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ASSIGNMENT 2

PART 2.1. Use the NYSE database to find the average price of stock_price_high values for each stock using MapReduce.

```
> var mapper = function(){ emit(this.stock_symbol,this.stock_price_high); };
> var reducer = function(key,value){ return key, Array.avg(value); };
> db.nyse.mapReduce(mapper,reducer,{out:"AvgStocksHighPrice"})
{
        "result" : "AvgStocksHighPrice",
        "timeMillis" : 122808,
        "counts" : {
                "input" : 9211031,
                "emit" : 9211031,
                "reduce" : 94963,
                "output" : 2853
        },
        "ok" : 1
}
> db.AvgStocksHighPrice.find()
{ "_id" : NaN, "value" : 14.348378816066797 }
{ "_id" : "AA", "value" : 60.73790046413672 }
{ "_id" : "AAI", "value" : 21.907931389979147 }
{ "_id" : "AAN", "value" : 7.841939599196778 }
{ "_id" : "AAP", "value" : 45.020596023626865 }
{ "_id" : "AAR", "value" : 22.841724566750898 }
{ "_id" : "AAV", "value" : 14.410486326112071 }
{ "_id" : "AB", "value" : 4.039483943887298 }
{ "_id" : "ABA", "value" : 25.345595637029714 }
{ "_id" : "ABB", "value" : 17.79383363194096 }
{ "_id" : "ABC", "value" : 23.2265851580881 }
{ "_id" : "ABD", "value" : 25.754191845876452 }
{ "_id" : "ABG", "value" : 17.714408984117533 }
{ "_id" : "ABK", "value" : 24.14287886368819 }
{ "_id" : "ABM", "value" : 22.924588187459157 }
{ "_id" : "ABR", "value" : 19.667373760508518 }
{ "_id" : "ABT", "value" : 45.67449183721315 }
{ "_id" : "ABV", "value" : 11.117692977936562 }
{ "_id" : "ABVT", "value" : 45.6995818252496 }
{ "_id" : "ABX", "value" : 4.82917907747534 }
Type "it" for more
>
```

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PART 2.2. Part 2.1 result will not be correct as AVERAGE is a commutative operation but nor associative. Use a FINALIZER to find the correct average.

Hint: pass sum and count from the reducer
https://docs.mongodb.com/manual/reference/method/db.collection.mapReduce/index.html)

```
> var mapper = function(){ emit(this.stock_symbol,{"count":1,"sum":this.stock_price_high}); };
> var reducer = function(key, value){ price_val = {"count":0,"sum":0}; for (var i=0;i<value.length;i++){ price_val.count += value[i].count; price_val.sum += value[i].sum; } return price_val; };
> var finalizer = function(key,priceVal){ priceVal.avg = priceVal.sum/priceVal.count; return priceVal; };
> db.nyse.mapReduce(mapper,reducer,{out:"AvgStockPriceHigh",finalize:finalizer})
{
        "result" : "AvgStockPriceHigh",
        "timeMillis" : 188734,
        "counts" : {
                "input" : 9211031,
                "emit" : 9211031,
                "reduce" : 94963,
                "output" : 2853
        },
        "ok" : 1
}
> db.AvgStockPriceHigh.find()
{ "_id" : NaN, "value" : { "count" : 2687, "sum" : 38560.66000000021, "avg" : 14.350822478600747 } }
{ "_id" : "AA", "value" : { "count" : 12109, "sum" : 635234.290000002, "avg" : 52.459682054670246 } }
{ "_id" : "AAI", "value" : { "count" : 3933, "sum" : 41369.05000000041, "avg" : 10.518446478515234 } }
{ "_id" : "AAN", "value" : { "count" : 4218, "sum" : 83717.14999999902, "avg" : 19.847593646277623 } }
{ "_id" : "AAP", "value" : { "count" : 2058, "sum" : 92036.46000000005, "avg" : 44.721311953352796 } }
{ "_id" : "AAR", "value" : { "count" : 2632, "sum" : 50557.92000000018, "avg" : 19.208936170212834 } }
{ "_id" : "AAV", "value" : { "count" : 1435, "sum" : 17935.320000000014, "avg" : 12.498480836236944 } }
{ "_id" : "AB", "value" : { "count" : 5495, "sum" : 168401.26999999973, "avg" : 30.64627297543216 } }
{ "_id" : "ABA", "value" : { "count" : 906, "sum" : 23550.989999999994, "avg" : 25.99447019867549 } }
{ "_id" : "ABB", "value" : { "count" : 2221, "sum" : 27948.20000000001, "avg" : 12.583610986042329 } }
{ "_id" : "ABC", "value" : { "count" : 3733, "sum" : 178398.48000000106, "avg" : 47.7895740691136 } }
{ "_id" : "ABD", "value" : { "count" : 1127, "sum" : 17718.60000000001, "avg" : 15.721916592724055 } }
{ "_id" : "ABG", "value" : { "count" : 1984, "sum" : 30611.2300000001, "avg" : 15.429047379032308 } }
{ "_id" : "ABK", "value" : { "count" : 4682, "sum" : 240267.1700000026, "avg" : 51.31720845792452 } }
{ "_id" : "ABM", "value" : { "count" : 6446, "sum" : 158110.45999999702, "avg" : 24.528461061122716 } }
{ "_id" : "ABR", "value" : { "count" : 1450, "sum" : 26724.670000000002, "avg" : 18.430806896551726 } }
{ "_id" : "ABT", "value" : { "count" : 6772, "sum" : 326329.2000000044, "avg" : 48.188009450679914 } }
{ "_id" : "ABV", "value" : { "count" : 3284, "sum" : 105043.44000000024, "avg" : 31.986431181486065 } }
{ "_id" : "ABVT", "value" : { "count" : 1520, "sum" : 74779.0200000001, "avg" : 49.196723684210596 } }
{ "_id" : "ABX", "value" : { "count" : 6303, "sum" : 142971.01000000082, "avg" : 22.683009677931274 } }
Type "it" for more
>
```

