

Session 2:

YARN

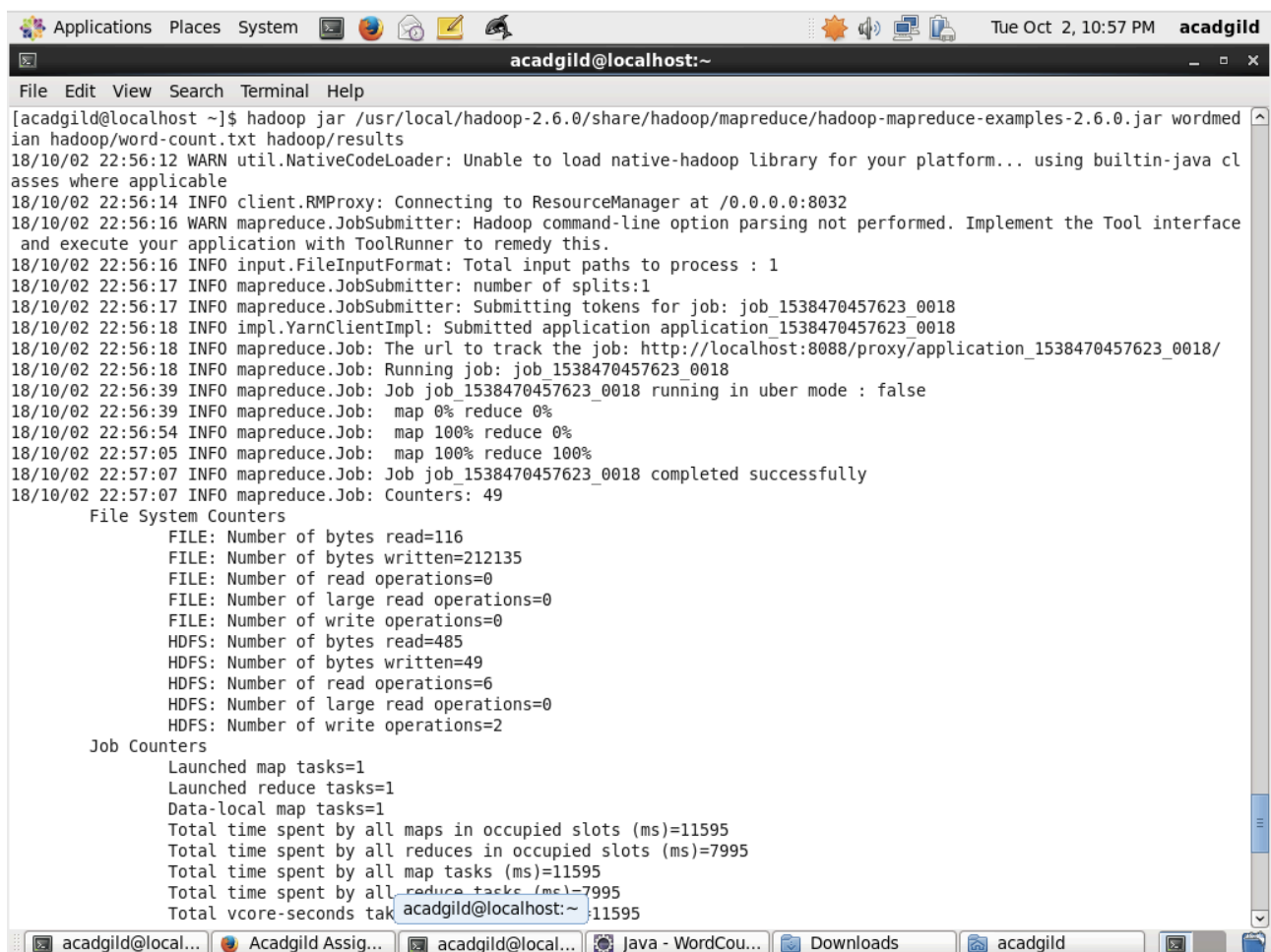
MR -INTRODUCTION

Assignment 1

Task 1:

Execute WordMedian , WordMean , WordStandardDeviation programs using hadoop-mapreduce-examples-2.9.0.jar file present in your AcadGild VM.

