

In [1]:

```
import sagemaker
import boto3
from sagemaker import get_execution_role
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
from IPython.display import Image
from IPython.display import display
from time import gmtime, strftime
from sagemaker.predictor import csv_serializer
my_region = boto3.session.Session().region_name
role = get_execution_role()
prefix = 'sagemaker/DEMO-xgboost-dm'
containers = {'us-west-2': '433757028032.dkr.ecr.us-west-2.amazonaws.com/xgboost:la
test',
              'us-east-1': '811284229777.dkr.ecr.us-east-1.amazonaws.com/xgboost:la
test',
              'us-east-2': '825641698319.dkr.ecr.us-east-2.amazonaws.com/xgboost:la
test',
              'eu-west-1': '685385470294.dkr.ecr.eu-west-1.amazonaws.com/xgboost:la
test',}
print("Success - the MySageMakerInstance is in the " + my_region + " region. You wi
ll use the " + containers[my_region] + " container for your SageMaker endpoint.")
```

Couldn't call 'get_role' to get Role ARN from role name AmazonSageMaker-ExecutionRole-20210523T205017 to get Role path.

Assuming role was created in SageMaker AWS console, as the name contains 'AmazonSageMaker-ExecutionRole'. Defaulting to Role ARN with service-role in path. If this Role ARN is incorrect, please add IAM read permissions to your role or supply the Role Arn directly.

Success - the MySageMakerInstance is in the us-east-2 region. You will use the 825641698319.dkr.ecr.us-east-2.amazonaws.com/xgboost:latest container for your SageMaker endpoint.

In [2]:

```
bucket_name = 'medical-prognosis-pred'
s3 = boto3.resource('s3')
try:
    if my_region == 'us-east-1':
        s3.create_bucket(Bucket=bucket_name)
    else:
        s3.create_bucket(Bucket=bucket_name, CreateBucketConfiguration={'LocationCon
straint': my_region })
    print('S3 bucket created successfully')
except Exception as e:
    print('S3 error: ',e)
```

S3 bucket created successfully

In [3]:

```
a=pd.read_csv('X_data.csv')
```

In [4]:

```
a.head()
```

Out[4]:

	Unnamed: 0	Age	Systolic_BP	Diastolic_BP	Cholesterol
0	0	77.196340	85.288742	80.021878	79.957109
1	1	63.529850	99.379736	84.852361	110.382411
2	2	69.003986	111.349455	109.850616	100.828246
3	3	82.638210	95.056128	79.666851	87.066303
4	4	78.346286	109.154591	90.713220	92.511770

In [5]:

```
df=pd.read_csv('y_data.csv')
```

In [6]:

```
a.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 6000 entries, 0 to 5999
Data columns (total 5 columns):
#   Column          Non-Null Count  Dtype
---  -
0   Unnamed: 0      6000 non-null   int64
1   Age             6000 non-null   float64
2   Systolic_BP     6000 non-null   float64
3   Diastolic_BP    6000 non-null   float64
4   Cholesterol      6000 non-null   float64
dtypes: float64(4), int64(1)
memory usage: 234.5 KB
```

In [7]:

```
merged = a.merge(df, on = 'Unnamed: 0')
```

In [8]:

```
merged.head()
```

Out[8]:

	Unnamed: 0	Age	Systolic_BP	Diastolic_BP	Cholesterol	y
0	0	77.196340	85.288742	80.021878	79.957109	1.0
1	1	63.529850	99.379736	84.852361	110.382411	1.0
2	2	69.003986	111.349455	109.850616	100.828246	1.0
3	3	82.638210	95.056128	79.666851	87.066303	1.0
4	4	78.346286	109.154591	90.713220	92.511770	1.0

In [9]:

```
merged.info()
```

```
<class 'pandas.core.frame.DataFrame'>
Int64Index: 6000 entries, 0 to 5999
Data columns (total 6 columns):
#   Column          Non-Null Count  Dtype
---  -
0   Unnamed: 0      6000 non-null   int64
1   Age             6000 non-null   float64
2   Systolic_BP     6000 non-null   float64
3   Diastolic_BP    6000 non-null   float64
4   Cholesterol     6000 non-null   float64
5   y               6000 non-null   float64
dtypes: float64(5), int64(1)
memory usage: 328.1 KB
```

In [52]:

```
merged.to_csv('new_data_frame.csv')
```

In [10]:

```
df1=merged.drop(['Unnamed: 0'],axis=1)
```

In [11]:

```
df1.info()
```

```
<class 'pandas.core.frame.DataFrame'>
Int64Index: 6000 entries, 0 to 5999
Data columns (total 5 columns):
 #   Column          Non-Null Count  Dtype  
---  -
 0   Age             6000 non-null   float64
 1   Systolic_BP     6000 non-null   float64
 2   Diastolic_BP    6000 non-null   float64
 3   Cholesterol     6000 non-null   float64
 4   y               6000 non-null   float64
dtypes: float64(5)
memory usage: 281.2 KB
```

In [12]:

```
df1.head()
```

Out[12]:

	Age	Systolic_BP	Diastolic_BP	Cholesterol	y
0	77.196340	85.288742	80.021878	79.957109	1.0
1	63.529850	99.379736	84.852361	110.382411	1.0
2	69.003986	111.349455	109.850616	100.828246	1.0
3	82.638210	95.056128	79.666851	87.066303	1.0
4	78.346286	109.154591	90.713220	92.511770	1.0

In [13]:

```
df1.shape
```

Out[13]:

```
(6000, 5)
```

In [14]:

```
from sklearn.preprocessing import LabelEncoder
le = LabelEncoder()
for i in df1:
    if df1[i].dtype=='object':
        df1[i] = le.fit_transform(df1[i])
    else:
        continue
```

In [15]:

```
df1.fillna(0)
```

Out[15]:

	Age	Systolic_BP	Diastolic_BP	Cholesterol	y
0	77.196340	85.288742	80.021878	79.957109	1.0
1	63.529850	99.379736	84.852361	110.382411	1.0
2	69.003986	111.349455	109.850616	100.828246	1.0
3	82.638210	95.056128	79.666851	87.066303	1.0
4	78.346286	109.154591	90.713220	92.511770	1.0
...
5995	49.611850	94.857639	86.615671	107.643986	0.0
5996	63.099686	100.039527	93.515186	104.971404	1.0
5997	55.562243	98.421446	102.697875	120.875951	1.0
5998	63.468956	106.809289	88.060631	106.052213	1.0
5999	62.506825	96.900784	86.878033	108.625436	0.0

6000 rows × 5 columns

In [18]:

```
train_data, test_data = np.split(df1.sample(frac=1, random_state=1729), [int(0.7 * len(df1))])
print(train_data.shape, test_data.shape)
```

(4200, 5) (1800, 5)

In [19]:

```
import os
```

In [49]:

```
pd.concat([train_data['y'], train_data.drop(['y'], axis=1)], axis=1).to_csv('train.csv', index=False, header=False)
boto3.Session().resource('s3').Bucket(bucket_name).Object(os.path.join(prefix, 'train/train.csv')).upload_file('train.csv')
s3_input_train = sagemaker.inputs.TrainingInput(s3_data='s3://{}/{}/train'.format(bucket_name, prefix), content_type='csv')
```

In [22]:

```
pd.concat([test_data['y'], test_data.drop(['y'], axis=1)], axis=1).to_csv('test.csv', index=False, header=False)
boto3.Session().resource('s3').Bucket(bucket_name).Object(os.path.join(prefix, 'test/test.csv')).upload_file('test.csv')
s3_input_validation = sagemaker.inputs.TrainingInput(s3_data='s3://{}/{}/test'.format(bucket_name, prefix), content_type='csv')
```

In [23]:

```
from sagemaker.amazon.amazon_estimator import get_image_uri
container = get_image_uri(boto3.Session().region_name, 'xgboost', 'latest')
```

The method `get_image_uri` has been renamed in `sagemaker>=2`.
See: <https://sagemaker.readthedocs.io/en/stable/v2.html> for details.

In [24]:

```
sess = sagemaker.Session()
xgb = sagemaker.estimator.Estimator(containers[my_region], role, train_instance_count=1, train_instance_type='ml.m4.xlarge', output_path='s3://{}/{}/output'.format(bucket_name, prefix), sagemaker_session=sess)
xgb.set_hyperparameters(max_depth=6, eta=0.2, gamma=4, min_child_weight=6, objective='binary:logistic', num_round=100)
```

`train_instance_count` has been renamed in `sagemaker>=2`.
See: <https://sagemaker.readthedocs.io/en/stable/v2.html> for details.
`train_instance_type` has been renamed in `sagemaker>=2`.
See: <https://sagemaker.readthedocs.io/en/stable/v2.html> for details.

In [25]:

```
xgb.fit({'train': s3_input_train, 'validation': s3_input_validation})
```

2021-10-16 22:21:38 Starting - Starting the training job...
2021-10-16 22:22:02 Starting - Launching requested ML instancesProfiler
Report-1634422898: InProgress
...
2021-10-16 22:22:31 Starting - Preparing the instances for training
g.....
2021-10-16 22:24:06 Downloading - Downloading input data...
2021-10-16 22:24:23 Training - Downloading the training image..Argument
s: train
[2021-10-16:22:24:49:INFO] Running standalone xgboost training.
[2021-10-16:22:24:49:INFO] File size need to be processed in the node:
0.44mb. Available memory size in the node: 8370.28mb
[2021-10-16:22:24:49:INFO] Determined delimiter of CSV input is ','
[22:24:49] S3DistributionType set as FullyReplicated
[22:24:49] 4200x4 matrix with 16800 entries loaded from /opt/ml/input/d
ata/train?format=csv&label_column=0&delimiter=,
[2021-10-16:22:24:49:INFO] Determined delimiter of CSV input is ','
[22:24:49] S3DistributionType set as FullyReplicated
[22:24:49] 1800x4 matrix with 7200 entries loaded from /opt/ml/input/d
ata/validation?format=csv&label_column=0&delimiter=,
[22:24:49] src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 62
extra nodes, 28 pruned nodes, max_depth=6
[0]#011train-error:0.249048#011validation-error:0.268889
[22:24:49] src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 60
extra nodes, 34 pruned nodes, max_depth=6
[1]#011train-error:0.235952#011validation-error:0.258889
[22:24:49] src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 50
extra nodes, 38 pruned nodes, max_depth=6
[2]#011train-error:0.236429#011validation-error:0.253889
[22:24:49] src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 48
extra nodes, 46 pruned nodes, max_depth=6
[3]#011train-error:0.233333#011validation-error:0.257778
[22:24:49] src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 52
extra nodes, 44 pruned nodes, max_depth=6
[4]#011train-error:0.231667#011validation-error:0.254444
[22:24:49] src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 54
extra nodes, 32 pruned nodes, max_depth=6
[5]#011train-error:0.228333#011validation-error:0.249444
[22:24:49] src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 34
extra nodes, 40 pruned nodes, max_depth=6
[6]#011train-error:0.229286#011validation-error:0.251111
[22:24:49] src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 32
extra nodes, 50 pruned nodes, max_depth=6
[7]#011train-error:0.226429#011validation-error:0.249444
[22:24:49] src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30
extra nodes, 36 pruned nodes, max_depth=6
[8]#011train-error:0.227619#011validation-error:0.249444
[22:24:49] src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36
extra nodes, 28 pruned nodes, max_depth=6
[9]#011train-error:0.22881#011validation-error:0.248333
[22:24:49] src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 34
extra nodes, 30 pruned nodes, max_depth=6
[10]#011train-error:0.227619#011validation-error:0.246667
[22:24:49] src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 24
extra nodes, 16 pruned nodes, max_depth=6
[11]#011train-error:0.225714#011validation-error:0.245
[22:24:49] src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 24

[illegible]

[illegible]

[illegible]

[illegible]

```
xtra nodes, 20 pruned nodes, max_depth=0
[88]#011train-error:0.223095#011validation-error:0.246667
[22:24:49] src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 0 e
xtra nodes, 20 pruned nodes, max_depth=0
[89]#011train-error:0.223095#011validation-error:0.246667
[22:24:49] src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 0 e
xtra nodes, 20 pruned nodes, max_depth=0
[90]#011train-error:0.223095#011validation-error:0.246667
[22:24:49] src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 0 e
xtra nodes, 20 pruned nodes, max_depth=0
[91]#011train-error:0.223095#011validation-error:0.246667
[22:24:49] src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 0 e
xtra nodes, 20 pruned nodes, max_depth=0
[92]#011train-error:0.223095#011validation-error:0.246667
[22:24:49] src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 0 e
xtra nodes, 20 pruned nodes, max_depth=0
[93]#011train-error:0.223095#011validation-error:0.246667
[22:24:49] src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 0 e
xtra nodes, 20 pruned nodes, max_depth=0
[94]#011train-error:0.223095#011validation-error:0.246667
[22:24:49] src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 0 e
xtra nodes, 20 pruned nodes, max_depth=0
[95]#011train-error:0.223095#011validation-error:0.246667
[22:24:49] src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 0 e
xtra nodes, 20 pruned nodes, max_depth=0
[96]#011train-error:0.223095#011validation-error:0.246667
[22:24:49] src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 0 e
xtra nodes, 20 pruned nodes, max_depth=0
[97]#011train-error:0.223095#011validation-error:0.246667
[22:24:49] src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 0 e
xtra nodes, 20 pruned nodes, max_depth=0
[98]#011train-error:0.223095#011validation-error:0.246667
[99]#011train-error:0.223095#011validation-error:0.246667
[22:24:49] src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 0 e
xtra nodes, 20 pruned nodes, max_depth=0
```

```
2021-10-16 22:25:03 Uploading - Uploading generated training model
2021-10-16 22:25:03 Completed - Training job completed
Training seconds: 56
Billable seconds: 56
```

In [26]:

```
from sagemaker import session
from sagemaker.model_monitor import DefaultModelMonitor
from sagemaker.model_monitor import EndpointInput
from sagemaker.model_monitor.dataset_format import DatasetFormat
```

In [27]:

```
from sagemaker.model_monitor import DataCaptureConfig
data_capture_prefix = '{} /datacapture'.format(prefix)
data_capture_config = DataCaptureConfig(
    kms_key_id=None,
    capture_options=["REQUEST", "RESPONSE"],
    csv_content_types=["text/csv"],
    enable_capture=True,
    sampling_percentage=100,
    destination_s3_uri='s3://{}/{}'.format(bucket_name, data_capture_prefix))

predictor = xgb.deploy(
    initial_instance_count=1,
    instance_type='ml.m4.xlarge',
    data_capture_config=data_capture_config
)
```

-----!

In [28]:

```
xgb.set_hyperparameters(
    eval_metric="auc",
    objective="binary:logistic",
    num_round=10,
    rate_drop=0.3,
    tweedie_variance_power=1.4,
)
objective_metric_name = "validation:auc"
```

In [31]:

```
from sagemaker.tuner import IntegerParameter
from sagemaker.tuner import ContinuousParameter
from sagemaker.tuner import HyperparameterTuner
```

In [32]:

```
hyperparameter_ranges = {
    "alpha": ContinuousParameter(0.01, 10, scaling_type="Logarithmic"),
    "lambda": ContinuousParameter(0.01, 10, scaling_type="Logarithmic"),
}
```


In [33]:

```
tuner_log = HyperparameterTuner(
    xgb,
    objective_metric_name,
    hyperparameter_ranges,
    max_jobs=3,
    max_parallel_jobs=3,
    strategy="Random",
)

tuner_log.fit(
    {"train": s3_input_train, "validation": s3_input_validation}, include_cls_metadata=False
)
```

.....!

In [35]:

```
boto3.client("sagemaker").describe_hyper_parameter_tuning_job(
    HyperParameterTuningJobName=tuner_log.latest_tuning_job.job_name
)["HyperParameterTuningJobStatus"]
```

Out[35]:

'Completed'

In [36]:

```
xgb = sagemaker.estimator.Estimator.attach('xgboost-211016-2235-001-e74cbb63')
```

```
2021-10-16 22:39:29 Starting - Preparing the instances for training
2021-10-16 22:39:29 Downloading - Downloading input data
2021-10-16 22:39:29 Training - Training image download completed. Training in progress.
2021-10-16 22:39:29 Uploading - Uploading generated training model
2021-10-16 22:39:29 Completed - Training job completed
```

In [37]:

```
predictor2 = xgb.deploy(
    initial_instance_count=1,
    instance_type='ml.m4.xlarge',
    data_capture_config=data_capture_config
)
```

-----!

In [76]:

```
predictor2.serializer = csv_serializer
```

In [55]:

```
def predict(data, rows=500):
    split_array = np.array_split(data, int(data.shape[0] / float(rows) + 1))
    predictions = ''
    for array in split_array:
        predictions = ','.join([predictions, predictor.predict(array).decode('utf-8')])

    return np.fromstring(predictions[1:], sep=',')

predictions = predict(test_data.to_numpy()[:,1:])
predictions
```

The csv_serializer has been renamed in sagemaker>=2.
See: <https://sagemaker.readthedocs.io/en/stable/v2.html> for details.
The csv_serializer has been renamed in sagemaker>=2.
See: <https://sagemaker.readthedocs.io/en/stable/v2.html> for details.
The csv_serializer has been renamed in sagemaker>=2.
See: <https://sagemaker.readthedocs.io/en/stable/v2.html> for details.
The csv_serializer has been renamed in sagemaker>=2.
See: <https://sagemaker.readthedocs.io/en/stable/v2.html> for details.