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PART 3. Modify PART 2 by adding a finalizer to find out the average stock price of each price of all stocks in the finalizer.

```
> var mapper = function(){
... emit(this.stock_symbol,
... {"count":1,
... "sum_open":this.stock_price_open,
... "sum_high":this.stock_price_high,
... "sum_close":this.stock_price_close,
... "sum_low":this.stock_price_low,
... "sum_adjusted":this.stock_price_adj_close});
... };
>
> var reducer = function(key,value){
... avg_price = {
... "count":0,
... "sum_open":0,
... "sum_close":0,
... "sum_high":0,
... "sum_low":0,
... "sum_adjusted":0};
...
... for(var i=0;i<value.length;i++){
... avg_price.count += value[i].count;
... avg_price.sum_open += value[i].sum_open;
... avg_price.sum_close += value[i].sum_close;
... avg_price.sum_high += value[i].sum_high;
... avg_price.sum_low += value[i].sum_low;
... avg_price.sum_adjusted += value[i].sum_adjusted;}
... return avg_price;
... };
>
> var finalizer = function(key,avg_price){
... final_avg = {
... "avg_open" :0,
... "avg_close":0,
... "avg_low":0,
... "avg_adjusted":0,
... "avg_high":0,
... }
... final_avg.avg_open = avg_price.sum_open/avg_price.count;
... final_avg.avg_close = avg_price.sum_close/avg_price.count;
... final_avg.avg_high = avg_price.sum_high/avg_price.count;
... final_avg.avg_low = avg_price.sum_low/avg_price.count;
... final_avg.avg_adjusted = avg_price.sum_adjusted/avg_price.count;
... return final_avg;
... };
>
> db.nyse.mapReduce(
... mapper,
... reducer,
... {out:"AllAvgPrices",
... finalize:finalizer})
{
        "result" : "AllAvgPrices",
        "timeMillis" : 122460,
        "counts" : {
                "input" : 9211031,
                "emit" : 9211031,
                "reduce" : 94963,
                "output" : 2853
        },
        "ok" : 1
}
```

```
> db.AllAvgPrices.find().pretty()
{
        "_id" : NaN,
        "value" : {
                "avg_open" : 14.286665426125822,
                "avg_close" : 14.27483810941576,
                "avg_low" : 14.204417566058869,
                "avg_adjusted" : 10.319315221436556,
                "avg_high" : 14.350822478600747
        }
}
{
        "_id" : "AA",
        "value" : {
                "avg_open" : 51.91400776282121,
                "avg_close" : 51.91159715913802,
                "avg_low" : 51.373814518127176,
                "avg_adjusted" : 8.429698571310603,
                "avg_high" : 52.459682054670246
        }
}
```

