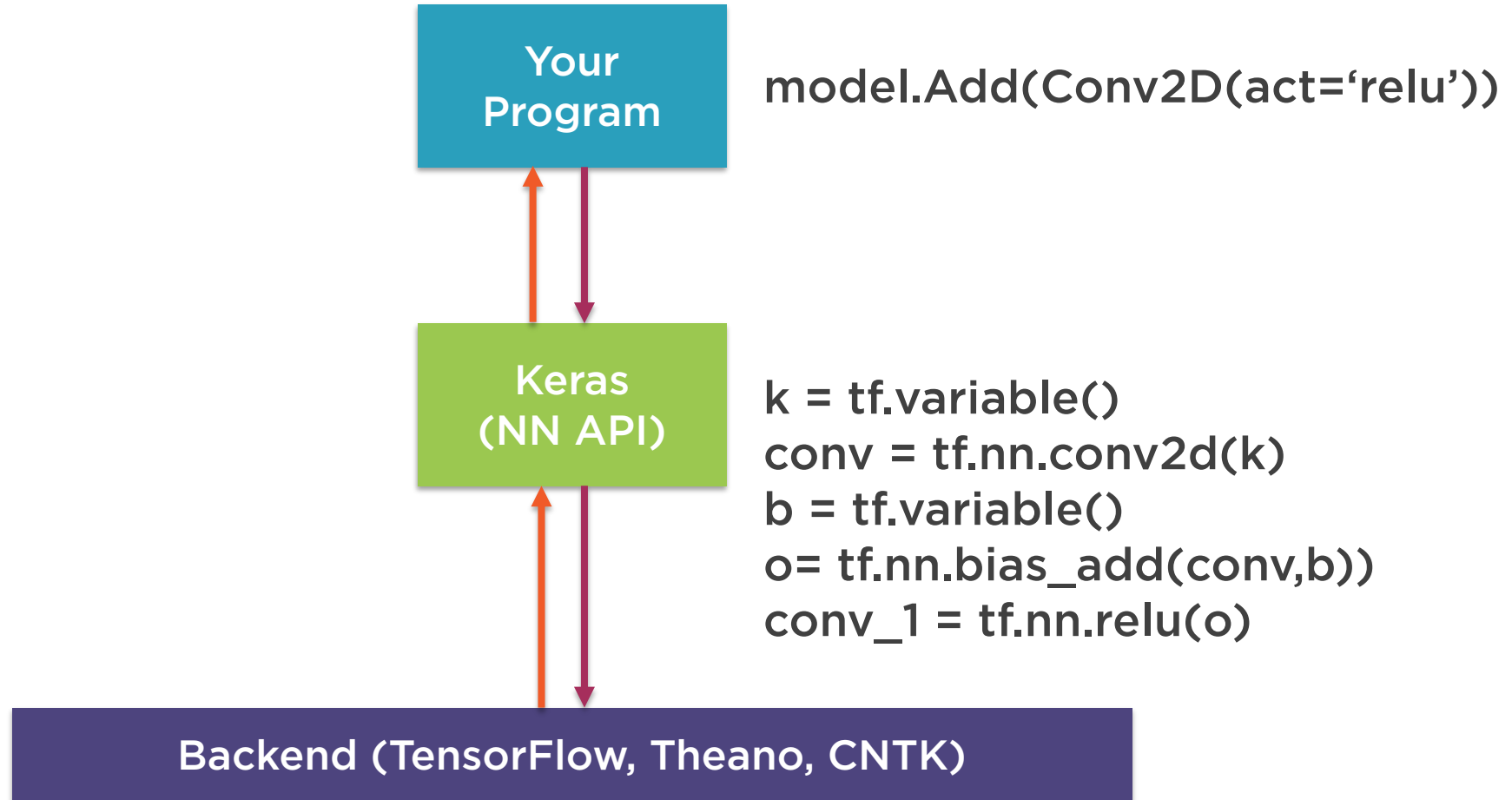


Keras

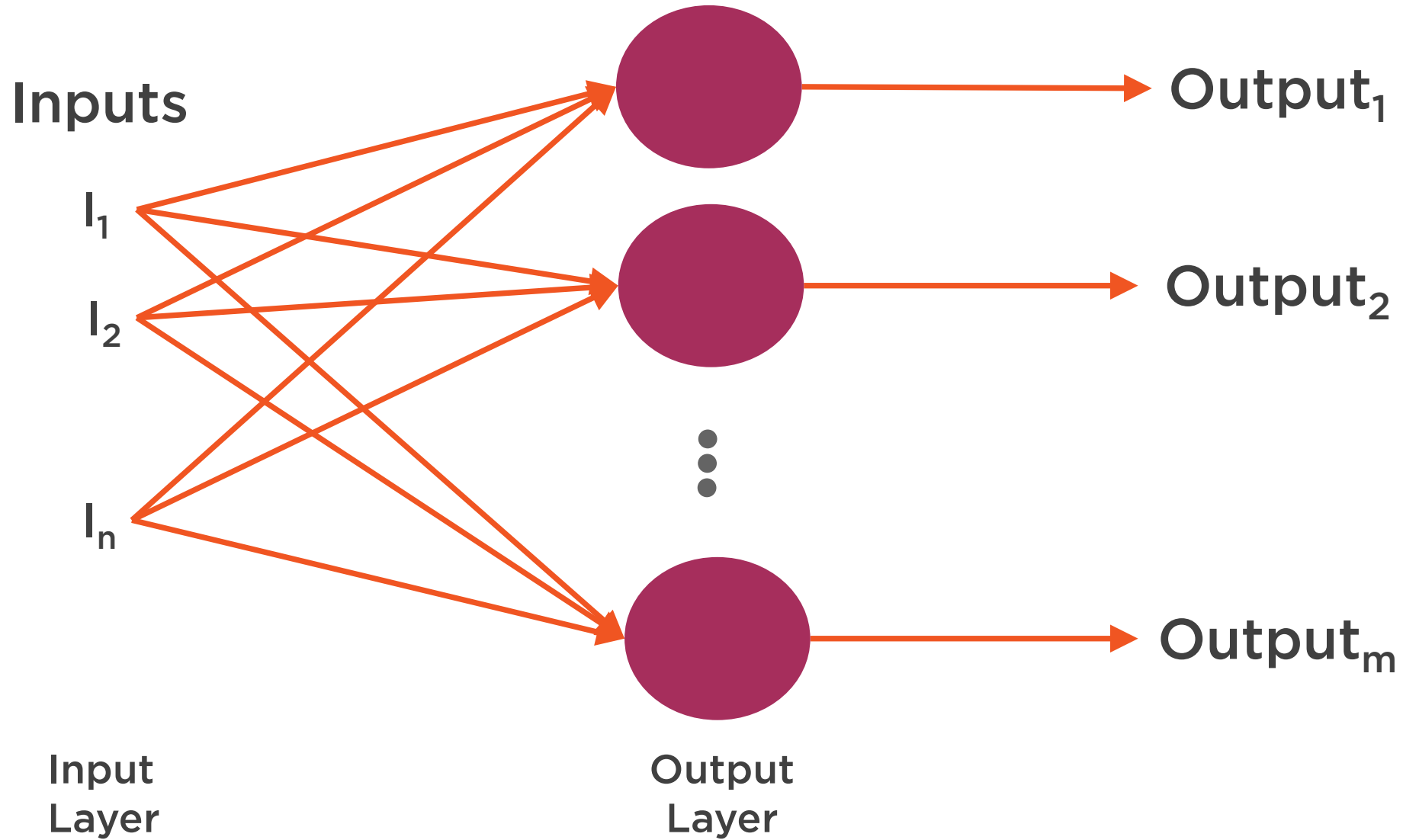