Out[55]:

```
array([0.85703117, 0.88215631, 0.59025669, ..., 0.92594552, 0.88215631,
       0.91218835])
```

In [56]:

```
cm = pd.crosstab(index=test_data['y'], columns=np.round(predictions), rownames=['actuals'], colnames= ['predicted'])
```

In [57]:

```
tn = cm.iloc[0,0]; fn = cm.iloc[1,0]; tp = cm.iloc[1,1]; fp = cm.iloc[0,1]; p = (tp + tn) / (tp + tn + fp + fn) * 100
print("\n{0:<20}{1:<4.1f}%\n".format("Overall Classification Rate: ", p))
print("{0:<15}{1:<15}{2:>8}".format("Predicted", "retinopathy", "no retinopathy"))
print("Observed")
print("{0:<15}{1:<2.0f}% ({2:<}){3:>6.0f}% ({4:<})".format("retinopathy", tn / (tn + fn) * 100, tn, fp / (tp + fp) * 100, fp))
print("{0:<16}{1:<1.0f}% ({2:<}){3:>7.0f}% ({4:<}) \n".format("no retinopathy", fn / (tn + fn) * 100, fn, tp / (tp + fp) * 100, tp))
```

Overall Classification Rate: 51.7%

Predicted	retinopathy	no retinopathy
Observed		
retinopathy	80% (4)	48% (868)
no retinopathy	20% (1)	52% (927)

In [99]:

```
test_data_array = test_data.drop(['y'], axis=1).values
```


In [100]:

```
preds = predictor2.predict(test_data_array)
```

The csv_serializer has been renamed in sagemaker>=2.
See: <https://sagemaker.readthedocs.io/en/stable/v2.html> for details.

In [103]:

```
def predict(data, rows=500):
    split_array = np.array_split(data, int(data.shape[0] / float(rows) + 1))
    predictions = ''
    for array in split_array:
        predictions = ','.join([predictions, predictor2.predict(array).decode('utf-8')])

    return np.fromstring(preds[1:], sep=',')
```

In [108]:

```
predictions2 = predict(test_data.to_numpy()[:,1:])
predictions2
```

The csv_serializer has been renamed in sagemaker>=2.
See: <https://sagemaker.readthedocs.io/en/stable/v2.html> for details.
The csv_serializer has been renamed in sagemaker>=2.
See: <https://sagemaker.readthedocs.io/en/stable/v2.html> for details.
The csv_serializer has been renamed in sagemaker>=2.
See: <https://sagemaker.readthedocs.io/en/stable/v2.html> for details.
The csv_serializer has been renamed in sagemaker>=2.
See: <https://sagemaker.readthedocs.io/en/stable/v2.html> for details.

Out[108]:

```
array([0.4433229 , 0.59193009, 0.20107041, ..., 0.84459567, 0.29342049,
        0.23289816])
```

In [110]:

```
cim =pd.crosstab(index=test_data['y'],columns=np.round(predictions2), rownames=['actuals'], colnames= ['predicted'])
```

In [111]:

```
tn = cim.iloc[0,0]; fn = cim.iloc[1,0]; tp = cim.iloc[1,1]; fp = cim.iloc[0,1]; p =
(tp+tn)/(tp+tn+fp+fn)*100
print("\n{0:<20}{1:<4.1f}%\n".format("Overall Classification Rate: ", p))
print("{0:<15}{1:<15}{2:>8}".format("Predicted", "retinopathy", "no retinopathy"))
print("Observed")
print("{0:<15}{1:<2.0f}% ({2:<}){3:>6.0f}% ({4:<})".format("retinopathy", tn/(tn+fn)
)*100,tn, fp/(tp+fp)*100, fp))
print("{0:<16}{1:<1.0f}% ({2:<}){3:>7.0f}% ({4:<}) \n".format("no retinopathy", fn/
(tn+fn)*100,fn, tp/(tp+fp)*100, tp))
```

Overall Classification Rate: 75.5%

Predicted	retinopathy	no retinopathy
Observed		
retinopathy	76% (629)	25% (243)
no retinopathy	24% (198)	75% (730)

In [44]:

```
runtime_client = boto3.client('runtime.sagemaker')

treatment = '63.468956,106.809289,88.060631,106.052213  '
response = runtime_client.invoke_endpoint(EndpointName='xgboost-2021-10-16-22-43-13
-915',
                                         Body=treatment)
```

In [45]:

```
result = response['Body'].read()
result = result.decode("utf-8")
print(result)
```

0.7546769380569458

In [53]:

```
from sagemaker.model_monitor import DefaultModelMonitor
from sagemaker.model_monitor.dataset_format import DatasetFormat

my_monitor = DefaultModelMonitor(
    role=role,
    instance_count=1,
    instance_type='ml.m5.xlarge',
    volume_size_in_gb=1,
    max_runtime_in_seconds=360,
)

my_monitor.suggest_baseline(
    baseline_dataset='new_data_frame.csv',
    dataset_format=DatasetFormat.csv(header=True),
)
```

Job Name: baseline-suggestion-job-2021-10-16-23-12-46-930

Inputs: [{'InputName': 'baseline_dataset_input', 'AppManaged': False, 'S3Input': {'S3Uri': 's3://sagemaker-us-east-2-218569345886/model-monitor/baselining/baseline-suggestion-job-2021-10-16-23-12-46-930/input/baseline_dataset_input', 'LocalPath': '/opt/ml/processing/input/baseline_dataset_input', 'S3DataType': 'S3Prefix', 'S3InputMode': 'File', 'S3DataDistributionType': 'FullyReplicated', 'S3CompressionType': 'None'}}]

Outputs: [{'OutputName': 'monitoring_output', 'AppManaged': False, 'S3Output': {'S3Uri': 's3://sagemaker-us-east-2-218569345886/model-monitor/baselining/baseline-suggestion-job-2021-10-16-23-12-46-930/results', 'LocalPath': '/opt/ml/processing/output', 'S3UploadMode': 'EndOfJob'}}]

.....2021-10-16 23:16:55,839 - matplotlib.font_manager - INFO - Generating new fontManager, this may take some time...

2021-10-16 23:16:56.363472: W tensorflow/stream_executor/platform/default/dso_loader.cc:64] Could not load dynamic library 'libcudart.so.11.0'; dLError: libcudart.so.11.0: cannot open shared object file: No such file or directory

2021-10-16 23:16:56.363500: I tensorflow/stream_executor/cuda/cudart_stub.cc:29] Ignore above cudart dLError if you do not have a GPU set up on your machine.

2021-10-16 23:16:57.771430: W tensorflow/stream_executor/platform/default/dso_loader.cc:64] Could not load dynamic library 'libcuda.so.1'; dLError: libcuda.so.1: cannot open shared object file: No such file or directory

2021-10-16 23:16:57.771458: W tensorflow/stream_executor/cuda/cuda_driver.cc:326] failed call to cuInit: UNKNOWN ERROR (303)

2021-10-16 23:16:57.771481: I tensorflow/stream_executor/cuda/cuda_diagnostics.cc:156] kernel driver does not appear to be running on this host (ip-10-0-134-125.us-east-2.compute.internal): /proc/driver/nvidia/version does not exist

2021-10-16 23:16:57.771746: I tensorflow/core/platform/cpu_feature_guard.cc:142] This TensorFlow binary is optimized with oneAPI Deep Neural Network Library (oneDNN) to use the following CPU instructions in performance-critical operations: AVX2 AVX512F FMA

To enable them in other operations, rebuild TensorFlow with the appropriate compiler flags.

2021-10-16 23:16:58,968 - __main__ - INFO - All params: {'ProcessingJobArn': 'arn:aws:sagemaker:us-east-2:218569345886:processing-job/baseline-suggestion-job-2021-10-16-23-12-46-930', 'ProcessingJobName': 'baseline-suggestion-job-2021-10-16-23-12-46-930', 'Environment': {'dataset_format': '{"csv": {"header": true, "output_columns_position": "START"}}', 'dataset_source': '/opt/ml/processing/input/baseline_dataset_input', 'output_path': '/opt/ml/processing/output', 'publish_cloudwatch_metrics': 'Disabled'}, 'AppSpecification': {'ImageUri': '777275614652.dkr.ecr.us-east-2.amazonaws.com/sagemaker-model-monitor-analyzer', 'ContainerEntrypoint': None, 'ContainerArguments': None}, 'ProcessingInputs': [{'InputName': 'baseline_dataset_input', 'AppManaged': False, 'S3Input': {'LocalPath': '/opt/ml/processing/input/baseline_dataset_input', 'S3Uri': 's3://sagemaker-us-east-2-218569345886/model-monitor/baselining/baseline-suggestion-job-2021-10-16-23-12-46-930/input/baseline_dataset_input', 'S3DataDistributionType': 'FullyReplicated', 'S3DataType': 'S3Prefix', 'S3InputMode': 'File', 'S3CompressionType': 'None', 'S3DownloadMode': 'StartOfJob'}, 'DatasetDefinition': None}], 'ProcessingOutputConfig': {'Outputs': [{'OutputName': 'monitoring_output', 'AppManaged': False, 'S3Output': {'LocalPath': '/opt/ml/processing/output', 'S3Uri': 's3://sagemaker-us-east-2-218569345886/model-monitor/baselining/baseline-suggestion-job-2021-10-16-23-12-46-930/results', 'S3UploadMode': 'EndOf

```
Job'}, 'FeatureStoreOutput': None]], 'KmsKeyId': None}, 'ProcessingResources': {'ClusterConfig': {'InstanceCount': 1, 'InstanceType': 'ml.m5.xlarge', 'VolumeSizeInGB': 1, 'VolumeKmsKeyId': None}}, 'RoleArn': 'arn:aws:iam::218569345886:role/service-role/AmazonSageMaker-ExecutionRole-20210523T205017', 'StoppingCondition': {'MaxRuntimeInSeconds': 360}}
2021-10-16 23:16:58,968 - __main__ - INFO - Current Environment: {'dataset_format': {'"csv": {"header": true, "output_columns_position": "START"}}', 'dataset_source': '/opt/ml/processing/input/baseline_dataset_input', 'output_path': '/opt/ml/processing/output', 'publish_cloudwatch_metrics': 'Disabled'}
2021-10-16 23:16:58,968 - DefaultDataAnalyzer - INFO - Performing analysis with input: {"dataset_source": "/opt/ml/processing/input/baseline_dataset_input", "dataset_format": {"csv": {"header": true, "output_columns_position": "START"}}, "output_path": "/opt/ml/processing/output", "analysis_type": null, "problem_type": null, "inference_attribute": null, "probability_attribute": null, "ground_truth_attribute": null, "probability_threshold_attribute": null, "positive_label": null, "record_preprocessor_script": null, "post_analytics_processor_script": null, "baseline_constraints": null, "baseline_statistics": null, "start_time": null, "end_time": null, "metric_time": null, "cloudwatch_metrics_directory": "/opt/ml/output/metrics/cloudwatch", "publish_cloudwatch_metrics": "Disabled", "sagemaker_endpoint_name": null, "sagemaker_monitoring_schedule_name": null, "output_message_file": "/opt/ml/output/message", "detect_outliers": null, "detect_drift": null, "image_data": null, "report_enabled": false, "auto_ml_job_detail": null}
2021-10-16 23:16:58,968 - DefaultDataAnalyzer - INFO - Bootstrapping yarn
2021-10-16 23:16:58,968 - bootstrap - INFO - Copy aws jars
2021-10-16 23:16:59,023 - bootstrap - INFO - Copy cluster config
2021-10-16 23:16:59,024 - bootstrap - INFO - Write runtime cluster config
2021-10-16 23:16:59,024 - bootstrap - INFO - Resource Config is: {'current_host': 'algo-1', 'hosts': ['algo-1']}
2021-10-16 23:16:59,031 - bootstrap - INFO - Finished Yarn configuration files setup.
2021-10-16 23:16:59,032 - bootstrap - INFO - Starting spark process for master node algo-1
2021-10-16 23:16:59,032 - bootstrap - INFO - Running command: /usr/hadoop-3.0.0/bin/hdfs namenode -format -force
WARNING: /usr/hadoop-3.0.0/logs does not exist. Creating.
2021-10-16 23:16:59,496 INFO namenode.NameNode: STARTUP_MSG:
/*****
STARTUP_MSG: Starting NameNode
STARTUP_MSG:   host = algo-1/10.0.134.125
STARTUP_MSG:   args = [-format, -force]
STARTUP_MSG:   version = 3.0.0
STARTUP_MSG:   classpath = /usr/hadoop-3.0.0/etc/hadoop:/usr/hadoop-3.0.0/share/hadoop/common/lib/commons-net-3.1.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/curator-client-2.12.0.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/junit-4.11.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/kerby-xdr-1.0.1.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/jsr305-3.0.0.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/jackson-xc-1.9.13.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/metrics-core-3.0.1.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/jackson-mapper-asl-1.9.13.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/jetty-server-9.3.19.v20170502.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/javax.servlet-api-3.1.0.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/kerb-identity-1.0.1.jar:/u
```

sr/hadoop-3.0.0/share/hadoop/common/lib/zookeeper-3.4.9.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/accessors-smart-1.2.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/jersey-servlet-1.19.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/jersey-server-1.19.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/commons-cli-1.2.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/jackson-databind-2.7.8.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/slf4j-api-1.7.25.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/commons-compress-1.4.1.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/nimbus-jose-jwt-4.41.1.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/avro-1.7.7.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/kerby-config-1.0.1.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/httpclient-4.5.2.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/commons-beanutils-1.9.3.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/token-provider-1.0.1.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/jaxb-impl-2.2.3-1.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/commons-codec-1.4.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/gson-2.2.4.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/xz-1.0.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/kerb-server-1.0.1.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/jetty-servlet-9.3.19.v20170502.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/jackson-core-asl-1.9.13.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/httpcore-4.4.4.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/jsp-api-2.1.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/kerby-pkix-1.0.1.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/hadoop-auth-3.0.0.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/jackson-annotations-2.7.8.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/curator-recipes-2.12.0.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/slf4j-log4j12-1.7.25.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/paranamer-2.3.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/jsr311-api-1.1.1.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/mockito-all-1.8.5.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/guava-11.0.2.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/jetty-http-9.3.19.v20170502.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/jackson-jaxrs-1.9.13.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/hadoop-annotations-3.0.0.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/jersey-core-1.19.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/jsch-0.1.54.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/jetty-util-9.3.19.v20170502.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/commons-lang-2.6.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/netty-3.10.5.Final.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/log4j-1.2.17.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/jersey-json-1.19.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/protobuf-java-2.5.0.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/jetty-webapp-9.3.19.v20170502.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/jetty-security-9.3.19.v20170502.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/commons-logging-1.1.3.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/kerb-common-1.0.1.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/commons-lang3-3.4.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/htrace-core4-4.1.0-incubating.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/woodstox-core-5.0.3.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/commons-collections-3.2.2.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/json-smart-2.3.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/snappy-java-1.0.5.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/asm-5.0.4.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/hamcrest-core-1.3.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/jetty-io-9.3.19.v20170502.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/jackson-core-2.7.8.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/stax2-api-3.1.4.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/jaxb-api-2.2.11.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/kerb-admin-1.0.1.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/kerb-util-1.0.1.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/commons-math3-3.1.

1.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/kerb-core-1.0.1.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/jetty-xml-9.3.19.v20170502.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/re2j-1.1.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/kerb-simplekdc-1.0.1.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/kerb-client-1.0.1.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/jul-to-slf4j-1.7.25.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/jettison-1.1.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/kerby-util-1.0.1.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/jcip-annotations-1.0-1.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/commons-configuration2-2.1.1.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/kerby-asn1-1.0.1.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/kerb-crypto-1.0.1.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/curator-framework-2.12.0.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/commons-io-2.4.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/aws-java-sdk-bundle-1.11.199.jar:/usr/hadoop-3.0.0/share/hadoop/common/lib/hadoop-aws-3.0.0.jar:/usr/hadoop-3.0.0/share/hadoop/common/hadoop-common-3.0.0.jar:/usr/hadoop-3.0.0/share/hadoop/common/hadoop-nfs-3.0.0.jar:/usr/hadoop-3.0.0/share/hadoop/common/hadoop-common-3.0.0-tests.jar:/usr/hadoop-3.0.0/share/hadoop/common/hadoop-kms-3.0.0.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/commons-net-3.1.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/leveldbjni-all-1.8.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/curator-client-2.12.0.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/commons-daemon-1.0.13.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/kerby-xdr-1.0.1.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/jsr305-3.0.0.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/okhttp-2.4.0.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/jackson-xc-1.9.13.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/jackson-mapper-asl-1.9.13.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/jetty-server-9.3.19.v20170502.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/javax.servlet-api-3.1.0.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/kerb-identity-1.0.1.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/zookeeper-3.4.9.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/accessors-smart-1.2.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/jersey-servlet-1.19.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/jersey-server-1.19.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/commons-cli-1.2.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/jackson-databind-2.7.8.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/okio-1.4.0.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/json-simple-1.1.1.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/commons-compress-1.4.1.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/nimbus-jose-jwt-4.41.1.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/avro-1.7.7.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/kerby-config-1.0.1.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/httpclient-4.5.2.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/commons-beanutils-1.9.3.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/token-provider-1.0.1.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/jaxb-impl-2.2.3-1.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/commons-codec-1.4.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/gson-2.2.4.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/xz-1.0.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/kerb-server-1.0.1.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/jetty-servlet-9.3.19.v20170502.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/jackson-core-asl-1.9.13.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/httpcore-4.4.4.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/jetty-util-ajax-9.3.19.v20170502.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/kerby-pkix-1.0.1.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/hadoop-auth-3.0.0.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/jackson-annotations-2.7.8.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/curator-recipes-2.12.0.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/paranamer-2.3.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/jsr311-api-1.1.1.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/li