PART 4 - MongoDB indexing

Use the NYSE dataset to declare your indexes before putting your application into production.

```
> db.createCollection("nyse_indexed")
{ "ok" : 1 }
> db.nyse_indexed.createIndex({"stock_symbol":1})
{
        "createdCollectionAutomatically" : false,
        "numIndexesBefore" : 1,
        "numIndexesAfter" : 2,
        "ok" : 1
}
> db.nyse_indexed.getIndexes()
[
        {
                "v" : 2,
                "key" : {
                        "_id" : 1
                },
                "name" : "_id_",
                "ns" : "stocks.nyse_indexed"
        },
        {
                "v" : 2,
                "key" : {
                        "stock_symbol" : 1
                },
                "name" : "stock_symbol_1",
                "ns" : "stocks.nyse_indexed"
        }
]
>
```

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PART 5 - MongoDB Indexing

Insert the NYSE dataset into a new database. You may use the existing NYSE database created before. Now, create indexes on existing data sets.

```
> db.nyse.createIndex({"stock_symbol":1,"date":-1})
{
        "createdCollectionAutomatically" : false,
        "numIndexesBefore" : 1,
        "numIndexesAfter" : 2,
        "ok" : 1
}
>
> db.nyse.getIndexes()
[
        {
                "v" : 2,
                "key" : {
                        "_id" : 1
                },
                "name" : "_id_",
                "ns" : "stocks.nyse"
        },
        {
                "v" : 2,
                "key" : {
                        "stock_symbol" : 1,
                        "date" : -1
                },
                "name" : "stock_symbol_1_date_-1",
                "ns" : "stocks.nyse"
        }
]
```

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PART 6 - Programming Assignment

MapReduce to find each of the followings:

Task 1. MapReduce to find the top 25 rated movies in the movieLens dataset

```
> var mapper = function(){
... emit(this.MovieID,{"count":1,"sum":parseInt(this.Rating)});};
> var reducer = function(key,value){
... rating_val = {
... "count":0,
... "sum":0
... }
... for(var i=0;i<value.length;i++){
... rating_val.count += value[i].count;
... rating_val.sum += value[i].sum;
... };
... return rating_val;
... };
> var finalizer = function(key,rating_val){
... rating_val.avg = rating_val.sum/rating_val.count;
... return rating_val.avg;
... };
> db.ratings.mapReduce(mapper,reducer,{finalize:finalizer,out:"HighestRatedMovies"})
{
        "result" : "HighestRatedMovies",
        "timeMillis" : 380912,
        "counts" : {
                "input" : 10000054,
                "emit" : 10000054,
                "reduce" : 2452513,
                "output" : 10677
        },
        "ok" : 1
}
```

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```
> db.HighestRatedMovies.find().sort({"value":-1}).limit(25)
{ "_id" : "33264", "value" : 5 }
{ "_id" : "42783", "value" : 5 }
{ "_id" : "51209", "value" : 5 }
{ "_id" : "53355", "value" : 5 }
{ "_id" : "64275", "value" : 5 }
{ "_id" : "5194", "value" : 4.75 }
{ "_id" : "63808", "value" : 4.666666666666667 }
{ "_id" : "4454", "value" : 4.625 }
{ "_id" : "26048", "value" : 4.5 }
{ "_id" : "26073", "value" : 4.5 }
{ "_id" : "3226", "value" : 4.5 }
{ "_id" : "65001", "value" : 4.5 }
{ "_id" : "32657", "value" : 4.428571428571429 }
{ "_id" : "318", "value" : 4.389770609779606 }
{ "_id" : "858", "value" : 4.345059049157162 }
{ "_id" : "25975", "value" : 4.333333333333333 }
{ "_id" : "5849", "value" : 4.333333333333333 }
{ "_id" : "60990", "value" : 4.333333333333333 }
{ "_id" : "527", "value" : 4.2984055553400315 }
{ "_id" : "50", "value" : 4.291051295918792 }
Type "it" for more
> it
{ "_id" : "922", "value" : 4.2568356374807985 }
{ "_id" : "26743", "value" : 4.25 }
{ "_id" : "912", "value" : 4.2478611977292715 }
{ "_id" : "1212", "value" : 4.24104134762634 }
{ "_id" : "2019", "value" : 4.234567901234568 }
>
```

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Task 2. MapReduce to find the number of males and females in the movielens dataset

```
>
>
>
> var mapper = function(){
... emit(this.Gender,1);
... };
>
> var reducer = function(key,value){
... return key,Array.sum(value);
... };
>
> db.users.mapReduce(
... mapper,
... reducer,
... { out : "GenderCount"})
{
        "result" : "GenderCount",
        "timeMillis" : 171,
        "counts" : {
                "input" : 6040,
                "emit" : 6040,
                "reduce" : 122,
                "output" : 2
        },
        "ok" : 1
}
>
> db.GenderCount.find().pretty()
{ "_id" : "F", "value" : 1709 }
{ "_id" : "M", "value" : 4331 }
>
```

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Task 3. MapReduce to find the number of movies rated by different users