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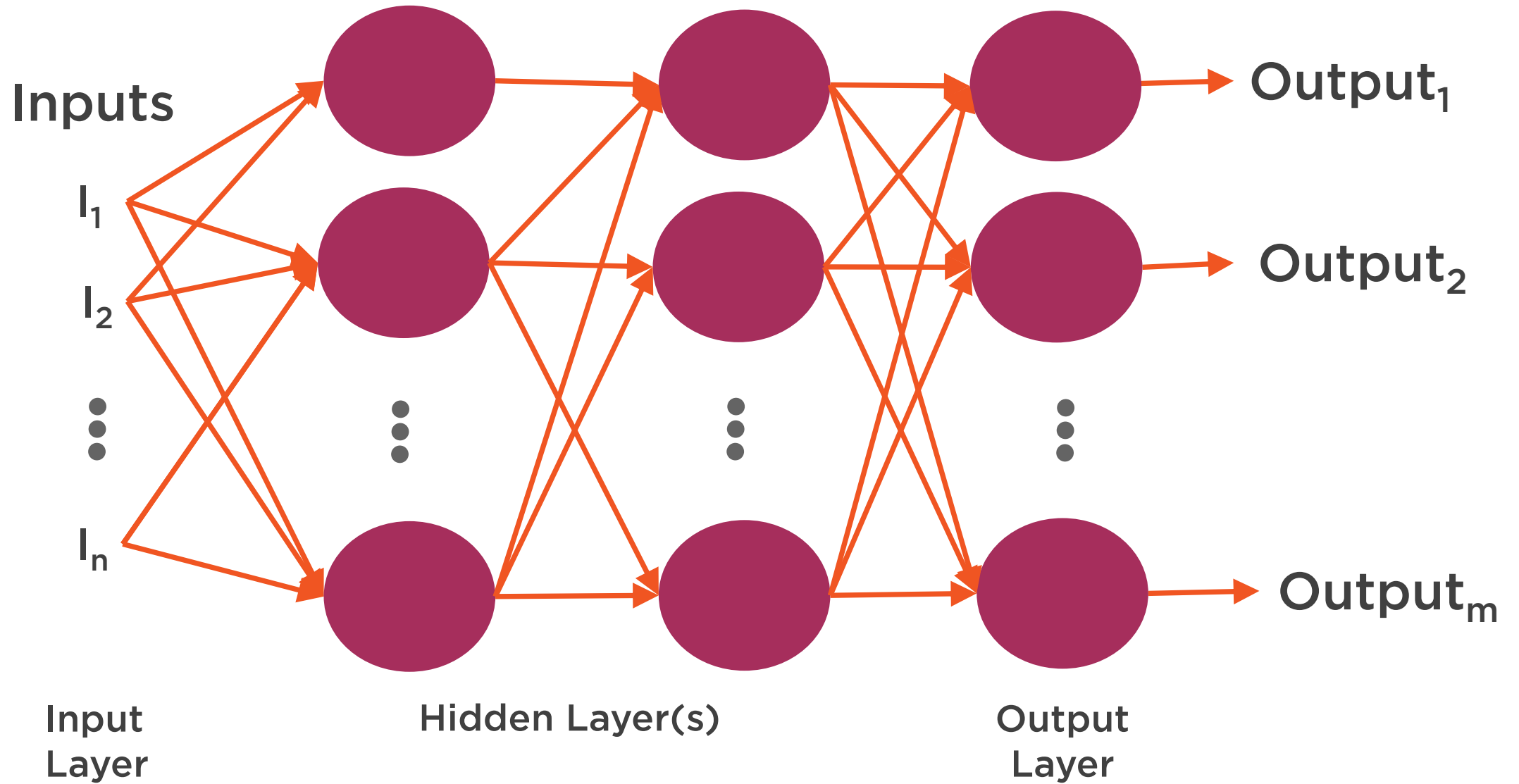
Keras Environment