b/guava-11.0.2.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/jetty-http-9.3.19.v20170502.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/jackson-jaxrs-1.9.13.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/hadoop-annotations-3.0.0.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/jersey-core-1.19.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/jsch-0.1.54.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/jetty-util-9.3.19.v20170502.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/commons-lang-2.6.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/netty-3.10.5.Final.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/log4j-1.2.17.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/jersey-json-1.19.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/protobuf-java-2.5.0.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/jetty-webapp-9.3.19.v20170502.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/jetty-security-9.3.19.v20170502.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/commons-logging-1.1.3.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/kerb-common-1.0.1.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/commons-lang3-3.4.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/htrace-core4-4.1.0-incubating.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/woodstox-core-5.0.3.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/commons-collections-3.2.2.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/json-smart-2.3.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/netty-all-4.0.23.Final.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/snappy-java-1.0.5.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/asm-5.0.4.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/jetty-io-9.3.19.v20170502.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/jackson-core-2.7.8.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/stax2-api-3.1.4.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/jaxb-api-2.2.11.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/kerb-admin-1.0.1.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/kerb-util-1.0.1.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/commons-math3-3.1.1.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/kerb-core-1.0.1.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/jetty-xml-9.3.19.v20170502.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/re2j-1.1.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/kerb-simplekdc-1.0.1.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/kerb-client-1.0.1.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/jettison-1.1.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/kerby-util-1.0.1.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/jcip-annotations-1.0-1.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/commons-configuration2-2.1.1.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/kerby-asn1-1.0.1.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/kerb-crypto-1.0.1.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/curator-framework-2.12.0.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/lib/commons-io-2.4.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/hadoop-hdfs-httpfs-3.0.0.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/hadoop-hdfs-nfs-3.0.0.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/hadoop-hdfs-client-3.0.0-tests.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/hadoop-hdfs-3.0.0-tests.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/hadoop-hdfs-native-client-3.0.0-tests.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/hadoop-hdfs-client-3.0.0.jar:/usr/hadoop-3.0.0/share/hadoop/hdfs/hadoop-hdfs-3.0.0.jar:/usr/hadoop-3.0.0/share/hadoop/mapreduce/hadoop-mapreduce-client-jobclient-3.0.0-tests.jar:/usr/hadoop-3.0.0/share/hadoop/mapreduce/hadoop-mapreduce-examples-3.0.0.jar:/usr/hadoop-3.0.0/share/hadoop/mapreduce/hadoop-mapreduce-client-native-task-3.0.0.jar:/usr/hadoop-3.0.0/share/hadoop/mapreduce/hadoop-mapreduce-client-core-3.0.0.jar:/usr/hadoop-3.0.0/share/hadoop/mapreduce/hadoop-mapreduce-client-app-3.0.0.jar:/usr/hadoop-3.0.0/share/hadoop/mapreduce/hadoop-mapreduce-client-jobclient-3.0.0.jar:/usr/hadoop-3.0.0/share/hadoop/mapreduce/hadoop-mapreduce-client-common-3.0.0.jar:/usr/hadoop-3.0.0/share/hadoop/mapreduce/hadoop-mapreduce-client-hs-3.0.0.jar:/usr/hadoop-3.0.0/share/hadoop/mapreduce/hadoop-mapreduce-client-hs-plugin

s-3.0.0.jar:/usr/hadoop-3.0.0/share/hadoop/mapreduce/hadoop-mapreduce-client-shuffle-3.0.0.jar:/usr/hadoop-3.0.0/share/hadoop/yarn:/usr/hadoop-3.0.0/share/hadoop/yarn/lib/hbase-hadoop2-compat-1.2.6.jar:/usr/hadoop-3.0.0/share/hadoop/yarn/lib/jersey-guice-1.19.jar:/usr/hadoop-3.0.0/share/hadoop/yarn/lib/commons-httpclient-3.1.jar:/usr/hadoop-3.0.0/share/hadoop/yarn/lib/json-io-2.5.1.jar:/usr/hadoop-3.0.0/share/hadoop/yarn/lib/metrics-core-3.0.1.jar:/usr/hadoop-3.0.0/share/hadoop/yarn/lib/htrace-core-3.1.0-incubating.jar:/usr/hadoop-3.0.0/share/hadoop/yarn/lib/javax.inject-1.jar:/usr/hadoop-3.0.0/share/hadoop/yarn/lib/aopalliance-1.0.jar:/usr/hadoop-3.0.0/share/hadoop/yarn/lib/commons-el-1.0.jar:/usr/hadoop-3.0.0/share/hadoop/yarn/lib/hbase-prefix-tree-1.2.6.jar:/usr/hadoop-3.0.0/share/hadoop/yarn/lib/commons-math-2.2.jar:/usr/hadoop-3.0.0/share/hadoop/yarn/lib/guice-servlet-4.0.jar:/usr/hadoop-3.0.0/share/hadoop/yarn/lib/hbase-server-1.2.6.jar:/usr/hadoop-3.0.0/share/hadoop/yarn/lib/joni-2.1.2.jar:/usr/hadoop-3.0.0/share/hadoop/yarn/lib/jasper-runtime-5.5.23.jar:/usr/hadoop-3.0.0/share/hadoop/yarn/lib/hbase-protocol-1.2.6.jar:/usr/hadoop-3.0.0/share/hadoop/yarn/lib/hbase-client-1.2.6.jar:/usr/hadoop-3.0.0/share/hadoop/yarn/lib/guice-4.0.jar:/usr/hadoop-3.0.0/share/hadoop/yarn/lib/jamon-runtime-2.4.1.jar:/usr/hadoop-3.0.0/share/hadoop/yarn/lib/jersey-client-1.19.jar:/usr/hadoop-3.0.0/share/hadoop/yarn/lib/ehcache-3.3.1.jar:/usr/hadoop-3.0.0/share/hadoop/yarn/lib/jcodings-1.0.8.jar:/usr/hadoop-3.0.0/share/hadoop/yarn/lib/jsp-2.1-6.1.14.jar:/usr/hadoop-3.0.0/share/hadoop/yarn/lib/geronimo-jcache_1.0_spec-1.0-alpha-1.jar:/usr/hadoop-3.0.0/share/hadoop/yarn/lib/fst-2.50.jar:/usr/hadoop-3.0.0/share/hadoop/yarn/lib/hbase-procedure-1.2.6.jar:/usr/hadoop-3.0.0/share/hadoop/yarn/lib/jasper-compiler-5.5.23.jar:/usr/hadoop-3.0.0/share/hadoop/yarn/lib/mssql-jdbc-6.2.1.jre7.jar:/usr/hadoop-3.0.0/share/hadoop/yarn/lib/HikariCP-java7-2.4.12.jar:/usr/hadoop-3.0.0/share/hadoop/yarn/lib/hbase-common-1.2.6.jar:/usr/hadoop-3.0.0/share/hadoop/yarn/lib/hbase-hadoop-compat-1.2.6.jar:/usr/hadoop-3.0.0/share/hadoop/yarn/lib/jsp-api-2.1-6.1.14.jar:/usr/hadoop-3.0.0/share/hadoop/yarn/lib/hbase-annotations-1.2.6.jar:/usr/hadoop-3.0.0/share/hadoop/yarn/lib/jackson-jaxrs-base-2.7.8.jar:/usr/hadoop-3.0.0/share/hadoop/yarn/lib/findbugs-annotations-1.3.9-1.jar:/usr/hadoop-3.0.0/share/hadoop/yarn/lib/servlet-api-2.5-6.1.14.jar:/usr/hadoop-3.0.0/share/hadoop/yarn/lib/metrics-core-2.2.0.jar:/usr/hadoop-3.0.0/share/hadoop/yarn/lib/jackson-jaxrs-json-provider-2.7.8.jar:/usr/hadoop-3.0.0/share/hadoop/yarn/lib/jackson-module-jaxb-annotations-2.7.8.jar:/usr/hadoop-3.0.0/share/hadoop/yarn/lib/java-util-1.9.0.jar:/usr/hadoop-3.0.0/share/hadoop/yarn/lib/commons-csv-1.0.jar:/usr/hadoop-3.0.0/share/hadoop/yarn/lib/disruptor-3.3.0.jar:/usr/hadoop-3.0.0/share/hadoop/yarn/hadoop-yarn-server-timelineservice-hbase-tests-3.0.0.jar:/usr/hadoop-3.0.0/share/hadoop/yarn/hadoop-yarn-server-resourcemanager-3.0.0.jar:/usr/hadoop-3.0.0/share/hadoop/yarn/hadoop-yarn-server-sharedcachemanager-3.0.0.jar:/usr/hadoop-3.0.0/share/hadoop/yarn/hadoop-yarn-server-timelineservice-3.0.0.jar:/usr/hadoop-3.0.0/share/hadoop/yarn/hadoop-yarn-client-3.0.0.jar:/usr/hadoop-3.0.0/share/hadoop/yarn/hadoop-yarn-server-common-3.0.0.jar:/usr/hadoop-3.0.0/share/hadoop/yarn/hadoop-yarn-server-applicationhistoryservice-3.0.0.jar:/usr/hadoop-3.0.0/share/hadoop/yarn/hadoop-yarn-server-nodemanager-3.0.0.jar:/usr/hadoop-3.0.0/share/hadoop/yarn/hadoop-yarn-server-router-3.0.0.jar:/usr/hadoop-3.0.0/share/hadoop/yarn/hadoop-yarn-applications-unmanaged-am-launcher-3.0.0.jar:/usr/hadoop-3.0.0/share/hadoop/yarn/hadoop-yarn-common-3.0.0.jar:/usr/hadoop-3.0.0/share/hadoop/yarn/hadoop-yarn-api-3.0.0.jar:/usr/hadoop-3.0.0/share/hadoop/yarn/hadoop-yarn-server-tests-3.0.0.jar:/usr/hadoop-3.0.0/share/hadoop/yarn/hadoop-yarn-server-timeline-pluginstorage-3.0.0.jar:/usr/hadoop-3.0.0/share/hadoop/yarn/hadoop-yarn-server-time

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lineservice-hbase-3.0.0.jar:/usr/hadoop-3.0.0/share/hadoop/yarn/hadoop-
yarn-registry-3.0.0.jar:/usr/hadoop-3.0.0/share/hadoop/yarn/hadoop-yarn
-applications-distributedshell-3.0.0.jar:/usr/hadoop-3.0.0/share/hadoo
p/yarn/hadoop-yarn-server-web-proxy-3.0.0.jar
STARTUP_MSG:   build = https://git-wip-us.apache.org/repos/asf/hadoop.g
it -r c25427ceca461ee979d30edd7a4b0f50718e6533; compiled by 'andrew' on
2017-12-08T19:16Z
STARTUP_MSG:   java = 1.8.0_302
*****/
2021-10-16 23:16:59,506 INFO namenode.NameNode: registered UNIX signal
handlers for [TERM, HUP, INT]
2021-10-16 23:16:59,511 INFO namenode.NameNode: createNameNode [-forma
t, -force]
Formatting using clusterid: CID-fc6a590f-f792-46f2-ad99-60f3802b06c2
2021-10-16 23:16:59,992 INFO namenode.FSEditLog: Edit logging is async:
true
2021-10-16 23:17:00,004 INFO namenode.FSNamesystem: KeyProvider: null
2021-10-16 23:17:00,005 INFO namenode.FSNamesystem: fsLock is fair: tru
e
2021-10-16 23:17:00,007 INFO namenode.FSNamesystem: Detailed lock hold
time metrics enabled: false
2021-10-16 23:17:00,012 INFO namenode.FSNamesystem: fsOwner
= root (auth:SIMPLE)
2021-10-16 23:17:00,012 INFO namenode.FSNamesystem: supergroup
= supergroup
2021-10-16 23:17:00,012 INFO namenode.FSNamesystem: isPermissionEnabled
= true
2021-10-16 23:17:00,012 INFO namenode.FSNamesystem: HA Enabled: false
2021-10-16 23:17:00,044 INFO common.Util: dfs.datanode.fileio.profilin
g.sampling.percentage set to 0. Disabling file IO profiling
2021-10-16 23:17:00,056 INFO blockmanagement.DatanodeManager: dfs.bloc
k.invalidate.limit: configured=1000, counted=60, effected=1000
2021-10-16 23:17:00,056 INFO blockmanagement.DatanodeManager: dfs.namen
ode.datanode.registration.ip-hostname-check=true
2021-10-16 23:17:00,063 INFO blockmanagement.BlockManager: dfs.namenod
e.startup.delay.block.deletion.sec is set to 000:00:00:00.000
2021-10-16 23:17:00,063 INFO blockmanagement.BlockManager: The block de
letion will start around 2021 Oct 16 23:17:00
2021-10-16 23:17:00,065 INFO util.GSet: Computing capacity for map Bloc
ksMap
2021-10-16 23:17:00,065 INFO util.GSet: VM type          = 64-bit
2021-10-16 23:17:00,066 INFO util.GSet: 2.0% max memory 3.1 GB = 63.2 M
B
2021-10-16 23:17:00,066 INFO util.GSet: capacity        = 2^23 = 8388608
entries
2021-10-16 23:17:00,102 INFO blockmanagement.BlockManager: dfs.block.ac
cess.token.enable = false
2021-10-16 23:17:00,106 INFO Configuration.deprecation: No unit for df
s.namenode.safemode.extension(30000) assuming MILLISECONDS
2021-10-16 23:17:00,106 INFO blockmanagement.BlockManagerSafeMode: dfs.
namenode.safemode.threshold-pct = 0.9990000128746033
2021-10-16 23:17:00,106 INFO blockmanagement.BlockManagerSafeMode: dfs.
namenode.safemode.min.datanodes = 0
2021-10-16 23:17:00,106 INFO blockmanagement.BlockManagerSafeMode: dfs.
namenode.safemode.extension = 30000
2021-10-16 23:17:00,106 INFO blockmanagement.BlockManager: defaultRepli
cation          = 3
```

2021-10-16 23:17:00,107 INFO blockmanagement.BlockManager: maxReplication = 512
2021-10-16 23:17:00,107 INFO blockmanagement.BlockManager: minReplication = 1
2021-10-16 23:17:00,107 INFO blockmanagement.BlockManager: maxReplicationStreams = 2
2021-10-16 23:17:00,107 INFO blockmanagement.BlockManager: redundancyRecheckInterval = 3000ms
2021-10-16 23:17:00,107 INFO blockmanagement.BlockManager: encryptDataTransfer = false
2021-10-16 23:17:00,107 INFO blockmanagement.BlockManager: maxNumBlocksToLog = 1000
2021-10-16 23:17:00,133 INFO util.GSet: Computing capacity for map INodeMap
2021-10-16 23:17:00,133 INFO util.GSet: VM type = 64-bit
2021-10-16 23:17:00,133 INFO util.GSet: 1.0% max memory 3.1 GB = 31.6 MB
2021-10-16 23:17:00,133 INFO util.GSet: capacity = 2^{22} = 4194304 entries
2021-10-16 23:17:00,135 INFO namenode.FSDirectory: ACLs enabled? false
2021-10-16 23:17:00,135 INFO namenode.FSDirectory: POSIX ACL inheritance enabled? true
2021-10-16 23:17:00,135 INFO namenode.FSDirectory: XAttrs enabled? true
2021-10-16 23:17:00,135 INFO namenode.NameNode: Caching file names occurring more than 10 times
2021-10-16 23:17:00,140 INFO snapshot.SnapshotManager: Loaded config captureOpenFiles: false, skipCaptureAccessTimeOnlyChange: false, snapshotDiffAllowSnapRootDescendant: true
2021-10-16 23:17:00,143 INFO util.GSet: Computing capacity for map cachedBlocks
2021-10-16 23:17:00,143 INFO util.GSet: VM type = 64-bit
2021-10-16 23:17:00,143 INFO util.GSet: 0.25% max memory 3.1 GB = 7.9 MB
2021-10-16 23:17:00,143 INFO util.GSet: capacity = 2^{20} = 1048576 entries
2021-10-16 23:17:00,178 INFO metrics.TopMetrics: NNTop conf: dfs.namenode.top.window.num.buckets = 10
2021-10-16 23:17:00,178 INFO metrics.TopMetrics: NNTop conf: dfs.namenode.top.num.users = 10
2021-10-16 23:17:00,178 INFO metrics.TopMetrics: NNTop conf: dfs.namenode.top.windows.minutes = 1,5,25
2021-10-16 23:17:00,181 INFO namenode.FSNamesystem: Retry cache on name node is enabled
2021-10-16 23:17:00,182 INFO namenode.FSNamesystem: Retry cache will use 0.03 of total heap and retry cache entry expiry time is 600000 millis
2021-10-16 23:17:00,183 INFO util.GSet: Computing capacity for map NameNodeRetryCache
2021-10-16 23:17:00,183 INFO util.GSet: VM type = 64-bit
2021-10-16 23:17:00,183 INFO util.GSet: 0.029999999329447746% max memory 3.1 GB = 970.6 KB
2021-10-16 23:17:00,183 INFO util.GSet: capacity = 2^{17} = 131072 entries
2021-10-16 23:17:00,205 INFO namenode.FSImage: Allocated new BlockPoolID: BP-1264624743-10.0.134.125-1634426220199
2021-10-16 23:17:00,218 INFO common.Storage: Storage directory /opt/amazon/hadoop/hdfs/namenode has been successfully formatted.
2021-10-16 23:17:00,225 INFO namenode.FSImageFormatProtobuf: Saving ima

