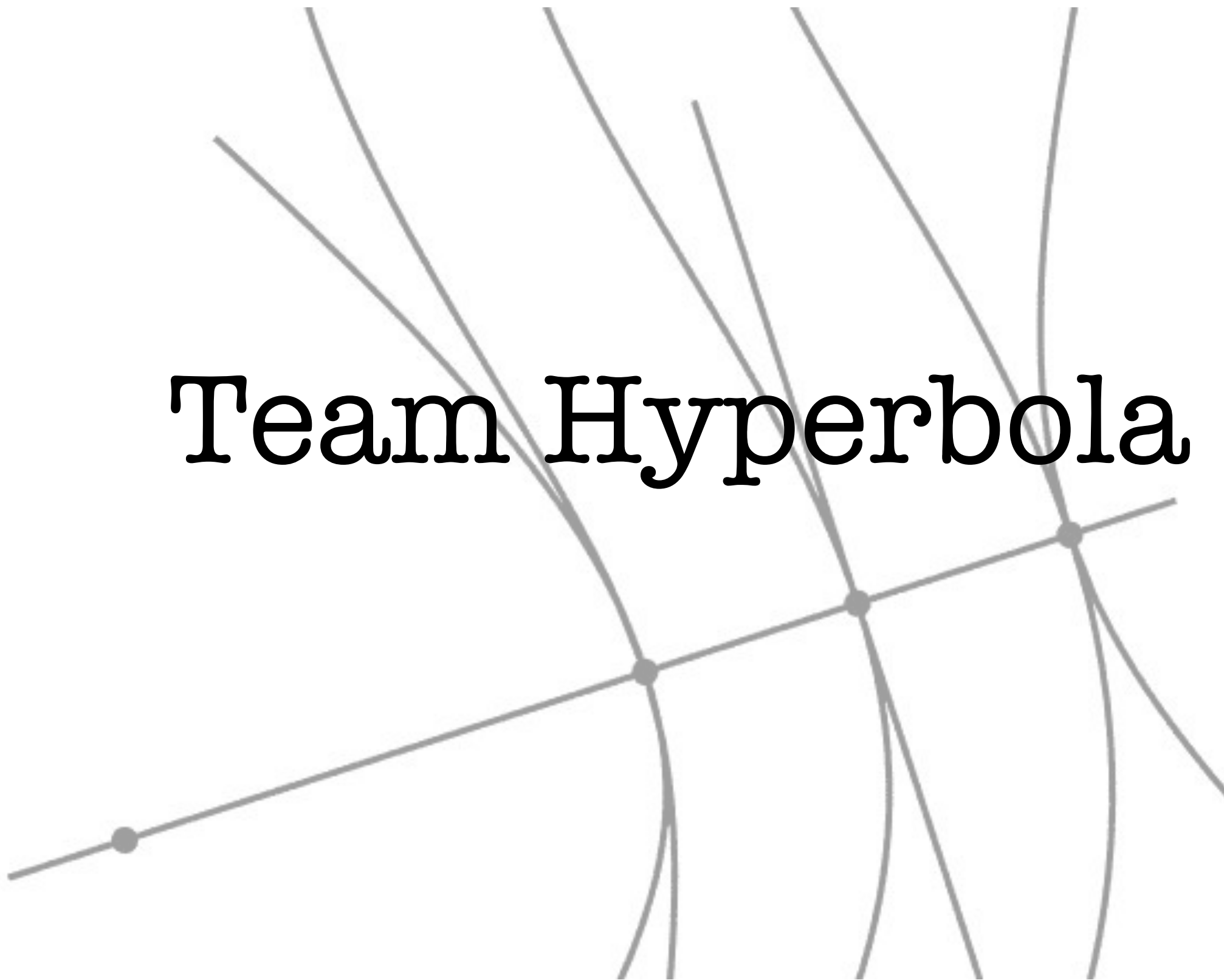