WordMedian:



```
acadgild@localhost:~  
File Edit View Search Terminal Help  
[acadgild@localhost ~]$ hadoop jar /usr/local/hadoop-2.6.0/share/hadoop/mapreduce/hadoop-mapreduce-examples-2.6.0.jar wordmedian  
hadoop/word-count.txt hadoop/results  
18/10/02 22:56:12 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable  
18/10/02 22:56:14 INFO client.RMProxy: Connecting to ResourceManager at /0.0.0.0:8032  
18/10/02 22:56:16 WARN mapreduce.JobSubmitter: Hadoop command-line option parsing not performed. Implement the Tool interface and execute your application with ToolRunner to remedy this.  
18/10/02 22:56:16 INFO input.FileInputFormat: Total input paths to process : 1  
18/10/02 22:56:17 INFO mapreduce.JobSubmitter: number of splits:1  
18/10/02 22:56:17 INFO mapreduce.JobSubmitter: Submitting tokens for job: job_1538470457623_0018  
18/10/02 22:56:18 INFO impl.YarnClientImpl: Submitted application application_1538470457623_0018  
18/10/02 22:56:18 INFO mapreduce.Job: The url to track the job: http://localhost:8088/proxy/application_1538470457623_0018/  
18/10/02 22:56:18 INFO mapreduce.Job: Running job: job_1538470457623_0018  
18/10/02 22:56:39 INFO mapreduce.Job: Job job_1538470457623_0018 running in uber mode : false  
18/10/02 22:56:39 INFO mapreduce.Job: map 0% reduce 0%  
18/10/02 22:56:54 INFO mapreduce.Job: map 100% reduce 0%  
18/10/02 22:57:05 INFO mapreduce.Job: map 100% reduce 100%  
18/10/02 22:57:07 INFO mapreduce.Job: Job job_1538470457623_0018 completed successfully  
18/10/02 22:57:07 INFO mapreduce.Job: Counters: 49  
File System Counters  
FILE: Number of bytes read=116  
FILE: Number of bytes written=212135  
FILE: Number of read operations=0  
FILE: Number of large read operations=0  
FILE: Number of write operations=0  
HDFS: Number of bytes read=485  
HDFS: Number of bytes written=49  
HDFS: Number of read operations=6  
HDFS: Number of large read operations=0  
HDFS: Number of write operations=2  
Job Counters  
Launched map tasks=1  
Launched reduce tasks=1  
Data-local map tasks=1  
Total time spent by all maps in occupied slots (ms)=11595  
Total time spent by all reduces in occupied slots (ms)=7995  
Total time spent by all map tasks (ms)=11595  
Total time spent by all reduce tasks (ms)=7995  
Total vcore-seconds taken by all map tasks=11595  
Total vcore-seconds taken by all reduce tasks=7995  
acacgild@localhost:~$
```

```
Applications Places System Tue Oct 2, 10:59 PM acadgild
acadgild@localhost:~
File Edit View Search Terminal Help
Total time spent by all reduce tasks (ms)=7995
Total vcore-seconds taken by all map tasks=11595
Total vcore-seconds taken by all reduce tasks=7995
Total megabyte-seconds taken by all map tasks=11873280
Total megabyte-seconds taken by all reduce tasks=8186880
Map-Reduce Framework
  Map input records=3
  Map output records=61
  Map output bytes=488
  Map output materialized bytes=116
  Input split bytes=122
  Combine input records=61
  Combine output records=11
  Reduce input groups=11
  Reduce shuffle bytes=116
  Reduce input records=11
  Reduce output records=11
  Spilled Records=22
  Shuffled Maps =1
  Failed Shuffles=0
  Merged Map outputs=1
  GC time elapsed (ms)=279
  CPU time spent (ms)=1790
  Physical memory (bytes) snapshot=270798848
  Virtual memory (bytes) snapshot=4113940480
  Total committed heap usage (bytes)=137498624
Shuffle Errors
  BAD_ID=0
  CONNECTION=0
  IO_ERROR=0
  WRONG_LENGTH=0
  WRONG_MAP=0
  WRONG_REDUCE=0
File Input Format Counters
  Bytes Read=363
File Output Format Counters
  Bytes Written=49
The median is: 4
[acadgild@localhost ~]$
```