```
ge file /opt/amazon/hadoop/hdfs/namenode/current/fsimage.ckpt_000000000
0000000000 using no compression
2021-10-16 23:17:00,306 INFO namenode.FSImageFormatProtobuf: Image file
/opt/amazon/hadoop/hdfs/namenode/current/fsimage.ckpt_000000000000000000
00 of size 386 bytes saved in 0 seconds.
2021-10-16 23:17:00,317 INFO namenode.NNStorageRetentionManager: Going
to retain 1 images with txid >= 0
2021-10-16 23:17:00,321 INFO namenode.NameNode: SHUTDOWN_MSG:
/*****
SHUTDOWN_MSG: Shutting down NameNode at algo-1/10.0.134.125
*****/
2021-10-16 23:17:00,331 - bootstrap - INFO - Running command: /usr/hado
op-3.0.0/bin/hdfs --daemon start namenode
2021-10-16 23:17:02,389 - bootstrap - INFO - Failed to run /usr/hadoop-
3.0.0/bin/hdfs --daemon start namenode, return code 1
2021-10-16 23:17:02,389 - bootstrap - INFO - Running command: /usr/hado
op-3.0.0/bin/hdfs --daemon start datanode
2021-10-16 23:17:04,459 - bootstrap - INFO - Failed to run /usr/hadoop-
3.0.0/bin/hdfs --daemon start datanode, return code 1
2021-10-16 23:17:04,459 - bootstrap - INFO - Running command: /usr/hado
op-3.0.0/bin/yarn --daemon start resourcemanager
WARNING: YARN_LOG_DIR has been replaced by HADOOP_LOG_DIR. Using value
of YARN_LOG_DIR.
WARNING: /var/log/yarn/ does not exist. Creating.
2021-10-16 23:17:06,546 - bootstrap - INFO - Failed to run /usr/hadoop-
3.0.0/bin/yarn --daemon start resourcemanager, return code 1
2021-10-16 23:17:06,546 - bootstrap - INFO - Running command: /usr/hado
op-3.0.0/bin/yarn --daemon start nodemanager
WARNING: YARN_LOG_DIR has been replaced by HADOOP_LOG_DIR. Using value
of YARN_LOG_DIR.
2021-10-16 23:17:08,650 - bootstrap - INFO - Failed to run /usr/hadoop-
3.0.0/bin/yarn --daemon start nodemanager, return code 1
2021-10-16 23:17:08,650 - bootstrap - INFO - Running command: /usr/hado
op-3.0.0/bin/yarn --daemon start proxyserver
WARNING: YARN_LOG_DIR has been replaced by HADOOP_LOG_DIR. Using value
of YARN_LOG_DIR.
2021-10-16 23:17:10,753 - bootstrap - INFO - Failed to run /usr/hadoop-
3.0.0/bin/yarn --daemon start proxyserver, return code 1
2021-10-16 23:17:10,754 - DefaultDataAnalyzer - INFO - Total number of
hosts in the cluster: 1
2021-10-16 23:17:20,761 - DefaultDataAnalyzer - INFO - Running command:
bin/spark-submit --master yarn --deploy-mode client --conf spark.hadoo
p.fs.s3a.aws.credentials.provider=org.apache.hadoop.fs.s3a.SimpleAWSCre
dentialsProvider --conf spark.serializer=org.apache.spark.serializer.Kr
yoSerializer /opt/amazon/sagemaker-data-analyzer-1.0-jar-with-dependenc
ies.jar --analytics_input /tmp/spark_job_config.json
2021-10-16 23:17:21 WARN NativeCodeLoader:60 - Unable to load native-h
adoop library for your platform... using builtin-java classes where app
licable
2021-10-16 23:17:21 INFO Main:28 - Start analyzing with args: --analyt
ics_input /tmp/spark_job_config.json
2021-10-16 23:17:21 INFO Main:31 - Analytics input path: DataAnalyzerP
arams(/tmp/spark_job_config.json,yarn)
2021-10-16 23:17:21 INFO FileUtil:66 - Read file from path /tmp/spark_
job_config.json.
2021-10-16 23:17:22 INFO SparkContext:54 - Running Spark version 2.3.1
2021-10-16 23:17:22 INFO SparkContext:54 - Submitted application: Sage
```

MakerDataAnalyzer

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2021-10-16 23:17:22 INFO  SecurityManager:54 - Changing view acls to: root
2021-10-16 23:17:22 INFO  SecurityManager:54 - Changing modify acls to: root
2021-10-16 23:17:22 INFO  SecurityManager:54 - Changing view acls groups to:
2021-10-16 23:17:22 INFO  SecurityManager:54 - Changing modify acls groups to:
2021-10-16 23:17:22 INFO  SecurityManager:54 - SecurityManager: authentication disabled; ui acls disabled; users with view permissions: Set(root); groups with view permissions: Set(); users with modify permissions: Set(root); groups with modify permissions: Set()
2021-10-16 23:17:22 INFO  Utils:54 - Successfully started service 'sparkDriver' on port 41607.
2021-10-16 23:17:22 INFO  SparkEnv:54 - Registering MapOutputTracker
2021-10-16 23:17:22 INFO  SparkEnv:54 - Registering BlockManagerMaster
2021-10-16 23:17:22 INFO  BlockManagerMasterEndpoint:54 - Using org.apache.spark.storage.DefaultTopologyMapper for getting topology information
2021-10-16 23:17:22 INFO  BlockManagerMasterEndpoint:54 - BlockManagerMasterEndpoint up
2021-10-16 23:17:22 INFO  DiskBlockManager:54 - Created local directory at /tmp/blockmgr-a843d207-7960-4695-8cd3-2c0b744b9570
2021-10-16 23:17:22 INFO  MemoryStore:54 - MemoryStore started with capacity 1458.6 MB
2021-10-16 23:17:22 INFO  SparkEnv:54 - Registering OutputCommitCoordinator
2021-10-16 23:17:22 INFO  SparkContext:54 - Added JAR file:/opt/amazon/sagemaker-data-analyzer-1.0-jar-with-dependencies.jar at spark:///10.0.134.125:41607/jars/sagemaker-data-analyzer-1.0-jar-with-dependencies.jar with timestamp 1634426242780
2021-10-16 23:17:23 INFO  RMPProxy:133 - Connecting to ResourceManager at /10.0.134.125:8032
2021-10-16 23:17:23 INFO  Client:54 - Requesting a new application from cluster with 1 NodeManagers
2021-10-16 23:17:23 INFO  Configuration:2636 - resource-types.xml not found
2021-10-16 23:17:23 INFO  ResourceUtils:427 - Unable to find 'resource-types.xml'.
2021-10-16 23:17:23 INFO  Client:54 - Verifying our application has not requested more than the maximum memory capability of the cluster (15575 MB per container)
2021-10-16 23:17:23 INFO  Client:54 - Will allocate AM container, with 896 MB memory including 384 MB overhead
2021-10-16 23:17:23 INFO  Client:54 - Setting up container launch context for our AM
2021-10-16 23:17:23 INFO  Client:54 - Setting up the launch environment for our AM container
2021-10-16 23:17:23 INFO  Client:54 - Preparing resources for our AM container
2021-10-16 23:17:24 WARN  Client:66 - Neither spark.yarn.jars nor spark.yarn.archive is set, falling back to uploading libraries under SPARK_HOME.
2021-10-16 23:17:26 INFO  Client:54 - Uploading resource file:/tmp/spark-9b291fb6-76bd-4d99-a5bb-ec52e64899c8/__spark_libs__2114856443479933278.zip -> hdfs:///10.0.134.125/user/root/.sparkStaging/application_163442
```



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6225945_0001/___spark_libs___2114856443479933278.zip
2021-10-16 23:17:27 INFO Client:54 - Uploading resource file:/tmp/spark-9b291fb6-76bd-4d99-a5bb-ec52e64899c8/___spark_conf___8878252277307517771.zip -> hdfs://10.0.134.125/user/root/.sparkStaging/application_1634426225945_0001/___spark_conf___.zip
2021-10-16 23:17:28 INFO SecurityManager:54 - Changing view acls to: root
2021-10-16 23:17:28 INFO SecurityManager:54 - Changing modify acls to: root
2021-10-16 23:17:28 INFO SecurityManager:54 - Changing view acls groups to:
2021-10-16 23:17:28 INFO SecurityManager:54 - Changing modify acls groups to:
2021-10-16 23:17:28 INFO SecurityManager:54 - SecurityManager: authentication disabled; ui acls disabled; users with view permissions: Set(root); groups with view permissions: Set(); users with modify permissions: Set(root); groups with modify permissions: Set()
2021-10-16 23:17:28 INFO Client:54 - Submitting application application_1634426225945_0001 to ResourceManager
2021-10-16 23:17:28 INFO YarnClientImpl:310 - Submitted application application_1634426225945_0001
2021-10-16 23:17:28 INFO SchedulerExtensionServices:54 - Starting Yarn extension services with app application_1634426225945_0001 and attemptId None
2021-10-16 23:17:29 INFO Client:54 - Application report for application_1634426225945_0001 (state: ACCEPTED)
2021-10-16 23:17:29 INFO Client:54 -
#011 client token: N/A
#011 diagnostics: AM container is launched, waiting for AM container to Register with RM
#011 ApplicationMaster host: N/A
#011 ApplicationMaster RPC port: -1
#011 queue: default
#011 start time: 1634426248387
#011 final status: UNDEFINED
#011 tracking URL: http://algo-1:8088/proxy/application_1634426225945_0001/
#011 user: root
2021-10-16 23:17:30 INFO Client:54 - Application report for application_1634426225945_0001 (state: ACCEPTED)
2021-10-16 23:17:31 INFO Client:54 - Application report for application_1634426225945_0001 (state: ACCEPTED)
2021-10-16 23:17:32 INFO Client:54 - Application report for application_1634426225945_0001 (state: ACCEPTED)
2021-10-16 23:17:33 INFO YarnClientSchedulerBackend:54 - Add WebUI Filter. org.apache.hadoop.yarn.server.webproxy.amfilter.AmIpFilter, Map(PROXY_HOSTS -> algo-1, PROXY_URI_BASES -> http://algo-1:8088/proxy/application_1634426225945_0001), /proxy/application_1634426225945_0001
2021-10-16 23:17:33 INFO Client:54 - Application report for application_1634426225945_0001 (state: RUNNING)
2021-10-16 23:17:33 INFO Client:54 -
#011 client token: N/A
#011 diagnostics: N/A
#011 ApplicationMaster host: 10.0.134.125
#011 ApplicationMaster RPC port: 0
#011 queue: default
#011 start time: 1634426248387
```

