rainfall_forecast

October 8, 2019

1 Instructor Do: Create and Deploy a Machine Learning Model in Amazon SageMaker

```
[1]: # Initial imports
     import os
     import io
     import json
     import numpy as np
     import pandas as pd
     from path import Path
     import matplotlib.pyplot as plt
     from sklearn.model_selection import train_test_split
     from sklearn.metrics import mean_squared_error, r2_score


     # Amazon SageMaker and related imports
     import sagemaker
     import sagemaker.amazon.common as smac
     from sagemaker.predictor import csv_serializer, json_deserializer
     from sagemaker import get_execution_role
     from sagemaker.amazon.amazon_estimator import get_image_uri
     import boto3  # AWS Python sdk

     %matplotlib inline
```

1.1 Reading Data

```
[2]: # Read the weather features data
     file_path = Path("Data/x_austin_final.csv")
     features = pd.read_csv(file_path)

     # Transforming the "TempAvgF" column to a vector
     X = features["TempAvgF"].values.reshape(-1, 1)
```

```
[3]: # Read the target data (precipitation sum inches)
     file_path = Path("Data/y_austin_final.csv")
```

```python
y = pd.read_csv(file_path, names=["PrecipitationSumInches"], header=None)

# Transforminf y into a vector
y = y.iloc[:, 0].values
```

```python
[4]: # Split the data in training and testing sets
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.2)
```

1.2 Creating the Lineal Regression Model

1.2.1 Initial Configurations

```python
[5]: # Define Amazon S3 Bucket to store model data
bucket = "sagemaker-20191007-2307"   #'<your_s3_bucket_name_here>'

# Define prefix for data files
prefix = "austin-rainfall-regression"

# AWS IAM role
role = get_execution_role()
```

1.2.2 Uploading Training Data to Amazon S3

```python
[6]: # Encode the training data as Protocol Buffer
buf = io.BytesIO()
vectors = np.array(X_train).astype("float32")
labels = np.array(y_train).astype("float32")
smac.write_numpy_to_dense_tensor(buf, vectors, labels)
buf.seek(0)

# Upload encoded training data to Amazon S3
key = "linear_train.data"
boto3.resource("s3").Bucket(bucket).Object(
    os.path.join(prefix, "train", key)
).upload_fileobj(buf)
s3_train_data = "s3://{}/{}/train/{}".format(bucket, prefix, key)
print("Training data uploaded to: {}".format(s3_train_data))
```

Training data uploaded to: s3://sagemaker-20191007-2307/austin-rainfall-regression/train/linear_train.data

1.2.3 Upload Test Data to Amazon S3

```python
[7]: # Encode the testing data as Protocol Buffer
buf = io.BytesIO()
vectors = np.array(X_test).astype("float32")
labels = np.array(y_test).astype("float32")
```

```
smac.write_numpy_to_dense_tensor(buf, vectors, labels)
buf.seek(0)

# Upload encoded testing data to Amazon S3
key = "linear_test.data"
boto3.resource("s3").Bucket(bucket).Object(
    os.path.join(prefix, "test", key)
).upload_fileobj(buf)
s3_test_data = "s3://{}/{}/test/{}".format(bucket, prefix, key)
print("Testing data uploaded to: {}".format(s3_test_data))
```

Testing data uploaded to: s3://sagemaker-20191007-2307/austin-rainfall-regression/test/linear_test.data

1.2.4 Creating Model Instance

```
[8]: # Create an intance of the linear learner algorithm
     container = get_image_uri(boto3.Session().region_name, "linear-learner")
```

```
[9]: # Start the Amazon SageMaker session
     sess = sagemaker.Session()

     # Create an instance of the linear learner estimator
     linear = sagemaker.estimator.Estimator(
         container,
         role,
         train_instance_count=1,
         train_instance_type="ml.m4.xlarge",
         output_path="s3://{}/{}/output".format(bucket, prefix),
         sagemaker_session=sess,
     )

     # Define lineal learner hyperparameters
     linear.set_hyperparameters(
         feature_dim=1,
         mini_batch_size=100,
         predictor_type="regressor",
         epochs=10,
         num_models=32,
         loss="absolute_loss",
     )
```

1.3 Training the Machine Leaerning Model

```python
[10]:  # Fitting the linear learner model with the training data
       linear.fit({"train": s3_train_data, "test": s3_test_data})
```

```
2019-10-08 19:30:58 Starting - Starting the training job…
2019-10-08 19:31:13 Starting - Launching requested ML instances…
2019-10-08 19:32:10 Starting - Preparing the instances for training…
2019-10-08 19:33:09 Downloading - Downloading input data…
2019-10-08 19:33:48 Training - Downloading the training image..
2019-10-08 19:34:23 Uploading - Uploading generated training model
2019-10-08 19:34:23 Completed - Training job completed
Docker entrypoint called with argument(s): train
[10/08/2019 19:34:12 INFO 139632527419200] Reading default configuration
from /opt/amazon/lib/python2.7/site-packages/algorithm/resources/default-
input.json: {u'loss_insensitivity': u'0.01', u'epochs': u'15', u'init_bias':
u'0.0', u'lr_scheduler_factor': u'auto', u'num_calibration_samples':
u'10000000', u'accuracy_top_k': u'3', u'_num_kv_servers': u'auto', u'use_bias':
u'true', u'num_point_for_scaler': u'10000', u'_log_level': u'info', u'quantile':
u'0.5', u'bias_lr_mult': u'auto', u'lr_scheduler_step': u'auto', u'init_method':
u'uniform', u'init_sigma': u'0.01', u'lr_scheduler_minimum_lr': u'auto',
u'target_recall': u'0.8', u'num_models': u'auto', u'early_stopping_patience':
u'3', u'momentum': u'auto', u'unbias_label': u'auto', u'wd': u'auto',
u'optimizer': u'auto', u'_tuning_objective_metric': u'',
u'early_stopping_tolerance': u'0.001', u'learning_rate': u'auto', u'_kvstore':
u'auto', u'normalize_data': u'true',
u'binary_classifier_model_selection_criteria': u'accuracy', u'use_lr_scheduler':
u'true', u'target_precision': u'0.8', u'unbias_data': u'auto', u'init_scale':
u'0.07', u'bias_wd_mult': u'auto', u'f_beta': u'1.0', u'mini_batch_size':
u'1000', u'huber_delta': u'1.0', u'num_classes': u'1', u'beta_1': u'auto',
u'loss': u'auto', u'beta_2': u'auto', u'_enable_profiler': u'false',
u'normalize_label': u'auto', u'_num_gpus': u'auto',
u'balance_multiclass_weights': u'false', u'positive_example_weight_mult':
u'1.0', u'l1': u'auto', u'margin': u'1.0'}
```