Output:

```
[acadgild@localhost ~]$ hadoop fs -ls hadoop/results
18/10/02 23:03:26 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java cl
asses where applicable
Found 2 items
-rw-r--r-- 1 acadgild supergroup          0 2018-10-02 23:02 hadoop/results/_SUCCESS
-rw-r--r-- 1 acadgild supergroup        49 2018-10-02 23:02 hadoop/results/part-r-00000
[acadgild@localhost ~]$ hadoop fs -cat hadoop/results/part-r-00000
18/10/02 23:03:48 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java cl
asses where applicable
1      5
2      7
3     12
4     16
5      1
6      6
8      5
9      4
10     3
12     1
13     1
[acadgild@localhost ~]$
```

WordMean:

```
Applications Places System acadgild@localhost:~
File Edit View Search Terminal Help
[acadgild@localhost ~]$ hadoop jar /usr/local/hadoop-2.6.0/share/hadoop/mapreduce/hadoop-mapreduce-examples-2.6.0.jar wordmean
hadoop/word-count.txt hadoop/results
18/10/02 23:07:05 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
18/10/02 23:07:06 INFO client.RMProxy: Connecting to ResourceManager at /0.0.0.0:8032
18/10/02 23:07:08 INFO input.FileInputFormat: Total input paths to process : 1
18/10/02 23:07:08 INFO mapreduce.JobSubmitter: number of splits:1
18/10/02 23:07:09 INFO mapreduce.JobSubmitter: Submitting tokens for job: job_1538470457623_0020
18/10/02 23:07:09 INFO impl.YarnClientImpl: Submitted application application_1538470457623_0020
18/10/02 23:07:09 INFO mapreduce.Job: The url to track the job: http://localhost:8088/proxy/application_1538470457623_0020/
18/10/02 23:07:09 INFO mapreduce.Job: Running job: job_1538470457623_0020
18/10/02 23:07:24 INFO mapreduce.Job: Job job_1538470457623_0020 running in uber mode : false
18/10/02 23:07:24 INFO mapreduce.Job: map 0% reduce 0%
18/10/02 23:07:36 INFO mapreduce.Job: map 100% reduce 0%
18/10/02 23:07:48 INFO mapreduce.Job: map 100% reduce 100%
18/10/02 23:07:49 INFO mapreduce.Job: Job job_1538470457623_0020 completed successfully
18/10/02 23:07:49 INFO mapreduce.Job: Counters: 49
  File System Counters
    FILE: Number of bytes read=39
    FILE: Number of bytes written=212245
    FILE: Number of read operations=0
    FILE: Number of large read operations=0
    FILE: Number of write operations=0
    HDFS: Number of bytes read=485
    HDFS: Number of bytes written=20
    HDFS: Number of read operations=6
    HDFS: Number of large read operations=0
    HDFS: Number of write operations=2
  Job Counters
    Launched map tasks=1
    Launched reduce tasks=1
    Data-local map tasks=1
    Total time spent by all maps in occupied slots (ms)=10440
    Total time spent by all reduces in occupied slots (ms)=7921
    Total time spent by all map tasks (ms)=10440
    Total time spent by all reduce tasks (ms)=7921
    Total vcore-seconds taken by all map tasks=10440
    Total vcore-seconds taken by all reduce tasks=7921
    Total megabyte-seconds taken by all map tasks=10690560
```

```
acadgild@localhost:~
File Edit View Search Terminal Help
  Total time spent by all reduce tasks (ms)=7921
  Total vcore-seconds taken by all map tasks=10440
  Total vcore-seconds taken by all reduce tasks=7921
  Total megabyte-seconds taken by all map tasks=10690560
  Total megabyte-seconds taken by all reduce tasks=8111104
  Map-Reduce Framework
    Map input records=3
    Map output records=122
    Map output bytes=1769
    Map output materialized bytes=39
    Input split bytes=122
    Combine input records=122
    Combine output records=2
    Reduce input groups=2
    Reduce shuffle bytes=39
    Reduce input records=2
    Reduce output records=2
    Spilled Records=4
    Shuffled Maps =1
    Failed Shuffles=0
    Merged Map outputs=1
    GC time elapsed (ms)=296
    CPU time spent (ms)=2080
    Physical memory (bytes) snapshot=271011840
    Virtual memory (bytes) snapshot=4113776640
    Total committed heap usage (bytes)=137498624
  Shuffle Errors
    BAD_ID=0
    CONNECTION=0
    IO_ERROR=0
    WRONG_LENGTH=0
    WRONG_MAP=0
    WRONG_REDUCE=0
  File Input Format Counters
    Bytes Read=363
  File Output Format Counters
    Bytes Written=20
The mean is: 4.770491803278689
[acadgild@localhost ~]$
```