```
> var mapper = function(){
... emit(this.UserID,1);
... };
>
> var reducer = function(key,value){
... return key,Array.sum(value);
... };
>
> db.ratings.mapReduce(mapper,reducer,{ out : "TotalMoviesByUser"})
{
        "result" : "TotalMoviesByUser",
        "timeMillis" : 129224,
        "counts" : {
                "input" : 10000054,
                "emit" : 10000054,
                "reduce" : 169150,
                "output" : 69878
        },
        "ok" : 1
}
> db.TotalMoviesByUser.find().pretty()
{ "_id" : "1", "value" : 22 }
{ "_id" : "10", "value" : 123 }
{ "_id" : "100", "value" : 193 }
{ "_id" : "10000", "value" : 111 }
{ "_id" : "10001", "value" : 46 }
{ "_id" : "10002", "value" : 76 }
{ "_id" : "10004", "value" : 56 }
{ "_id" : "10005", "value" : 83 }
{ "_id" : "10006", "value" : 167 }
{ "_id" : "10007", "value" : 202 }
{ "_id" : "10008", "value" : 64 }
{ "_id" : "10009", "value" : 21 }
{ "_id" : "1001", "value" : 34 }
{ "_id" : "10010", "value" : 20 }
{ "_id" : "10011", "value" : 90 }
{ "_id" : "10012", "value" : 352 }
{ "_id" : "10013", "value" : 531 }
{ "_id" : "10014", "value" : 398 }
{ "_id" : "10015", "value" : 30 }
{ "_id" : "10016", "value" : 20 }
Type "it" for more
>
```

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PART 7 - Programming Assignment

https://hadoop.apache.org/docs/current/hadoop-project-dist/hadoop-common/FileSystemShell.html

- cat

```
kchaudhary@ubuntu:/usr/local/bin/hadoop-3.2.1/bin$ ./hadoop fs -cat file:///home/
kchaudhary/Downloads/GitRepos.txt
https://github.com/pawarad
https://github.com/keiraqz/artmosphere
https://github.com/ranga11
https://github.com/PreetikaKuls/Insight-MapMyCab
https://github.com/jgors/anywazekchaudhary@ubuntu:/usr/local/bin/hadoop-3.2.1/bin
$
```

- checksum

```
kchaudhary@ubuntu:/usr/local/bin/hadoop-3.2.1/bin$ ./hadoop fs -checksum file:///
home/kchaudhary/Downloads/GitRepos.txt
file:///home/kchaudhary/Downloads/GitRepos.txt  NONE
```

- chgrp

```
kchaudhary@ubuntu:/usr/local/bin/hadoop-3.2.1/bin$ ./hadoop fs -chgrp -R hdfs /te
stdir/test1
kchaudhary@ubuntu:/usr/local/bin/hadoop-3.2.1/bin$ ./hadoop fs -ls /testdir
Found 2 items
drwxr-xr-x   - kchaudhary hdfs          0 2019-10-10 16:40 /testdir/test1
-rwxrwxrwx   1 hdfs       supergroup    0 2019-10-10 16:05 /testdir/testfil
e
kchaudhary@ubuntu:/usr/local/bin/hadoop-3.2.1/bin$
```

- chmod

```
kchaudhary@ubuntu:/usr/local/bin/hadoop-3.2.1/bin$ ./hadoop fs -chmod -R 777 /tes
tdir
kchaudhary@ubuntu:/usr/local/bin/hadoop-3.2.1/bin$ ./hadoop fs -ls /
Found 2 items
drwxrwxrwx   - kchaudhary supergroup          0 2019-10-10 16:05 /testdir
drwxr-xr-x   - kchaudhary supergroup          0 2019-10-10 16:03 /testdir1
```

- chown

```
kchaudhary@ubuntu:/usr/local/bin/hadoop-3.2.1/bin$ ./hadoop fs -chown -R hdfs /te
stdir
kchaudhary@ubuntu:/usr/local/bin/hadoop-3.2.1/bin$ ./hadoop fs -ls /
Found 2 items
drwxrwxrwx   - hdfs       supergroup          0 2019-10-10 16:05 /testdir
drwxr-xr-x   - kchaudhary supergroup          0 2019-10-10 16:03 /testdir1
```

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- copyToLocal

