

گزارش کار تمرین سوم رایانش ابری

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نام دانشجو: رهام زنده دل نوبری

با ابزار **Vagrant** هدوپ را بالا می آوریم.

Nodes of the cluster

Cluster Metrics

Apps Submitted	Apps Pending	Apps Running	Apps Completed	Containers Running	Used Resources	Total Resources	Reserved Resources	Physical Mem Used %	Physical VCores Used %
0	0	0	0	0	<memory:0 B, vCores:0>	<memory:4 GB, vCores:16>	<memory:0 B, vCores:0>	54	0

Cluster Nodes Metrics

Active Nodes	Decommissioning Nodes	Decommissioned Nodes	Lost Nodes	Unhealthy Nodes	Rebooted Nodes	Shutdown Nodes
2	0	0	0	0	0	0

Scheduler Metrics

Scheduler Type	Scheduling Resource Type	Minimum Allocation	Maximum Allocation	Maximum Cluster Application Priority	Scheduler Busy %
Capacity Scheduler	[memory-mb (unit=M), vcores]	<memory:1024, vCores:1>	<memory:2048, vCores:4>	0	0

Showing 1 to 2 of 2 entries

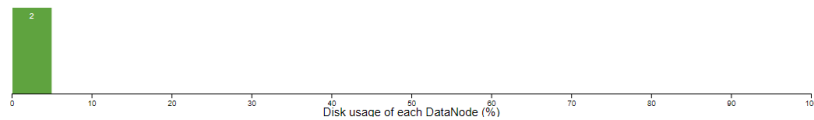
Node Labels	Rack	Node State	Node Address	Node HTTP Address	Last health-update	Health-report	Containers	Allocation Tags	Mem Used	Mem Avail	Phys Mem Used %	VCores Used	VCores Avail	Phys VCores Used %	Version
/default-rack		RUNNING	hadoop-worker1-39113	hadoop-worker1-8042	Wed Jun 08 07:44:42 +0000 2022		0		0 B	2 GB	52	0	8	0	3.3.2
/default-rack		RUNNING	hadoop-worker2-44749	hadoop-worker2-8042	Wed Jun 08 07:40:36 +0000 2022		0		0 B	2 GB	56	0	8	5	3.3.2

```
vagrant@hadoop-master:~$ sudo su hadoop
hadoop@hadoop-master:/home/vagrant$ jps
5762 ResourceManager
23655 Jps
5819 NameNode
```

```
vagrant@hadoop-worker1:~$ sudo su hadoop
hadoop@hadoop-worker1:/home/vagrant$ jps
19795 Jps
5272 NodeManager
5324 DataNode
```

```
vagrant@hadoop-worker2:~$ sudo su hadoop
hadoop@hadoop-worker2:/home/vagrant$ jps
5794 DataNode
22678 Jps
5736 NodeManager
```

Datanode usage histogram



In operation

DataNode State: All Show: 25 entries Search:

Node	Http Address	Last contact	Last Block Report	Used	Non DFS Used	Capacity	Blocks	Block pool used	Version
✓/default-rack/hadoop-worker1.9866 (10.20.30.21:9866)	http://hadoop-worker1.9864	1s	106m	34.82 MB	3.69 GB	38.71 GB	5	34.82 MB (0.09%)	3.3.2
✓/default-rack/hadoop-worker2.9866 (10.20.30.22:9866)	http://hadoop-worker2.9864	2s	151m	64.56 MB	3.7 GB	38.71 GB	5	64.56 MB (0.16%)	3.3.2

Showing 1 to 2 of 2 entries Previous 1 Next

Entering Maintenance

No nodes are entering maintenance.



فاز دوم:

```
vagrant@hadoop-master:/vagrant$ ls
README.md Vagrantfile scripts share_files
vagrant@hadoop-master:/vagrant$ cd share_files
vagrant@hadoop-master:/vagrant/share_files$ hdfs dfs -mkdir -p /user/hadoop/input
2022-06-08 10:10:30,545 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
vagrant@hadoop-master:/vagrant/share_files$ hdfs dfs -ls /
2022-06-08 10:10:51,078 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
Found 1 items
drwxr-xr-x - hadoop supergroup 0 2022-06-08 10:07 /user
vagrant@hadoop-master:/vagrant/share_files$ hdfs dfs -put light_dataset/light_dataset.csv /user/hadoop/input
2022-06-08 10:11:25,823 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
put: Permission denied: user=vagrant, access=WRITE, inode="/user/hadoop/input":hadoop:supergroup:drwxr-xr-x
vagrant@hadoop-master:/vagrant/share_files$ sudo su hadoop
hadoop@hadoop-master:/vagrant/share_files$ hdfs dfs -put light_dataset/light_dataset.csv /user/hadoop/input
2022-06-08 10:11:49,774 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
hadoop@hadoop-master:/vagrant/share_files$ hdfs dfs -mkdir -p /user/hadoop/output
```

قسمت load کردن dataset

Browse Directory

Go! 📁 📄 📁 📄

Show: 25 entries Search:

<input type="checkbox"/>	Permission	Owner	Group	Size	Last Modified	Replication	Block Size	Name	<input type="checkbox"/>
<input type="checkbox"/>	-rw-r--r--	hadoop	supergroup	98.5 MB	Jun 08 14:42	1	16 MB	light_dataset.csv	<input type="checkbox"/>

Showing 1 to 1 of 1 entries Previous 1 Next

Hadoop, 2022.