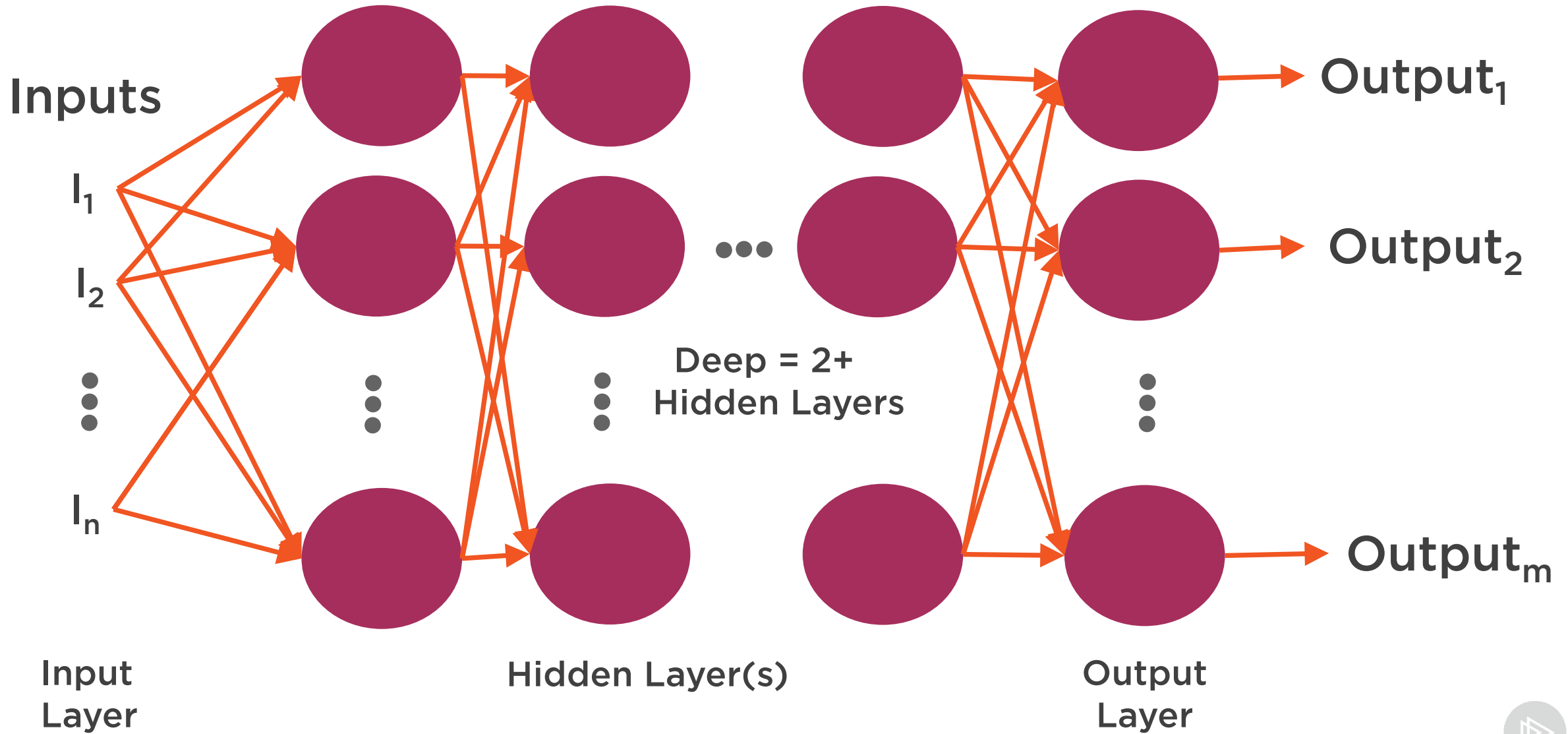
Neural Network Layers



Neural Network Layers



Deep Neural Network Layers



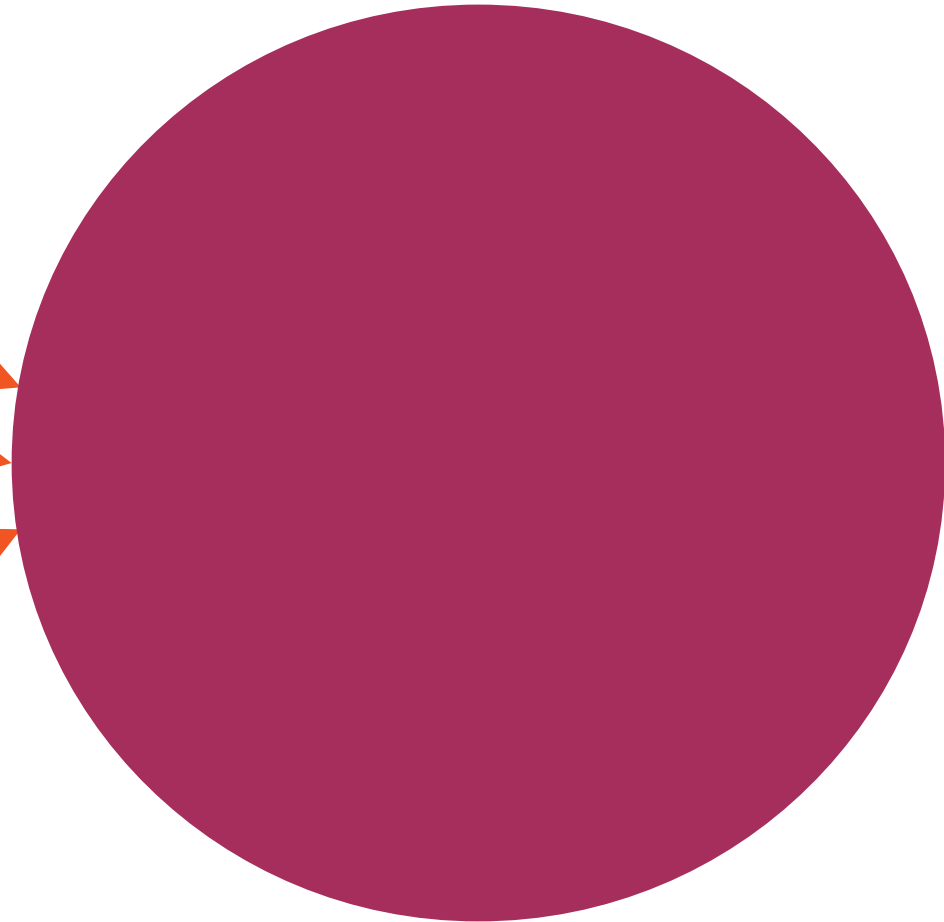
Neuron

Inputs

I_1

I_2