Output:

```
[acadgild@localhost ~]$ hadoop fs -cat hadoop/results/part-r-00000
18/10/02 23:10:18 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java cl
asses where applicable
count 61
length 291
[acadgild@localhost ~]$
```

WordStandardDeviation:



The screenshot shows a terminal window titled 'acadgild@localhost:~' with a menu bar (File, Edit, View, Search, Terminal, Help). The terminal displays the output of a Hadoop MapReduce job executed with the command: `hadoop jar /usr/local/hadoop-2.6.0/share/hadoop/mapreduce/hadoop-mapreduce-examples-2.6.0.jar wordstandarddeviation hadoop/word-count.txt hadoop/results`. The output includes various status messages, progress reports, and a detailed summary of counters.

```
[acadgild@localhost ~]$ hadoop jar /usr/local/hadoop-2.6.0/share/hadoop/mapreduce/hadoop-mapreduce-examples-2.6.0.jar wordsta
ndarddeviation hadoop/word-count.txt hadoop/results
18/10/02 23:12:13 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java cl
asses where applicable
18/10/02 23:12:14 INFO client.RMProxy: Connecting to ResourceManager at /0.0.0.0:8032
18/10/02 23:12:16 INFO input.FileInputFormat: Total input paths to process : 1
18/10/02 23:12:16 INFO mapreduce.JobSubmitter: number of splits:1
18/10/02 23:12:17 INFO mapreduce.JobSubmitter: Submitting tokens for job: job_1538470457623_0021
18/10/02 23:12:17 INFO impl.YarnClientImpl: Submitted application application_1538470457623_0021
18/10/02 23:12:18 INFO mapreduce.Job: The url to track the job: http://localhost:8088/proxy/application_1538470457623_0021/
18/10/02 23:12:18 INFO mapreduce.Job: Running job: job_1538470457623_0021
18/10/02 23:12:30 INFO mapreduce.Job: Job job_1538470457623_0021 running in uber mode : false
18/10/02 23:12:30 INFO mapreduce.Job: map 0% reduce 0%
18/10/02 23:12:42 INFO mapreduce.Job: map 100% reduce 0%
18/10/02 23:12:53 INFO mapreduce.Job: map 100% reduce 100%
18/10/02 23:12:53 INFO mapreduce.Job: Job job_1538470457623_0021 completed successfully
18/10/02 23:12:53 INFO mapreduce.Job: Counters: 49
  File System Counters
    FILE: Number of bytes read=56
    FILE: Number of bytes written=212439
    FILE: Number of read operations=0
    FILE: Number of large read operations=0
    FILE: Number of write operations=0
    HDFS: Number of bytes read=485
    HDFS: Number of bytes written=32
    HDFS: Number of read operations=6
    HDFS: Number of large read operations=0
    HDFS: Number of write operations=2
  Job Counters
    Launched map tasks=1
    Launched reduce tasks=1
    Data-local map tasks=1
    Total time spent by all maps in occupied slots (ms)=9610
    Total time spent by all reduces in occupied slots (ms)=7434
    Total time spent by all map tasks (ms)=9610
    Total time spent by all reduce tasks (ms)=7434
    Total vcore-seconds taken by all map tasks=9610
    Total vcore-seconds taken by all reduce tasks=7434
    Total megabyte-seconds taken by all map tasks=9840640
    Total megabyte-seconds taken by all reduce tasks=7434
  Map-Reduce Framework
    Map input records=3
    Map output records=183
    Map output bytes=2684
    Map output materialized bytes=56
    Input split bytes=122
    Combine input records=183
    Combine output records=3
    Reduce input groups=3
    Reduce shuffle bytes=56
    Reduce input records=3
    Reduce output records=3
    Spilled Records=6
    Shuffled Maps =1
    Failed Shuffles=0
    Merged Map outputs=1
    GC time elapsed (ms)=209
    CPU time spent (ms)=1830
    Physical memory (bytes) snapshot=268406784
    Virtual memory (bytes) snapshot=4113920000
    Total committed heap usage (bytes)=137498624
  Shuffle Errors
    BAD_ID=0
    CONNECTION=0
    IO_ERROR=0
    WRONG_LENGTH=0
    WRONG_MAP=0
    WRONG_REDUCE=0
  File Input Format Counters
    Bytes Read=363
  File Output Format Counters
    Bytes Written=32
The standard deviation is: 2.8823569739611794
[acadgild@localhost ~]$
```