[10/08/2019 19:34:12 INFO 139632527419200] Reading provided configuration
from /opt/ml/input/config/hyperparameters.json: {u'loss': u'absolute_loss',
u'mini_batch_size': u'100', u'predictor_type': u'regressor', u'epochs': u'10',
u'feature_dim': u'1', u'num_models': u'32'}
[10/08/2019 19:34:12 INFO 139632527419200] Final configuration:
{u'loss_insensitivity': u'0.01', u'epochs': u'10', u'feature_dim': u'1',
u'init_bias': u'0.0', u'lr_scheduler_factor': u'auto',
u'num_calibration_samples': u'10000000', u'accuracy_top_k': u'3',
u'_num_kv_servers': u'auto', u'use_bias': u'true', u'num_point_for_scaler':
u'10000', u'_log_level': u'info', u'quantile': u'0.5', u'bias_lr_mult': u'auto',
u'lr_scheduler_step': u'auto', u'init_method': u'uniform', u'init_sigma':
u'0.01', u'lr_scheduler_minimum_lr': u'auto', u'target_recall': u'0.8',
u'num_models': u'32', u'early_stopping_patience': u'3', u'momentum': u'auto',
u'unbias_label': u'auto', u'wd': u'auto', u'optimizer': u'auto',
u'_tuning_objective_metric': u'', u'early_stopping_tolerance': u'0.001',
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u'100', u'huber_delta': u'1.0', u'num_classes': u'1', u'predictor_type':
u'regressor', u'beta_1': u'auto', u'loss': u'absolute_loss', u'beta_2': u'auto',
u'_enable_profiler': u'false', u'normalize_label': u'auto', u'_num_gpus':
u'auto', u'balance_multiclass_weights': u'false',
u'positive_example_weight_mult': u'1.0', u'l1': u'auto', u'margin': u'1.0'}
[10/08/2019 19:34:12 WARNING 139632527419200] Loggers have already been
setup.
Process 1 is a worker.
[10/08/2019 19:34:12 INFO 139632527419200] Using default worker.
[2019-10-08 19:34:12.555] [tensorio] [warning] TensorIO is already
initialized; ignoring the initialization routine.
[2019-10-08 19:34:12.575] [tensorio] [info] epoch_stats={"data_pipeline":
"/opt/ml/input/data/train", "epoch": 0, "duration": 20, "num_examples": 1,
"num_bytes": 4800}
[10/08/2019 19:34:12 INFO 139632527419200] Create Store: local

```
[2019-10-08 19:34:12.616] [tensorio] [info] epoch_stats={"data_pipeline":

"/opt/ml/input/data/train", "epoch": 1, "duration": 40, "num_examples": 11,

"num_bytes": 50640}
[10/08/2019 19:34:12 INFO 139632527419200] Scaler algorithm parameters

 <algorithm.scaler.ScalerAlgorithmStable object at 0x7efe69f43390>
[10/08/2019 19:34:12 INFO 139632527419200] Scaling model computed with

parameters:

 {'stdev_weight':
[14.163993]
<NDArray 1 @cpu(0)>, 'stdev_label':
[0.430259]
<NDArray 1 @cpu(0)>, 'mean_label':
[0.11826001]
<NDArray 1 @cpu(0)>, 'mean_weight':
[70.639]
<NDArray 1 @cpu(0)>}
[10/08/2019 19:34:12 INFO 139632527419200] nvidia-smi took: 0.0252161026001

secs to identify 0 gpus
[10/08/2019 19:34:12 INFO 139632527419200] Number of GPUs being used: 0
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[2019-10-08 19:34:12.919] [tensorio] [info] epoch_stats={"data_pipeline":

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```

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[10/08/2019 19:34:12 INFO 139632527419200] #quality_metric: host=algo-1, epoch=0, train absolute_loss_objective <loss>=0.344176481247
[10/08/2019 19:34:12 INFO 139632527419200] #early_stopping_criteria_metric: host=algo-1, epoch=0, criteria=absolute_loss_objective, value=0.34205137825
[10/08/2019 19:34:12 INFO 139632527419200] Epoch 0: Loss improved. Updating best model
[10/08/2019 19:34:12 INFO 139632527419200] #progress_metric: host=algo-1, completed 10 % of epochs

#metrics {"Metrics": {"Max Batches Seen Between Resets": {"count": 1, "max": 11, "sum": 11.0, "min": 11}, "Number of Batches Since Last Reset": {"count": 1, "max": 11, "sum": 11.0, "min": 11}, "Number of Records Since Last Reset": {"count": 1, "max": 1055, "sum": 1055.0, "min": 1055}, "Total Batches Seen": {"count": 1, "max": 23, "sum": 23.0, "min": 23}, "Total Records Seen": {"count": 1, "max": 2210, "sum": 2210.0, "min": 2210}, "Max Records Seen Between Resets": {"count": 1, "max": 1055, "sum": 1055.0, "min": 1055}, "Reset Count": {"count": 1, "max": 3, "sum": 3.0, "min": 3}}, "EndTime": 1570563252.925071, "Dimensions": {"Host": "algo-1", "Meta": "training_data_iter", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 0}, "StartTime": 1570563252.725336}

[10/08/2019 19:34:12 INFO 139632527419200] #throughput_metric: host=algo-1, train throughput=5278.40290104 records/second

[2019-10-08 19:34:13.129] [tensorio] [info] epoch_stats={"data_pipeline":
"/opt/ml/input/data/train", "epoch": 6, "duration": 204, "num_examples": 11,
"num_bytes": 50640}
#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max":
0.2973680171966553, "sum": 0.2973680171966553, "min": 0.2973680171966553}},
"EndTime": 1570563253.12981, "Dimensions": {"model": 0, "Host": "algo-1",
"Operation": "training", "Algorithm": "Linear Learner", "epoch": 1},
"StartTime": 1570563253.129722}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max":
0.2960697727203369, "sum": 0.2960697727203369, "min": 0.2960697727203369}},
"EndTime": 1570563253.129885, "Dimensions": {"model": 1, "Host": "algo-1",
"Operation": "training", "Algorithm": "Linear Learner", "epoch": 1},
"StartTime": 1570563253.129871}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max":
0.2998815040588379, "sum": 0.2998815040588379, "min": 0.2998815040588379}},
"EndTime": 1570563253.129944, "Dimensions": {"model": 2, "Host": "algo-1",
"Operation": "training", "Algorithm": "Linear Learner", "epoch": 1},
"StartTime": 1570563253.129926}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max":
0.29507672691345216, "sum": 0.29507672691345216, "min": 0.29507672691345216}},
"EndTime": 1570563253.129984, "Dimensions": {"model": 3, "Host": "algo-1",
"Operation": "training", "Algorithm": "Linear Learner", "epoch": 1},
"StartTime": 1570563253.129974}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max":
0.5223239574432373, "sum": 0.5223239574432373, "min": 0.5223239574432373}},
"EndTime": 1570563253.130032, "Dimensions": {"model": 4, "Host": "algo-1",
"Operation": "training", "Algorithm": "Linear Learner", "epoch": 1},
"StartTime": 1570563253.13002}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.5045600185394287, "sum": 0.5045600185394287, "min": 0.5045600185394287}}, "EndTime": 1570563253.130067, "Dimensions": {"model": 5, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 1}, "StartTime": 1570563253.130058}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.4466778926849365, "sum": 0.4466778926849365, "min": 0.4466778926849365}}, "EndTime": 1570563253.130098, "Dimensions": {"model": 6, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 1}, "StartTime": 1570563253.130089}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.5265047626495362, "sum": 0.5265047626495362, "min": 0.5265047626495362}}, "EndTime": 1570563253.130128, "Dimensions": {"model": 7, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 1}, "StartTime": 1570563253.13012}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.3004422912597656, "sum": 0.3004422912597656, "min": 0.3004422912597656}}, "EndTime": 1570563253.130159, "Dimensions": {"model": 8, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 1}, "StartTime": 1570563253.130151}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.293518349647522, "sum": 0.293518349647522, "min": 0.293518349647522}}, "EndTime": 1570563253.130208, "Dimensions": {"model": 9, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 1}, "StartTime": 1570563253.130198}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.29626315307617185, "sum": 0.29626315307617185, "min": 0.29626315307617185}}, "EndTime": 1570563253.130242, "Dimensions": {"model": 10, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 1}, "StartTime": 1570563253.130234}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.2942295417785645, "sum": 0.2942295417785645, "min": 0.2942295417785645}}, "EndTime": 1570563253.13029, "Dimensions": {"model": 11, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 1}, "StartTime": 1570563253.130277}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.5153400316238403, "sum": 0.5153400316238403, "min": 0.5153400316238403}}, "EndTime": 1570563253.130324, "Dimensions": {"model": 12, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 1}, "StartTime": 1570563253.130315}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.5017897300720214, "sum": 0.5017897300720214, "min": 0.5017897300720214}}, "EndTime": 1570563253.130354, "Dimensions": {"model": 13, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 1}, "StartTime": 1570563253.130347}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.5130064735412597, "sum": 0.5130064735412597, "min": 0.5130064735412597}}, "EndTime": 1570563253.130385, "Dimensions": {"model": 14, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 1}, "StartTime": 1570563253.130376}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.528267765045166, "sum": 0.528267765045166, "min": 0.528267765045166}}, "EndTime": 1570563253.130414, "Dimensions": {"model": 15, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 1}, "StartTime": 1570563253.130406}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.2944096717834473, "sum": 0.2944096717834473, "min": 0.2944096717834473}}, "EndTime": 1570563253.130462, "Dimensions": {"model": 16, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 1}, "StartTime": 1570563253.130448}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.29331379127502444, "sum": 0.29331379127502444, "min": 0.29331379127502444}}, "EndTime": 1570563253.130495, "Dimensions": {"model": 17, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 1}, "StartTime": 1570563253.130487}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.2966142635345459, "sum": 0.2966142635345459, "min": 0.2966142635345459}}, "EndTime": 1570563253.130526, "Dimensions": {"model": 18, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 1}, "StartTime": 1570563253.130518}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.2951213340759277, "sum": 0.2951213340759277, "min": 0.2951213340759277}}, "EndTime": 1570563253.130556, "Dimensions": {"model": 19, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 1}, "StartTime": 1570563253.130548}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.33553362941741943, "sum": 0.33553362941741943, "min": 0.33553362941741943}}, "EndTime": 1570563253.130586, "Dimensions": {"model": 20, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 1}, "StartTime": 1570563253.130578}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.44543981742858885, "sum": 0.44543981742858885, "min": 0.44543981742858885}}, "EndTime": 1570563253.13064, "Dimensions": {"model": 21, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 1}, "StartTime": 1570563253.130626}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.31677608108520505, "sum": 0.31677608108520505, "min": 0.31677608108520505}}, "EndTime": 1570563253.130677, "Dimensions": {"model": 22, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 1}, "StartTime": 1570563253.130666}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.36731365776062014, "sum": 0.36731365776062014, "min": 0.36731365776062014}}, "EndTime": 1570563253.130724, "Dimensions": {"model": 23, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 1}, "StartTime": 1570563253.130714}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.2998541526794434, "sum": 0.2998541526794434, "min": 0.2998541526794434}}, "EndTime": 1570563253.130755, "Dimensions": {"model": 24, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 1}, "StartTime": 1570563253.130747}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.2947716636657715, "sum": 0.2947716636657715, "min": 0.2947716636657715}}, "EndTime": 1570563253.130785, "Dimensions": {"model": 25, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 1}, "StartTime": 1570563253.130777}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.2967005977630615, "sum": 0.2967005977630615, "min": 0.2967005977630615}}, "EndTime": 1570563253.130815, "Dimensions": {"model": 26, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 1}, "StartTime": 1570563253.130807}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.29738589668273924, "sum": 0.29738589668273924, "min": 0.29738589668273924}}, "EndTime": 1570563253.130848, "Dimensions": {"model": 27, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 1}, "StartTime": 1570563253.130836}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.4334141445159912, "sum": 0.4334141445159912, "min": 0.4334141445159912}}, "EndTime": 1570563253.130895, "Dimensions": {"model": 28, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 1}, "StartTime": 1570563253.130886}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.43490926933288576, "sum": 0.43490926933288576, "min": 0.43490926933288576}}, "EndTime": 1570563253.130927, "Dimensions": {"model": 29, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 1}, "StartTime": 1570563253.130919}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.4403715076446533, "sum": 0.4403715076446533, "min": 0.4403715076446533}}, "EndTime": 1570563253.130957, "Dimensions": {"model": 30, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 1}, "StartTime": 1570563253.130949}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.42297074127197265, "sum": 0.42297074127197265, "min": 0.42297074127197265}}, "EndTime": 1570563253.130987, "Dimensions": {"model": 31, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 1}, "StartTime": 1570563253.130978}

[10/08/2019 19:34:13 INFO 139632527419200] #quality_metric: host=algo-1, epoch=1, train absolute_loss_objective <loss>=0.297368017197
[10/08/2019 19:34:13 INFO 139632527419200] #early_stopping_criteria_metric: host=algo-1, epoch=1, criteria=absolute_loss_objective, value=0.293313791275
[10/08/2019 19:34:13 INFO 139632527419200] Epoch 1: Loss improved. Updating best model
[10/08/2019 19:34:13 INFO 139632527419200] #progress_metric: host=algo-1, completed 20 % of epochs

#metrics {"Metrics": {"Max Batches Seen Between Resets": {"count": 1, "max": 11, "sum": 11.0, "min": 11}, "Number of Batches Since Last Reset": {"count": 1, "max": 11, "sum": 11.0, "min": 11}, "Number of Records Since Last Reset": {"count": 1, "max": 1055, "sum": 1055.0, "min": 1055}, "Total Batches Seen": {"count": 1, "max": 34, "sum": 34.0, "min": 34}, "Total Records Seen": {"count": 1, "max": 3265, "sum": 3265.0, "min": 3265}, "Max Records Seen Between Resets": {"count": 1, "max": 1055, "sum": 1055.0, "min": 1055}, "Reset Count": {"count": 1, "max": 4, "sum": 4.0, "min": 4}}, "EndTime": 1570563253.134014, "Dimensions": {"Host": "algo-1", "Meta": "training_data_iter", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 1}, "StartTime": 1570563252.925401}

[10/08/2019 19:34:13 INFO 139632527419200] #throughput_metric: host=algo-1, train throughput=5053.86889608 records/second

[2019-10-08 19:34:13.399] [tensorio] [info] epoch_stats={"data_pipeline": "/opt/ml/input/data/train", "epoch": 8, "duration": 264, "num_examples": 11, "num_bytes": 50640}