سوال 4:

```
hadoop@hadoop-master:/vagrant/share_files$ hadoop jar /opt/hadoop/share/hadoop/tools/lib/hadoop-streaming-3.3.2.jar -file ./Q4/reducer.py -file ./Q4/mapper.py -mapper "python3 mapper.py" -reducer "python3 reducer.py" -input /user/hadoop/input/light_dataset.csv -output /user/hadoop/output/Q4
```

<input type="checkbox"/>	Permission	Owner	Group	Size	Last Modified	Replication	Block Size	Name	
<input type="checkbox"/>	-rw-r--r--	hadoop	supergroup	0 B	Jun 08 15:35	1	16 MB	_SUCCESS	
<input type="checkbox"/>	-rw-r--r--	hadoop	supergroup	223 B	Jun 08 15:35	1	16 MB	part-00000	

Showing 1 to 2 of 2 entries

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```
2022-06-08 11:05:04,904 INFO streaming.StreamJob: Output directory: /user/hadoop/output/Q4
hadoop@hadoop-master:/vagrant/share_files$ hdfs dfs -cat /user/hadoop/output/Q4/part-00000
2022-06-08 11:07:29,935 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
cat: /user/hadoop/output/Q4/part-00000: No such file or directory
hadoop@hadoop-master:/vagrant/share_files$ hdfs dfs -cat /user/hadoop/output/Q4/part-00000
2022-06-08 11:08:37,548 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
##### likes retweets Twitter Web App Twitter for Android Twitter for iPhone
Both_Candidates 204750 78843 17541 7916 9479
Donald_Trump 370451 126000 24885 15396 17710
Joe_Biden 801355 267920 24737 14031 21786
```

سوال 5:

```
hadoop@hadoop-master:/vagrant/share_files$ hadoop jar /opt/hadoop/share/hadoop/tools/lib/hadoop-streaming-3.3.2.jar -file ./Q5/reducer.py -file ./Q5/mapper.py -mapper "python3 mapper.py" -reducer "python3 reducer.py" -input /user/hadoop/input/light_dataset.csv -output /user/hadoop/output/Q5
```

Browse Directory

/user/hadoop/output/Q5

Show entries Search:

<input type="checkbox"/>	Permission	Owner	Group	Size	Last Modified	Replication	Block Size	Name	
<input type="checkbox"/>	-rw-r--r--	hadoop	supergroup	0 B	Jun 08 16:04	1	16 MB	_SUCCESS	
<input type="checkbox"/>	-rw-r--r--	hadoop	supergroup	353 B	Jun 08 16:04	1	16 MB	part-00000	

Showing 1 to 2 of 2 entries

Previous **1** Next

Hadoop, 2022.

```
hadoop@hadoop-master:/vagrant/share_files$ hdfs dfs -cat /user/hadoop/output/Q5/part-00000
2022-06-08 11:35:30,387 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
##### Joe Biden Donald_Trump Both_Candidates ALL
New York 0.41544291804831834 0.35622927522501185 0.22832780672666983 2111
Texas 0.45765998707175176 0.3354880413703943 0.2068519715578539 1547
California 0.419746276889134 0.39051296194153334 0.1897407611693326 1813
Florida 0.4751412429378531 0.27570621468926554 0.24915254237288137 1770
```

سوال 6:

```
hadoop@hadoop-master:/vagrant/share_files$ hadoop jar /opt/hadoop/share/hadoop/tools/lib/hadoop-streaming-3.3.2.jar -file ./Q6/reducer.py -file ./Q6/mapper.py -mapper "python3 mapper.py" -reducer "python3 reducer.py" -input /user/hadoop/input/light_dataset.csv -output /user/hadoop/output/Q6
```

Browse Directory

Show

25

 entries

Search:

<input type="checkbox"/>	Permission	Owner	Group	Size	Last Modified	Replication	Block Size	Name	
<input type="checkbox"/>	-rw-r--r--	hadoop	supergroup	0 B	Jun 08 16:12	1	16 MB	_SUCCESS	
<input type="checkbox"/>	-rw-r--r--	hadoop	supergroup	240 B	Jun 08 16:12	1	16 MB	part-00000	

Showing 1 to 2 of 2 entries

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Next

Hadoop, 2022.

```
2022-06-08 11:42:16,603 INFO streaming.StreamJob: Output directory: /user/hadoop/output/Q6
hadoop@hadoop-master:/vagrant/share_files$ hdfs dfs -cat /user/hadoop/output/Q6/part-00000
2022-06-08 11:42:25,763 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
##### Joe Biden Donald Trump Both_Candidates ALL
New York 0.3915701415701416 0.36325611325611323 0.24517374517374518 3108
Texas 0.42806484295846 0.3789260385005066 0.19300911854103345 1974
California 0 0 0 0
Florida 0 0 0 0
```

تفاوت بین قسمت 5 و 6 به دلیل دقت altitude شهر ها است.