Output:

```
[acadgild@localhost ~]$ hadoop fs -cat hadoop/results/part-r-00000
18/10/02 23:17:21 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java cl
asses where applicable
count      61
length    291
square   1895
[acadgild@localhost ~]$
```

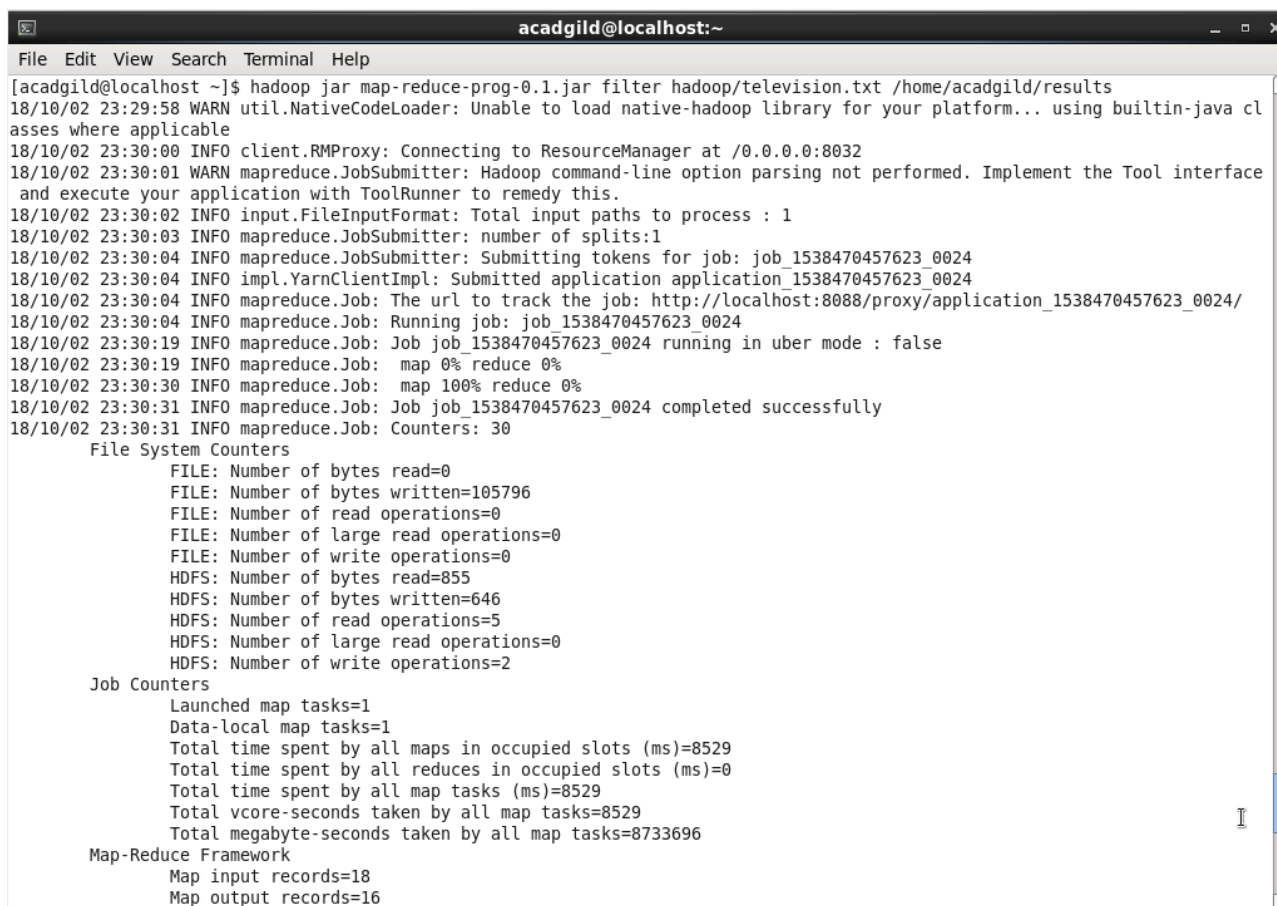
Task 2:

Task 2.1:

Write a Map Reduce program to filter out the invalid records. Map only job will fit for this context.

Please refer to https://github.com/itsmanish13/ACADGILD_BIG_DATA_ENGINEERING/tree/master/map-reduce-prog for code. Driver class is same in all utilities.

A filter mapper is written for this problem which will filter out invalid records (records having NA in 1st and 3rd column)



```
acadgild@localhost:~
File Edit View Search Terminal Help
[acadgild@localhost ~]$ hadoop jar map-reduce-prog-0.1.jar filter hadoop/television.txt /home/acadgild/results
18/10/02 23:29:58 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java cl
asses where applicable
18/10/02 23:30:00 INFO client.RMPProxy: Connecting to ResourceManager at /0.0.0.0:8032
18/10/02 23:30:01 WARN mapreduce.JobSubmitter: Hadoop command-line option parsing not performed. Implement the Tool interface
and execute your application with ToolRunner to remedy this.
18/10/02 23:30:02 INFO input.FileInputFormat: Total input paths to process : 1
18/10/02 23:30:03 INFO mapreduce.JobSubmitter: number of splits:1
18/10/02 23:30:04 INFO mapreduce.JobSubmitter: Submitting tokens for job: job_1538470457623_0024
18/10/02 23:30:04 INFO impl.YarnClientImpl: Submitted application application_1538470457623_0024
18/10/02 23:30:04 INFO mapreduce.Job: The url to track the job: http://localhost:8088/proxy/application_1538470457623_0024/
18/10/02 23:30:04 INFO mapreduce.Job: Running job: job_1538470457623_0024
18/10/02 23:30:19 INFO mapreduce.Job: Job job_1538470457623_0024 running in uber mode : false
18/10/02 23:30:19 INFO mapreduce.Job:  map 0% reduce 0%
18/10/02 23:30:30 INFO mapreduce.Job:  map 100% reduce 0%
18/10/02 23:30:31 INFO mapreduce.Job: Job job_1538470457623_0024 completed successfully
18/10/02 23:30:31 INFO mapreduce.Job: Counters: 30
    File System Counters
        FILE: Number of bytes read=0
        FILE: Number of bytes written=105796
        FILE: Number of read operations=0
        FILE: Number of large read operations=0
        FILE: Number of write operations=0
        HDFS: Number of bytes read=855
        HDFS: Number of bytes written=646
        HDFS: Number of read operations=5
        HDFS: Number of large read operations=0
        HDFS: Number of write operations=2
    Job Counters
        Launched map tasks=1
        Data-local map tasks=1
        Total time spent by all maps in occupied slots (ms)=8529
        Total time spent by all reduces in occupied slots (ms)=0
        Total time spent by all map tasks (ms)=8529
        Total vcore-seconds taken by all map tasks=8529
        Total megabyte-seconds taken by all map tasks=8733696
    Map-Reduce Framework
        Map input records=18
        Map output records=16
```