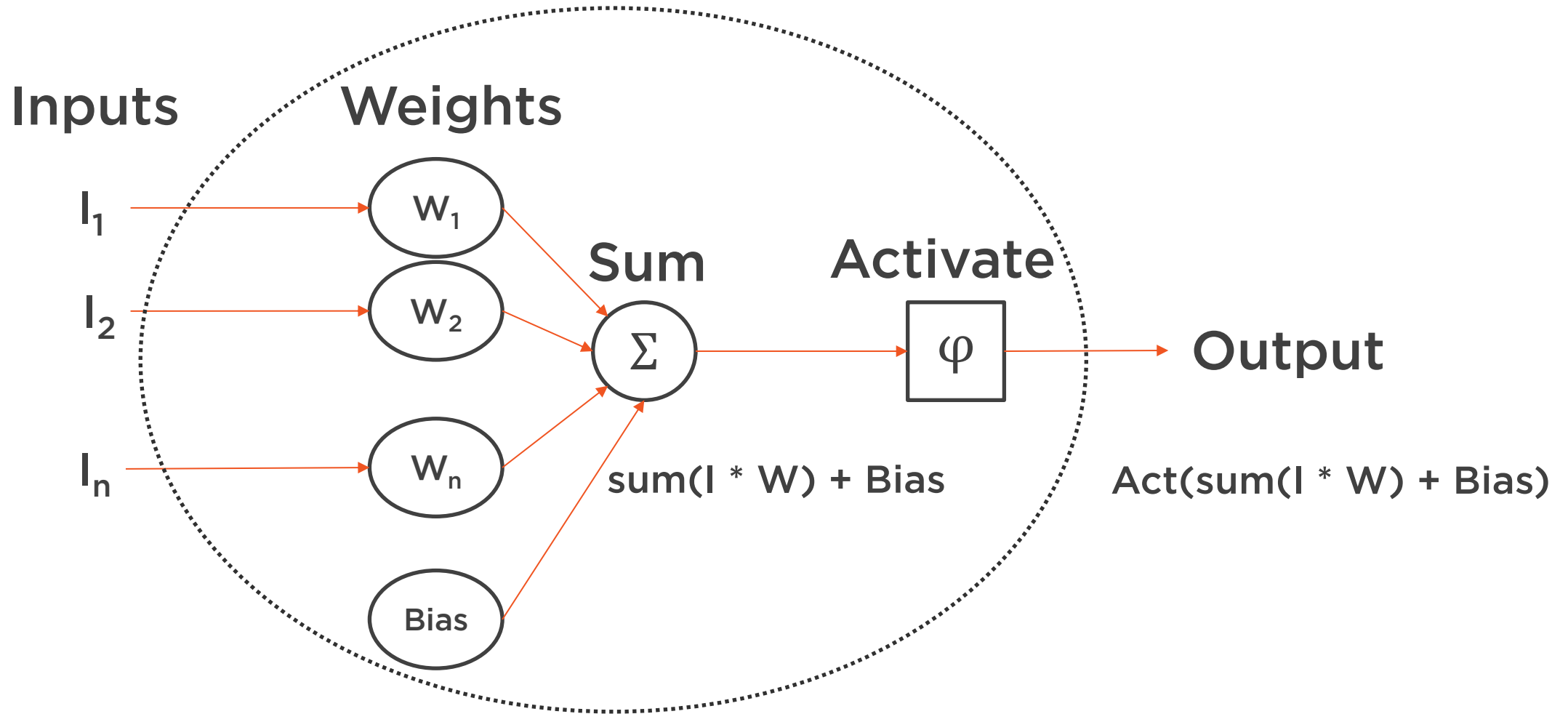
I_n



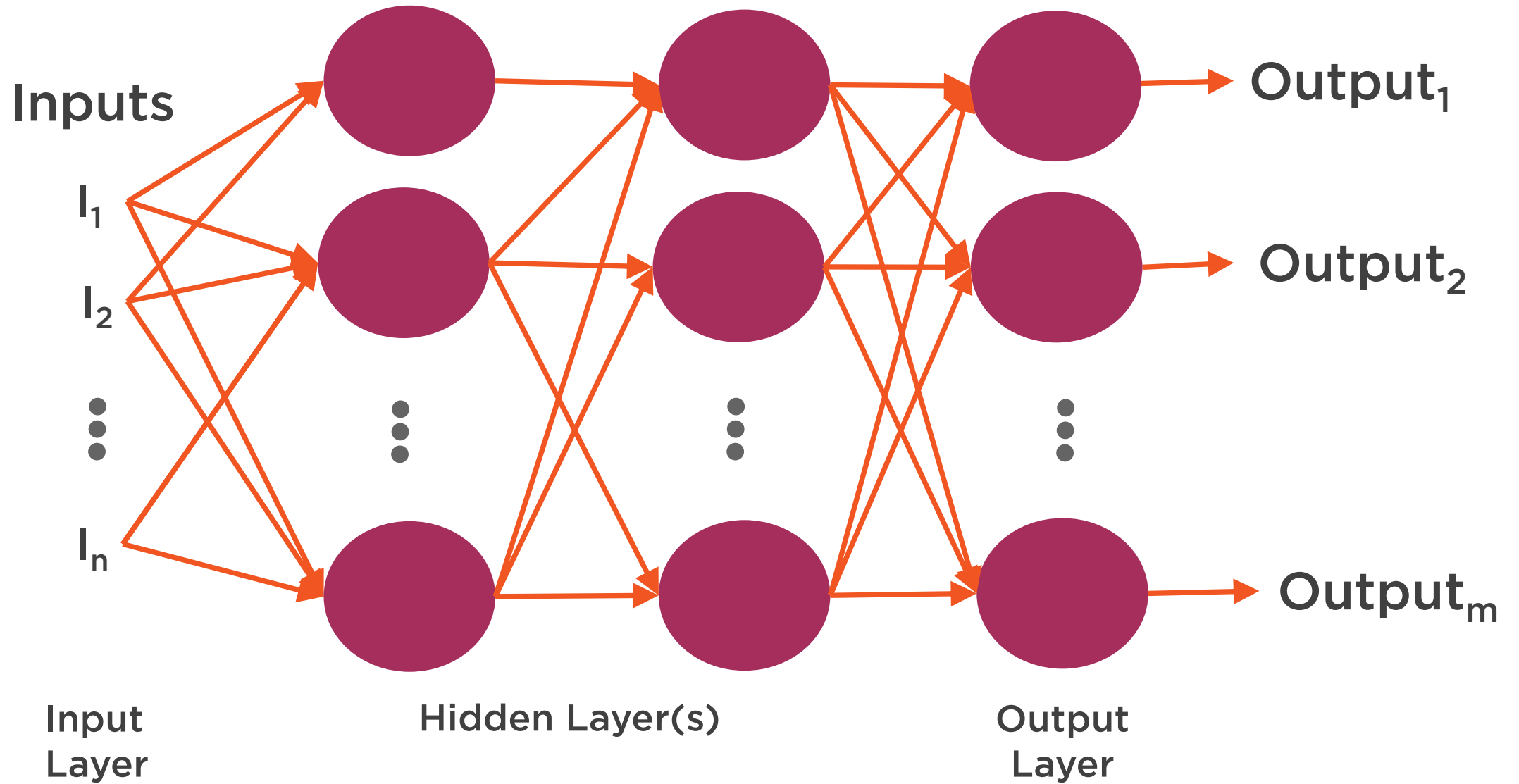
Output



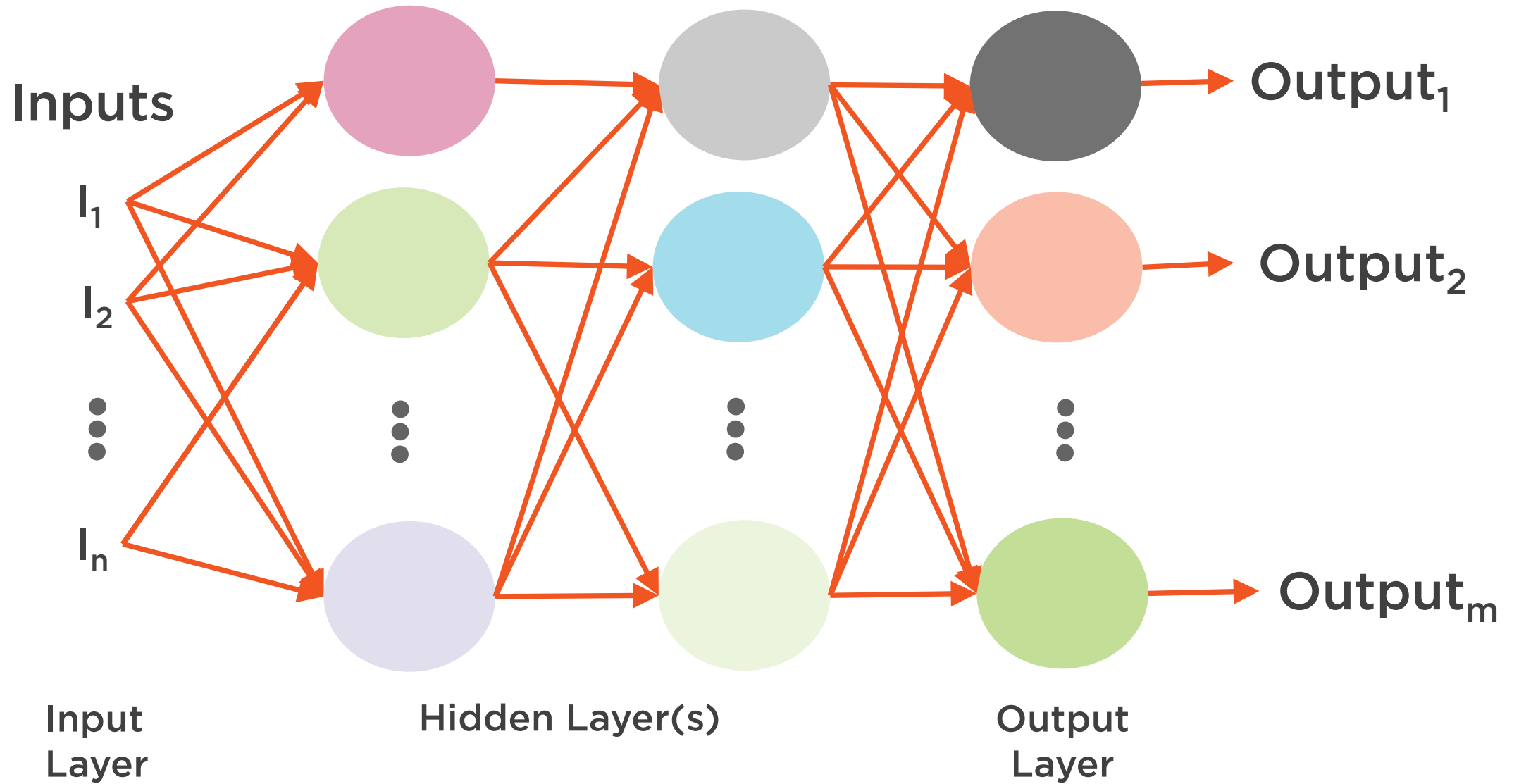
Neuron Training



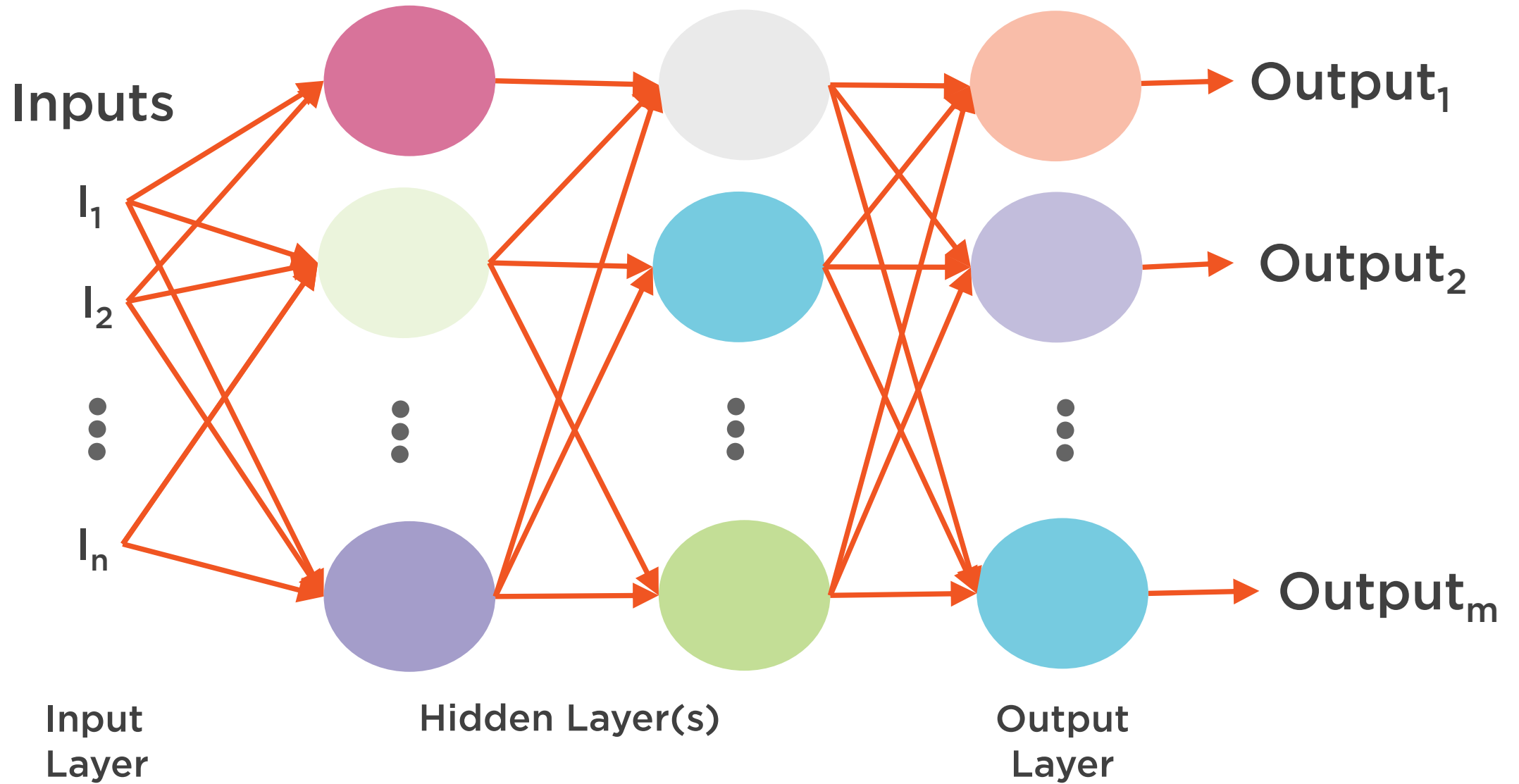
