

```
chosun@chosun-VirtualBox:~/hadoop$
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/// ***** ///
HomeWorkEX6_5.jar은 전체 정렬 jar파일
/// ***** ///
chosun@chosun-VirtualBox:~/hadoop$ ls
1987.csv  HomeWorkEX6_1.jar  HomeWorkEX6_5.jar  NOTICE.txt  c++  docs  hadoop-examples-1.2.1.jar  input.txt  libexec
share    2007.csv  HomeWorkEX6_2.jar  LICENSE.txt  README.txt  conf  hadoop-ant-1.2.1.jar  hadoop-minicluster-1.2.1.jar  ivy
logs     src      2008.csv  HomeWorkEX6_3.jar  MyMy.jar    bin   contrib  hadoop-client-1.2.1.jar  hadoop-test-1.2.1.jar  ivy.xml  pids
webapps  CHANGES.txt  HomeWorkEX6_4.jar  MyMyMy.jar    build.xml   dataexpo  hadoop-core-1.2.1.jar  hadoop-tools-1.2.1.jar
lib      sbin     wordcount_output
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/// ***** ///
jar 파일 실행
HW_Sequencefile 디렉토리의 파일을 jar파일로 처리한 것을 HW_total 디렉토리에 저장
SequenceFileTotalSort는 클래스 이름
부분정렬 1단계에서 11개 시퀀스 파일 생성했으므로 입력파일은 11개
1000개의 샘플을 사용했다는 로그 출력
/// ***** ///
chosun@chosun-VirtualBox:~/hadoop$ hadoop jar HomeWorkEX6_5.jar SequenceFileTotalSort HW_Sequencefile HW_total
WARNING: An illegal reflective access operation has occurred
WARNING: Illegal reflective access by org.apache.hadoop.security.authentication.util.KerberosUtil (file:/home/chosun/hadoop-1.2.1/hadoop-core-1.2.1.jar) to method sun.security.krb5.Config.getInstance()
WARNING: Please consider reporting this to the maintainers of org.apache.hadoop.security.authentication.util.KerberosUtil
WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations
WARNING: All illegal access operations will be denied in a future release
19/04/30 02:25:54 INFO mapred.FileInputFormat: Total input paths to process : 11
19/04/30 02:25:54 INFO util.NativeCodeLoader: Loaded the native-hadoop library
19/04/30 02:25:54 INFO zlib.ZlibFactory: Successfully loaded & initialized native-zlib library
19/04/30 02:25:54 INFO compress.CodecPool: Got brand-new decompressor
19/04/30 02:25:54 INFO compress.CodecPool: Got brand-new decompressor
19/04/30 02:25:54 INFO compress.CodecPool: Got brand-new decompressor
19/04/30 02:25:54 INFO compress.CodecPool: Got brand-new decompressor
19/04/30 02:25:58 INFO lib.InputSampler: Using 1000 samples
19/04/30 02:25:58 INFO compress.CodecPool: Got brand-new compressor
19/04/30 02:25:58 INFO mapred.FileInputFormat: Total input paths to process : 11
19/04/30 02:25:59 INFO mapred.JobClient: Running job: job_201904300049_0013
19/04/30 02:26:00 INFO mapred.JobClient: map 0% reduce 0%
19/04/30 02:26:06 INFO mapred.JobClient: map 18% reduce 0%
19/04/30 02:26:10 INFO mapred.JobClient: map 36% reduce 0%
19/04/30 02:26:14 INFO mapred.JobClient: map 54% reduce 12%
19/04/30 02:26:17 INFO mapred.JobClient: map 72% reduce 12%
19/04/30 02:26:21 INFO mapred.JobClient: map 90% reduce 12%
19/04/30 02:26:22 INFO mapred.JobClient: map 100% reduce 12%
19/04/30 02:26:23 INFO mapred.JobClient: map 100% reduce 24%
19/04/30 02:26:29 INFO mapred.JobClient: map 100% reduce 70%
19/04/30 02:26:32 INFO mapred.JobClient: map 100% reduce 72%
19/04/30 02:26:35 INFO mapred.JobClient: map 100% reduce 75%
19/04/30 02:26:37 INFO mapred.JobClient: map 100% reduce 78%
19/04/30 02:26:40 INFO mapred.JobClient: map 100% reduce 81%
19/04/30 02:26:43 INFO mapred.JobClient: map 100% reduce 83%
19/04/30 02:26:46 INFO mapred.JobClient: map 100% reduce 86%
19/04/30 02:26:49 INFO mapred.JobClient: map 100% reduce 89%
19/04/30 02:26:52 INFO mapred.JobClient: map 100% reduce 91%