```
kchaudhary@ubuntu:/usr/local/bin/hadoop-3.2.1/bin$ ./hadoop fs -copyToLocal /test
dir  file:///home/kchaudhary/Downloads
```

- count

```
kchaudhary@ubuntu:/usr/local/bin/hadoop-3.2.1/bin$ ./hadoop fs -count /testdir
           1            1                  0 /testdir
```

- df

```
kchaudhary@ubuntu:/usr/local/bin/hadoop-3.2.1/bin$ ./hadoop fs -df
Filesystem             Size  Used  Available  Use%
hdfs://localhost:9000     0     0          0  NaN%
kchaudhary@ubuntu:/usr/local/bin/hadoop-3.2.1/bin$
```

- du

```
kchaudhary@ubuntu:/usr/local/bin/hadoop-3.2.1/bin$ ./hadoop fs -du /
0  0  /testdir
0  0  /testdir1
```

- find

```
kchaudhary@ubuntu:/usr/local/bin/hadoop-3.2.1/bin$ ./hadoop fs -find / -name test
1 -print
/testdir/test1
```

- getfacl

```
kchaudhary@ubuntu:/usr/local/bin/hadoop-3.2.1/bin$ ./hadoop fs -getfacl /testdir/
test1
# file: /testdir/test1
# owner: kchaudhary
# group: supergroup
user::rwx
group::r-x
other::r-x
```

- getfattr

```
kchaudhary@ubuntu:/usr/local/bin/hadoop-3.2.1/bin$ ./hadoop fs -getfattr -d /test
dir/test1
# file: /testdir/test1
```

- getmerge

```
kchaudhary@ubuntu:/usr/local/bin/hadoop-3.2.1/bin$ ./hadoop fs -getmerge -nl /tes
tdir/test1 file://home/kchaudhary/Downloads/test2
getmerge: Mkdirs failed to create file:/kchaudhary/Downloads (exists=false, cwd=f
ile:/usr/local/bin/hadoop-3.2.1/bin)
```

- help

```
kchaudhary@ubuntu:/usr/local/bin/hadoop-3.2.1/bin$ ./hadoop fs -help
Usage: hadoop fs [generic options]
        [-appendToFile <localsrc> ... <dst>]
        [-cat [-ignoreCrc] <src> ...]
        [-checksum <src> ...]
        [-chgrp [-R] GROUP PATH...]
        [-chmod [-R] <MODE[,MODE]... | OCTALMODE> PATH...]
        [-chown [-R] [OWNER][:[GROUP]] PATH...]
        [-copyFromLocal [-f] [-p] [-l] [-d] [-t <thread count>] <localsrc> ... <d
st>]
        [-copyToLocal [-f] [-p] [-ignoreCrc] [-crc] <src> ... <localdst>]
        [-count [-q] [-h] [-v] [-t [<storage type>]] [-u] [-x] [-e] <path> ...]
        [-cp [-f] [-p | -p[topax]] [-d] <src> ... <dst>]
        [-createSnapshot <snapshotDir> [<snapshotName>]]
        [-deleteSnapshot <snapshotDir> <snapshotName>]
        [-df [-h] [<path> ...]]
        [-du [-s] [-h] [-v] [-x] <path> ...]
        [-expunge [-immediate]]
        [-find <path> ... <expression> ...]
        [-get [-f] [-p] [-ignoreCrc] [-crc] <src> ... <localdst>]
```

- ls

```
kchaudhary@ubuntu:/usr/local/bin/hadoop-3.2.1/bin$ ./hadoop fs -ls /
Found 1 items
drwxr-xr-x   - kchaudhary supergroup          0 2019-10-07 15:41 /testdir
```

- lsr

```
kchaudhary@ubuntu:/usr/local/bin/hadoop-3.2.1/bin$ ./hadoop fs -lsr /
lsr: DEPRECATED: Please use 'ls -R' instead.
drwxrwxrwx   - hdfs       supergroup          0 2019-10-10 16:48 /testdir
drwxr-xr-x   - kchaudhary hdfs                0 2019-10-10 16:40 /testdir/test1
-rwxrwxrwx   1 hdfs       supergroup          0 2019-10-10 16:05 /testdir/testfil
e
drwxr-xr-x   - kchaudhary supergroup          0 2019-10-10 16:29 /testdir1
```

- mkdir