#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.28950305366516116, "sum": 0.28950305366516116, "min": 0.28950305366516116}}, "EndTime": 1570563253.39957, "Dimensions": {"model": 0, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 2}, "StartTime": 1570563253.399467}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.28714306831359865, "sum": 0.28714306831359865, "min": 0.28714306831359865}}, "EndTime": 1570563253.399819, "Dimensions": {"model": 1, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 2}, "StartTime": 1570563253.399654}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.2871843786239624, "sum": 0.2871843786239624, "min": 0.2871843786239624}}, "EndTime": 1570563253.400018, "Dimensions": {"model": 2, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 2}, "StartTime": 1570563253.39999}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.28913761520385745, "sum": 0.28913761520385745, "min": 0.28913761520385745}}, "EndTime": 1570563253.400186, "Dimensions": {"model": 3, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 2}, "StartTime": 1570563253.400072}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.4912910499572754, "sum": 0.4912910499572754, "min": 0.4912910499572754}}, "EndTime": 1570563253.400374, "Dimensions": {"model": 4, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 2}, "StartTime": 1570563253.400346}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.43835518455505373, "sum": 0.43835518455505373, "min": 0.43835518455505373}}, "EndTime": 1570563253.40054, "Dimensions": {"model": 5, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 2}, "StartTime": 1570563253.400427}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.38487510108947753, "sum": 0.38487510108947753, "min": 0.38487510108947753}}, "EndTime": 1570563253.400714, "Dimensions": {"model": 6, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 2}, "StartTime": 1570563253.400688}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.47150993728637697, "sum": 0.47150993728637697, "min": 0.47150993728637697}}, "EndTime": 1570563253.400876, "Dimensions": {"model": 7, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 2}, "StartTime": 1570563253.400766}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.2850166139602661, "sum": 0.2850166139602661, "min": 0.2850166139602661}}, "EndTime": 1570563253.401056, "Dimensions": {"model": 8, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 2}, "StartTime": 1570563253.401029}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.284890438079834, "sum": 0.284890438079834, "min": 0.284890438079834}}, "EndTime": 1570563253.401302, "Dimensions": {"model": 9, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 2}, "StartTime": 1570563253.401107}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.28686358642578125, "sum": 0.28686358642578125, "min": 0.28686358642578125}}, "EndTime": 1570563253.401403, "Dimensions": {"model": 10, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 2}, "StartTime": 1570563253.401378}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.28672409439086916, "sum": 0.28672409439086916, "min": 0.28672409439086916}}, "EndTime": 1570563253.40147, "Dimensions": {"model": 11, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 2}, "StartTime": 1570563253.401452}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.48722205543518066, "sum": 0.48722205543518066, "min": 0.48722205543518066}}, "EndTime": 1570563253.401643, "Dimensions": {"model": 12, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 2}, "StartTime": 1570563253.40162}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.42347202682495116, "sum": 0.42347202682495116, "min": 0.42347202682495116}}, "EndTime": 1570563253.401712, "Dimensions": {"model": 13, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 2}, "StartTime": 1570563253.401695}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.47735942268371584, "sum": 0.47735942268371584, "min": 0.47735942268371584}}, "EndTime": 1570563253.401775, "Dimensions": {"model": 14, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 2}, "StartTime": 1570563253.401758}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.4778317699432373, "sum": 0.4778317699432373, "min": 0.4778317699432373}}, "EndTime": 1570563253.401835, "Dimensions": {"model": 15, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 2}, "StartTime": 1570563253.401818}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.28763441467285156, "sum": 0.28763441467285156, "min": 0.28763441467285156}}, "EndTime": 1570563253.401893, "Dimensions": {"model": 16, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 2}, "StartTime": 1570563253.401877}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.29139804553985593, "sum": 0.29139804553985593, "min": 0.29139804553985593}}, "EndTime": 1570563253.401951, "Dimensions": {"model": 17, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 2}, "StartTime": 1570563253.401936}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.2865709295272827, "sum": 0.2865709295272827, "min": 0.2865709295272827}}, "EndTime": 1570563253.402012, "Dimensions": {"model": 18, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 2}, "StartTime": 1570563253.401995}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.28739500904083254, "sum": 0.28739500904083254, "min": 0.28739500904083254}}, "EndTime": 1570563253.402072, "Dimensions": {"model": 19, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 2}, "StartTime": 1570563253.402056}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.2985047225952148, "sum": 0.2985047225952148, "min": 0.2985047225952148}}, "EndTime": 1570563253.402132, "Dimensions": {"model": 20, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 2}, "StartTime": 1570563253.402114}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.4494505939483643, "sum": 0.4494505939483643, "min": 0.4494505939483643}}, "EndTime": 1570563253.402193, "Dimensions": {"model": 21, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 2}, "StartTime": 1570563253.402177}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.356023853302002, "sum": 0.356023853302002, "min": 0.356023853302002}}, "EndTime": 1570563253.402251, "Dimensions": {"model": 22, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 2}, "StartTime": 1570563253.402235}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.32111167335510254, "sum": 0.32111167335510254, "min": 0.32111167335510254}}, "EndTime": 1570563253.402308, "Dimensions": {"model": 23, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 2}, "StartTime": 1570563253.402293}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.28866659927368166, "sum": 0.28866659927368166, "min": 0.28866659927368166}}, "EndTime": 1570563253.402369, "Dimensions": {"model": 24, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 2}, "StartTime": 1570563253.402351}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.286830885887146, "sum": 0.286830885887146, "min": 0.286830885887146}}, "EndTime": 1570563253.402427, "Dimensions": {"model": 25, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 2}, "StartTime": 1570563253.402411}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.28785085487365725, "sum": 0.28785085487365725, "min": 0.28785085487365725}}, "EndTime": 1570563253.402484, "Dimensions": {"model": 26, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 2}, "StartTime": 1570563253.402468}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.28980446434020996, "sum": 0.28980446434020996, "min": 0.28980446434020996}}, "EndTime": 1570563253.40254, "Dimensions": {"model": 27, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 2}, "StartTime": 1570563253.402525}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.4111709432601929, "sum": 0.4111709432601929, "min": 0.4111709432601929}}, "EndTime": 1570563253.4026, "Dimensions": {"model": 28, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 2}, "StartTime": 1570563253.402582}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.4155787220001221, "sum": 0.4155787220001221, "min": 0.4155787220001221}}, "EndTime": 1570563253.402663, "Dimensions": {"model": 29, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 2}, "StartTime": 1570563253.402646}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.48866942405700686, "sum": 0.48866942405700686, "min": 0.48866942405700686}}, "EndTime": 1570563253.402727, "Dimensions": {"model": 30, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 2}, "StartTime": 1570563253.40271}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.32566035079956057, "sum": 0.32566035079956057, "min": 0.32566035079956057}}, "EndTime": 1570563253.402786, "Dimensions": {"model": 31, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 2}, "StartTime": 1570563253.40277}

[10/08/2019 19:34:13 INFO 139632527419200] #quality_metric: host=algo-1, epoch=2, train absolute_loss_objective <loss>=0.289503053665
[10/08/2019 19:34:13 INFO 139632527419200] #early_stopping_criteria_metric: host=algo-1, epoch=2, criteria=absolute_loss_objective, value=0.28489043808
[10/08/2019 19:34:13 INFO 139632527419200] Epoch 2: Loss improved. Updating best model
[10/08/2019 19:34:13 INFO 139632527419200] #progress_metric: host=algo-1, completed 30 % of epochs

#metrics {"Metrics": {"Max Batches Seen Between Resets": {"count": 1, "max": 11, "sum": 11.0, "min": 11}, "Number of Batches Since Last Reset": {"count": 1, "max": 11, "sum": 11.0, "min": 11}, "Number of Records Since Last Reset": {"count": 1, "max": 1055, "sum": 1055.0, "min": 1055}, "Total Batches Seen": {"count": 1, "max": 45, "sum": 45.0, "min": 45}, "Total Records Seen": {"count": 1, "max": 4320, "sum": 4320.0, "min": 4320}, "Max Records Seen Between Resets": {"count": 1, "max": 1055, "sum": 1055.0, "min": 1055}, "Reset Count": {"count": 1, "max": 5, "sum": 5.0, "min": 5}}, "EndTime": 1570563253.406725, "Dimensions": {"Host": "algo-1", "Meta": "training_data_iter", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 2}, "StartTime": 1570563253.134306}

[10/08/2019 19:34:13 INFO 139632527419200] #throughput_metric: host=algo-1, train throughput=3870.63456672 records/second

[2019-10-08 19:34:13.672] [tensorio] [info] epoch_stats={"data_pipeline":
"/opt/ml/input/data/train", "epoch": 10, "duration": 265, "num_examples": 11,
"num_bytes": 50640}
#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max":
0.28498172855377196, "sum": 0.28498172855377196, "min": 0.28498172855377196}},
"EndTime": 1570563253.673027, "Dimensions": {"model": 0, "Host": "algo-1",
"Operation": "training", "Algorithm": "Linear Learner", "epoch": 3},
"StartTime": 1570563253.672922}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max":
0.28212231349945066, "sum": 0.28212231349945066, "min": 0.28212231349945066}},
"EndTime": 1570563253.673134, "Dimensions": {"model": 1, "Host": "algo-1",
"Operation": "training", "Algorithm": "Linear Learner", "epoch": 3},
"StartTime": 1570563253.673112}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max":
0.28175672721862793, "sum": 0.28175672721862793, "min": 0.28175672721862793}},
"EndTime": 1570563253.673202, "Dimensions": {"model": 2, "Host": "algo-1",
"Operation": "training", "Algorithm": "Linear Learner", "epoch": 3},
"StartTime": 1570563253.673182}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max":
0.2840965995788574, "sum": 0.2840965995788574, "min": 0.2840965995788574}},
"EndTime": 1570563253.673276, "Dimensions": {"model": 3, "Host": "algo-1",
"Operation": "training", "Algorithm": "Linear Learner", "epoch": 3},
"StartTime": 1570563253.673257}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max":
0.44301529693603514, "sum": 0.44301529693603514, "min": 0.44301529693603514}},
"EndTime": 1570563253.673343, "Dimensions": {"model": 4, "Host": "algo-1",
"Operation": "training", "Algorithm": "Linear Learner", "epoch": 3},
"StartTime": 1570563253.673324}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.3546682758331299, "sum": 0.3546682758331299, "min": 0.3546682758331299}}, "EndTime": 1570563253.673409, "Dimensions": {"model": 5, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 3}, "StartTime": 1570563253.673391}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.32723981857299805, "sum": 0.32723981857299805, "min": 0.32723981857299805}}, "EndTime": 1570563253.673474, "Dimensions": {"model": 6, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 3}, "StartTime": 1570563253.673455}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.3240653476715088, "sum": 0.3240653476715088, "min": 0.3240653476715088}}, "EndTime": 1570563253.673537, "Dimensions": {"model": 7, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 3}, "StartTime": 1570563253.67352}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.28243503284454347, "sum": 0.28243503284454347, "min": 0.28243503284454347}}, "EndTime": 1570563253.673603, "Dimensions": {"model": 8, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 3}, "StartTime": 1570563253.673584}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.2833886642456055, "sum": 0.2833886642456055, "min": 0.2833886642456055}}, "EndTime": 1570563253.673667, "Dimensions": {"model": 9, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 3}, "StartTime": 1570563253.673649}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.28476977252960206, "sum": 0.28476977252960206, "min": 0.28476977252960206}}, "EndTime": 1570563253.67373, "Dimensions": {"model": 10, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 3}, "StartTime": 1570563253.673714}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.2825063190460205, "sum": 0.2825063190460205, "min": 0.2825063190460205}}, "EndTime": 1570563253.673796, "Dimensions": {"model": 11, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 3}, "StartTime": 1570563253.673778}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.4395309467315674, "sum": 0.4395309467315674, "min": 0.4395309467315674}}, "EndTime": 1570563253.673858, "Dimensions": {"model": 12, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 3}, "StartTime": 1570563253.673842}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.3507322540283203, "sum": 0.3507322540283203, "min": 0.3507322540283203}}, "EndTime": 1570563253.67392, "Dimensions": {"model": 13, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 3}, "StartTime": 1570563253.673903}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.39838208580017087, "sum": 0.39838208580017087, "min": 0.39838208580017087}}, "EndTime": 1570563253.673979, "Dimensions": {"model": 14, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 3}, "StartTime": 1570563253.673963}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.4136182727813721, "sum": 0.4136182727813721, "min": 0.4136182727813721}}, "EndTime": 1570563253.674042, "Dimensions": {"model": 15, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 3}, "StartTime": 1570563253.674025}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.28306069850921634, "sum": 0.28306069850921634, "min": 0.28306069850921634}}, "EndTime": 1570563253.674106, "Dimensions": {"model": 16, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 3}, "StartTime": 1570563253.674088}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.2856791820526123, "sum": 0.2856791820526123, "min": 0.2856791820526123}}, "EndTime": 1570563253.67417, "Dimensions": {"model": 17, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 3}, "StartTime": 1570563253.674153}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.2849579448699951, "sum": 0.2849579448699951, "min": 0.2849579448699951}}, "EndTime": 1570563253.674233, "Dimensions": {"model": 18, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 3}, "StartTime": 1570563253.674216}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.28185517024993895, "sum": 0.28185517024993895, "min": 0.28185517024993895}}, "EndTime": 1570563253.674296, "Dimensions": {"model": 19, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 3}, "StartTime": 1570563253.674278}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.33630192947387694, "sum": 0.33630192947387694, "min": 0.33630192947387694}}, "EndTime": 1570563253.67436, "Dimensions": {"model": 20, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 3}, "StartTime": 1570563253.674343}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.38288847541809085, "sum": 0.38288847541809085, "min": 0.38288847541809085}}, "EndTime": 1570563253.67442, "Dimensions": {"model": 21, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 3}, "StartTime": 1570563253.674403}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.33152213859558105, "sum": 0.33152213859558105, "min": 0.33152213859558105}}, "EndTime": 1570563253.674483, "Dimensions": {"model": 22, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 3}, "StartTime": 1570563253.674465}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.3664015407562256, "sum": 0.3664015407562256, "min": 0.3664015407562256}}, "EndTime": 1570563253.674543, "Dimensions": {"model": 23, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 3}, "StartTime": 1570563253.674526}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.2832933969497681, "sum": 0.2832933969497681, "min": 0.2832933969497681}}, "EndTime": 1570563253.674608, "Dimensions": {"model": 24, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 3}, "StartTime": 1570563253.674589}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.28475476837158203, "sum": 0.28475476837158203, "min": 0.28475476837158203}}, "EndTime": 1570563253.674672, "Dimensions": {"model": 25, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 3}, "StartTime": 1570563253.674653}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.2832505712509155, "sum": 0.2832505712509155, "min": 0.2832505712509155}}, "EndTime": 1570563253.674737, "Dimensions": {"model": 26, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 3}, "StartTime": 1570563253.674719}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.2795404510498047, "sum": 0.2795404510498047, "min": 0.2795404510498047}}, "EndTime": 1570563253.674801, "Dimensions": {"model": 27, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 3}, "StartTime": 1570563253.674783}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.3322982921600342, "sum": 0.3322982921600342, "min": 0.3322982921600342}}, "EndTime": 1570563253.674864, "Dimensions": {"model": 28, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 3}, "StartTime": 1570563253.674846}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.33181966972351074, "sum": 0.33181966972351074, "min": 0.33181966972351074}}, "EndTime": 1570563253.674928, "Dimensions": {"model": 29, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 3}, "StartTime": 1570563253.67491}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.3925125274658203, "sum": 0.3925125274658203, "min": 0.3925125274658203}}, "EndTime": 1570563253.674992, "Dimensions": {"model": 30, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 3}, "StartTime": 1570563253.674974}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.3216242847442627, "sum": 0.3216242847442627, "min": 0.3216242847442627}}, "EndTime": 1570563253.675051, "Dimensions": {"model": 31, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 3}, "StartTime": 1570563253.675033}

[10/08/2019 19:34:13 INFO 139632527419200] #quality_metric: host=algo-1, epoch=3, train absolute_loss_objective <loss>=0.284981728554