```
#011 final status: UNDEFINED
#011 tracking URL: http://algo-1:8088/proxy/application_1634426225945_0001/
#011 user: root
2021-10-16 23:17:33 INFO  YarnClientSchedulerBackend:54 - Application application_1634426225945_0001 has started running.
2021-10-16 23:17:33 INFO  YarnSchedulerBackend$YarnSchedulerEndpoint:54 - ApplicationMaster registered as NettyRpcEndpointRef(spark-client://YarnAM)
2021-10-16 23:17:33 INFO  Utils:54 - Successfully started service 'org.apache.spark.network.netty.NettyBlockTransferService' on port 44099.
2021-10-16 23:17:33 INFO  NettyBlockTransferService:54 - Server created on 10.0.134.125:44099
2021-10-16 23:17:33 INFO  BlockManager:54 - Using org.apache.spark.storage.RandomBlockReplicationPolicy for block replication policy
2021-10-16 23:17:33 INFO  BlockManagerMaster:54 - Registering BlockManager BlockManagerId(driver, 10.0.134.125, 44099, None)
2021-10-16 23:17:33 INFO  BlockManagerMasterEndpoint:54 - Registering block manager 10.0.134.125:44099 with 1458.6 MB RAM, BlockManagerId(driver, 10.0.134.125, 44099, None)
2021-10-16 23:17:33 INFO  BlockManagerMaster:54 - Registered BlockManager BlockManagerId(driver, 10.0.134.125, 44099, None)
2021-10-16 23:17:33 INFO  BlockManager:54 - Initialized BlockManager: BlockManagerId(driver, 10.0.134.125, 44099, None)
2021-10-16 23:17:33 INFO  log:192 - Logging initialized @12744ms
2021-10-16 23:17:36 INFO  YarnSchedulerBackend$YarnDriverEndpoint:54 - Registered executor NettyRpcEndpointRef(spark-client://Executor) (10.0.134.125:59512) with ID 1
2021-10-16 23:17:36 INFO  BlockManagerMasterEndpoint:54 - Registering block manager algo-1:43633 with 5.8 GB RAM, BlockManagerId(1, algo-1, 43633, None)
2021-10-16 23:17:52 INFO  YarnClientSchedulerBackend:54 - SchedulerBackend is ready for scheduling beginning after waiting maxRegisteredResourcesWaitingTime: 30000(ms)
2021-10-16 23:17:53 WARN  SparkContext:66 - Spark is not running in local mode, therefore the checkpoint directory must not be on the local filesystem. Directory '/tmp' appears to be on the local filesystem.
2021-10-16 23:17:53 INFO  DatasetReader:91 - Files to process:List(file:///opt/ml/processing/input/baseline_dataset_input/new_data_frame.csv)
2021-10-16 23:17:53 INFO  SharedState:54 - Setting hive.metastore.warehouse.dir ('null') to the value of spark.sql.warehouse.dir ('file:/usr/spark-2.3.1/spark-warehouse').
2021-10-16 23:17:53 INFO  SharedState:54 - Warehouse path is 'file:/usr/spark-2.3.1/spark-warehouse'.
2021-10-16 23:17:53 INFO  StateStoreCoordinatorRef:54 - Registered StateStoreCoordinator endpoint
2021-10-16 23:17:54 INFO  FileSourceStrategy:54 - Pruning directories with:
2021-10-16 23:17:54 INFO  FileSourceStrategy:54 - Post-Scan Filters: (length(trim(value#0, None)) > 0)
2021-10-16 23:17:54 INFO  FileSourceStrategy:54 - Output Data Schema: struct<value: string>
2021-10-16 23:17:54 INFO  FileSourceScanExec:54 - Pushed Filters:
2021-10-16 23:17:54 INFO  CodeGenerator:54 - Code generated in 172.480724 ms
2021-10-16 23:17:54 INFO  CodeGenerator:54 - Code generated in 26.813415 ms
```

2021-10-16 23:17:54 INFO MemoryStore:54 - Block broadcast_0 stored as values in memory (estimated size 429.5 KB, free 1458.2 MB)

2021-10-16 23:17:54 INFO MemoryStore:54 - Block broadcast_0_piece0 stored as bytes in memory (estimated size 38.2 KB, free 1458.1 MB)

2021-10-16 23:17:54 INFO BlockManagerInfo:54 - Added broadcast_0_piece0 in memory on 10.0.134.125:44099 (size: 38.2 KB, free: 1458.6 MB)

2021-10-16 23:17:54 INFO SparkContext:54 - Created broadcast 0 from csv at DatasetReader.scala:50

2021-10-16 23:17:54 INFO FileSourceScanExec:54 - Planning scan with bin packing, max size: 4194304 bytes, open cost is considered as scanning 4194304 bytes.

2021-10-16 23:17:55 INFO SparkContext:54 - Starting job: csv at DatasetReader.scala:50

2021-10-16 23:17:55 INFO DAGScheduler:54 - Got job 0 (csv at DatasetReader.scala:50) with 1 output partitions

2021-10-16 23:17:55 INFO DAGScheduler:54 - Final stage: ResultStage 0 (csv at DatasetReader.scala:50)

2021-10-16 23:17:55 INFO DAGScheduler:54 - Parents of final stage: List()

2021-10-16 23:17:55 INFO DAGScheduler:54 - Missing parents: List()

2021-10-16 23:17:55 INFO DAGScheduler:54 - Submitting ResultStage 0 (MapPartitionsRDD[3] at csv at DatasetReader.scala:50), which has no missing parents

2021-10-16 23:17:55 INFO MemoryStore:54 - Block broadcast_1 stored as values in memory (estimated size 9.4 KB, free 1458.1 MB)

2021-10-16 23:17:55 INFO MemoryStore:54 - Block broadcast_1_piece0 stored as bytes in memory (estimated size 4.5 KB, free 1458.1 MB)

2021-10-16 23:17:55 INFO BlockManagerInfo:54 - Added broadcast_1_piece0 in memory on 10.0.134.125:44099 (size: 4.5 KB, free: 1458.6 MB)

2021-10-16 23:17:55 INFO SparkContext:54 - Created broadcast 1 from broadcast at DAGScheduler.scala:1039

2021-10-16 23:17:55 INFO DAGScheduler:54 - Submitting 1 missing tasks from ResultStage 0 (MapPartitionsRDD[3] at csv at DatasetReader.scala:50) (first 15 tasks are for partitions Vector(0))

2021-10-16 23:17:55 INFO YarnScheduler:54 - Adding task set 0.0 with 1 tasks

2021-10-16 23:17:55 INFO TaskSetManager:54 - Starting task 0.0 in stage 0.0 (TID 0, algo-1, executor 1, partition 0, PROCESS_LOCAL, 8349 bytes)

2021-10-16 23:17:57 INFO BlockManagerInfo:54 - Added broadcast_1_piece0 in memory on algo-1:43633 (size: 4.5 KB, free: 5.8 GB)

2021-10-16 23:17:58 INFO BlockManagerInfo:54 - Added broadcast_0_piece0 in memory on algo-1:43633 (size: 38.2 KB, free: 5.8 GB)

2021-10-16 23:17:58 INFO TaskSetManager:54 - Finished task 0.0 in stage 0.0 (TID 0) in 3746 ms on algo-1 (executor 1) (1/1)

2021-10-16 23:17:58 INFO YarnScheduler:54 - Removed TaskSet 0.0, whose tasks have all completed, from pool

2021-10-16 23:17:58 INFO DAGScheduler:54 - ResultStage 0 (csv at DatasetReader.scala:50) finished in 3.864 s

2021-10-16 23:17:59 INFO DAGScheduler:54 - Job 0 finished: csv at DatasetReader.scala:50, took 3.937749 s

2021-10-16 23:17:59 INFO FileSourceStrategy:54 - Pruning directories with:

2021-10-16 23:17:59 INFO FileSourceStrategy:54 - Post-Scan Filters:

2021-10-16 23:17:59 INFO FileSourceStrategy:54 - Output Data Schema: struct<value: string>

2021-10-16 23:17:59 INFO FileSourceScanExec:54 - Pushed Filters:

2021-10-16 23:17:59 INFO CodeGenerator:54 - Code generated in 6.220609 ms

2021-10-16 23:17:59 INFO MemoryStore:54 - Block broadcast_2 stored as values in memory (estimated size 429.5 KB, free 1457.7 MB)

2021-10-16 23:17:59 INFO MemoryStore:54 - Block broadcast_2_piece0 stored as bytes in memory (estimated size 38.2 KB, free 1457.7 MB)

2021-10-16 23:17:59 INFO BlockManagerInfo:54 - Added broadcast_2_piece0 in memory on 10.0.134.125:44099 (size: 38.2 KB, free: 1458.5 MB)

2021-10-16 23:17:59 INFO SparkContext:54 - Created broadcast 2 from csv at DatasetReader.scala:50

2021-10-16 23:17:59 INFO FileSourceScanExec:54 - Planning scan with bin packing, max size: 4194304 bytes, open cost is considered as scanning 4194304 bytes.

2021-10-16 23:17:59 INFO FileSourceStrategy:54 - Pruning directories with:

2021-10-16 23:17:59 INFO FileSourceStrategy:54 - Post-Scan Filters:

2021-10-16 23:17:59 INFO FileSourceStrategy:54 - Output Data Schema: struct<_c0: string, Unnamed: 0: string, Age: string, Systolic_BP: string, Diastolic_BP: string ... 5 more fields>

2021-10-16 23:17:59 INFO FileSourceScanExec:54 - Pushed Filters:

2021-10-16 23:17:59 INFO MemoryStore:54 - Block broadcast_3 stored as values in memory (estimated size 429.5 KB, free 1457.3 MB)

2021-10-16 23:17:59 INFO MemoryStore:54 - Block broadcast_3_piece0 stored as bytes in memory (estimated size 38.2 KB, free 1457.2 MB)

2021-10-16 23:17:59 INFO BlockManagerInfo:54 - Added broadcast_3_piece0 in memory on 10.0.134.125:44099 (size: 38.2 KB, free: 1458.5 MB)

2021-10-16 23:17:59 INFO SparkContext:54 - Created broadcast 3 from cache at DataAnalyzer.scala:78

2021-10-16 23:17:59 INFO FileSourceScanExec:54 - Planning scan with bin packing, max size: 4194304 bytes, open cost is considered as scanning 4194304 bytes.

2021-10-16 23:17:59 INFO CodeGenerator:54 - Code generated in 20.49859 ms

2021-10-16 23:17:59 INFO CodeGenerator:54 - Code generated in 19.394445 ms

2021-10-16 23:17:59 INFO SparkContext:54 - Starting job: head at DataAnalyzer.scala:81

2021-10-16 23:17:59 INFO DAGScheduler:54 - Got job 1 (head at DataAnalyzer.scala:81) with 1 output partitions

2021-10-16 23:17:59 INFO DAGScheduler:54 - Final stage: ResultStage 1 (head at DataAnalyzer.scala:81)

2021-10-16 23:17:59 INFO DAGScheduler:54 - Parents of final stage: List()

2021-10-16 23:17:59 INFO DAGScheduler:54 - Missing parents: List()

2021-10-16 23:17:59 INFO DAGScheduler:54 - Submitting ResultStage 1 (MapPartitionsRDD[17] at head at DataAnalyzer.scala:81), which has no missing parents

2021-10-16 23:17:59 INFO MemoryStore:54 - Block broadcast_4 stored as values in memory (estimated size 22.5 KB, free 1457.2 MB)

2021-10-16 23:17:59 INFO MemoryStore:54 - Block broadcast_4_piece0 stored as bytes in memory (estimated size 9.7 KB, free 1457.2 MB)

2021-10-16 23:17:59 INFO BlockManagerInfo:54 - Added broadcast_4_piece0 in memory on 10.0.134.125:44099 (size: 9.7 KB, free: 1458.5 MB)

2021-10-16 23:17:59 INFO SparkContext:54 - Created broadcast 4 from broadcast at DAGScheduler.scala:1039

2021-10-16 23:17:59 INFO DAGScheduler:54 - Submitting 1 missing tasks from ResultStage 1 (MapPartitionsRDD[17] at head at DataAnalyzer.scala:81)

a:81) (first 15 tasks are for partitions Vector(0))
2021-10-16 23:17:59 INFO YarnScheduler:54 - Adding task set 1.0 with 1 tasks
2021-10-16 23:17:59 INFO TaskSetManager:54 - Starting task 0.0 in stage 1.0 (TID 1, algo-1, executor 1, partition 0, PROCESS_LOCAL, 8349 bytes)
2021-10-16 23:17:59 INFO BlockManagerInfo:54 - Added broadcast_4_piece0 in memory on algo-1:43633 (size: 9.7 KB, free: 5.8 GB)
2021-10-16 23:17:59 INFO BlockManagerInfo:54 - Added broadcast_3_piece0 in memory on algo-1:43633 (size: 38.2 KB, free: 5.8 GB)
2021-10-16 23:18:00 INFO BlockManagerInfo:54 - Added rdd_11_0 in memory on algo-1:43633 (size: 601.4 KB, free: 5.8 GB)
2021-10-16 23:18:00 INFO TaskSetManager:54 - Finished task 0.0 in stage 1.0 (TID 1) in 575 ms on algo-1 (executor 1) (1/1)
2021-10-16 23:18:00 INFO YarnScheduler:54 - Removed TaskSet 1.0, whose tasks have all completed, from pool
2021-10-16 23:18:00 INFO DAGScheduler:54 - ResultStage 1 (head at DataAnalyzer.scala:81) finished in 0.618 s
2021-10-16 23:18:00 INFO DAGScheduler:54 - Job 1 finished: head at DataAnalyzer.scala:81, took 0.625080 s
2021-10-16 23:18:00 INFO DataAnalyzer:89 - The number of columns in the dataframe is 7
2021-10-16 23:18:00 INFO DataAnalyzer:116 - Number of shards is: 2
2021-10-16 23:18:00 WARN Utils:66 - Truncated the string representation of a plan since it was too large. This behavior can be adjusted by setting 'spark.debug.maxToStringFields' in SparkEnv.conf.
2021-10-16 23:18:00 INFO CodeGenerator:54 - Code generated in 18.439809 ms
2021-10-16 23:18:00 INFO SparkContext:54 - Starting job: collect at AnalysisRunner.scala:313
2021-10-16 23:18:00 INFO DAGScheduler:54 - Registering RDD 22 (collect at AnalysisRunner.scala:313)
2021-10-16 23:18:00 INFO DAGScheduler:54 - Got job 2 (collect at AnalysisRunner.scala:313) with 1 output partitions
2021-10-16 23:18:00 INFO DAGScheduler:54 - Final stage: ResultStage 3 (collect at AnalysisRunner.scala:313)
2021-10-16 23:18:00 INFO DAGScheduler:54 - Parents of final stage: List(ShuffleMapStage 2)
2021-10-16 23:18:00 INFO DAGScheduler:54 - Missing parents: List(ShuffleMapStage 2)
2021-10-16 23:18:00 INFO DAGScheduler:54 - Submitting ShuffleMapStage 2 (MapPartitionsRDD[22] at collect at AnalysisRunner.scala:313), which has no missing parents
2021-10-16 23:18:00 INFO MemoryStore:54 - Block broadcast_5 stored as values in memory (estimated size 66.6 KB, free 1457.1 MB)
2021-10-16 23:18:00 INFO MemoryStore:54 - Block broadcast_5_piece0 stored as bytes in memory (estimated size 24.1 KB, free 1457.1 MB)
2021-10-16 23:18:00 INFO BlockManagerInfo:54 - Added broadcast_5_piece0 in memory on 10.0.134.125:44099 (size: 24.1 KB, free: 1458.5 MB)
2021-10-16 23:18:00 INFO SparkContext:54 - Created broadcast 5 from broadcast at DAGScheduler.scala:1039
2021-10-16 23:18:00 INFO DAGScheduler:54 - Submitting 1 missing tasks from ShuffleMapStage 2 (MapPartitionsRDD[22] at collect at AnalysisRunner.scala:313) (first 15 tasks are for partitions Vector(0))
2021-10-16 23:18:00 INFO YarnScheduler:54 - Adding task set 2.0 with 1 tasks
2021-10-16 23:18:00 INFO TaskSetManager:54 - Starting task 0.0 in stag

e 2.0 (TID 2, algo-1, executor 1, partition 0, PROCESS_LOCAL, 8338 bytes)

2021-10-16 23:18:00 INFO BlockManagerInfo:54 - Added broadcast_5_piece0 in memory on algo-1:43633 (size: 24.1 KB, free: 5.8 GB)

2021-10-16 23:18:01 INFO TaskSetManager:54 - Finished task 0.0 in stage 2.0 (TID 2) in 1019 ms on algo-1 (executor 1) (1/1)

2021-10-16 23:18:01 INFO YarnScheduler:54 - Removed TaskSet 2.0, whose tasks have all completed, from pool

2021-10-16 23:18:01 INFO DAGScheduler:54 - ShuffleMapStage 2 (collect at AnalysisRunner.scala:313) finished in 1.044 s

2021-10-16 23:18:01 INFO DAGScheduler:54 - looking for newly runnable stages

2021-10-16 23:18:01 INFO DAGScheduler:54 - running: Set()

2021-10-16 23:18:01 INFO DAGScheduler:54 - waiting: Set(ResultStage 3)

2021-10-16 23:18:01 INFO DAGScheduler:54 - failed: Set()

2021-10-16 23:18:01 INFO DAGScheduler:54 - Submitting ResultStage 3 (MapPartitionsRDD[25] at collect at AnalysisRunner.scala:313), which has no missing parents

2021-10-16 23:18:01 INFO MemoryStore:54 - Block broadcast_6 stored as values in memory (estimated size 79.0 KB, free 1457.0 MB)

2021-10-16 23:18:01 INFO MemoryStore:54 - Block broadcast_6_piece0 stored as bytes in memory (estimated size 27.1 KB, free 1457.0 MB)

2021-10-16 23:18:01 INFO BlockManagerInfo:54 - Added broadcast_6_piece0 in memory on 10.0.134.125:44099 (size: 27.1 KB, free: 1458.4 MB)

2021-10-16 23:18:01 INFO SparkContext:54 - Created broadcast 6 from broadcast at DAGScheduler.scala:1039

2021-10-16 23:18:01 INFO DAGScheduler:54 - Submitting 1 missing tasks from ResultStage 3 (MapPartitionsRDD[25] at collect at AnalysisRunner.scala:313) (first 15 tasks are for partitions Vector(0))

2021-10-16 23:18:01 INFO YarnScheduler:54 - Adding task set 3.0 with 1 tasks

2021-10-16 23:18:01 INFO TaskSetManager:54 - Starting task 0.0 in stage 3.0 (TID 3, algo-1, executor 1, partition 0, NODE_LOCAL, 7765 bytes)

2021-10-16 23:18:01 INFO BlockManagerInfo:54 - Added broadcast_6_piece0 in memory on algo-1:43633 (size: 27.1 KB, free: 5.8 GB)

2021-10-16 23:18:01 INFO MapOutputTrackerMasterEndpoint:54 - Asked to send map output locations for shuffle 0 to 10.0.134.125:59512

2021-10-16 23:18:02 INFO TaskSetManager:54 - Finished task 0.0 in stage 3.0 (TID 3) in 258 ms on algo-1 (executor 1) (1/1)

2021-10-16 23:18:02 INFO YarnScheduler:54 - Removed TaskSet 3.0, whose tasks have all completed, from pool

2021-10-16 23:18:02 INFO DAGScheduler:54 - ResultStage 3 (collect at AnalysisRunner.scala:313) finished in 0.273 s

2021-10-16 23:18:02 INFO DAGScheduler:54 - Job 2 finished: collect at AnalysisRunner.scala:313, took 1.349024 s

2021-10-16 23:18:02 INFO CodeGenerator:54 - Code generated in 19.358751 ms

2021-10-16 23:18:02 INFO SparkContext:54 - Starting job: treeReduce at KLLRunner.scala:107

2021-10-16 23:18:02 INFO DAGScheduler:54 - Got job 3 (treeReduce at KLLRunner.scala:107) with 1 output partitions

2021-10-16 23:18:02 INFO DAGScheduler:54 - Final stage: ResultStage 4 (treeReduce at KLLRunner.scala:107)

2021-10-16 23:18:02 INFO DAGScheduler:54 - Parents of final stage: List()

2021-10-16 23:18:02 INFO DAGScheduler:54 - Missing parents: List()

2021-10-16 23:18:02 INFO DAGScheduler:54 - Submitting ResultStage 4 (M

apPartitionsRDD[34] at treeReduce at KLLRunner.scala:107), which has no missing parents

2021-10-16 23:18:02 INFO MemoryStore:54 - Block broadcast_7 stored as values in memory (estimated size 26.8 KB, free 1457.0 MB)

2021-10-16 23:18:02 INFO MemoryStore:54 - Block broadcast_7_piece0 stored as bytes in memory (estimated size 11.6 KB, free 1457.0 MB)

2021-10-16 23:18:02 INFO BlockManagerInfo:54 - Added broadcast_7_piece0 in memory on 10.0.134.125:44099 (size: 11.6 KB, free: 1458.4 MB)

2021-10-16 23:18:02 INFO SparkContext:54 - Created broadcast 7 from broadcast at DAGScheduler.scala:1039

2021-10-16 23:18:02 INFO DAGScheduler:54 - Submitting 1 missing tasks from ResultStage 4 (MapPartitionsRDD[34] at treeReduce at KLLRunner.scala:107) (first 15 tasks are for partitions Vector(0))

2021-10-16 23:18:02 INFO YarnScheduler:54 - Adding task set 4.0 with 1 tasks

2021-10-16 23:18:02 INFO TaskSetManager:54 - Starting task 0.0 in stage 4.0 (TID 4, algo-1, executor 1, partition 0, PROCESS_LOCAL, 8349 bytes)

2021-10-16 23:18:02 INFO BlockManagerInfo:54 - Added broadcast_7_piece0 in memory on algo-1:43633 (size: 11.6 KB, free: 5.8 GB)

2021-10-16 23:18:02 INFO TaskSetManager:54 - Finished task 0.0 in stage 4.0 (TID 4) in 405 ms on algo-1 (executor 1) (1/1)

2021-10-16 23:18:02 INFO YarnScheduler:54 - Removed TaskSet 4.0, whose tasks have all completed, from pool

2021-10-16 23:18:02 INFO DAGScheduler:54 - ResultStage 4 (treeReduce at KLLRunner.scala:107) finished in 0.416 s

2021-10-16 23:18:02 INFO DAGScheduler:54 - Job 3 finished: treeReduce at KLLRunner.scala:107, took 0.420841 s

2021-10-16 23:18:03 INFO CodeGenerator:54 - Code generated in 67.951441 ms

2021-10-16 23:18:03 INFO CodeGenerator:54 - Code generated in 111.455704 ms

2021-10-16 23:18:03 INFO CodeGenerator:54 - Code generated in 73.230735 ms

2021-10-16 23:18:03 INFO SparkContext:54 - Starting job: collect at AnalysisRunner.scala:313

2021-10-16 23:18:03 INFO DAGScheduler:54 - Registering RDD 39 (collect at AnalysisRunner.scala:313)

2021-10-16 23:18:03 INFO DAGScheduler:54 - Got job 4 (collect at AnalysisRunner.scala:313) with 1 output partitions

2021-10-16 23:18:03 INFO DAGScheduler:54 - Final stage: ResultStage 6 (collect at AnalysisRunner.scala:313)

2021-10-16 23:18:03 INFO DAGScheduler:54 - Parents of final stage: List(ShuffleMapStage 5)

2021-10-16 23:18:03 INFO DAGScheduler:54 - Missing parents: List(ShuffleMapStage 5)

2021-10-16 23:18:03 INFO DAGScheduler:54 - Submitting ShuffleMapStage 5 (MapPartitionsRDD[39] at collect at AnalysisRunner.scala:313), which has no missing parents

2021-10-16 23:18:03 INFO MemoryStore:54 - Block broadcast_8 stored as values in memory (estimated size 65.7 KB, free 1456.9 MB)

2021-10-16 23:18:03 INFO MemoryStore:54 - Block broadcast_8_piece0 stored as bytes in memory (estimated size 23.1 KB, free 1456.9 MB)

2021-10-16 23:18:03 INFO BlockManagerInfo:54 - Added broadcast_8_piece0 in memory on 10.0.134.125:44099 (size: 23.1 KB, free: 1458.4 MB)

2021-10-16 23:18:03 INFO SparkContext:54 - Created broadcast 8 from broadcast at DAGScheduler.scala:1039

2021-10-16 23:18:03 INFO DAGScheduler:54 - Submitting 1 missing tasks from ShuffleMapStage 5 (MapPartitionsRDD[39] at collect at AnalysisRunner.scala:313) (first 15 tasks are for partitions Vector(0))

2021-10-16 23:18:03 INFO YarnScheduler:54 - Adding task set 5.0 with 1 tasks

2021-10-16 23:18:03 INFO TaskSetManager:54 - Starting task 0.0 in stage 5.0 (TID 5, algo-1, executor 1, partition 0, PROCESS_LOCAL, 8338 bytes)

2021-10-16 23:18:03 INFO BlockManagerInfo:54 - Added broadcast_8_piece0 in memory on algo-1:43633 (size: 23.1 KB, free: 5.8 GB)

2021-10-16 23:18:03 INFO TaskSetManager:54 - Finished task 0.0 in stage 5.0 (TID 5) in 298 ms on algo-1 (executor 1) (1/1)

2021-10-16 23:18:03 INFO YarnScheduler:54 - Removed TaskSet 5.0, whose tasks have all completed, from pool

2021-10-16 23:18:03 INFO DAGScheduler:54 - ShuffleMapStage 5 (collect at AnalysisRunner.scala:313) finished in 0.312 s

2021-10-16 23:18:03 INFO DAGScheduler:54 - looking for newly runnable stages

2021-10-16 23:18:03 INFO DAGScheduler:54 - running: Set()

2021-10-16 23:18:03 INFO DAGScheduler:54 - waiting: Set(ResultStage 6)

2021-10-16 23:18:03 INFO DAGScheduler:54 - failed: Set()

2021-10-16 23:18:03 INFO DAGScheduler:54 - Submitting ResultStage 6 (MapPartitionsRDD[42] at collect at AnalysisRunner.scala:313), which has no missing parents

2021-10-16 23:18:03 INFO MemoryStore:54 - Block broadcast_9 stored as values in memory (estimated size 54.3 KB, free 1456.8 MB)

2021-10-16 23:18:03 INFO MemoryStore:54 - Block broadcast_9_piece0 stored as bytes in memory (estimated size 16.6 KB, free 1456.8 MB)

2021-10-16 23:18:03 INFO BlockManagerInfo:54 - Added broadcast_9_piece0 in memory on 10.0.134.125:44099 (size: 16.6 KB, free: 1458.4 MB)

2021-10-16 23:18:03 INFO SparkContext:54 - Created broadcast 9 from broadcast at DAGScheduler.scala:1039

2021-10-16 23:18:03 INFO DAGScheduler:54 - Submitting 1 missing tasks from ResultStage 6 (MapPartitionsRDD[42] at collect at AnalysisRunner.scala:313) (first 15 tasks are for partitions Vector(0))

2021-10-16 23:18:03 INFO YarnScheduler:54 - Adding task set 6.0 with 1 tasks

2021-10-16 23:18:03 INFO TaskSetManager:54 - Starting task 0.0 in stage 6.0 (TID 6, algo-1, executor 1, partition 0, NODE_LOCAL, 7765 bytes)

2021-10-16 23:18:03 INFO BlockManagerInfo:54 - Added broadcast_9_piece0 in memory on algo-1:43633 (size: 16.6 KB, free: 5.8 GB)

2021-10-16 23:18:03 INFO MapOutputTrackerMasterEndpoint:54 - Asked to send map output locations for shuffle 1 to 10.0.134.125:59512

2021-10-16 23:18:03 INFO TaskSetManager:54 - Finished task 0.0 in stage 6.0 (TID 6) in 140 ms on algo-1 (executor 1) (1/1)

2021-10-16 23:18:03 INFO YarnScheduler:54 - Removed TaskSet 6.0, whose tasks have all completed, from pool

2021-10-16 23:18:03 INFO DAGScheduler:54 - ResultStage 6 (collect at AnalysisRunner.scala:313) finished in 0.156 s

2021-10-16 23:18:03 INFO DAGScheduler:54 - Job 4 finished: collect at AnalysisRunner.scala:313, took 0.478346 s

2021-10-16 23:18:03 INFO ContextCleaner:54 - Cleaned accumulator 127

2021-10-16 23:18:03 INFO ContextCleaner:54 - Cleaned accumulator 130

2021-10-16 23:18:03 INFO ContextCleaner:54 - Cleaned accumulator 2

2021-10-16 23:18:03 INFO ContextCleaner:54 - Cleaned accumulator 137

2021-10-16 23:18:03 INFO ContextCleaner:54 - Cleaned accumulator 19

2021-10-16 23:18:03 INFO ContextCleaner:54 - Cleaned accumulator 15

2021-10-16 23:18:03 INFO ContextCleaner:54 - Cleaned accumulator 17
2021-10-16 23:18:03 INFO ContextCleaner:54 - Cleaned accumulator 78
2021-10-16 23:18:03 INFO ContextCleaner:54 - Cleaned accumulator 96
2021-10-16 23:18:03 INFO ContextCleaner:54 - Cleaned shuffle 0
2021-10-16 23:18:03 INFO ContextCleaner:54 - Cleaned accumulator 45
2021-10-16 23:18:03 INFO ContextCleaner:54 - Cleaned accumulator 58
2021-10-16 23:18:03 INFO ContextCleaner:54 - Cleaned accumulator 93
2021-10-16 23:18:03 INFO ContextCleaner:54 - Cleaned accumulator 115
2021-10-16 23:18:03 INFO ContextCleaner:54 - Cleaned accumulator 31
2021-10-16 23:18:03 INFO ContextCleaner:54 - Cleaned accumulator 77
2021-10-16 23:18:03 INFO ContextCleaner:54 - Cleaned accumulator 98
2021-10-16 23:18:03 INFO ContextCleaner:54 - Cleaned accumulator 128
2021-10-16 23:18:03 INFO BlockManagerInfo:54 - Removed broadcast_5_pie
ce0 on algo-1:43633 in memory (size: 24.1 KB, free: 5.8 GB)
2021-10-16 23:18:03 INFO BlockManagerInfo:54 - Removed broadcast_5_pie
ce0 on 10.0.134.125:44099 in memory (size: 24.1 KB, free: 1458.4 MB)
2021-10-16 23:18:03 INFO ContextCleaner:54 - Cleaned accumulator 71
2021-10-16 23:18:03 INFO ContextCleaner:54 - Cleaned accumulator 28
2021-10-16 23:18:03 INFO ContextCleaner:54 - Cleaned accumulator 157
2021-10-16 23:18:03 INFO ContextCleaner:54 - Cleaned accumulator 108
2021-10-16 23:18:03 INFO ContextCleaner:54 - Cleaned accumulator 22
2021-10-16 23:18:03 INFO ContextCleaner:54 - Cleaned accumulator 121
2021-10-16 23:18:03 INFO ContextCleaner:54 - Cleaned accumulator 62
2021-10-16 23:18:03 INFO ContextCleaner:54 - Cleaned accumulator 141
2021-10-16 23:18:03 INFO ContextCleaner:54 - Cleaned accumulator 105
2021-10-16 23:18:03 INFO ContextCleaner:54 - Cleaned accumulator 51
2021-10-16 23:18:03 INFO ContextCleaner:54 - Cleaned accumulator 13
2021-10-16 23:18:03 INFO ContextCleaner:54 - Cleaned accumulator 82
2021-10-16 23:18:03 INFO ContextCleaner:54 - Cleaned accumulator 52
2021-10-16 23:18:03 INFO ContextCleaner:54 - Cleaned accumulator 35
2021-10-16 23:18:03 INFO ContextCleaner:54 - Cleaned accumulator 100
2021-10-16 23:18:03 INFO BlockManagerInfo:54 - Removed broadcast_7_pie
ce0 on 10.0.134.125:44099 in memory (size: 11.6 KB, free: 1458.4 MB)
2021-10-16 23:18:03 INFO BlockManagerInfo:54 - Removed broadcast_7_pie
ce0 on algo-1:43633 in memory (size: 11.6 KB, free: 5.8 GB)
2021-10-16 23:18:03 INFO ContextCleaner:54 - Cleaned accumulator 1
2021-10-16 23:18:03 INFO ContextCleaner:54 - Cleaned accumulator 50
2021-10-16 23:18:03 INFO ContextCleaner:54 - Cleaned accumulator 86
2021-10-16 23:18:03 INFO ContextCleaner:54 - Cleaned accumulator 110
2021-10-16 23:18:03 INFO ContextCleaner:54 - Cleaned accumulator 158
2021-10-16 23:18:03 INFO ContextCleaner:54 - Cleaned accumulator 11
2021-10-16 23:18:03 INFO ContextCleaner:54 - Cleaned accumulator 84
2021-10-16 23:18:03 INFO BlockManagerInfo:54 - Removed broadcast_8_pie
ce0 on 10.0.134.125:44099 in memory (size: 23.1 KB, free: 1458.4 MB)
2021-10-16 23:18:04 INFO BlockManagerInfo:54 - Removed broadcast_8_pie
ce0 on algo-1:43633 in memory (size: 23.1 KB, free: 5.8 GB)
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 85
2021-10-16 23:18:04 INFO BlockManagerInfo:54 - Removed broadcast_1_pie
ce0 on 10.0.134.125:44099 in memory (size: 4.5 KB, free: 1458.4 MB)
2021-10-16 23:18:04 INFO BlockManagerInfo:54 - Removed broadcast_1_pie
ce0 on algo-1:43633 in memory (size: 4.5 KB, free: 5.8 GB)
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 126
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 80
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 56
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 9
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 64
2021-10-16 23:18:04 INFO BlockManagerInfo:54 - Removed broadcast_0_pie

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ce0 on 10.0.134.125:44099 in memory (size: 38.2 KB, free: 1458.5 MB)
2021-10-16 23:18:04 INFO BlockManagerInfo:54 - Removed broadcast_0_pie
ce0 on algo-1:43633 in memory (size: 38.2 KB, free: 5.8 GB)
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 161