```
kchaudhary@ubuntu:/usr/local/bin/hadoop-3.2.1/bin$ ./hadoop fs -ls /
Found 2 items
drwxr-xr-x   - kchaudhary supergroup          0 2019-10-07 15:41 /testdir
drwxr-xr-x   - kchaudhary supergroup          0 2019-10-10 16:03 /testdir1
kchaudhary@ubuntu:/usr/local/bin/hadoop-3.2.1/bin$
```

- moveFromLocal

```
kchaudhary@ubuntu:/usr/local/bin/hadoop-3.2.1/bin$ ./hadoop fs -moveFromLocal fil
e:///home/kchaudhary/Downloads/test /testdir
moveFromLocal: `/home/kchaudhary/Downloads/test': No such file or directory
kchaudhary@ubuntu:/usr/local/bin/hadoop-3.2.1/bin$ ./hadoop fs -moveFromLocal fil
e:///home/kchaudhary/Downloads/test1 /testdir
kchaudhary@ubuntu:/usr/local/bin/hadoop-3.2.1/bin$ ./hadoop fs -ls /testdir
Found 2 items
drwxr-xr-x   - kchaudhary supergroup          0 2019-10-10 16:40 /testdir/test1
-rwxrwxrwx   1 hdfs       supergroup          0 2019-10-10 16:05 /testdir/testfil
e
```

- rm

```
kchaudhary@ubuntu:/usr/local/bin/hadoop-3.2.1/bin$ ./hadoop fs -rm -f /testdir/te
st1
rm: `/testdir/test1': Is a directory
kchaudhary@ubuntu:/usr/local/bin/hadoop-3.2.1/bin$
```

- rmdir

```
kchaudhary@ubuntu:/usr/local/bin/hadoop-3.2.1/bin$ ./hadoop fs -rmdir /testdir/te
st1
kchaudhary@ubuntu:/usr/local/bin/hadoop-3.2.1/bin$ ./hadoop fs -ls /testdir
Found 1 items
-rwxrwxrwx   1 hdfs supergroup          0 2019-10-10 16:05 /testdir/testfile
```

- stat

```
kchaudhary@ubuntu:/usr/local/bin/hadoop-3.2.1/bin$ ./hadoop fs -stat /testdir
2019-10-10 23:05:04
```

- tail

```
kchaudhary@ubuntu:/usr/local/bin/hadoop-3.2.1/bin$ ./hadoop fs -tail file:///home
/kchaudhary/Downloads/GitRepos.txt
https://github.com/pawarad
https://github.com/keiraqz/artmosphere
https://github.com/ranga11
https://github.com/PreetikaKuls/Insight-MapMyCab
https://github.com/jgors/anywazekchaudhary@ubuntu:/usr/local/bin/hadoop-3.2.1/bin
$
```

- text

```
kchaudhary@ubuntu:/usr/local/bin/hadoop-3.2.1/bin$ ./hadoop fs -text file:///home
/kchaudhary/Downloads/GitRepos.txt
https://github.com/pawarad
https://github.com/keiraqz/artmosphere
https://github.com/ranga11
https://github.com/PreetikaKuls/Insight-MapMyCab
https://github.com/jgors/anywazekchaudhary@ubuntu:/usr/local/bin/hadoop-3.2.1/bin
$
```

- touchz

```
kchaudhary@ubuntu:/usr/local/bin/hadoop-3.2.1/bin$ ./hadoop fs -touchz /testdir/t
estfile
```

- usage

```
kchaudhary@ubuntu:/usr/local/bin/hadoop-3.2.1/bin$ ./hadoop fs -usage
Usage: hadoop fs [generic options]
        [-appendToFile <localsrc> ... <dst>]
        [-cat [-ignoreCrc] <src> ...]
        [-checksum <src> ...]
        [-chgrp [-R] GROUP PATH...]
        [-chmod [-R] <MODE[,MODE]... | OCTALMODE> PATH...]
        [-chown [-R] [OWNER][:[GROUP]] PATH...]
        [-copyFromLocal [-f] [-p] [-l] [-d] [-t <thread count>] <localsrc> ... <d
st>]
        [-copyToLocal [-f] [-p] [-ignoreCrc] [-crc] <src> ... <localdst>]
        [-count [-q] [-h] [-v] [-t [<storage type>]] [-u] [-x] [-e] <path> ...]
        [-cp [-f] [-p | -p[topax]] [-d] <src> ... <dst>]
        [-createSnapshot <snapshotDir> [<snapshotName>]]
        [-deleteSnapshot <snapshotDir> <snapshotName>]
        [-df [-h] [<path> ...]]
```