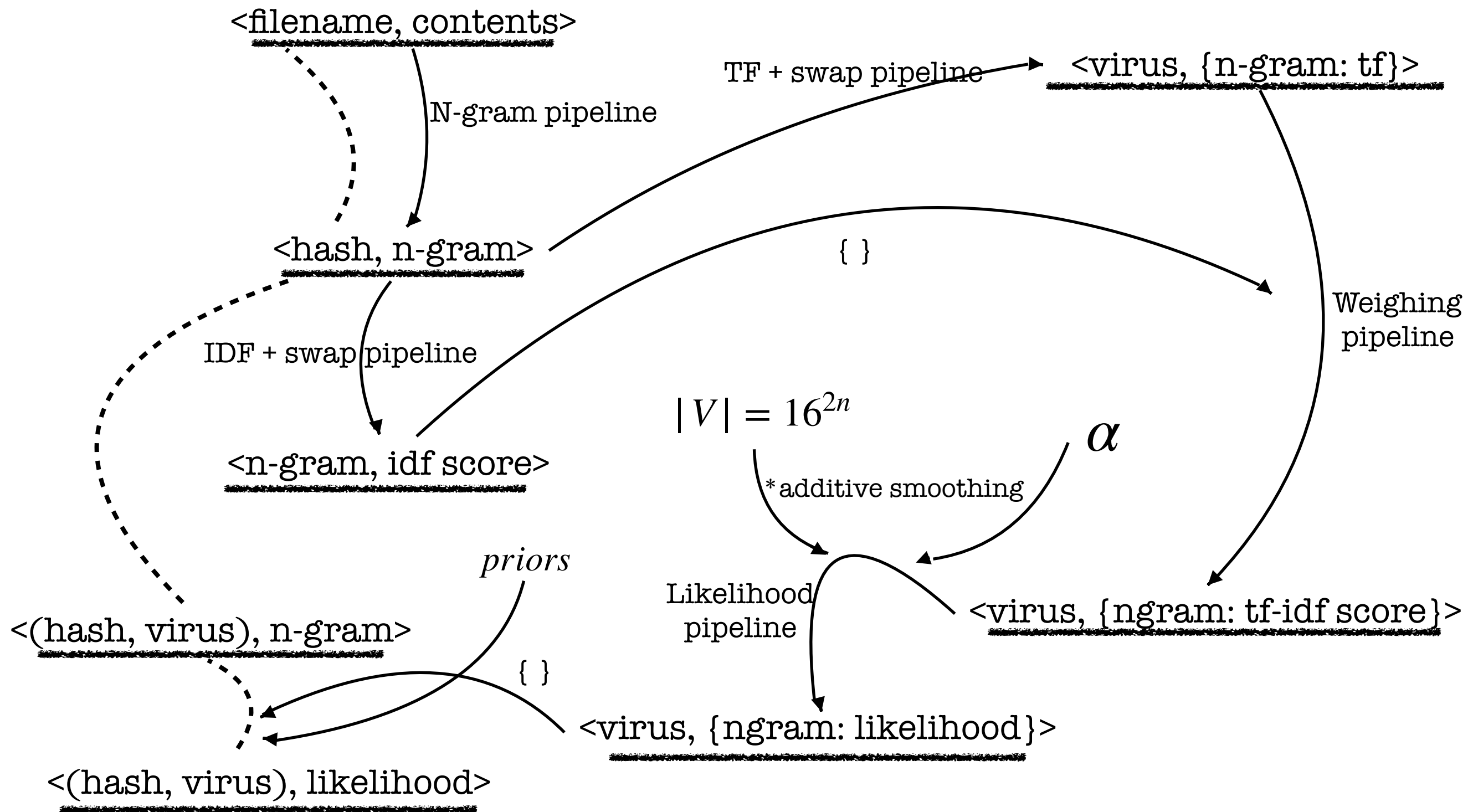