Neural Network Layers



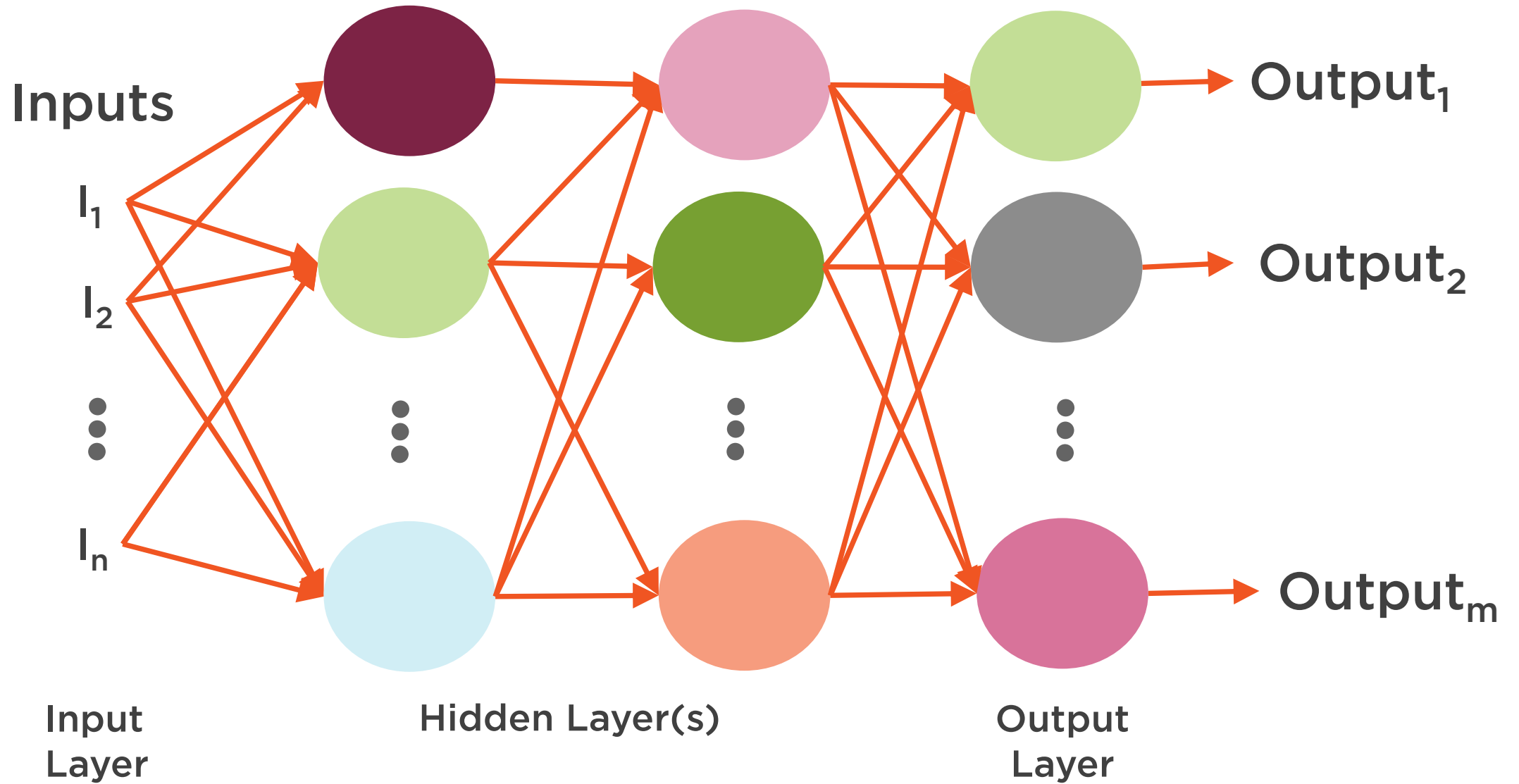
Training Neural Network

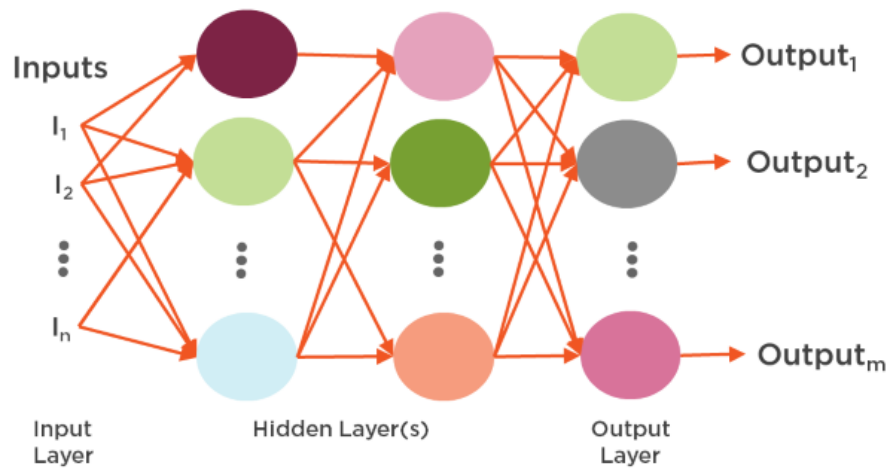


Training Neural Network



Trained Neural Network





Input, Hidden, Output layers

Trained to minimize error

Training adjusts weights and biases

2+ Hidden layers -> Deep Neural Network



Your Skills

Not Required

Advanced Python expertise
Advanced statistics or math
Experience with VS Code

Required

Experience with data in tables
Basic math and statistics skills
Basic Understanding of NN concepts
Exposure to TensorFlow a plus
Passion to understand

Course Modules



Introduction

Creating Your First NN with Keras

Constructing Models

Employing Layers

Convolution Neural Networks

Recurrent Neural Networks

Special Layers and Functions

Last Words