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 26
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 70
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 10
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 117
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 29
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 116
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 153
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 144
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 124
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 140
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 60
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 7
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 75
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 44
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 55
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 102
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 46
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 16
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 148
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 101
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 123
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 79
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 76
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 27
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 89
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 18
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 156
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 149
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 8
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 147
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 154
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 81
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 142
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 21
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 107
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 66
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 91
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 47
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 20
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 94
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 159
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 139
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 131
2021-10-16 23:18:04 INFO BlockManagerInfo:54 - Removed broadcast_2_pie
ce0 on 10.0.134.125:44099 in memory (size: 38.2 KB, free: 1458.5 MB)
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 120
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 49
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 33
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 146
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 109
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 114
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 132
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 61
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2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 90
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 112
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 83
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 160
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 111
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 129
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 151
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 63
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 119
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 30
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 5
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 104
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 0
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 6
2021-10-16 23:18:04 INFO BlockManagerInfo:54 - Removed broadcast_6_piece0 on 10.0.134.125:44099 in memory (size: 27.1 KB, free: 1458.5 MB)
2021-10-16 23:18:04 INFO BlockManagerInfo:54 - Removed broadcast_6_piece0 on algo-1:43633 in memory (size: 27.1 KB, free: 5.8 GB)
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 99
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 12
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 3
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 23
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 113
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 54
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 150
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 72
2021-10-16 23:18:04 INFO BlockManagerInfo:54 - Removed broadcast_4_piece0 on 10.0.134.125:44099 in memory (size: 9.7 KB, free: 1458.5 MB)
2021-10-16 23:18:04 INFO BlockManagerInfo:54 - Removed broadcast_4_piece0 on algo-1:43633 in memory (size: 9.7 KB, free: 5.8 GB)
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 106
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 24
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 65
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 125
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 97
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 138
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 74
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 25
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 43
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 59
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 122
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 14
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 42
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 34
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 152
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 92
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 95
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 4
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 57
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 32
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 53
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 67
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 103
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 118
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 68
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 145
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 155

2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 88
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 69
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 87
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 73
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 143
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 136
2021-10-16 23:18:04 INFO ContextCleaner:54 - Cleaned accumulator 48
2021-10-16 23:18:04 INFO CodeGenerator:54 - Code generated in 9.342016 ms
2021-10-16 23:18:04 INFO SparkContext:54 - Starting job: collect at AnalysisRunner.scala:313
2021-10-16 23:18:04 INFO DAGScheduler:54 - Registering RDD 47 (collect at AnalysisRunner.scala:313)
2021-10-16 23:18:04 INFO DAGScheduler:54 - Got job 5 (collect at AnalysisRunner.scala:313) with 1 output partitions
2021-10-16 23:18:04 INFO DAGScheduler:54 - Final stage: ResultStage 8 (collect at AnalysisRunner.scala:313)
2021-10-16 23:18:04 INFO DAGScheduler:54 - Parents of final stage: List(ShuffleMapStage 7)
2021-10-16 23:18:04 INFO DAGScheduler:54 - Missing parents: List(ShuffleMapStage 7)
2021-10-16 23:18:04 INFO DAGScheduler:54 - Submitting ShuffleMapStage 7 (MapPartitionsRDD[47] at collect at AnalysisRunner.scala:313), which has no missing parents
2021-10-16 23:18:04 INFO MemoryStore:54 - Block broadcast_10 stored as values in memory (estimated size 41.4 KB, free 1458.0 MB)
2021-10-16 23:18:04 INFO MemoryStore:54 - Block broadcast_10_piece0 stored as bytes in memory (estimated size 17.0 KB, free 1458.0 MB)
2021-10-16 23:18:04 INFO BlockManagerInfo:54 - Added broadcast_10_piece0 in memory on 10.0.134.125:44099 (size: 17.0 KB, free: 1458.5 MB)
2021-10-16 23:18:04 INFO SparkContext:54 - Created broadcast 10 from broadcast at DAGScheduler.scala:1039
2021-10-16 23:18:04 INFO DAGScheduler:54 - Submitting 1 missing tasks from ShuffleMapStage 7 (MapPartitionsRDD[47] at collect at AnalysisRunner.scala:313) (first 15 tasks are for partitions Vector(0))
2021-10-16 23:18:04 INFO YarnScheduler:54 - Adding task set 7.0 with 1 tasks
2021-10-16 23:18:04 INFO TaskSetManager:54 - Starting task 0.0 in stage 7.0 (TID 7, algo-1, executor 1, partition 0, PROCESS_LOCAL, 8338 bytes)
2021-10-16 23:18:04 INFO BlockManagerInfo:54 - Added broadcast_10_piece0 in memory on algo-1:43633 (size: 17.0 KB, free: 5.8 GB)
2021-10-16 23:18:04 INFO TaskSetManager:54 - Finished task 0.0 in stage 7.0 (TID 7) in 161 ms on algo-1 (executor 1) (1/1)
2021-10-16 23:18:04 INFO YarnScheduler:54 - Removed TaskSet 7.0, whose tasks have all completed, from pool
2021-10-16 23:18:04 INFO DAGScheduler:54 - ShuffleMapStage 7 (collect at AnalysisRunner.scala:313) finished in 0.172 s
2021-10-16 23:18:04 INFO DAGScheduler:54 - looking for newly runnable stages
2021-10-16 23:18:04 INFO DAGScheduler:54 - running: Set()
2021-10-16 23:18:04 INFO DAGScheduler:54 - waiting: Set(ResultStage 8)
2021-10-16 23:18:04 INFO DAGScheduler:54 - failed: Set()
2021-10-16 23:18:04 INFO DAGScheduler:54 - Submitting ResultStage 8 (MapPartitionsRDD[50] at collect at AnalysisRunner.scala:313), which has no missing parents
2021-10-16 23:18:04 INFO MemoryStore:54 - Block broadcast_11 stored as

values in memory (estimated size 47.6 KB, free 1458.0 MB)
2021-10-16 23:18:04 INFO MemoryStore:54 - Block broadcast_11_piece0 stored as bytes in memory (estimated size 18.6 KB, free 1458.0 MB)
2021-10-16 23:18:04 INFO BlockManagerInfo:54 - Added broadcast_11_piece0 in memory on 10.0.134.125:44099 (size: 18.6 KB, free: 1458.5 MB)
2021-10-16 23:18:04 INFO SparkContext:54 - Created broadcast 11 from broadcast at DAGScheduler.scala:1039
2021-10-16 23:18:04 INFO DAGScheduler:54 - Submitting 1 missing tasks from ResultStage 8 (MapPartitionsRDD[50] at collect at AnalysisRunner.scala:313) (first 15 tasks are for partitions Vector(0))
2021-10-16 23:18:04 INFO YarnScheduler:54 - Adding task set 8.0 with 1 tasks
2021-10-16 23:18:04 INFO TaskSetManager:54 - Starting task 0.0 in stage 8.0 (TID 8, algo-1, executor 1, partition 0, NODE_LOCAL, 7765 bytes)
2021-10-16 23:18:04 INFO BlockManagerInfo:54 - Added broadcast_11_piece0 in memory on algo-1:43633 (size: 18.6 KB, free: 5.8 GB)
2021-10-16 23:18:04 INFO MapOutputTrackerMasterEndpoint:54 - Asked to send map output locations for shuffle 2 to 10.0.134.125:59512
2021-10-16 23:18:04 INFO TaskSetManager:54 - Finished task 0.0 in stage 8.0 (TID 8) in 83 ms on algo-1 (executor 1) (1/1)
2021-10-16 23:18:04 INFO YarnScheduler:54 - Removed TaskSet 8.0, whose tasks have all completed, from pool
2021-10-16 23:18:04 INFO DAGScheduler:54 - ResultStage 8 (collect at AnalysisRunner.scala:313) finished in 0.108 s
2021-10-16 23:18:04 INFO DAGScheduler:54 - Job 5 finished: collect at AnalysisRunner.scala:313, took 0.290058 s
2021-10-16 23:18:04 INFO CodeGenerator:54 - Code generated in 11.26461 ms
2021-10-16 23:18:04 INFO SparkContext:54 - Starting job: treeReduce at KLLRunner.scala:107
2021-10-16 23:18:04 INFO DAGScheduler:54 - Got job 6 (treeReduce at KLLRunner.scala:107) with 1 output partitions
2021-10-16 23:18:04 INFO DAGScheduler:54 - Final stage: ResultStage 9 (treeReduce at KLLRunner.scala:107)
2021-10-16 23:18:04 INFO DAGScheduler:54 - Parents of final stage: List()
2021-10-16 23:18:04 INFO DAGScheduler:54 - Missing parents: List()
2021-10-16 23:18:04 INFO DAGScheduler:54 - Submitting ResultStage 9 (MapPartitionsRDD[59] at treeReduce at KLLRunner.scala:107), which has no missing parents
2021-10-16 23:18:04 INFO MemoryStore:54 - Block broadcast_12 stored as values in memory (estimated size 24.4 KB, free 1457.9 MB)
2021-10-16 23:18:04 INFO MemoryStore:54 - Block broadcast_12_piece0 stored as bytes in memory (estimated size 11.0 KB, free 1457.9 MB)
2021-10-16 23:18:04 INFO BlockManagerInfo:54 - Added broadcast_12_piece0 in memory on 10.0.134.125:44099 (size: 11.0 KB, free: 1458.5 MB)
2021-10-16 23:18:04 INFO SparkContext:54 - Created broadcast 12 from broadcast at DAGScheduler.scala:1039
2021-10-16 23:18:04 INFO DAGScheduler:54 - Submitting 1 missing tasks from ResultStage 9 (MapPartitionsRDD[59] at treeReduce at KLLRunner.scala:107) (first 15 tasks are for partitions Vector(0))
2021-10-16 23:18:04 INFO YarnScheduler:54 - Adding task set 9.0 with 1 tasks
2021-10-16 23:18:04 INFO TaskSetManager:54 - Starting task 0.0 in stage 9.0 (TID 9, algo-1, executor 1, partition 0, PROCESS_LOCAL, 8349 bytes)
2021-10-16 23:18:04 INFO BlockManagerInfo:54 - Added broadcast_12_piece

e0 in memory on algo-1:43633 (size: 11.0 KB, free: 5.8 GB)
2021-10-16 23:18:04 INFO TaskSetManager:54 - Finished task 0.0 in stage 9.0 (TID 9) in 124 ms on algo-1 (executor 1) (1/1)
2021-10-16 23:18:04 INFO YarnScheduler:54 - Removed TaskSet 9.0, whose tasks have all completed, from pool
2021-10-16 23:18:04 INFO DAGScheduler:54 - ResultStage 9 (treeReduce at KLLRunner.scala:107) finished in 0.131 s
2021-10-16 23:18:04 INFO DAGScheduler:54 - Job 6 finished: treeReduce at KLLRunner.scala:107, took 0.134803 s
2021-10-16 23:18:04 INFO CodeGenerator:54 - Code generated in 21.240833 ms
2021-10-16 23:18:04 INFO CodeGenerator:54 - Code generated in 28.124031 ms
2021-10-16 23:18:04 INFO CodeGenerator:54 - Code generated in 22.301058 ms
2021-10-16 23:18:04 INFO SparkContext:54 - Starting job: collect at AnalysisRunner.scala:313
2021-10-16 23:18:04 INFO DAGScheduler:54 - Registering RDD 64 (collect at AnalysisRunner.scala:313)
2021-10-16 23:18:04 INFO DAGScheduler:54 - Got job 7 (collect at AnalysisRunner.scala:313) with 1 output partitions
2021-10-16 23:18:04 INFO DAGScheduler:54 - Final stage: ResultStage 11 (collect at AnalysisRunner.scala:313)
2021-10-16 23:18:04 INFO DAGScheduler:54 - Parents of final stage: List(ShuffleMapStage 10)
2021-10-16 23:18:04 INFO DAGScheduler:54 - Missing parents: List(ShuffleMapStage 10)
2021-10-16 23:18:04 INFO DAGScheduler:54 - Submitting ShuffleMapStage 10 (MapPartitionsRDD[64] at collect at AnalysisRunner.scala:313), which has no missing parents
2021-10-16 23:18:04 INFO MemoryStore:54 - Block broadcast_13 stored as values in memory (estimated size 39.1 KB, free 1457.9 MB)
2021-10-16 23:18:04 INFO MemoryStore:54 - Block broadcast_13_piece0 stored as bytes in memory (estimated size 15.6 KB, free 1457.9 MB)
2021-10-16 23:18:04 INFO BlockManagerInfo:54 - Added broadcast_13_piece0 in memory on 10.0.134.125:44099 (size: 15.6 KB, free: 1458.5 MB)
2021-10-16 23:18:04 INFO SparkContext:54 - Created broadcast 13 from broadcast at DAGScheduler.scala:1039
2021-10-16 23:18:04 INFO DAGScheduler:54 - Submitting 1 missing tasks from ShuffleMapStage 10 (MapPartitionsRDD[64] at collect at AnalysisRunner.scala:313) (first 15 tasks are for partitions Vector(0))
2021-10-16 23:18:04 INFO YarnScheduler:54 - Adding task set 10.0 with 1 tasks
2021-10-16 23:18:04 INFO TaskSetManager:54 - Starting task 0.0 in stage 10.0 (TID 10, algo-1, executor 1, partition 0, PROCESS_LOCAL, 8338 bytes)
2021-10-16 23:18:04 INFO BlockManagerInfo:54 - Added broadcast_13_piece0 in memory on algo-1:43633 (size: 15.6 KB, free: 5.8 GB)
2021-10-16 23:18:04 INFO TaskSetManager:54 - Finished task 0.0 in stage 10.0 (TID 10) in 66 ms on algo-1 (executor 1) (1/1)
2021-10-16 23:18:04 INFO YarnScheduler:54 - Removed TaskSet 10.0, whose tasks have all completed, from pool
2021-10-16 23:18:04 INFO DAGScheduler:54 - ShuffleMapStage 10 (collect at AnalysisRunner.scala:313) finished in 0.076 s
2021-10-16 23:18:04 INFO DAGScheduler:54 - looking for newly runnable stages
2021-10-16 23:18:04 INFO DAGScheduler:54 - running: Set()

2021-10-16 23:18:04 INFO DAGScheduler:54 - waiting: Set(ResultStage 11)
2021-10-16 23:18:04 INFO DAGScheduler:54 - failed: Set()
2021-10-16 23:18:04 INFO DAGScheduler:54 - Submitting ResultStage 11 (MapPartitionsRDD[67] at collect at AnalysisRunner.scala:313), which has no missing parents
2021-10-16 23:18:04 INFO MemoryStore:54 - Block broadcast_14 stored as values in memory (estimated size 25.4 KB, free 1457.8 MB)
2021-10-16 23:18:05 INFO MemoryStore:54 - Block broadcast_14_piece0 stored as bytes in memory (estimated size 8.9 KB, free 1457.8 MB)
2021-10-16 23:18:05 INFO BlockManagerInfo:54 - Added broadcast_14_piece0 in memory on 10.0.134.125:44099 (size: 8.9 KB, free: 1458.5 MB)
2021-10-16 23:18:05 INFO SparkContext:54 - Created broadcast 14 from broadcast at DAGScheduler.scala:1039
2021-10-16 23:18:05 INFO DAGScheduler:54 - Submitting 1 missing tasks from ResultStage 11 (MapPartitionsRDD[67] at collect at AnalysisRunner.scala:313) (first 15 tasks are for partitions Vector(0))
2021-10-16 23:18:05 INFO YarnScheduler:54 - Adding task set 11.0 with 1 tasks
2021-10-16 23:18:05 INFO TaskSetManager:54 - Starting task 0.0 in stage 11.0 (TID 11, algo-1, executor 1, partition 0, NODE_LOCAL, 7765 bytes)
2021-10-16 23:18:05 INFO BlockManagerInfo:54 - Added broadcast_14_piece0 in memory on algo-1:43633 (size: 8.9 KB, free: 5.8 GB)
2021-10-16 23:18:05 INFO MapOutputTrackerMasterEndpoint:54 - Asked to send map output locations for shuffle 3 to 10.0.134.125:59512
2021-10-16 23:18:05 INFO TaskSetManager:54 - Finished task 0.0 in stage 11.0 (TID 11) in 51 ms on algo-1 (executor 1) (1/1)
2021-10-16 23:18:05 INFO YarnScheduler:54 - Removed TaskSet 11.0, whose tasks have all completed, from pool
2021-10-16 23:18:05 INFO DAGScheduler:54 - ResultStage 11 (collect at AnalysisRunner.scala:313) finished in 0.074 s
2021-10-16 23:18:05 INFO DAGScheduler:54 - Job 7 finished: collect at AnalysisRunner.scala:313, took 0.158697 s
2021-10-16 23:18:05 INFO SparkContext:54 - Starting job: countByKey at ColumnProfiler.scala:566
2021-10-16 23:18:05 INFO DAGScheduler:54 - Registering RDD 74 (countByKey at ColumnProfiler.scala:566)
2021-10-16 23:18:05 INFO DAGScheduler:54 - Got job 8 (countByKey at ColumnProfiler.scala:566) with 1 output partitions
2021-10-16 23:18:05 INFO DAGScheduler:54 - Final stage: ResultStage 13 (countByKey at ColumnProfiler.scala:566)
2021-10-16 23:18:05 INFO DAGScheduler:54 - Parents of final stage: List(ShuffleMapStage 12)
2021-10-16 23:18:05 INFO DAGScheduler:54 - Missing parents: List(ShuffleMapStage 12)
2021-10-16 23:18:05 INFO DAGScheduler:54 - Submitting ShuffleMapStage 12 (MapPartitionsRDD[74] at countByKey at ColumnProfiler.scala:566), which has no missing parents
2021-10-16 23:18:05 INFO MemoryStore:54 - Block broadcast_15 stored as values in memory (estimated size 21.1 KB, free 1457.8 MB)
2021-10-16 23:18:05 INFO MemoryStore:54 - Block broadcast_15_piece0 stored as bytes in memory (estimated size 10.2 KB, free 1457.8 MB)
2021-10-16 23:18:05 INFO BlockManagerInfo:54 - Added broadcast_15_piece0 in memory on 10.0.134.125:44099 (size: 10.2 KB, free: 1458.5 MB)
2021-10-16 23:18:05 INFO SparkContext:54 - Created broadcast 15 from broadcast at DAGScheduler.scala:1039


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2021-10-16 23:18:05 INFO DAGScheduler:54 - Submitting 1 missing tasks
  from ShuffleMapStage 12 (MapPartitionsRDD[74] at countByKey at ColumnP
rofiler.scala:566) (first 15 tasks are for partitions Vector(0))
2021-10-16 23:18:05 INFO YarnScheduler:54 - Adding task set 12.0 with
  1 tasks
2021-10-16 23:18:05 INFO TaskSetManager:54 - Starting task 0.0 in stag
e 12.0 (TID 12, algo-1, executor 1, partition 0, PROCESS_LOCAL, 8338 by
tes)
2021-10-16 23:18:05 INFO BlockManagerInfo:54 - Added broadcast_15_piec
e0 in memory on algo-1:43633 (size: 10.2 KB, free: 5.8 GB)
2021-10-16 23:18:06 INFO TaskSetManager:54 - Finished task 0.0 in stag
e 12.0 (TID 12) in 984 ms on algo-1 (executor 1) (1/1)
2021-10-16 23:18:06 INFO YarnScheduler:54 - Removed TaskSet 12.0, whos
e tasks have all completed, from pool
2021-10-16 23:18:06 INFO DAGScheduler:54 - ShuffleMapStage 12 (countBy
Key at ColumnProfiler.scala:566) finished in 0.994 s
2021-10-16 23:18:06 INFO DAGScheduler:54 - looking for newly runnable
  stages
2021-10-16 23:18:06 INFO DAGScheduler:54 - running: Set()
2021-10-16 23:18:06 INFO DAGScheduler:54 - waiting: Set(ResultStage 1
3)
2021-10-16 23:18:06 INFO DAGScheduler:54 - failed: Set()
2021-10-16 23:18:06 INFO DAGScheduler:54 - Submitting ResultStage 13
  (ShuffledRDD[75] at countByKey at ColumnProfiler.scala:566), which has
no missing parents
2021-10-16 23:18:06 INFO MemoryStore:54 - Block broadcast_16 stored as
values in memory (estimated size 3.2 KB, free 1457.8 MB)
2021-10-16 23:18:06 INFO MemoryStore:54 - Block broadcast_16_piec
e0 stored as bytes in memory (estimated size 1923.0 B, free 1457.8 MB)
2021-10-16 23:18:06 INFO BlockManagerInfo:54 - Added broadcast_16_piec
e0 in memory on 10.0.134.125:44099 (size: 1923.0 B, free: 1458.5 MB)
2021-10-16 23:18:06 INFO SparkContext:54 - Created broadcast 16 from b
roadcast at DAGScheduler.scala:1039
2021-10-16 23:18:06 INFO DAGScheduler:54 - Submitting 1 missing tasks
  from ResultStage 13 (ShuffledRDD[75] at countByKey at ColumnProfiler.s
cala:566) (first 15 tasks are for partitions Vector(0))
2021-10-16 23:18:06 INFO YarnScheduler:54 - Adding task set 13.0 with
  1 tasks
2021-10-16 23:18:06 INFO TaskSetManager:54 - Starting task 0.0 in stag
e 13.0 (TID 13, algo-1, executor 1, partition 0, NODE_LOCAL, 7660 byte
s)
2021-10-16 23:18:06 INFO BlockManagerInfo:54 - Added broadcast_16_piec
e0 in memory on algo-1:43633 (size: 1923.0 B, free: 5.8 GB)
2021-10-16 23:18:06 INFO MapOutputTrackerMasterEndpoint:54 - Asked to
  send map output locations for shuffle 4 to 10.0.134.125:59512
2021-10-16 23:18:06 INFO TaskSetManager:54 - Finished task 0.0 in stag
e 13.0 (TID 13) in 45 ms on algo-1 (executor 1) (1/1)
2021-10-16 23:18:06 INFO YarnScheduler:54 - Removed TaskSet 13.0, whos
e tasks have all completed, from pool
2021-10-16 23:18:06 INFO DAGScheduler:54 - ResultStage 13 (countByKey
at ColumnProfiler.scala:566) finished in 0.056 s
2021-10-16 23:18:06 INFO DAGScheduler:54 - Job 8 finished: countByKey
at ColumnProfiler.scala:566, took 1.063669 s
2021-10-16 23:18:06 INFO ConstraintGenerator:45 - Generating Constrai
nts:
2021-10-16 23:18:06 INFO ConstraintGenerator:50 - Constraints: {
  "version" : 0.0,
```

```
"features" : [ {
  "name" : "_c0",
  "inferred_type" : "Integral",
  "completeness" : 1.0,
  "num_constraints" : {
    "is_non_negative" : true
  }
}, {
  "name" : "Unnamed: 0",
  "inferred_type" : "Integral",
  "completeness" : 1.0,
  "num_constraints" : {
    "is_non_negative" : true
  }
}, {
  "name" : "Age",
  "inferred_type" : "Fractional",
  "completeness" : 1.0,
  "num_constraints" : {
    "is_non_negative" : true
  }
}, {
  "name" : "Systolic_BP",
  "inferred_type" : "Fractional",
  "completeness" : 1.0,
  "num_constraints" : {
    "is_non_negative" : true
  }
}, {
  "name" : "Diastolic_BP",
  "inferred_type" : "Fractional",
  "completeness" : 1.0,
  "num_constraints" : {
    "is_non_negative" : true
  }
}, {
  "name" : "Cholesterol",
  "inferred_type" : "Fractional",
  "completeness" : 1.0,
  "num_constraints" : {
    "is_non_negative" : true
  }
}, {
  "name" : "y",
  "inferred_type" : "Fractional",
  "completeness" : 1.0,
  "num_constraints" : {
    "is_non_negative" : true
  }
} ],
"monitoring_config" : {
  "evaluate_constraints" : "Enabled",
  "emit_metrics" : "Enabled",
  "datatype_check_threshold" : 1.0,
  "domain_content_threshold" : 1.0,
  "distribution_constraints" : {
    "perform_comparison" : "Enabled",
```

```

    "comparison_threshold" : 0.1,
    "comparison_method" : "Robust"
  }
}
}
2021-10-16 23:18:06 INFO FileUtil:29 - Write to file constraints.json
  at path /opt/ml/processing/output.
2021-10-16 23:18:06 INFO StatsGenerator:65 - Generating Stats:
2021-10-16 23:18:06 INFO CodeGenerator:54 - Code generated in 8.958777
ms
2021-10-16 23:18:06 INFO CodeGenerator:54 - Code generated in 7.217003
ms
2021-10-16 23:18:06 INFO SparkContext:54 - Starting job: count at Stat
sGenerator.scala:67
2021-10-16 23:18:06 INFO DAGScheduler:54 - Registering RDD 80 (count a
t StatsGenerator.scala:67)
2021-10-16 23:18:06 INFO DAGScheduler:54 - Got job 9 (count at StatsGe
nerator.scala:67) with 1 output partitions
2021-10-16 23:18:06 INFO DAGScheduler:54 - Final stage: ResultStage 15
(count at StatsGenerator.scala:67)
2021-10-16 23:18:06 INFO DAGScheduler:54 - Parents of final stage: Lis
t(ShuffleMapStage 14)
2021-10-16 23:18:06 INFO DAGScheduler:54 - Missing parents: List(Shuff
leMapStage 14)
2021-10-16 23:18:06 INFO DAGScheduler:54 - Submitting ShuffleMapStage
  14 (MapPartitionsRDD[80] at count at StatsGenerator.scala:67), which h
as no missing parents
2021-10-16 23:18:06 INFO MemoryStore:54 - Block broadcast_17 stored as
values in memory (estimated size 22.1 KB, free 1457.8 MB)
2021-10-16 23:18:06 INFO MemoryStore:54 - Block broadcast_17_pie0 st
ored as bytes in memory (estimated size 10.1 KB, free 1457.8 MB)
2021-10-16 23:18:06 INFO BlockManagerInfo:54 - Added broadcast_17_piec
e0 in memory on 10.0.134.125:44099 (size: 10.1 KB, free: 1458.5 MB)
2021-10-16 23:18:06 INFO SparkContext:54 - Created broadcast 17 from b
roadcast at DAGScheduler.scala:1039
2021-10-16 23:18:06 INFO DAGScheduler:54 - Submitting 1 missing tasks
  from ShuffleMapStage 14 (MapPartitionsRDD[80] at count at StatsGenerat
or.scala:67) (first 15 tasks are for partitions Vector(0))
2021-10-16 23:18:06 INFO YarnScheduler:54 - Adding task set 14.0 with
  1 tasks
2021-10-16 23:18:06 INFO TaskSetManager:54 - Starting task 0.0 in stag
e 14.0 (TID 14, algo-1, executor 1, partition 0, PROCESS_LOCAL, 8338 by
tes)
2021-10-16 23:18:06 INFO BlockManagerInfo:54 - Added broadcast_17_piec
e0 in memory on algo-1:43633 (size: 10.1 KB, free: 5.8 GB)
2021-10-16 23:18:06 INFO TaskSetManager:54 - Finished task 0.0 in stag
e 14.0 (TID 14) in 71 ms on algo-1 (executor 1) (1/1)
2021-10-16 23:18:06 INFO YarnScheduler:54 - Removed TaskSet 14.0, whos
e tasks have all completed, from pool
2021-10-16 23:18:06 INFO DAGScheduler:54 - ShuffleMapStage 14 (count a
t StatsGenerator.scala:67) finished in 0.080 s
2021-10-16 23:18:06 INFO DAGScheduler:54 - looking for newly runnable
  stages
2021-10-16 23:18:06 INFO DAGScheduler:54 - running: Set()
2021-10-16 23:18:06 INFO DAGScheduler:54 - waiting: Set(ResultStage 1
5)
2021-10-16 23:18:06 INFO DAGScheduler:54 - failed: Set()