Output:

```
[acadgild@localhost ~]$ hadoop fs -ls /home/acadgild/results
18/10/02 23:30:57 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java cl
asses where applicable
Found 2 items
-rw-r--r-- 1 acadgild supergroup          0 2018-10-02 23:30 /home/acadgild/results/_SUCCESS
-rw-r--r-- 1 acadgild supergroup      646 2018-10-02 23:30 /home/acadgild/results/part-m-00000
[acadgild@localhost ~]$ hadoop fs -cat /home/acadgild/results/part-m-00000
18/10/02 23:31:35 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java cl
asses where applicable
Samsung|Optima|14|Madhya Pradesh|132401|14200
Onida|Lucid|18|Uttar Pradesh|232401|16200
Akai|Decent|16|Kerala|922401|12200
Lava|Attention|20|Assam|454601|24200
Zen|Super|14|Maharashtra|619082|9200
Samsung|Optima|14|Madhya Pradesh|132401|14200
Onida|Lucid|18|Uttar Pradesh|232401|16200
Onida|Decent|14|Uttar Pradesh|232401|16200
Lava|Attention|20|Assam|454601|24200
Zen|Super|14|Maharashtra|619082|9200
Samsung|Optima|14|Madhya Pradesh|132401|14200
Samsung|Decent|16|Kerala|922401|12200
Lava|Attention|20|Assam|454601|24200
Zen|Super|14|Maharashtra|619082|9200
Samsung|Super|14|Maharashtra|619082|9200
Samsung|Super|14|Maharashtra|619082|9200
Samsung|Super|14|Maharashtra|619082|9200
[acadgild@localhost ~]$
```

Task 2.2

Write a Map Reduce program to calculate the total units sold for each Company.

Please refer to https://github.com/itsmanish13/ACADGILD_BIG_DATA_ENGINEERING/tree/master/map-reduce-prog for code. Driver class is same in all utilities.

Both mapper and reduce is written for utility totalSalesByBrand for this problem.

```
acadgild@localhost:~
File Edit View Search Terminal Help
[acadgild@localhost ~]$ hadoop jar map-reduce-prog-0.1.jar totalSalesByBrand hadoop/television.txt hadoop/results
18/10/02 23:35:13 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java cl
asses where applicable
18/10/02 23:35:14 INFO client.RMProxy: Connecting to ResourceManager at /0.0.0.0:8032
18/10/02 23:35:16 WARN mapreduce.JobSubmitter: Hadoop command-line option parsing not performed. Implement the Tool interface
and execute your application with ToolRunner to remedy this.
18/10/02 23:35:16 INFO input.FileInputFormat: Total input paths to process : 1
18/10/02 23:35:16 INFO mapreduce.JobSubmitter: number of splits:1
18/10/02 23:35:17 INFO mapreduce.JobSubmitter: Submitting tokens for job: job_1538470457623_0025
18/10/02 23:35:17 INFO impl.YarnClientImpl: Submitted application application_1538470457623_0025
18/10/02 23:35:17 INFO mapreduce.Job: The url to track the job: http://localhost:8088/proxy/application_1538470457623_0025/
18/10/02 23:35:17 INFO mapreduce.Job: Running job: job_1538470457623_0025
18/10/02 23:35:30 INFO mapreduce.Job: Job job_1538470457623_0025 running in uber mode : false
18/10/02 23:35:30 INFO mapreduce.Job: map 0% reduce 0%
18/10/02 23:35:42 INFO mapreduce.Job: map 100% reduce 0%
18/10/02 23:35:54 INFO mapreduce.Job: map 100% reduce 100%
18/10/02 23:35:55 INFO mapreduce.Job: Job job_1538470457623_0025 completed successfully
18/10/02 23:35:56 INFO mapreduce.Job: Counters: 49
    File System Counters
      FILE: Number of bytes read=225
      FILE: Number of bytes written=213425
      FILE: Number of read operations=0
      FILE: Number of large read operations=0
      FILE: Number of write operations=0
      HDFS: Number of bytes read=855
      HDFS: Number of bytes written=43
      HDFS: Number of read operations=6
      HDFS: Number of large read operations=0
      HDFS: Number of write operations=2
    Job Counters
      Launched map tasks=1
      Launched reduce tasks=1
      Data-local map tasks=1
      Total time spent by all maps in occupied slots (ms)=10537
      Total time spent by all reduces in occupied slots (ms)=7698
      Total time spent by all map tasks (ms)=10537
      Total time spent by all reduce tasks (ms)=7698
      Total vcore-seconds taken by all map tasks=10537
      Total vcore-seconds taken by all reduce tasks=7698
```