[10/08/2019 19:34:13 INFO 139632527419200] #early_stopping_criteria_metric: host=algo-1, epoch=3, criteria=absolute_loss_objective, value=0.27954045105
[10/08/2019 19:34:13 INFO 139632527419200] Epoch 3: Loss improved. Updating best model
[10/08/2019 19:34:13 INFO 139632527419200] #progress_metric: host=algo-1, completed 40 % of epochs

#metrics {"Metrics": {"Max Batches Seen Between Resets": {"count": 1, "max": 11, "sum": 11.0, "min": 11}, "Number of Batches Since Last Reset": {"count": 1, "max": 11, "sum": 11.0, "min": 11}, "Number of Records Since Last Reset": {"count": 1, "max": 1055, "sum": 1055.0, "min": 1055}, "Total Batches Seen": {"count": 1, "max": 56, "sum": 56.0, "min": 56}, "Total Records Seen": {"count": 1, "max": 5375, "sum": 5375.0, "min": 5375}, "Max Records Seen Between Resets": {"count": 1, "max": 1055, "sum": 1055.0, "min": 1055}, "Reset Count": {"count": 1, "max": 6, "sum": 6.0, "min": 6}}, "EndTime": 1570563253.680033, "Dimensions": {"Host": "algo-1", "Meta": "training_data_iter", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 3}, "StartTime": 1570563253.407031}

[10/08/2019 19:34:13 INFO 139632527419200] #throughput_metric: host=algo-1, train throughput=3862.20557276 records/second

[2019-10-08 19:34:13.950] [tensorio] [info] epoch_stats={"data_pipeline": "/opt/ml/input/data/train", "epoch": 12, "duration": 270, "num_examples": 11, "num_bytes": 50640}
#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.278652045249939, "sum": 0.278652045249939, "min": 0.278652045249939}}, "EndTime": 1570563253.9511, "Dimensions": {"model": 0, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 4}, "StartTime": 1570563253.950986}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.2850992660522461, "sum": 0.2850992660522461, "min": 0.2850992660522461}}, "EndTime": 1570563253.951206, "Dimensions": {"model": 1, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 4}, "StartTime": 1570563253.951185}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.28169916915893556, "sum": 0.28169916915893556, "min": 0.28169916915893556}}, "EndTime": 1570563253.951274, "Dimensions": {"model": 2, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 4}, "StartTime": 1570563253.951256}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.27955930042266847, "sum": 0.27955930042266847, "min": 0.27955930042266847}}, "EndTime": 1570563253.951336, "Dimensions": {"model": 3, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 4}, "StartTime": 1570563253.951319}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.36657080841064454, "sum": 0.36657080841064454, "min": 0.36657080841064454}}, "EndTime": 1570563253.951399, "Dimensions": {"model": 4, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 4}, "StartTime": 1570563253.951382}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.32689830780029294, "sum": 0.32689830780029294, "min": 0.32689830780029294}}, "EndTime": 1570563253.951457, "Dimensions": {"model": 5, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 4}, "StartTime": 1570563253.95144}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.3009372367858887, "sum": 0.3009372367858887, "min": 0.3009372367858887}}, "EndTime": 1570563253.95152, "Dimensions": {"model": 6, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 4}, "StartTime": 1570563253.951502}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.302647123336792, "sum": 0.302647123336792, "min": 0.302647123336792}}, "EndTime": 1570563253.951578, "Dimensions": {"model": 7, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 4}, "StartTime": 1570563253.951562}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.2802095727920532, "sum": 0.2802095727920532, "min": 0.2802095727920532}}, "EndTime": 1570563253.951638, "Dimensions": {"model": 8, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 4}, "StartTime": 1570563253.951621}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.2794203748703003, "sum": 0.2794203748703003, "min": 0.2794203748703003}}, "EndTime": 1570563253.951723, "Dimensions": {"model": 9, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 4}, "StartTime": 1570563253.951682}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.28046163940429686, "sum": 0.28046163940429686, "min": 0.28046163940429686}}, "EndTime": 1570563253.951788, "Dimensions": {"model": 10, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 4}, "StartTime": 1570563253.951771}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.27986315250396726, "sum": 0.27986315250396726, "min": 0.27986315250396726}}, "EndTime": 1570563253.951849, "Dimensions": {"model": 11, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 4}, "StartTime": 1570563253.951832}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.38770949554443357, "sum": 0.38770949554443357, "min": 0.38770949554443357}}, "EndTime": 1570563253.951912, "Dimensions": {"model": 12, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 4}, "StartTime": 1570563253.951895}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.33692183113098145, "sum": 0.33692183113098145, "min": 0.33692183113098145}}, "EndTime": 1570563253.951972, "Dimensions": {"model": 13, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 4}, "StartTime": 1570563253.951956}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.37400552463531495, "sum": 0.37400552463531495, "min": 0.37400552463531495}}, "EndTime": 1570563253.95203, "Dimensions": {"model": 14, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 4}, "StartTime": 1570563253.952013}

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#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.28092088603973386, "sum": 0.28092088603973386, "min": 0.28092088603973386}}, "EndTime": 1570563253.95215, "Dimensions": {"model": 16, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 4}, "StartTime": 1570563253.952135}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.2796012306213379, "sum": 0.2796012306213379, "min": 0.2796012306213379}}, "EndTime": 1570563253.952211, "Dimensions": {"model": 17, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 4}, "StartTime": 1570563253.952193}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.28088023567199705, "sum": 0.28088023567199705, "min": 0.28088023567199705}}, "EndTime": 1570563253.952274, "Dimensions": {"model": 18, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 4}, "StartTime": 1570563253.952258}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.2797746524810791, "sum": 0.2797746524810791, "min": 0.2797746524810791}}, "EndTime": 1570563253.952334, "Dimensions": {"model": 19, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 4}, "StartTime": 1570563253.952317}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.3578480396270752, "sum": 0.3578480396270752, "min": 0.3578480396270752}}, "EndTime": 1570563253.952444, "Dimensions": {"model": 20, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 4}, "StartTime": 1570563253.952379}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.39412881088256835, "sum": 0.39412881088256835, "min": 0.39412881088256835}}, "EndTime": 1570563253.952519, "Dimensions": {"model": 21, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 4}, "StartTime": 1570563253.952499}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.3006144046783447, "sum": 0.3006144046783447, "min": 0.3006144046783447}}, "EndTime": 1570563253.952584, "Dimensions": {"model": 22, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 4}, "StartTime": 1570563253.952566}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.38127099418640137, "sum": 0.38127099418640137, "min": 0.38127099418640137}}, "EndTime": 1570563253.952654, "Dimensions": {"model": 23, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 4}, "StartTime": 1570563253.952631}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.2815517644882202, "sum": 0.2815517644882202, "min": 0.2815517644882202}}, "EndTime": 1570563253.952718, "Dimensions": {"model": 24, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 4}, "StartTime": 1570563253.952701}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max":
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"EndTime": 1570563253.952782, "Dimensions": {"model": 25, "Host": "algo-1",
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#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max":
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"EndTime": 1570563253.952845, "Dimensions": {"model": 26, "Host": "algo-1",
"Operation": "training", "Algorithm": "Linear Learner", "epoch": 4},
"StartTime": 1570563253.952827}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max":
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"EndTime": 1570563253.952908, "Dimensions": {"model": 27, "Host": "algo-1",
"Operation": "training", "Algorithm": "Linear Learner", "epoch": 4},
"StartTime": 1570563253.95289}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max":
0.34680336952209473, "sum": 0.34680336952209473, "min": 0.34680336952209473}},
"EndTime": 1570563253.95297, "Dimensions": {"model": 28, "Host": "algo-1",
"Operation": "training", "Algorithm": "Linear Learner", "epoch": 4},
"StartTime": 1570563253.952953}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max":
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"EndTime": 1570563253.953034, "Dimensions": {"model": 29, "Host": "algo-1",
"Operation": "training", "Algorithm": "Linear Learner", "epoch": 4},
"StartTime": 1570563253.953017}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.4501123847961426, "sum": 0.4501123847961426, "min": 0.4501123847961426}}, "EndTime": 1570563253.953102, "Dimensions": {"model": 30, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 4}, "StartTime": 1570563253.953084}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.3000267400741577, "sum": 0.3000267400741577, "min": 0.3000267400741577}}, "EndTime": 1570563253.953169, "Dimensions": {"model": 31, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 4}, "StartTime": 1570563253.953151}

[10/08/2019 19:34:13 INFO 139632527419200] #quality_metric: host=algo-1, epoch=4, train absolute_loss_objective <loss>=0.27865204525
[10/08/2019 19:34:13 INFO 139632527419200] #early_stopping_criteria_metric: host=algo-1, epoch=4, criteria=absolute_loss_objective, value=0.276651096344
[10/08/2019 19:34:13 INFO 139632527419200] Epoch 4: Loss improved. Updating best model
[10/08/2019 19:34:13 INFO 139632527419200] #progress_metric: host=algo-1, completed 50 % of epochs

#metrics {"Metrics": {"Max Batches Seen Between Resets": {"count": 1, "max": 11, "sum": 11.0, "min": 11}, "Number of Batches Since Last Reset": {"count": 1, "max": 11, "sum": 11.0, "min": 11}, "Number of Records Since Last Reset": {"count": 1, "max": 1055, "sum": 1055.0, "min": 1055}, "Total Batches Seen": {"count": 1, "max": 67, "sum": 67.0, "min": 67}, "Total Records Seen": {"count": 1, "max": 6430, "sum": 6430.0, "min": 6430}, "Max Records Seen Between Resets": {"count": 1, "max": 1055, "sum": 1055.0, "min": 1055}, "Reset Count": {"count": 1, "max": 7, "sum": 7.0, "min": 7}}, "EndTime": 1570563253.958181, "Dimensions": {"Host": "algo-1", "Meta": "training_data_iter", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 4}, "StartTime": 1570563253.68036}

[10/08/2019 19:34:13 INFO 139632527419200] #throughput_metric: host=algo-1, train throughput=3795.23910485 records/second

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[2019-10-08 19:34:14.268] [tensorio] [info] epoch_stats={"data_pipeline": "/opt/ml/input/data/train", "epoch": 14, "duration": 309, "num_examples": 11, "num_bytes": 50640}
#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.2778003568649292, "sum": 0.2778003568649292, "min": 0.2778003568649292}}, "EndTime": 1570563254.268484, "Dimensions": {"model": 0, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 5}, "StartTime": 1570563254.268382}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.28272658443450926, "sum": 0.28272658443450926, "min": 0.28272658443450926}}, "EndTime": 1570563254.268586, "Dimensions": {"model": 1, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 5}, "StartTime": 1570563254.268569}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.2837483310699463, "sum": 0.2837483310699463, "min": 0.2837483310699463}}, "EndTime": 1570563254.26864, "Dimensions": {"model": 2, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 5}, "StartTime": 1570563254.268627}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.2783547439575195, "sum": 0.2783547439575195, "min": 0.2783547439575195}}, "EndTime": 1570563254.268688, "Dimensions": {"model": 3, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 5}, "StartTime": 1570563254.268676}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.32087466239929197, "sum": 0.32087466239929197, "min": 0.32087466239929197}}, "EndTime": 1570563254.268734, "Dimensions": {"model": 4, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 5}, "StartTime": 1570563254.268722}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.2972246723175049, "sum": 0.2972246723175049, "min": 0.2972246723175049}}, "EndTime": 1570563254.268779, "Dimensions": {"model": 5, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 5}, "StartTime": 1570563254.268767}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.3262987003326416, "sum": 0.3262987003326416, "min": 0.3262987003326416}}, "EndTime": 1570563254.268824, "Dimensions": {"model": 6, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 5}, "StartTime": 1570563254.268812}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.3122675018310547, "sum": 0.3122675018310547, "min": 0.3122675018310547}}, "EndTime": 1570563254.268868, "Dimensions": {"model": 7, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 5}, "StartTime": 1570563254.268857}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.2781061954498291, "sum": 0.2781061954498291, "min": 0.2781061954498291}}, "EndTime": 1570563254.268913, "Dimensions": {"model": 8, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 5}, "StartTime": 1570563254.268901}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.2791190128326416, "sum": 0.2791190128326416, "min": 0.2791190128326416}}, "EndTime": 1570563254.268957, "Dimensions": {"model": 9, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 5}, "StartTime": 1570563254.268946}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.2772838087081909, "sum": 0.2772838087081909, "min": 0.2772838087081909}}, "EndTime": 1570563254.269002, "Dimensions": {"model": 10, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 5}, "StartTime": 1570563254.26899}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.2784749526977539, "sum": 0.2784749526977539, "min": 0.2784749526977539}}, "EndTime": 1570563254.269046, "Dimensions": {"model": 11, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 5}, "StartTime": 1570563254.269035}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.40446111297607423, "sum": 0.40446111297607423, "min": 0.40446111297607423}}, "EndTime": 1570563254.2691, "Dimensions": {"model": 12, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 5}, "StartTime": 1570563254.269087}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.32526575660705564, "sum": 0.32526575660705564, "min": 0.32526575660705564}}, "EndTime": 1570563254.269146, "Dimensions": {"model": 13, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 5}, "StartTime": 1570563254.269134}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.35675180053710936, "sum": 0.35675180053710936, "min": 0.35675180053710936}}, "EndTime": 1570563254.269198, "Dimensions": {"model": 14, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 5}, "StartTime": 1570563254.269186}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.3701103057861328, "sum": 0.3701103057861328, "min": 0.3701103057861328}}, "EndTime": 1570563254.269244, "Dimensions": {"model": 15, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 5}, "StartTime": 1570563254.269233}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.27908959102630615, "sum": 0.27908959102630615, "min": 0.27908959102630615}}, "EndTime": 1570563254.269295, "Dimensions": {"model": 16, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 5}, "StartTime": 1570563254.269283}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.27771482849121093, "sum": 0.27771482849121093, "min": 0.27771482849121093}}, "EndTime": 1570563254.269344, "Dimensions": {"model": 17, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 5}, "StartTime": 1570563254.269332}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.2786114749908447, "sum": 0.2786114749908447, "min": 0.2786114749908447}}, "EndTime": 1570563254.269391, "Dimensions": {"model": 18, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 5}, "StartTime": 1570563254.269379}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.2790444049835205, "sum": 0.2790444049835205, "min": 0.2790444049835205}}, "EndTime": 1570563254.269437, "Dimensions": {"model": 19, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 5}, "StartTime": 1570563254.269425}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.3243606748580933, "sum": 