19/04/30 02:26:55 INFO mapred.JobClient: map 100% reduce 94%
19/04/30 02:26:58 INFO mapred.JobClient: map 100% reduce 97%
19/04/30 02:27:01 INFO mapred.JobClient: map 100% reduce 99%
19/04/30 02:27:03 INFO mapred.JobClient: map 100% reduce 100%
19/04/30 02:27:03 INFO mapred.JobClient: Job complete: job_201904300049_0013
19/04/30 02:27:03 INFO mapred.JobClient: Counters: 30
```

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19/04/30 02:27:03 INFO mapred.JobClient: Map-Reduce Framework
19/04/30 02:27:03 INFO mapred.JobClient: Spilled Records=20660788
19/04/30 02:27:03 INFO mapred.JobClient: Map output materialized bytes=731471478
19/04/30 02:27:03 INFO mapred.JobClient: Reduce input records=7009728
19/04/30 02:27:03 INFO mapred.JobClient: Virtual memory (bytes) snapshot=25088606208
19/04/30 02:27:03 INFO mapred.JobClient: Map input records=7009728
19/04/30 02:27:03 INFO mapred.JobClient: SPLIT_RAW_BYTES=1243
19/04/30 02:27:03 INFO mapred.JobClient: Map output bytes=717451956
19/04/30 02:27:03 INFO mapred.JobClient: Reduce shuffle bytes=731471478
19/04/30 02:27:03 INFO mapred.JobClient: Physical memory (bytes) snapshot=2712358912
19/04/30 02:27:03 INFO mapred.JobClient: Map input bytes=188805860
19/04/30 02:27:03 INFO mapred.JobClient: Reduce input groups=1435
19/04/30 02:27:03 INFO mapred.JobClient: Combine output records=0
19/04/30 02:27:03 INFO mapred.JobClient: Reduce output records=7009728
19/04/30 02:27:03 INFO mapred.JobClient: Map output records=7009728
19/04/30 02:27:03 INFO mapred.JobClient: Combine input records=0
19/04/30 02:27:03 INFO mapred.JobClient: CPU time spent (ms)=78240
19/04/30 02:27:03 INFO mapred.JobClient: Total committed heap usage (bytes)=1912602624
19/04/30 02:27:03 INFO mapred.JobClient: File Input Format Counters
19/04/30 02:27:03 INFO mapred.JobClient: Bytes Read=188807235
19/04/30 02:27:03 INFO mapred.JobClient: FileSystemCounters
19/04/30 02:27:03 INFO mapred.JobClient: HDFS_BYTES_READ=188809974
19/04/30 02:27:03 INFO mapred.JobClient: FILE_BYTES_WRITTEN=2156258862
19/04/30 02:27:03 INFO mapred.JobClient: FILE_BYTES_READ=1424083942
19/04/30 02:27:03 INFO mapred.JobClient: HDFS_BYTES_WRITTEN=161302998
19/04/30 02:27:03 INFO mapred.JobClient: File Output Format Counters
19/04/30 02:27:03 INFO mapred.JobClient: Bytes Written=161302998
19/04/30 02:27:03 INFO mapred.JobClient: Job Counters
19/04/30 02:27:03 INFO mapred.JobClient: Launched map tasks=11
19/04/30 02:27:03 INFO mapred.JobClient: Launched reduce tasks=1
19/04/30 02:27:03 INFO mapred.JobClient: SLOTS_MILLIS_REDUCES=57653
19/04/30 02:27:03 INFO mapred.JobClient: Total time spent by all reduces waiting after reserving slots (ms)=0
19/04/30 02:27:03 INFO mapred.JobClient: SLOTS_MILLIS_MAPS=39401
19/04/30 02:27:03 INFO mapred.JobClient: Total time spent by all maps waiting after reserving slots (ms)=0
19/04/30 02:27:03 INFO mapred.JobClient: Data-local map tasks=11
```

MR-Job Result:0

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/// \*\*\*\*\* ///

HW\_total 디렉토리 확인 >>> part-00000 생성 확인 >>> 상위 10개 데이터 확인

/// \*\*\*\*\* ///

chosun@chosun-VirtualBox:~/hadoop\$ **hadoop fs -ls HW\_total**

WARNING: An illegal reflective access operation has occurred

WARNING: Illegal reflective access by org.apache.hadoop.security.authentication.util.KerberosUtil (file:/home/chosun/hadoop-1.2.1/hadoop-core-1.2.1.jar) to method sun.security.krb5.Config.getInstance()