Output:

```
[acadgild@localhost ~]$ hadoop fs -cat hadoop/results/part-r-00000
18/10/02 23:36:34 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java cl
asses where applicable
AKAI      1
LAVA      3
NA         1
ONIDA     4
SAMSUNG   7
ZEN        2
[acadgild@localhost ~]$
```

Task 2.3

Write a Map Reduce program to calculate the total units sold in each state for Onida company.

Please refer to https://github.com/itsmanish13/ACADGILD_BIG_DATA_ENGINEERING/tree/master/map-reduce-prog for code. Driver class is same in all utilities.

Both mapper and reduce is written for utility totalSalesByState for this problem.

```
acadgild@localhost:~
File Edit View Search Terminal Help
[acadgild@localhost ~]$ hadoop jar map-reduce-prog-0.1.jar totalSalesByState hadoop/television.txt hadoop/results
18/10/02 23:40:03 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java cl
asses where applicable
18/10/02 23:40:05 INFO client.RMProxy: Connecting to ResourceManager at /0.0.0.0:8032
18/10/02 23:40:06 WARN mapreduce.JobSubmitter: Hadoop command-line option parsing not performed. Implement the Tool interface
and execute your application with ToolRunner to remedy this.
18/10/02 23:40:06 INFO input.FileInputFormat: Total input paths to process : 1
18/10/02 23:40:06 INFO mapreduce.JobSubmitter: number of splits:1
18/10/02 23:40:07 INFO mapreduce.JobSubmitter: Submitting tokens for job: job_1538470457623_0026
18/10/02 23:40:07 INFO impl.YarnClientImpl: Submitted application application_1538470457623_0026
18/10/02 23:40:07 INFO mapreduce.Job: The url to track the job: http://localhost:8088/proxy/application_1538470457623_0026/
18/10/02 23:40:07 INFO mapreduce.Job: Running job: job_1538470457623_0026
18/10/02 23:40:21 INFO mapreduce.Job: Job job_1538470457623_0026 running in uber mode : false
18/10/02 23:40:21 INFO mapreduce.Job:  map 0% reduce 0%
18/10/02 23:40:32 INFO mapreduce.Job:  map 100% reduce 0%
18/10/02 23:40:42 INFO mapreduce.Job:  map 100% reduce 100%
18/10/02 23:40:44 INFO mapreduce.Job: Job job_1538470457623_0026 completed successfully
18/10/02 23:40:44 INFO mapreduce.Job: Counters: 49
    File System Counters
      FILE: Number of bytes read=425
      FILE: Number of bytes written=213825
      FILE: Number of read operations=0
      FILE: Number of large read operations=0
      FILE: Number of write operations=0
      HDFS: Number of bytes read=855
      HDFS: Number of bytes written=165
      HDFS: Number of read operations=6
      HDFS: Number of large read operations=0
      HDFS: Number of write operations=2
    Job Counters
      Launched map tasks=1
      Launched reduce tasks=1
      Data-local map tasks=1
      Total time spent by all maps in occupied slots (ms)=8972
      Total time spent by all reduces in occupied slots (ms)=7569
      Total time spent by all map tasks (ms)=8972
      Total time spent by all reduce tasks (ms)=7569
      Total vcore-seconds taken by all map tasks=8972
      Total vcore-seconds taken by all reduce tasks=7569
```

Output:

```
[acadgild@localhost ~]$ hadoop fs -cat hadoop/results/part-r-00000
18/10/02 23:42:31 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java cl
asses where applicable
AKAI-KERALA      1
LAVA-ASSAM       3
NA-UTTAR PRADESH 1
ONIDA-KERALA     1
ONIDA-UTTAR PRADESH 3
SAMSUNG-KERALA   1
SAMSUNG-MADHYA PRADESH 3
SAMSUNG-MAHARASHTRA 3
ZEN-MAHARASHTRA  2
[acadgild@localhost ~]$
```