# Team Hyperbola



# Custom Naive-Bayes



# CNN

Convolutional Neural Nets

# CNN

## Convolutional Neural Nets

Small: 77%

Big Memory Issues. :(

```
Activities Terminology Tue 00:17
afarahani@shengli-lab1:usr/myenv/bin

k-0d0652e-700d-4167-b1b0-e29aaab8e044/userFiles-caabd380-5262-443e-8e3f-14c6cb21d1dd/Utilities.py
2019-02-11 23:10:54 INFO SparkContext:54 - Added file file:///home/afarahani/naivebayse/team-hyperbola-pl/src/NaiveBay
es.py at file:///home/afarahani/naivebayse/team-hyperbola-pl/src/NaiveBayes.py with timestamp 1549944654320
2019-02-11 23:10:54 INFO Utils:54 - Copying /home/afarahani/naivebayse/team-hyperbola-pl/src/NaiveBayes.py to /tmp/spa
rk-0d0652e-700d-4167-b1b0-e29aaab8e044/userFiles-caabd380-5262-443e-8e3f-14c6cb21d1dd/NaiveBayes.py
2019-02-11 23:10:54 INFO Executor:54 - Starting executor ID driver on host localhost
2019-02-11 23:10:54 INFO Utils:54 - Successfully started service 'org.apache.spark.network.netty.NettyBlockTransferSe
vice' on port 40113.
2019-02-11 23:10:54 INFO NettyBlockTransferService:54 - Server created on localhost:40113
2019-02-11 23:10:54 INFO BlockManager:54 - Using org.apache.spark.storage.RandomBlockReplicationPolicy for block repli
cation policy
2019-02-11 23:10:54 INFO BlockManagerMaster:54 - Registering BlockManager BlockManagerId(driver, localhost, 40113, Non
e)
2019-02-11 23:10:54 INFO BlockManagerMasterEndpoint:54 - Registering block manager localhost:40113 with 434.4 MB RAM,
BlockManagerId(driver, localhost, 40113, None)
2019-02-11 23:10:54 INFO BlockManagerMaster:54 - Registered BlockManager BlockManagerId(driver, localhost, 40113, Non
e)
2019-02-11 23:10:54 INFO BlockManager:54 - Initialized BlockManager: BlockManagerId(driver, localhost, 40113, None)
2019-02-11 23:10:54 INFO ContextHandler:781 - Started o.s.j.s.ServletContextHandler@79f47de6{/metrics/json,null,AVAILA
BLE,@Spark}

2019-02-12 00:12:05 ERROR Executor:91 - Exception in task 0.0 in stage 3.0 (TID 6)
java.lang.OutOfMemoryError: Java heap space
    at java.base/java.util.Arrays.copyOf(Arrays.java:3744)
    at java.base/java.io.ByteArrayOutputStream.grow(ByteArrayOutputStream.java:119)
    at java.base/java.io.ByteArrayOutputStream.ensureCapacity(ByteArrayOutputStream.java:94)
    at java.base/java.io.ByteArrayOutputStream.write(ByteArrayOutputStream.java:154)

2019-02-11 23:12:48 INFO Executor:54 - Starting executor I
D driver on host localhost
2019-02-11 23:12:48 INFO Utils:54 - Successfully started s
D driver on host localhost
service 'org.apache.spark.network.netty.NettyBlockTransferSe
vice' on port 44901.
2019-02-11 23:12:48 INFO NettyBlockTransferService:54 - Se
rvice' on port 45761.
2019-02-11 23:12:48 INFO NettyBlockTransferService:54 - Se
rver created on localhost:45761
2019-02-11 23:12:48 INFO BlockManager:54 - Using org.apach
e.spark.storage.RandomBlockReplicationPolicy for block repl
ication policy
2019-02-11 23:12:48 INFO BlockManagerMaster:54 - Registeri
ng BlockManager BlockManagerId(driver, localhost, 44901, No
ne)
2019-02-11 23:12:48 INFO BlockManagerMasterEndpoint:54 - R
egistering block manager localhost:44901 with 434.4 MB RAM,
BlockManagerId(driver, localhost, 44901, None)
2019-02-11 23:12:48 INFO BlockManagerMaster:54 - Registere
d BlockManager BlockManagerId(driver, localhost, 44901, Non
e)
2019-02-11 23:12:48 INFO BlockManager:54 - Initialized Blo
ckManager: BlockManagerId(driver, localhost, 44901, None)
2019-02-11 23:12:48 INFO ContextHandler:781 - Started o.s.
j.s.ServletContextHandler@4fd969ed{/metrics/json,null,AVAIL
ABLE,@Spark}

2019-02-11 23:15:36 INFO Executor:54 - Starting executor I
D driver on host localhost
2019-02-11 23:15:36 INFO Utils:54 - Successfully started s
ervice 'org.apache.spark.network.netty.NettyBlockTransferSe
vice' on port 45859.
2019-02-11 23:15:36 INFO NettyBlockTransferService:54 - Se
rver created on localhost:45859
2019-02-11 23:15:36 INFO BlockManager:54 - Using org.apach
e.spark.storage.RandomBlockReplicationPolicy for block repl
ication policy
2019-02-11 23:15:36 INFO BlockManagerMaster:54 - Registeri
ng BlockManager BlockManagerId(driver, localhost, 45859, No
ne)
2019-02-11 23:15:36 INFO BlockManagerMasterEndpoint:54 - R