WARNING: Please consider reporting this to the maintainers of org.apache.hadoop.security.authentication.util.KerberosUtil

WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations

WARNING: All illegal access operations will be denied in a future release

Found 3 items

```
-rw-r--r--    1 chosun supergroup          0 2019-04-30 02:27 /user/chosun/HW_total/_SUCCESS
drwxr-xr-x    - chosun supergroup          0 2019-04-30 02:25 /user/chosun/HW_total/_logs
-rw-r--r--    1 chosun supergroup 161302998 2019-04-30 02:26 /user/chosun/HW_total/part-00000
```

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chosun@chosun-VirtualBox:~/hadoop\$ **hadoop fs -text HW\_total/part-00000 | head -10**

WARNING: An illegal reflective access operation has occurred

WARNING: Illegal reflective access by org.apache.hadoop.security.authentication.util.KerberosUtil (file:/home/chosun/hadoop-1.2.1/hadoop-core-1.2.1.jar) to method sun.security.krb5.Config.getInstance()

WARNING: Please consider reporting this to the maintainers of org.apache.hadoop.security.authentication.util.KerberosUtil

WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations

WARNING: All illegal access operations will be denied in a future release

19/04/30 02:29:06 INFO util.NativeCodeLoader: Loaded the native-hadoop library  
19/04/30 02:29:06 INFO zlib.ZlibFactory: Successfully loaded & initialized native-zlib library  
19/04/30 02:29:06 INFO compress.CodecPool: Got brand-new decompressor  
19/04/30 02:29:06 INFO compress.CodecPool: Got brand-new decompressor  
19/04/30 02:29:06 INFO compress.CodecPool: Got brand-new decompressor  
19/04/30 02:29:06 INFO compress.CodecPool: Got brand-new decompressor  
11 2008,8,10,7,1315,1220,1415,1320,OH,5572,N819CA,60,60,14,55,55,JFK,LGA,11,8,38,0,,0,55,0,0,0,0  
11 2008,5,15,4,2037,1800,2125,1900,OH,4988,N806CA,48,60,31,145,157,JFK,LGA,11,10,7,0,,0,145,0,0,0,0  
17 2008,3,8,6,NA,1105,NA,1128,AA,1368,,NA,23,NA,NA,NA,EWR,LGA,17,NA,NA,1,B,0,NA,NA,NA,NA,NA  
21 2008,5,9,5,48,100,117,130,AA,588,N061AA,29,30,11,-13,-12,MIA,FLL,21,6,12,0,,0,NA,NA,NA,NA,NA  
21 2008,2,8,5,NA,1910,NA,1931,AA,1668,,NA,21,NA,NA,NA,FLL,MIA,21,NA,NA,1,A,0,NA,NA,NA,NA,NA  
24 2008,11,27,4,943,940,1014,956,9E,5816,91469E,31,16,9,18,3,IAH,HOU,24,5,17,0,,0,0,0,18,0,0  
24 2008,3,12,3,955,931,1021,948,9E,2009,91619E,26,17,10,33,24,IAH,HOU,24,7,9,0,,0,0,0,9,0,24  
24 2008,1,2,3,1245,1025,1340,1125,OH,5610,N806CA,55,60,11,135,140,IAD,DCA,24,5,39,0,,0,135,0,0,0,0  
28 2008,2,22,5,2046,2050,NA,2156,OO,3698,N298SW,NA,66,NA,NA,-4,SLC,OGD,28,NA,12,0,,1,NA,NA,NA,NA,NA  
30 2008,1,6,7,2226,2200,2301,2240,CO,348,N56859,35,40,11,21,26,SJC,SFO,30,7,17,0,,0,0,0,0,0,21

text: Unable to write to output stream.

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/// \*\*\*\*\* ///

실행중인 하둡 데몬 종료

/// \*\*\*\*\* ///

chosun@chosun-VirtualBox:~/hadoop\$ stop-all.sh

stopping jobtracker

chosun@localhost's password:

localhost: stopping tasktracker

stopping namenode

chosun@localhost's password:

localhost: stopping datanode

chosun@localhost's password:

localhost: stopping secondarynamenode

chosun@chosun-VirtualBox:~/hadoop\$

chosun@chosun-VirtualBox:~/hadoop\$

chosun@chosun-VirtualBox:~/hadoop\$ jps

18436 Jps

chosun@chosun-VirtualBox:~/hadoop\$

/// \*\*\*\*\* ///

[정리]

부분 정렬과 전체 정렬 >>> 모두 부분 정렬을 한다는 공통점이 있다.

정렬된 결과에서 데이터를 검색할 때 >>> 부분 정렬

단순히 정렬된 전체 데이터가 필요할 때 >>> 전체 정렬

/// \*\*\*\*\* ///