**TENSORFLOW DOCUMENTATION**

INTRODUCTION TO TENSORFLOW

1. tf.logging.set\_verbosity:
   * Syntax: set\_verbosity(v)
   * Functionality: Sets the threshold for what messages will be logged.
2. tf.contrib.learn.io:
   * Syntax: example learn\_io.pandas\_input\_fn()
   * Functionality: Tools to allow different io formats
3. tf.contrib.layers.real\_valued\_column:
   * Syntax: real\_valued\_column(column\_name, dimension=1, default\_value=None, dtype=tf.float32, normalizer=None)
   * Functionality: Creates a \_RealValuedColumn for dense numeric data.
4. tf.contrib.learn.LinearRegressor:
   * Syntax: tf.contrib.learn.LinearRegressor(feature\_columns, model\_dir=None, weight\_column\_name=None, optimizer=None, gradient\_clip\_norm=None, enable\_centered\_bias=False, label\_dimension=1, \_joint\_weights=False, config=None, feature\_engineering\_fn=None)
   * Functionality: Construct a LinearRegressor estimator object.
5. tf.contrib.learn.LinearRegressor.fit:
   * Syntax: tf.contrib.learn.LinearRegressor.fit(x=None, y=None, input\_fn=None, steps=None, batch\_size=None, monitors=None, max\_steps=None)
   * Functionality: Train Linear Regression Model.
6. tf.train.GradientDescentOptimizer:
   * Syntax: tf.train.GradientDescentOptimizer(learning\_rate, use\_locking=False, name='GradientDescent’)
   * Functionality: Construct a new gradient descent optimizer.

FEATURE CROSSES

1. tf.to\_float:
   * Syntax: to\_float( x, name='ToFloat')
   * Functionality: Returns a Tensor with same shape as x with type float32
2. tf.reshape:
   * Syntax: reshape( tensor, shape, name=None)
   * Functionality: Reshapes a tensor. Given tensor, this operation returns a tensor that has the same values as tensor with shape. If one component of shape is the special value -1, the size of that dimension is computed so that the total size remains constant. In particular, a shape of [-1] flattens into 1-D.

1. tf.strided\_slice:
   * Syntax: strided\_slice( input\_, begin, end, strides=None, begin\_mask=0, end\_mask=0, ellipsis\_mask=0, new\_axis\_mask=0, shrink\_axis\_mask=0, var=None,name=None)
   * Functionality: Extracts a strided slice of a tensor (generalized python array indexing).
2. tf.Session:
   * Syntax: tf.Session()
   * Functionality: A Session object encapsulates the environment in which Operation objects are executed, and Tensor objects are evaluated.
3. tf.Session.run():
   * Syntax: run( fetches, feed\_dict=None, options=None, run\_metadata=None)
   * Functionality: Runs operations and evaluates tensors in fetches.
4. tf.train.FtrlOptimizer:
   * Syntax: tf.train.FtrlOptimizer(learning\_rate, learning\_rate\_power=-0.5, initial\_accumulator\_value=0.1, l1\_regularization\_strength=0.0, l2\_regularization\_strength=0.0, use\_locking=False, name='Ftrl', accum\_name=None, linear\_name=None, l2\_shrinkage\_regularization\_strength=0.0)
   * Functionality: Construct a new FTRL optimizer.
5. tf.contrib.layers.bucketized\_column:
   * Syntax: bucketized\_column( source\_column, boundaries)
   * Functionality: Creates a \_BucketizedColumn for discretizing dense input.
6. tf.contrib.layers.crossed\_column:
   * Syntax: crossed\_column( columns, hash\_bucket\_size, combiner='sum', ckpt\_to\_load\_from=None, tensor\_name\_in\_ckpt=None, hash\_key=None)
   * Functionality: Creates a \_CrossedColumn for performing feature crosses.

LOGISTIC REGRESSION

1. tf.contrib.learn.LinearClassifier:
   * Syntax: tf.contrib.learn.LinearRegressor(feature\_columns, model\_dir=None, n\_classes=2, weight\_column\_name=None, optimizer=None, gradient\_clip\_norm=None, enable\_centered\_bias=False, \_joint\_weight=False, config=None, feature\_engineering\_fn=None, label\_keys=None)
   * Functionality: Train a linear model to classify instances into one of multiple possible classes. When number of possible classes is 2, this is binary classification.

INTRODUCTION TO NEURAL NETWORKS

1. tf.contrib.learn.DNNRegressor:
   * Syntax: DNNRegressor( hidden\_units, feature\_columns, model\_dir=None, weight\_column\_name=None, optimizer=None, activation\_fn=tf.nn.relu, dropout=None, gradient\_clip\_norm=None, enable\_centered\_bias=False, config=None, feature\_engineering\_fn=None, label\_dimension=1, embedding\_lr\_multipliers=None, input\_layer\_min\_slice\_size=None)
   * Functionality: A regressor for TensorFlow DNN models.