```



```
2021-10-16 23:18:06 INFO DAGScheduler:54 - Submitting ResultStage 15
(MapPartitionsRDD[83] at count at StatsGenerator.scala:67), which has
no missing parents
2021-10-16 23:18:06 INFO MemoryStore:54 - Block broadcast_18 stored as
values in memory (estimated size 7.4 KB, free 1457.8 MB)
2021-10-16 23:18:06 INFO MemoryStore:54 - Block broadcast_18_piece0 st
ored as bytes in memory (estimated size 3.8 KB, free 1457.8 MB)
2021-10-16 23:18:06 INFO BlockManagerInfo:54 - Added broadcast_18_piec
e0 in memory on 10.0.134.125:44099 (size: 3.8 KB, free: 1458.5 MB)
2021-10-16 23:18:06 INFO SparkContext:54 - Created broadcast 18 from b
roadcast at DAGScheduler.scala:1039
2021-10-16 23:18:06 INFO DAGScheduler:54 - Submitting 1 missing tasks
from ResultStage 15 (MapPartitionsRDD[83] at count at StatsGenerator.s
cala:67) (first 15 tasks are for partitions Vector(0))
2021-10-16 23:18:06 INFO YarnScheduler:54 - Adding task set 15.0 with
1 tasks
2021-10-16 23:18:06 INFO TaskSetManager:54 - Starting task 0.0 in stag
e 15.0 (TID 15, algo-1, executor 1, partition 0, NODE_LOCAL, 7765 byte
s)
2021-10-16 23:18:06 INFO BlockManagerInfo:54 - Added broadcast_18_piec
e0 in memory on algo-1:43633 (size: 3.8 KB, free: 5.8 GB)
2021-10-16 23:18:06 INFO MapOutputTrackerMasterEndpoint:54 - Asked to
send map output locations for shuffle 5 to 10.0.134.125:59512
2021-10-16 23:18:06 INFO TaskSetManager:54 - Finished task 0.0 in stag
e 15.0 (TID 15) in 34 ms on algo-1 (executor 1) (1/1)
2021-10-16 23:18:06 INFO YarnScheduler:54 - Removed TaskSet 15.0, whos
e tasks have all completed, from pool
2021-10-16 23:18:06 INFO DAGScheduler:54 - ResultStage 15 (count at St
atsGenerator.scala:67) finished in 0.054 s
2021-10-16 23:18:06 INFO DAGScheduler:54 - Job 9 finished: count at St
atsGenerator.scala:67, took 0.142047 s
2021-10-16 23:18:06 INFO StatsGenerator:70 - Stats: {
  "version" : 0.0,
  "dataset" : {
    "item_count" : 6000
  },
  "features" : [ {
    "name" : "_c0",
    "inferred_type" : "Integral",
    "numerical_statistics" : {
      "common" : {
        "num_present" : 6000,
        "num_missing" : 0
      },
      "mean" : 2999.5,
      "sum" : 1.7997E7,
      "std_dev" : 1732.050783512616,
      "min" : 0.0,
      "max" : 5999.0,
      "distribution" : {
        "kll" : {
          "buckets" : [ {
            "lower_bound" : 0.0,
            "upper_bound" : 599.9,
            "count" : 600.0
          }, {
            "lower_bound" : 599.9,
```

```

    "upper_bound" : 1199.8,
    "count" : 600.0
  }, {
    "lower_bound" : 1199.8,
    "upper_bound" : 1799.7,
    "count" : 600.0
  }, {
    "lower_bound" : 1799.7,
    "upper_bound" : 2399.6,
    "count" : 600.0
  }, {
    "lower_bound" : 2399.6,
    "upper_bound" : 2999.5,
    "count" : 600.0
  }, {
    "lower_bound" : 2999.5,
    "upper_bound" : 3599.4,
    "count" : 600.0
  }, {
    "lower_bound" : 3599.4,
    "upper_bound" : 4199.3,
    "count" : 600.0
  }, {
    "lower_bound" : 4199.3,
    "upper_bound" : 4799.2,
    "count" : 600.0
  }, {
    "lower_bound" : 4799.2,
    "upper_bound" : 5399.1,
    "count" : 600.0
  }, {
    "lower_bound" : 5399.1,
    "upper_bound" : 5999.0,
    "count" : 600.0
  } ],
  "sketch" : {
    "parameters" : {
      "c" : 0.64,
      "k" : 2048.0
    },
    "data" : [ [ 4390.0, 4391.0, 4392.0, 4393.0, 4394.0, 4395.0, 4396.0, 4397.0, 4398.0, 4399.0, 4400.0, 4401.0, 4402.0, 4403.0, 4404.0, 4405.0, 4406.0, 4407.0, 4408.0, 4409.0, 4410.0, 4411.0, 4412.0, 4413.0, 4414.0, 4415.0, 4416.0, 4417.0, 4418.0, 4419.0, 4420.0, 4421.0, 4422.0, 4423.0, 4424.0, 4425.0, 4426.0, 4427.0, 4428.0, 4429.0, 4430.0, 4431.0, 4432.0, 4433.0, 4434.0, 4435.0, 4436.0, 4437.0, 4438.0, 4439.0, 4440.0, 4441.0, 4442.0, 4443.0, 4444.0, 4445.0, 4446.0, 4447.0, 4448.0, 4449.0, 4450.0, 4451.0, 4452.0, 4453.0, 4454.0, 4455.0, 4456.0, 4457.0, 4458.0, 4459.0, 4460.0, 4461.0, 4462.0, 4463.0, 4464.0, 4465.0, 4466.0, 4467.0, 4468.0, 4469.0, 4470.0, 4471.0, 4472.0, 4473.0, 4474.0, 4475.0, 4476.0, 4477.0, 4478.0, 4479.0, 4480.0, 4481.0, 4482.0, 4483.0, 4484.0, 4485.0, 4486.0, 4487.0, 4488.0, 4489.0, 4490.0, 4491.0, 4492.0, 4493.0, 4494.0, 4495.0, 4496.0, 4497.0, 4498.0, 4499.0, 4500.0, 4501.0, 4502.0, 4503.0, 4504.0, 4505.0, 4506.0, 4507.0, 4508.0, 4509.0, 4510.0, 4511.0, 4512.0, 4513.0, 4514.0, 4515.0, 4516.0, 4517.0, 4518.0, 4519.0, 4520.0, 4521.0, 4522.0, 4523.0, 4524.0, 4525.0, 4526.0, 4527.0, 4528.0, 4529.0, 4530.0, 4531.0, 4532.0, 4533.0, 4534.0, 4535.0, 4536.0, 4537.0, 4538.0, 4539.0, 4540.0, 4541.0, 4542.0, 4543.0, 4544.0, 4545.0, 4546.0, 4547.0, 4548.0, 4549.0, 4550.0, 4551.0, 4552.0, 4553.0, 4554.0, 4555.0, 4556.0, 4557.0, 4558.0, 4559.0, 4560.0, 4561.0, 4562.0, 4563.0, 4564.0, 4565.0, 4566.0, 4567.0, 4568.0, 4569.0, 4570.0, 4571.0, 4572.0, 4573.0, 4574.0, 4575.0, 4576.0, 4577.0, 4578.0, 4579.0, 4580.0, 4581.0, 4582.0, 4583.0, 4584.0, 4585.0, 4586.0, 4587.0, 4588.0, 4589.0, 4590.0, 4591.0, 4592.0, 4593.0, 4594.0, 4595.0, 4596.0, 4597.0, 4598.0, 4599.0, 4600.0, 4601.0, 4602.0, 4603.0, 4604.0, 4605.0, 4606.0, 4607.0, 4608.0, 4609.0, 4610.0, 4611.0, 4612.0, 4613.0, 4614.0, 4615.0, 4616.0, 4617.0, 4618.0, 4619.0, 4620.0, 4621.0, 4622.0, 4623.0, 4624.0, 4625.0, 4626.0, 4627.0, 4628.0, 4629.0, 4630.0, 4631.0, 4632.0, 4633.0, 4634.0, 4635.0, 4636.0, 4637.0, 4638.0, 4639.0, 4640.0, 4641.0, 4642.0, 4643.0, 4644.0, 4645.0, 4646.0, 4647.0, 4648.0, 4649.0, 4650.0, 4651.0, 4652.0, 4653.0, 4654.0, 4655.0, 4656.0, 4657.0, 4658.0, 4659.0, 4660.0, 4661.0, 4662.0, 4663.0, 4664.0, 4665.0, 4666.0, 4667.0, 4668.0, 4669.0, 4670.0, 4671.0, 4672.0, 4673.0, 4674.0, 4675.0, 4676.0, 4677.0, 4678.0, 4679.0, 4680.0, 4681.0, 4682.0, 4683.0, 4684.0, 4685.0, 4686.0, 4687.0, 4688.0, 4689.0, 4690.0, 4691.0, 4692.0, 4693.0, 4694.0, 4695.0, 4696.0, 4697.0, 4698.0, 4699.0, 4700.0, 4701.0, 4702.0, 4703.0, 4704.0, 4705.0, 4706.0, 4707.0, 4708.0, 4709.0, 4710.0, 4711.0, 4712.0, 4713.0, 4714.0, 4715.0, 4716.0, 4717.0, 4718.0, 4719.0, 4720.0, 4721.0, 4722.0, 4723.0, 4724.0, 4725.0, 4726.0, 4727.0, 4728.0, 4729.0, 4730.0, 4731.0, 4732.0, 4733.0, 4734.0, 4735.0, 4736.0, 4737.0, 4738.0, 4739.0, 4740.0, 4741.0, 4742.0, 4743.0, 4744.0, 4745.0, 4746.0, 4747.0, 4748.0, 4749.0, 4750.0, 4751.0, 4752.0, 4753.0, 4754.0, 4755.0, 4756.0, 4757.0, 4758.0, 4759.0, 4760.0, 4761.0, 4762.0, 4763.0, 4764.0, 4765.0, 4766.0, 4767.0, 4768.0, 4769.0, 4770.0, 4771.0, 4772.0, 4773.0, 4774.0, 4775.0, 4776.0, 4777.0, 4778.0, 4779.0, 4780.0, 4781.0, 4782.0, 4783.0, 4784.0, 4785.0, 4786.0, 4787.0, 4788.0, 4789.0, 4790.0, 4791.0, 4792.0, 4793.0, 4794.0, 4795.0, 4796.0, 4797.0, 4798.0, 4799.0, 4800.0, 4801.0, 4802.0, 4803.0, 4804.0, 4805.0, 4806.0, 4807.0, 4808.0, 4809.0, 4810.0, 4811.0, 4812.0, 4813.0, 4814.0, 4815.0, 4816.0, 4817.0, 4818.0, 4819.0, 4820.0, 4821.0, 4822.0, 4823.0, 4824.0, 4825.0, 4826.0, 4827.0, 4828.0, 4829.0, 4830.0, 4831.0, 4832.0, 4833.0, 4834.0, 4835.0, 4836.0, 4837.0, 4838.0, 4839.0, 4840.0, 4841.0, 4842.0, 4843.0, 4844.0, 484
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1.0, 0.0, 1.0, 1.0, 1.0, 1.0, 0.0, 1.0, 0.0, 1.0, 1.0, 1.0, 0.0, 0.0,
1.0, 0.0, 1.0, 0.0, 1.0, 0.0, 0.0, 1.0, 0.0, 0.0, 1.0, 1.0, 0.0, 0.0,
0.0, 1.0, 0.0, 1.0, 1.0, 0.0, 0.0, 0.0, 1.0, 0.0, 1.0, 1.0, 1.0, 0.0,