egistering block manager localhost:45859 with 434.4 MB RAM,
BlockManagerId(driver, localhost, 45859, None)
2019-02-11 23:15:36 INFO BlockManagerMaster:54 - Registere
d BlockManager BlockManagerId(driver, localhost, 45859, Non
e)
2019-02-11 23:15:36 INFO BlockManager:54 - Initialized Blo
ckManager: BlockManagerId(driver, localhost, 45859, None)
2019-02-11 23:15:36 INFO ContextHandler:781 - Started o.s.
j.s.ServletContextHandler@449f927f{/metrics/json,null,AVAIL
ABLE,@Spark}

1 100.0% 4 100.0% 7 7.1% 10 4.0%
2 100.0% 5 100.0% 0 1.0% 11 100.0%
3 100.0% 6 100.0% 9 1.0% 12 100.0%
Mem 22.06/62.0% Tasks: 235, 1963 thr: 9 running
Load average: 0.76 9.15 9.71
Uptime: 4 days, 03:14:57

PID USER PRI NI VIRT RES SHR S CPU% MEM% TIME+ Command
1247 afarahani 20 0 791M 142M 78044 S 0.0 0.2 1:02.05 /usr/lib/chromium/chromium --type=renderer --field-tria
3213 afarahani 20 0 947M 56708 9644 S 0.0 0.1 0:46.17 /opt/oulflow_text_3/plugin_host_3197 --auto-shell-env
1360 afarahani 20 0 789M 146M 73716 S 0.0 0.2 0:20.73 /usr/lib/chromium/chromium --type=renderer --field-trial
1167 afarahani 20 0 810M 184M 77708 S 0.0 0.3 0:29.53 /usr/lib/chromium/chromium --type=renderer --field-trial
1183 afarahani 20 0 798M 168M 75508 S 0.0 0.3 0:21.79 /usr/lib/chromium/chromium --type=renderer --field-trial
1520 afarahani 20 0 755M 134M 75524 S 0.0 0.2 0:08.71 /usr/lib/chromium/chromium --type=renderer --field-trial
570 afarahani 20 0 738M 121M 77676 S 0.0 0.2 0:04.11 /usr/lib/chromium/chromium --type=renderer --field-trial
3202 afarahani 25 0 540M 64756 41112 S 0.0 0.1 0:08.15 terminology
3197 afarahani 20 0 782M 51328 31604 S 0.0 0.1 0:06.60 subli
1071 afarahani 20 0 757M 137M 81748 S 0.0 0.2 0:05.83 /usr/lib/chromium/chromium --type=renderer --field-trial
32313 afarahani 20 0 3626M 271M 108M S 0.0 0.4 0:25.08 /usr/bin/gnome-shell
1031 afarahani 20 0 761M 132M 81120 S 0.0 0.2 0:04.81 /usr/lib/chromium/chromium --type=renderer --field-trial
1154 afarahani 20 0 749M 126M 79512 S 0.0 0.2 0:05.21 /usr/lib/chromium/chromium --type=renderer --field-trial
1218 afarahani 20 0 880M 139M 81880 S 0.0 0.2 0:12.41 /usr/lib/chromium/chromium --type=renderer --field-trial
2194 afarahani 20 0 710M 98M 70480 S 0.0 0.2 0:07.99 /usr/lib/chromium/chromium --type=renderer --field-trial
956 afarahani 20 0 760M 141M 79500 S 0.0 0.2 0:04.74 /usr/lib/chromium/chromium --type=renderer --field-trial
F1Help F2Setup F3Search F4Filter F5Tree F6SortByF7Nice F8Nice F9Kill F10Quit

2019-02-11 23:17:08 INFO Executor:54 - Starting executor I
D driver on host localhost
2019-02-11 23:17:08 INFO Utils:54 - Successfully started s
ervice 'org.apache.spark.network.netty.NettyBlockTransferSe
vice' on port 34203.
2019-02-11 23:17:08 INFO NettyBlockTransferService:54 - Se
rver created on localhost:34203
2019-02-11 23:17:08 INFO BlockManager:54 - Using org.apach
e.spark.storage.RandomBlockReplicationPolicy for block repl
ication policy
2019-02-11 23:17:08 INFO BlockManagerMaster:54 - Registeri
ng BlockManager BlockManagerId(driver, localhost, 34203, No
ne)
2019-02-11 23:17:08 INFO BlockManagerMasterEndpoint:54 - R
egistering block manager localhost:34203 with 434.4 MB RAM,
BlockManagerId(driver, localhost, 34203, None)
2019-02-11 23:17:08 INFO BlockManagerMaster:54 - Registere
d BlockManager BlockManagerId(driver, localhost, 34203, Non
e)
2019-02-11 23:17:08 INFO BlockManager:54 - Initialized Blo
ckManager: BlockManagerId(driver, localhost, 34203, None)
2019-02-11 23:17:08 INFO ContextHandler:781 - Started o.s.
j.s.ServletContextHandler@34330811{/metrics/json,null,AVAIL
ABLE,@Spark}
```

# Finally: Logistic Regression

```
from pyspark.ml.classification import  
LogisticRegression
```

## Malware Classification Accuracy

RANK	NICKNAME	VERSION	TIME	ACCURACY
1	Team pardus	14	2019-02-12 20:13:43	99.19147372
2	Team Dragora	56	2019-02-12 21:59:27	99.00771775
3	Team void	23	2019-02-12 10:45:54	98.93421536
4	Team Alpine	31	2019-02-10 02:22:19	98.75045939
5	Team Zentyal	8	2019-02-12 20:43:19	98.45644983
6	Team Kali	22	2019-02-12 20:29:37	97.75817714
7	Team Sabayon	3	2019-02-11 07:40:18	95.62660786
8	Team Hyperbola	13	2019-02-12 01:09:01	94.96508637

← ~95 %

Thanks!