0.3243606748580933, "min": 0.3243606748580933}}, "EndTime": 1570563254.269489, "Dimensions": {"model": 20, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 5}, "StartTime": 1570563254.269477}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.4102967948913574, "sum": 0.4102967948913574, "min": 0.4102967948913574}}, "EndTime": 1570563254.269537, "Dimensions": {"model": 21, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 5}, "StartTime": 1570563254.269525}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.33180267715454104, "sum": 0.33180267715454104, "min": 0.33180267715454104}}, "EndTime": 1570563254.269583, "Dimensions": {"model": 22, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 5}, "StartTime": 1570563254.269571}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.34638530158996583, "sum": 0.34638530158996583, "min": 0.34638530158996583}}, "EndTime": 1570563254.269635, "Dimensions": {"model": 23, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 5}, "StartTime": 1570563254.269623}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.2785637359619141, "sum": 0.2785637359619141, "min": 0.2785637359619141}}, "EndTime": 1570563254.269684, "Dimensions": {"model": 24, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 5}, "StartTime": 1570563254.269672}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.2799549150466919, "sum": 0.2799549150466919, "min": 0.2799549150466919}}, "EndTime": 1570563254.26973, "Dimensions": {"model": 25, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 5}, "StartTime": 1570563254.269719}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.28113345623016356, "sum": 0.28113345623016356, "min": 0.28113345623016356}}, "EndTime": 1570563254.269783, "Dimensions": {"model": 26, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 5}, "StartTime": 1570563254.26977}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.2763388710021973, "sum": 0.2763388710021973, "min": 0.2763388710021973}}, "EndTime": 1570563254.26983, "Dimensions": {"model": 27, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 5}, "StartTime": 1570563254.269818}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.3878728561401367, "sum": 0.3878728561401367, "min": 0.3878728561401367}}, "EndTime": 1570563254.269881, "Dimensions": {"model": 28, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 5}, "StartTime": 1570563254.269868}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.39248230361938474, "sum": 0.39248230361938474, "min": 0.39248230361938474}}, "EndTime": 1570563254.269927, "Dimensions": {"model": 29, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 5}, "StartTime": 1570563254.269915}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.3495480613708496, "sum": 0.3495480613708496, "min": 0.3495480613708496}}, "EndTime": 1570563254.269972, "Dimensions": {"model": 30, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 5}, "StartTime": 1570563254.26996}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.3224736614227295, "sum": 0.3224736614227295, "min": 0.3224736614227295}}, "EndTime": 1570563254.270024, "Dimensions": {"model": 31, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 5}, "StartTime": 1570563254.27001}

[10/08/2019 19:34:14 INFO 139632527419200] #quality_metric: host=algo-1, epoch=5, train absolute_loss_objective <loss>=0.277800356865
[10/08/2019 19:34:14 INFO 139632527419200] #early_stopping_criteria_metric: host=algo-1, epoch=5, criteria=absolute_loss_objective, value=0.276338871002
[10/08/2019 19:34:14 INFO 139632527419200] Epoch 5: Loss improved. Updating best model
[10/08/2019 19:34:14 INFO 139632527419200] #progress_metric: host=algo-1, completed 60 % of epochs
#metrics {"Metrics": {"Max Batches Seen Between Resets": {"count": 1, "max": 11, "sum": 11.0, "min": 11}, "Number of Batches Since Last Reset": {"count": 1, "max": 11, "sum": 11.0, "min": 11}, "Number of Records Since Last Reset": {"count": 1, "max": 1055, "sum": 1055.0, "min": 1055}, "Total Batches Seen": {"count": 1, "max": 78, "sum": 78.0, "min": 78}, "Total Records Seen": {"count": 1, "max": 7485, "sum": 7485.0, "min": 7485}, "Max Records Seen Between Resets": {"count": 1, "max": 1055, "sum": 1055.0, "min": 1055}, "Reset Count": {"count": 1, "max": 8, "sum": 8.0, "min": 8}}, "EndTime": 1570563254.273313, "Dimensions": {"Host": "algo-1", "Meta": "training_data_iter", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 5}, "StartTime": 1570563253.958568}

[10/08/2019 19:34:14 INFO 139632527419200] #throughput_metric: host=algo-1, train throughput=3350.174376 records/second

[2019-10-08 19:34:14.484] [tensorio] [info] epoch_stats={"data_pipeline": "/opt/ml/input/data/train", "epoch": 16, "duration": 211, "num_examples": 11, "num_bytes": 50640}
#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.2804498062133789, "sum": 0.2804498062133789, "min": 0.2804498062133789}}, "EndTime": 1570563254.484946, "Dimensions": {"model": 0, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 6}, "StartTime": 1570563254.484854}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.28131506061553957, "sum": 0.28131506061553957, "min": 0.28131506061553957}}, "EndTime": 1570563254.485037, "Dimensions": {"model": 1, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 6}, "StartTime": 1570563254.485021}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.2827192363739014, "sum": 0.2827192363739014, "min": 0.2827192363739014}}, "EndTime": 1570563254.48509, "Dimensions": {"model": 2, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 6}, "StartTime": 1570563254.485077}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.27768782711029055, "sum": 0.27768782711029055, "min": 0.27768782711029055}}, "EndTime": 1570563254.485137, "Dimensions": {"model": 3, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 6}, "StartTime": 1570563254.485125}

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[10/08/2019 19:34:14 INFO 139632527419200] #quality_metric: host=algo-1, epoch=6, train absolute_loss_objective <loss>=0.280449806213
[10/08/2019 19:34:14 INFO 139632527419200] #early_stopping_criteria_metric: host=algo-1, epoch=6, criteria=absolute_loss_objective, value=0.275842658043
[10/08/2019 19:34:14 INFO 139632527419200] Epoch 6: Loss improved. Updating best model
[10/08/2019 19:34:14 INFO 139632527419200] #progress_metric: host=algo-1, completed 70 % of epochs

#metrics {"Metrics": {"Max Batches Seen Between Resets": {"count": 1, "max": 11, "sum": 11.0, "min": 11}, "Number of Batches Since Last Reset": {"count": 1, "max": 11, "sum": 11.0, "min": 11}, "Number of Records Since Last Reset": {"count": 1, "max": 1055, "sum": 1055.0, "min": 1055}, "Total Batches Seen": {"count": 1, "max": 89, "sum": 89.0, "min": 89}, "Total Records Seen": {"count": 1, "max": 8540, "sum": 8540.0, "min": 8540}, "Max Records Seen Between Resets": {"count": 1, "max": 1055, "sum": 1055.0, "min": 1055}, "Reset Count": {"count": 1, "max": 9, "sum": 9.0, "min": 9}}, "EndTime": 1570563254.489446, "Dimensions": {"Host": "algo-1", "Meta": "training_data_iter", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 6}, "StartTime": 1570563254.273512}

[10/08/2019 19:34:14 INFO 139632527419200] #throughput_metric: host=algo-1, train throughput=4883.55669352 records/second

[2019-10-08 19:34:14.703] [tensorio] [info] epoch_stats={"data_pipeline": "/opt/ml/input/data/train", "epoch": 18, "duration": 213, "num_examples": 11, "num_bytes": 50640}
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#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.31784648990631104, "sum": 0.31784648990631104, "min": 0.31784648990631104}}, "EndTime": 1570563254.704133, "Dimensions": {"model": 7, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 7}, "StartTime": 1570563254.704121}

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#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.33107254219055177, "sum": 0.33107254219055177, "min": 0.33107254219055177}}, "EndTime": 1570563254.704359, "Dimensions": {"model": 12, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 7}, "StartTime": 1570563254.704347}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.2987981777191162, "sum": 0.2987981777191162, "min": 0.2987981777191162}}, "EndTime": 1570563254.704406, "Dimensions": {"model": 13, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 7}, "StartTime": 1570563254.704394}

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#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.36587420654296876, "sum": 0.36587420654296876, "min": 0.36587420654296876}}, "EndTime": 1570563254.704496, "Dimensions": {"model": 15, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 7}, "StartTime": 1570563254.704484}

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#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.27720075035095215, "sum": 0.27720075035095215, "min": 0.27720075035095215}}, "EndTime": 1570563254.704586, "Dimensions": {"model": 17, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 7}, "StartTime": 1570563254.704574}

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#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.36141161155700685, "sum": 0.36141161155700685, "min": 0.36141161155700685}}, "EndTime": 1570563254.704724, "Dimensions": {"model": 20, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 7}, "StartTime": 1570563254.704712}

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#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.27786850261688234, "sum": 0.27786850261688234, "min": 0.27786850261688234}}, "EndTime": 1570563254.704948, "Dimensions": {"model": 25, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 7}, "StartTime": 1570563254.704936}

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#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.45249989318847655, "sum": 0.45249989318847655, "min": 0.45249989318847655}}, "EndTime": 1570563254.705126, "Dimensions": {"model": 29, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 7}, "StartTime": 1570563254.705115}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.29619563961029055, "sum": 0.29619563961029055, "min": 0.29619563961029055}}, "EndTime": 1570563254.705171, "Dimensions": {"model": 30, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 7}, "StartTime": 1570563254.705159}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.3483764476776123, "sum": 0.3483764476776123, "min": 0.3483764476776123}}, "EndTime": 1570563254.705217, "Dimensions": {"model": 31, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 7}, "StartTime": 1570563254.705205}

[10/08/2019 19:34:14 INFO 139632527419200] #quality_metric: host=algo-1, epoch=7, train absolute_loss_objective <loss>=0.277993490219
[10/08/2019 19:34:14 INFO 139632527419200] #early_stopping_criteria_metric: host=algo-1, epoch=7, criteria=absolute_loss_objective, value=0.276034629822
[10/08/2019 19:34:14 INFO 139632527419200] #progress_metric: host=algo-1, completed 80 % of epochs

#metrics {"Metrics": {"Max Batches Seen Between Resets": {"count": 1, "max": 11, "sum": 11.0, "min": 11}, "Number of Batches Since Last Reset": {"count": 1, "max": 11, "sum": 11.0, "min": 11}, "Number of Records Since Last Reset": {"count": 1, "max": 1055, "sum": 1055.0, "min": 1055}, "Total Batches Seen": {"count": 1, "max": 100, "sum": 100.0, "min": 100}, "Total Records Seen": {"count": 1, "max": 9595, "sum": 9595.0, "min": 9595}, "Max Records Seen Between Resets": {"count": 1, "max": 1055, "sum": 1055.0, "min": 1055}, "Reset Count": {"count": 1, "max": 10, "sum": 10.0, "min": 10}}, "EndTime": 1570563254.707433, "Dimensions": {"Host": "algo-1", "Meta": "training_data_iter", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 7}, "StartTime": 1570563254.489657}

[10/08/2019 19:34:14 INFO 139632527419200] #throughput_metric: host=algo-1, train throughput=4842.25245642 records/second

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[2019-10-08 19:34:14.968] [tensorio] [info] epoch_stats={"data_pipeline":
"/opt/ml/input/data/train", "epoch": 20, "duration": 260, "num_examples": 11,
"num_bytes": 50640}
#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max":
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"EndTime": 1570563254.968365, "Dimensions": {"model": 0, "Host": "algo-1",
"Operation": "training", "Algorithm": "Linear Learner", "epoch": 8},
"StartTime": 1570563254.96826}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max":
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"EndTime": 1570563254.968477, "Dimensions": {"model": 1, "Host": "algo-1",
"Operation": "training", "Algorithm": "Linear Learner", "epoch": 8},
"StartTime": 1570563254.968454}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max":
0.2775317316055298, "sum": 0.2775317316055298, "min": 0.2775317316055298}},
"EndTime": 1570563254.968545, "Dimensions": {"model": 2, "Host": "algo-1",
"Operation": "training", "Algorithm": "Linear Learner", "epoch": 8},
"StartTime": 1570563254.968532}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max":
0.27644756317138675, "sum": 0.27644756317138675, "min": 0.27644756317138675}},
"EndTime": 1570563254.968603, "Dimensions": {"model": 3, "Host": "algo-1",
"Operation": "training", "Algorithm": "Linear Learner", "epoch": 8},
"StartTime": 1570563254.968591}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max":
0.3379800243377686, "sum": 0.3379800243377686, "min": 0.3379800243377686}},
"EndTime": 1570563254.96864, "Dimensions": {"model": 4, "Host": "algo-1",
"Operation": "training", "Algorithm": "Linear Learner", "epoch": 8},
"StartTime": 1570563254.968631}
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#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.2963235301971436, "sum": 0.2963235301971436, "min": 0.2963235301971436}}, "EndTime": 1570563254.968682, "Dimensions": {"model": 5, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 8}, "StartTime": 1570563254.968666}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.3092881603240967, "sum": 0.3092881603240967, "min": 0.3092881603240967}}, "EndTime": 1570563254.968755, "Dimensions": {"model": 6, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 8}, "StartTime": 1570563254.968735}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.3002474231719971, "sum": 0.3002474231719971, "min": 0.3002474231719971}}, "EndTime": 1570563254.968824, "Dimensions": {"model": 7, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 8}, "StartTime": 1570563254.968804}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.27615740489959717, "sum": 0.27615740489959717, "min": 0.27615740489959717}}, "EndTime": 1570563254.96889, "Dimensions": {"model": 8, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 8}, "StartTime": 1570563254.968871}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.2780115394592285, "sum": 0.2780115394592285, "min": 0.2780115394592285}}, "EndTime": 1570563254.968956, "Dimensions": {"model": 9, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 8}, "StartTime": 1570563254.968937}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max":
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"EndTime": 1570563254.969021, "Dimensions": {"model": 10, "Host": "algo-1",
"Operation": "training", "Algorithm": "Linear Learner", "epoch": 8},
"StartTime": 1570563254.969004}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max":
0.27749440288543703, "sum": 0.27749440288543703, "min": 0.27749440288543703}},
"EndTime": 1570563254.969087, "Dimensions": {"model": 11, "Host": "algo-1",
"Operation": "training", "Algorithm": "Linear Learner", "epoch": 8},
"StartTime": 1570563254.969069}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max":
0.3308125076293945, "sum": 0.3308125076293945, "min": 0.3308125076293945}},
"EndTime": 1570563254.969156, "Dimensions": {"model": 12, "Host": "algo-1",
"Operation": "training", "Algorithm": "Linear Learner", "epoch": 8},
"StartTime": 1570563254.969137}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max":
0.3126794548034668, "sum": 0.3126794548034668, "min": 0.3126794548034668}},
"EndTime": 1570563254.969209, "Dimensions": {"model": 13, "Host": "algo-1",
"Operation": "training", "Algorithm": "Linear Learner", "epoch": 8},
"StartTime": 1570563254.969193}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max":
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"EndTime": 1570563254.969272, "Dimensions": {"model": 14, "Host": "algo-1",
"Operation": "training", "Algorithm": "Linear Learner", "epoch": 8},
"StartTime": 1570563254.969254}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.34635191345214844, "sum": 0.34635191345214844, "min": 0.34635191345214844}}, "EndTime": 1570563254.969337, "Dimensions": {"model": 15, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 8}, "StartTime": 1570563254.969318}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.2770191059112549, "sum": 0.2770191059112549, "min": 0.2770191059112549}}, "EndTime": 1570563254.969406, "Dimensions": {"model": 16, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 8}, "StartTime": 1570563254.969388}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.2792269382476807, "sum": 0.2792269382476807, "min": 0.2792269382476807}}, "EndTime": 1570563254.969474, "Dimensions": {"model": 17, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 8}, "StartTime": 1570563254.969454}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.2774129619598389, "sum": 0.2774129619598389, "min": 0.2774129619598389}}, "EndTime": 1570563254.969532, "Dimensions": {"model": 18, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 8}, "StartTime": 1570563254.969513}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.27792465591430665, "sum": 0.27792465591430665, "min": 0.27792465591430665}}, "EndTime": 1570563254.969594, "Dimensions": {"model": 19, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 8}, "StartTime": 1570563254.969576}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.3695143051147461, "sum": 0.3695143051147461, "min": 0.3695143051147461}}, "EndTime": 1570563254.969659, "Dimensions": {"model": 20, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 8}, "StartTime": 1570563254.96964}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.3089654083251953, "sum": 0.3089654083251953, "min": 0.3089654083251953}}, "EndTime": 1570563254.969725, "Dimensions": {"model": 21, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 8}, "StartTime": 1570563254.969707}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.33390773582458494, "sum": 0.33390773582458494, "min": 0.33390773582458494}}, "EndTime": 1570563254.96979, "Dimensions": {"model": 22, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 8}, "StartTime": 1570563254.969772}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.30229786682128906, "sum": 0.30229786682128906, "min": 0.30229786682128906}}, "EndTime": 1570563254.969857, "Dimensions": {"model": 23, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 8}, "StartTime": 1570563254.969838}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.277798394203186, "sum": 0.277798394203186, "min": 0.277798394203186}}, "EndTime": 1570563254.969921, "Dimensions": {"model": 24, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 8}, "StartTime": 1570563254.969904}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.2777328405380249, "sum": 0.2777328405380249, "min": 0.2777328405380249}}, "EndTime": 1570563254.969985, "Dimensions": {"model": 25, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 8}, "StartTime": 1570563254.969968}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.2799564962387085, "sum": 0.2799564962387085, "min": 0.2799564962387085}}, "EndTime": 1570563254.970049, "Dimensions": {"model": 26, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 8}, "StartTime": 1570563254.970031}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.2811119995117187, "sum": 0.2811119995117187, "min": 0.2811119995117187}}, "EndTime": 1570563254.970112, "Dimensions": {"model": 27, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 8}, "StartTime": 1570563254.970095}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.3445319137573242, "sum": 0.3445319137573242, "min": 0.3445319137573242}}, "EndTime": 1570563254.970173, "Dimensions": {"model": 28, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 8}, "StartTime": 1570563254.970156}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.35000243377685547, "sum": 0.35000243377685547, "min": 0.35000243377685547}}, "EndTime": 1570563254.970229, "Dimensions": {"model": 29, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 8}, "StartTime": 1570563254.970212}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.32285279655456545, "sum": 0.32285279655456545, "min": 0.32285279655456545}}, "EndTime": 1570563254.970297, "Dimensions": {"model": 30, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 8}, "StartTime": 1570563254.97028}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.3275947303771973, "sum": 0.3275947303771973, "min": 0.3275947303771973}}, "EndTime": 1570563254.970365, "Dimensions": {"model": 31, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 8}, "StartTime": 1570563254.970346}

[10/08/2019 19:34:14 INFO 139632527419200] #quality_metric: host=algo-1, epoch=8, train absolute_loss_objective <loss>=0.278244886398
[10/08/2019 19:34:14 INFO 139632527419200] #early_stopping_criteria_metric: host=algo-1, epoch=8, criteria=absolute_loss_objective, value=0.2761574049
[10/08/2019 19:34:14 INFO 139632527419200] #progress_metric: host=algo-1, completed 90 % of epochs

#metrics {"Metrics": {"Max Batches Seen Between Resets": {"count": 1, "max": 11, "sum": 11.0, "min": 11}, "Number of Batches Since Last Reset": {"count": 1, "max": 11, "sum": 11.0, "min": 11}, "Number of Records Since Last Reset": {"count": 1, "max": 1055, "sum": 1055.0, "min": 1055}, "Total Batches Seen": {"count": 1, "max": 111, "sum": 111.0, "min": 111}, "Total Records Seen": {"count": 1, "max": 10650, "sum": 10650.0, "min": 10650}, "Max Records Seen Between Resets": {"count": 1, "max": 1055, "sum": 1055.0, "min": 1055}, "Reset Count": {"count": 1, "max": 11, "sum": 11.0, "min": 11}}, "EndTime": 1570563254.972741, "Dimensions": {"Host": "algo-1", "Meta": "training_data_iter", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 8}, "StartTime": 1570563254.707629}

[10/08/2019 19:34:14 INFO 139632527419200] #throughput_metric: host=algo-1, train throughput=3977.83082362 records/second

[2019-10-08 19:34:15.158] [tensorio] [info] epoch_stats={"data_pipeline":
"/opt/ml/input/data/train", "epoch": 22, "duration": 185, "num_examples": 11,
"num_bytes": 50640}
#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max":
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"EndTime": 1570563255.158562, "Dimensions": {"model": 0, "Host": "algo-1",
"Operation": "training", "Algorithm": "Linear Learner", "epoch": 9},
"StartTime": 1570563255.158464}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max":
0.278760703086853, "sum": 0.278760703086853, "min": 0.278760703086853}},
"EndTime": 1570563255.158639, "Dimensions": {"model": 1, "Host": "algo-1",
"Operation": "training", "Algorithm": "Linear Learner", "epoch": 9},
"StartTime": 1570563255.158624}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max":
0.27611442279815673, "sum": 0.27611442279815673, "min": 0.27611442279815673}},
"EndTime": 1570563255.158705, "Dimensions": {"model": 2, "Host": "algo-1",
"Operation": "training", "Algorithm": "Linear Learner", "epoch": 9},
"StartTime": 1570563255.158687}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max":
0.2770946359634399, "sum": 0.2770946359634399, "min": 0.2770946359634399}},
"EndTime": 1570563255.158771, "Dimensions": {"model": 3, "Host": "algo-1",
"Operation": "training", "Algorithm": "Linear Learner", "epoch": 9},
"StartTime": 1570563255.158752}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max":
0.32539962005615236, "sum": 0.32539962005615236, "min": 0.32539962005615236}},
"EndTime": 1570563255.158816, "Dimensions": {"model": 4, "Host": "algo-1",
"Operation": "training", "Algorithm": "Linear Learner", "epoch": 9},
"StartTime": 1570563255.158805}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.30433528900146484, "sum": 0.30433528900146484, "min": 0.30433528900146484}}, "EndTime": 1570563255.158869, "Dimensions": {"model": 5, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 9}, "StartTime": 1570563255.158858}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.29706095314025877, "sum": 0.29706095314025877, "min": 0.29706095314025877}}, "EndTime": 1570563255.158928, "Dimensions": {"model": 6, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 9}, "StartTime": 1570563255.15891}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.32333644199371336, "sum": 0.32333644199371336, "min": 0.32333644199371336}}, "EndTime": 1570563255.158995, "Dimensions": {"model": 7, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 9}, "StartTime": 1570563255.158977}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.2762366600036621, "sum": 0.2762366600036621, "min": 0.2762366600036621}}, "EndTime": 1570563255.159055, "Dimensions": {"model": 8, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 9}, "StartTime": 1570563255.159038}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.2775816421508789, "sum": 0.2775816421508789, "min": 0.2775816421508789}}, "EndTime": 1570563255.159118, "Dimensions": {"model": 9, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 9}, "StartTime": 1570563255.1591}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.2767691249847412, "sum": 0.2767691249847412, "min": 0.2767691249847412}}, "EndTime": 1570563255.159182, "Dimensions": {"model": 10, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 9}, "StartTime": 1570563255.159164}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.27891287994384767, "sum": 0.27891287994384767, "min": 0.27891287994384767}}, "EndTime": 1570563255.159243, "Dimensions": {"model": 11, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 9}, "StartTime": 1570563255.159227}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.3231306838989258, "sum": 0.3231306838989258, "min": 0.3231306838989258}}, "EndTime": 1570563255.159309, "Dimensions": {"model": 12, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 9}, "StartTime": 1570563255.159291}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.33141815185546875, "sum": 0.33141815185546875, "min": 0.33141815185546875}}, "EndTime": 1570563255.159373, "Dimensions": {"model": 13, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 9}, "StartTime": 1570563255.159354}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.3581920967102051, "sum": 0.3581920967102051, "min": 0.3581920967102051}}, "EndTime": 1570563255.159437, "Dimensions": {"model": 14, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 9}, "StartTime": 1570563255.159418}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.3317351760864258, "sum": 0.3317351760864258, "min": 0.3317351760864258}}, "EndTime": 1570563255.159501, "Dimensions": {"model": 15, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 9}, "StartTime": 1570563255.159483}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.27686468029022215, "sum": 0.27686468029022215, "min": 0.27686468029022215}}, "EndTime": 1570563255.159565, "Dimensions": {"model": 16, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 9}, "StartTime": 1570563255.159547}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.27867108631134035, "sum": 0.27867108631134035, "min": 0.27867108631134035}}, "EndTime": 1570563255.159629, "Dimensions": {"model": 17, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 9}, "StartTime": 1570563255.159612}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.2780975694656372, "sum": 0.2780975694656372, "min": 0.2780975694656372}}, "EndTime": 1570563255.159717, "Dimensions": {"model": 18, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 9}, "StartTime": 1570563255.159675}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.27720973777770996, "sum": 0.27720973777770996, "min": 0.27720973777770996}}, "EndTime": 1570563255.159787, "Dimensions": {"model": 19, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 9}, "StartTime": 1570563255.159767}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.36149750900268557, "sum": 0.36149750900268557, "min": 0.36149750900268557}}, "EndTime": 1570563255.159851, "Dimensions": {"model": 20, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 9}, "StartTime": 1570563255.159833}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.33979866790771485, "sum": 0.33979866790771485, "min": 0.33979866790771485}}, "EndTime": 1570563255.159919, "Dimensions": {"model": 21, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 9}, "StartTime": 1570563255.1599}

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#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.3286508369445801, "sum": 0.3286508369445801, "min": 0.3286508369445801}}, "EndTime": 1570563255.160051, "Dimensions": {"model": 23, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 9}, "StartTime": 1570563255.160032}

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#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.27797143363952637, "sum": 0.27797143363952637, "min": 0.27797143363952637}}, "EndTime": 1570563255.160175, "Dimensions": {"model": 25, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 9}, "StartTime": 1570563255.160157}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.2781037769317627, "sum": 0.2781037769317627, "min": 0.2781037769317627}}, "EndTime": 1570563255.160248, "Dimensions": {"model": 26, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 9}, "StartTime": 1570563255.160232}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.2786450881958008, "sum": 0.2786450881958008, "min": 0.2786450881958008}}, "EndTime": 1570563255.160322, "Dimensions": {"model": 27, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 9}, "StartTime": 1570563255.160302}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.3298923892974854, "sum": 0.3298923892974854, "min": 0.3298923892974854}}, "EndTime": 1570563255.160392, "Dimensions": {"model": 28, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 9}, "StartTime": 1570563255.160374}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.3077525997161865, "sum": 0.3077525997161865, "min": 0.3077525997161865}}, "EndTime": 1570563255.160455, "Dimensions": {"model": 29, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 9}, "StartTime": 1570563255.160436}

#metrics {"Metrics": {"train_absolute_loss_objective": {"count": 1, "max": 0.3617388038635254, "sum": 0.3617388038635254, "min": 0.3617388038635254}}, "EndTime": 1570563255.160517, "Dimensions": {"model": 30, "Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 9}, "StartTime": 1570563255.1605}

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[10/08/2019 19:34:15 INFO 139632527419200] #quality_metric: host=algo-1, epoch=9, train absolute_loss_objective <loss>=0.276658478737
[10/08/2019 19:34:15 INFO 139632527419200] #early_stopping_criteria_metric: host=algo-1, epoch=9, criteria=absolute_loss_objective, value=0.276114422798
[10/08/2019 19:34:15 INFO 139632527419200] #progress_metric: host=algo-1, completed 100 % of epochs
#metrics {"Metrics": {"Max Batches Seen Between Resets": {"count": 1, "max": 11, "sum": 11.0, "min": 11}, "Number of Batches Since Last Reset": {"count": 1, "max": 11, "sum": 11.0, "min": 11}, "Number of Records Since Last Reset": {"count": 1, "max": 1055, "sum": 1055.0, "min": 1055}, "Total Batches Seen": {"count": 1, "max": 122, "sum": 122.0, "min": 122}, "Total Records Seen": {"count": 1, "max": 11705, "sum": 11705.0, "min": 11705}, "Max Records Seen Between Resets": {"count": 1, "max": 1055, "sum": 1055.0, "min": 1055}, "Reset Count": {"count": 1, "max": 12, "sum": 12.0, "min": 12}}, "EndTime": 1570563255.162933, "Dimensions": {"Host": "algo-1", "Meta": "training_data_iter", "Operation": "training", "Algorithm": "Linear Learner", "epoch": 9}, "StartTime": 1570563254.973017}

[10/08/2019 19:34:15 INFO 139632527419200] #throughput_metric: host=algo-1, train throughput=5551.3760165 records/second
[10/08/2019 19:34:15 WARNING 139632527419200] wait_for_all_workers will not sync workers since the kv store is not running distributed

[10/08/2019 19:34:15 WARNING 139632527419200] wait_for_all_workers will not sync workers since the kv store is not running distributed
[2019-10-08 19:34:15.164] [tensorio] [info] epoch_stats={"data_pipeline": "/opt/ml/input/data/train", "epoch": 24, "duration": 0, "num_examples": 1, "num_bytes": 4800}
[2019-10-08 19:34:15.181] [tensorio] [info] epoch_stats={"data_pipeline": "/opt/ml/input/data/train", "epoch": 26, "duration": 14, "num_examples": 11, "num_bytes": 50640}
[10/08/2019 19:34:15 INFO 139632527419200] #train_score (algo-1) : ('absolute_loss_objective', 0.12050875849068447)
[10/08/2019 19:34:15 INFO 139632527419200] #train_score (algo-1) : ('mse', 0.20319909168080696)
[10/08/2019 19:34:15 INFO 139632527419200] #train_score (algo-1) : ('absolute_loss', 0.12050875849068447)
[10/08/2019 19:34:15 INFO 139632527419200] #quality_metric: host=algo-1, train absolute_loss_objective <loss>=0.120508758491
[10/08/2019 19:34:15 INFO 139632527419200] #quality_metric: host=algo-1, train mse <loss>=0.203199091681
[10/08/2019 19:34:15 INFO 139632527419200] #quality_metric: host=algo-1, train absolute_loss <loss>=0.120508758491
[10/08/2019 19:34:15 INFO 139632527419200] Best model found for hyperparameters: {"lr_scheduler_step": 100, "wd": 1, "optimizer": "adam", "lr_scheduler_factor": 0.99, "l1": 0.0, "learning_rate": 0.005, "lr_scheduler_minimum_lr": 1e-05}
[10/08/2019 19:34:15 INFO 139632527419200] Saved checkpoint to "/tmp/tmpvga8bm/mx-mod-0000.params"
[2019-10-08 19:34:15.186] [tensorio] [info] epoch_stats={"data_pipeline": "/opt/ml/input/data/test", "epoch": 0, "duration": 2630, "num_examples": 1, "num_bytes": 4800}
[2019-10-08 19:34:15.190] [tensorio] [info] epoch_stats={"data_pipeline": "/opt/ml/input/data/test", "epoch": 1, "duration": 4, "num_examples": 3, "num_bytes": 12672}

#metrics {"Metrics": {"Max Batches Seen Between Resets": {"count": 1,
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"Algorithm": "Linear Learner"}, "StartTime": 1570563255.186384}

```
[10/08/2019 19:34:15 INFO 139632527419200] #test_score (algo-1) :
('absolute_loss_objective', 0.09639909592541782)
[10/08/2019 19:34:15 INFO 139632527419200] #test_score (algo-1) : ('mse',
0.17012215202504938)
[10/08/2019 19:34:15 INFO 139632527419200] #test_score (algo-1) :
('absolute_loss', 0.09639909592541782)
[10/08/2019 19:34:15 INFO 139632527419200] #quality_metric: host=algo-1,
test absolute_loss_objective <loss>=0.0963990959254
[10/08/2019 19:34:15 INFO 139632527419200] #quality_metric: host=algo-1,
test mse <loss>=0.170122152025
[10/08/2019 19:34:15 INFO 139632527419200] #quality_metric: host=algo-1,
test absolute_loss <loss>=0.0963990959254
```

```
#metrics {"Metrics": {"totaltime": {"count": 1, "max": 2725.998878479004,
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19.06609535217285}, "initialize.time": {"count": 1, "max": 168.78819465637207,
"sum": 168.78819465637207, "min": 168.78819465637207},
"check_early_stopping.time": {"count": 10, "max": 1.4710426330566406, "sum":
8.99362564086914, "min": 0.1838207244873047}, "setuptime": {"count": 1, "max":
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"update.time": {"count": 10, "max": 314.5899772644043, "sum":
2433.2680702209473, "min": 189.72396850585938}, "epochs": {"count": 1, "max":
10, "sum": 10.0, "min": 10}}, "EndTime": 1570563255.194978, "Dimensions":
{"Host": "algo-1", "Operation": "training", "Algorithm": "Linear Learner"},
"StartTime": 1570563252.553913}
```

```
Training seconds: 74
Billable seconds: 74
```

1.4 Deploying the Model to Make Predictions

```python
[11]: # An instance of the lineal-learner predictor is created
      linear_predictor = linear.deploy(initial_instance_count=1, instance_type="ml.t2.
        ↪medium")
```

```
-----------------------------------------------------------------------------
----------------------------!
```

```python
[12]: # Linear predictor configurations
      linear_predictor.content_type = "text/csv"
      linear_predictor.serializer = csv_serializer
      linear_predictor.deserializer = json_deserializer
```

```python
[13]: # Making some predictions using the test data.
      result = linear_predictor.predict(X_test)
      y_predictions = np.array([r["score"] for r in result["predictions"]])
      y_predictions
```
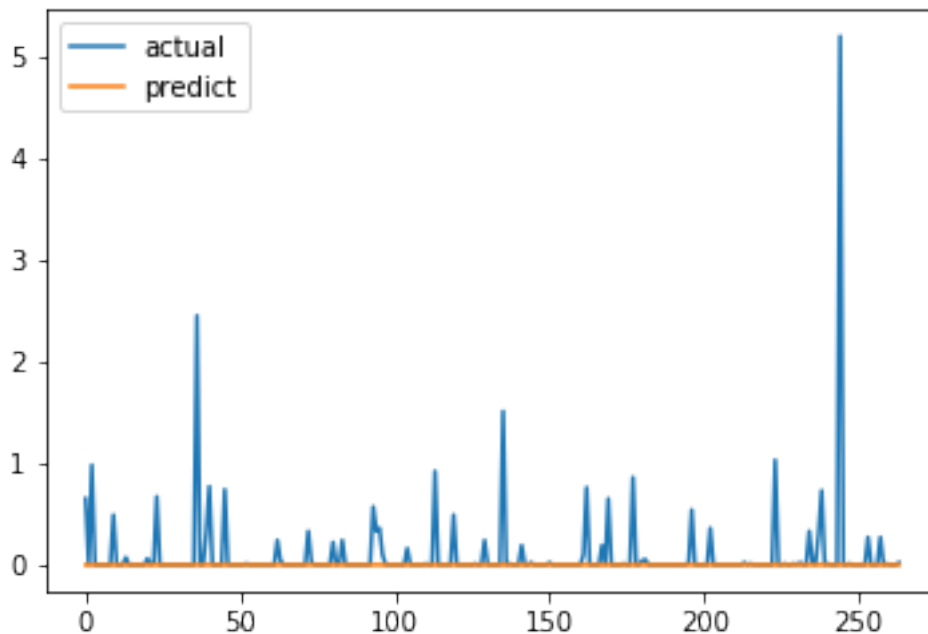
```
[13]: array([-0.00134384, -0.00131981, -0.00119362, -0.00148205, -0.00139792,
             -0.00126573, -0.00153613, -0.00122967, -0.00134985, -0.00124169,
             -0.00142196, -0.0013799 , -0.0013138 , -0.00127774, -0.00129577,
             -0.00140393, -0.00138591, -0.0012477 , -0.00141595, -0.0011816 ,
             -0.00123568, -0.00132582, -0.00149407, -0.0012477 , -0.00140393,
```

-0.00130178, -0.00121165, -0.00133183, -0.00127774, -0.00146402,
-0.00136788, -0.00120564, -0.00140393, -0.00141595, -0.00126573,
-0.00116958, -0.00127774, -0.00133183, -0.00116958, -0.00120564,
-0.00127774, -0.00133783, -0.00119362, -0.00125371, -0.00129577,
-0.00124169, -0.0011816 , -0.00121765, -0.00133183, -0.00127774,
-0.00120564, -0.00123568, -0.00129577, -0.00127174, -0.00121765,
-0.00119362, -0.00128375, -0.00125972, -0.00143999, -0.001446 ,
-0.0013799 , -0.0013138 , -0.00121765, -0.00128375, -0.00122967,
-0.00139792, -0.00124169, -0.00127174, -0.00128976, -0.00142196,
-0.00119362, -0.00118761, -0.00122366, -0.00124169, -0.00125371,
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-0.00121765, -0.00135586, -0.00120564, -0.00120564, -0.00117559,
-0.00128375, -0.00128375, -0.00139192, -0.00135586, -0.00126573,
-0.00121165, -0.00128976, -0.00127774, -0.0013138 , -0.00130178,
-0.00127774, -0.00126573, -0.00128976, -0.00136788, -0.00127174,
-0.0013138 , -0.00141595, -0.00118761, -0.0012477 , -0.00142797,
-0.00128976, -0.00117559, -0.0015181 , -0.0013799 , -0.00127774,
-0.00141595, -0.00127774, -0.00128976, -0.00125371, -0.00128375,
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-0.00127174, -0.00138591, -0.00115756, -0.0012477 , -0.00116958,
-0.00121765, -0.00138591, -0.00121165, -0.0013138 , -0.00130178,
-0.00137389, -0.00127174, -0.00127174, -0.00130178, -0.00127774,
-0.00136788, -0.00119362, -0.00136788, -0.0012477 , -0.00119963,
-0.00120564, -0.00124169, -0.00149407, -0.00119963, -0.00124169,
-0.00125371, -0.00122967, -0.00115756, -0.00127774, -0.00124169,
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-0.00142797, -0.00123568, -0.00134384, -0.00128375, -0.00116958,
-0.00123568, -0.0012477 , -0.00140393, -0.00125972, -0.00129577,
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-0.00119362, -0.00119362, -0.00121765, -0.0011816 , -0.00129577,
-0.0011816 , -0.00117559, -0.00136788, -0.00125371, -0.00121765,
-0.00121765, -0.00131981, -0.00125972, -0.00128375, -0.00145201,
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-0.00145201, -0.00127774, -0.0011816 , -0.00124169, -0.00150609,
-0.00125371, -0.00141595, -0.00147604, -0.0011816 , -0.00125371,
-0.00127174, -0.00122967, -0.00132582, -0.00127774, -0.00116357,
-0.00120564, -0.00127174, -0.00133783, -0.00122967, -0.00126573,
-0.00130779, -0.00130779, -0.00119362, -0.00121765, -0.00127174,
-0.00130178, -0.00138591, -0.00130779, -0.00133783, -0.00117559,
-0.00135586, -0.00122366, -0.00123568, -0.00121165, -0.00126573,

```
                    -0.00117559, -0.00123568, -0.00119362, -0.00142797])
```

1.5 Model Evaluation

```
[14]: # Plotting predicted Vs. actual values
      plt.plot(np.array(y_test), label="actual")
      plt.plot(y_predictions, label="predict")
      plt.legend()
      plt.show()
```



```
[15]: # Calculating the RMSE and R2 scores
      rmse = np.sqrt(mean_squared_error(y_test, y_predictions))
      r2 = r2_score(y_test, y_predictions)

      print("RMSE: {}".format(rmse))
      print("R2 score: {}".format(r2))
```

```
RMSE: 0.4124586814422249
R2 score: -0.05777938422689144
```

1.6 Delete Amazon SageMaker end-point

```
[16]: sagemaker.Session().delete_endpoint(linear_predictor.endpoint)
```