```

[illegible]

[illegible]

[illegible]

2021-10-16 23:18:07,290 - DefaultDataAnalyzer - INFO - Spark job completed.

Out[53]:

<sagemaker.processing.ProcessingJob at 0x7fbae3f677d0>

In [84]:

```
import pandas as pd

baseline_job = my_monitor.latest_baselining_job
schema_df = pd.io.json.json_normalize(baseline_job.baseline_statistics().body_dict["features"])
schema_df.head(30)

constraints_df = pd.io.json.json_normalize(baseline_job.suggested_constraints().body_dict["features"])
constraints_df.head(30)
```

```
/opt/conda/envs/sagemaker-soln/lib/python3.7/site-packages/ipykernel_launcher.py:4: FutureWarning: pandas.io.json.json_normalize is deprecated, use pandas.json_normalize instead
  after removing the cwd from sys.path.
/opt/conda/envs/sagemaker-soln/lib/python3.7/site-packages/ipykernel_launcher.py:7: FutureWarning: pandas.io.json.json_normalize is deprecated, use pandas.json_normalize instead
  import sys
```

Out[84]:

	name	inferred_type	completeness	num_constraints.is_non_negative
0	_c0	Integral	1.0	True
1	Unnamed: 0	Integral	1.0	True
2	Age	Fractional	1.0	True
3	Systolic_BP	Fractional	1.0	True
4	Diastolic_BP	Fractional	1.0	True
5	Cholesterol	Fractional	1.0	True
6	y	Fractional	1.0	True

In [85]:

```
import time
mon_schedule_name = f'xgboost-prognosis-model-monitor-{time.strftime("%Y-%m-%d-%H-%M-%S", time.gmtime())}'
```

In [86]:

```
from sagemaker.model_monitor import CronExpressionGenerator
endpoint_name = predictor.endpoint
my_monitor.create_monitoring_schedule(
    monitor_schedule_name=mon_schedule_name,
    statistics=my_monitor.baseline_statistics(),
    endpoint_input=endpoint_name,
    constraints=my_monitor.suggested_constraints(),
    schedule_cron_expression=CronExpressionGenerator.hourly(),
)
```

The endpoint attribute has been renamed in sagemaker>=2.
See: <https://sagemaker.readthedocs.io/en/stable/v2.html> for details.

In [112]:

```
executions = my_monitor.list_executions()
```

No executions found for schedule. monitoring_schedule_name: xgboost-pro
gnosis-model-monitor-2021-10-16-23-52-17

In [93]:

```
desc_schedule_result = my_monitor.describe_schedule()
print("Schedule status: {}".format(desc_schedule_result["MonitoringScheduleStatus"]
))
```

Schedule status: Scheduled

In [94]:

```
suggested_constraints = my_monitor.suggested_constraints()
baseline_statistics = my_monitor.baseline_statistics()
```

In [95]:

```
a_df = pd.io.json.json_normalize(my_monitor.suggested_constraints().body_dict["features"])
a_df.head(5)
```

```
/opt/conda/envs/sagemaker-soln/lib/python3.7/site-packages/ipykernel_launcher.py:1: FutureWarning: pandas.io.json.json_normalize is deprecated, use pandas.json_normalize instead
```

```
"""Entry point for launching an IPython kernel.
```

Out[95]:

	name	inferred_type	completeness	num_constraints.is_non_negative
0	_c0	Integral	1.0	True
1	Unnamed: 0	Integral	1.0	True
2	Age	Fractional	1.0	True
3	Systolic_BP	Fractional	1.0	True
4	Diastolic_BP	Fractional	1.0	True

In [96]:

```
b_df = pd.io.json.json_normalize(my_monitor.baseline_statistics().body_dict["features"])
b_df.head(5)
```



```
/opt/conda/envs/sagemaker-soln/lib/python3.7/site-packages/ipykernel_launcher.py:1: FutureWarning: pandas.io.json.json_normalize is deprecated, use pandas.json_normalize instead
    """Entry point for launching an IPython kernel.
```

Out[96]:

	name	inferred_type	numerical_statistics.common.num_present	numerical_statistics.common.n
--	------	---------------	---	-------------------------------

0	_c0	Integral		6000
---	-----	----------	--	------

1	Unnamed: 0	Integral		6000
---	------------	----------	--	------

	name	inferred_type	numerical_statistics.common.num_present	numerical_statistics.common.n
2	Age	Fractional	6000	

name	inferred_type	numerical_statistics.common.num_present	numerical_statistics.common.n
------	---------------	---	-------------------------------

3	Systolic_BP	Fractional	6000
---	-------------	------------	------

name	inferred_type	numerical_statistics.common.num_present	numerical_statistics.common.n
------	---------------	---	-------------------------------

	name	inferred_type	numerical_statistics.common.num_present	numerical_statistics.common.n
4	Diastolic_BP	Fractional	6000	

name	inferred_type	numerical_statistics.common.num_present	numerical_statistics.common.n
------	---------------	---	-------------------------------



In [117]:

```
client = boto3.client('sagemaker')
client.list_monitoring_executions(MonitoringScheduleName='xgboost-prognosis-model-monitor-2021-10-16-23-52-17', MaxResults=3)
```

Out[117]:

```
{'MonitoringExecutionSummaries': [{'MonitoringScheduleName': 'xgboost-p
rognosis-model-monitor-2021-10-16-23-52-17',
  'ScheduledTime': datetime.datetime(2021, 10, 17, 0, 0, tzinfo=tzloca
l()),
  'CreationTime': datetime.datetime(2021, 10, 17, 0, 9, 52, 311000, tz
info=tzlocal()),
  'LastModifiedTime': datetime.datetime(2021, 10, 17, 0, 15, 10, 21100
0, tzinfo=tzlocal()),
  'MonitoringExecutionStatus': 'CompletedWithViolations',
  'ProcessingJobArn': 'arn:aws:sagemaker:us-east-2:218569345886:proces
sing-job/model-monitoring-202110170000-9dd41889298b72f4d83a02d1',
  'EndpointName': 'xgboost-2021-10-16-22-27-43-713',
  'MonitoringJobDefinitionName': 'data-quality-job-definition-2021-10-
16-23-52-21-099',
  'MonitoringType': 'DataQuality'}]},
'ResponseMetadata': {'RequestId': '9933da0c-d2fe-43f8-96a8-57cb3810972
2',
  'HTTPStatusCode': 200,
  'HTTPHeaders': {'x-amzn-requestid': '9933da0c-d2fe-43f8-96a8-57cb3810
9722',
    'content-type': 'application/x-amz-json-1.1',
    'content-length': '561',
    'date': 'Sun, 17 Oct 2021 00:17:55 GMT'},
  'RetryAttempts': 0}}
```

In [116]:

```
violations = my_monitor.latest_monitoring_constraint_violations()
pd.set_option('display.max_colwidth', -1)
constraints_df = pd.io.json.json_normalize(violations.body_dict["violations"])
constraints_df.head(10)
```

/opt/conda/envs/sagemaker-soln/lib/python3.7/site-packages/ipykernel_launcher.py:2: FutureWarning: Passing a negative integer is deprecated in version 1.0 and will not be supported in future version. Instead, use None to not limit the column width.

/opt/conda/envs/sagemaker-soln/lib/python3.7/site-packages/ipykernel_launcher.py:3: FutureWarning: pandas.io.json.json_normalize is deprecated, use pandas.json_normalize instead

This is separate from the ipykernel package so we can avoid doing imports until

Out[116]:

	feature_name	constraint_check_type	description
0	Extra columns	extra_column_check	There are extra columns in current dataset. Number of columns in current dataset: 454, Number of columns in baseline constraints: 7

In []:

```
my_monitor.delete_monitoring_schedule()
```

Deleting Monitoring Schedule with name: xgboost-prognosis-model-monitor-2021-10-16-23-52-17

In []: