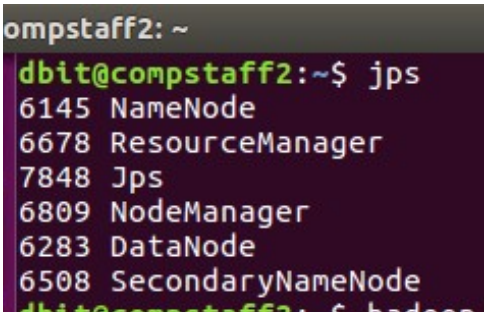
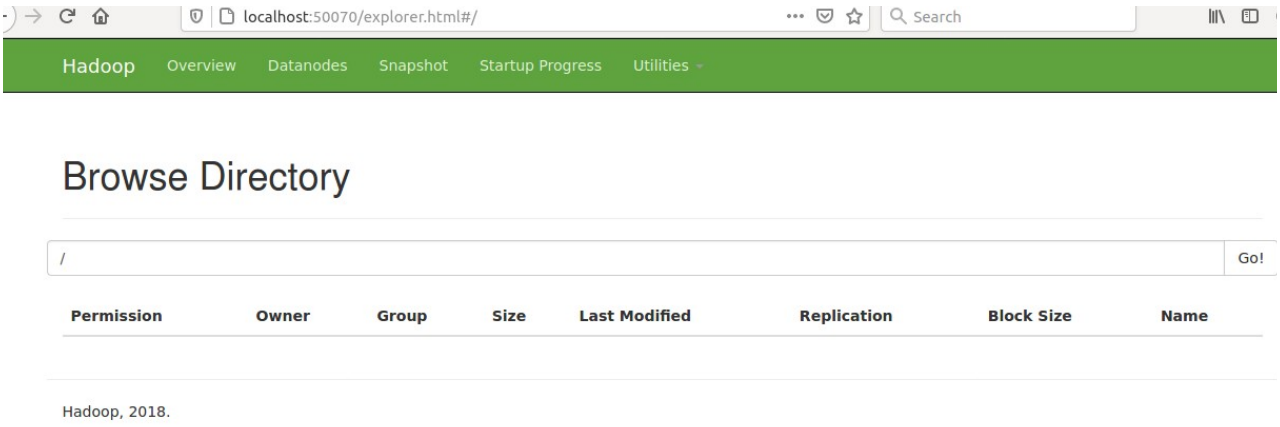
Expt 4 - Reference File

1. To start Hadoop

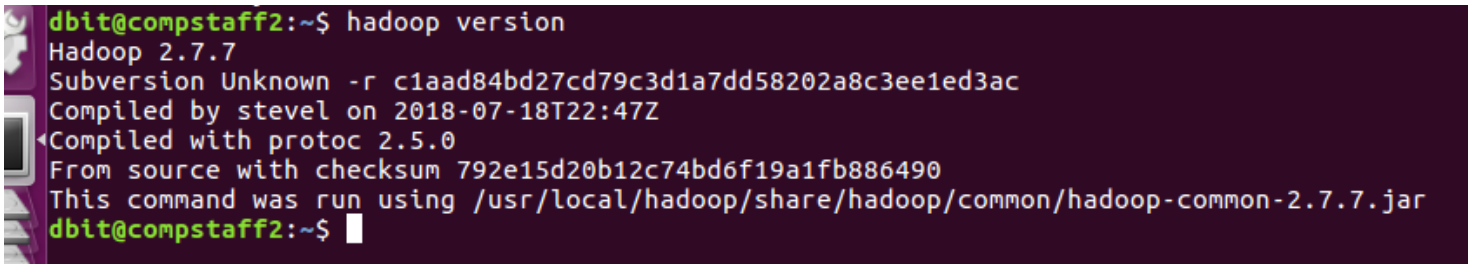
hdfs namenode -format
start-dfs.sh
start-yarn.sh
jps
http://localhost:50070/





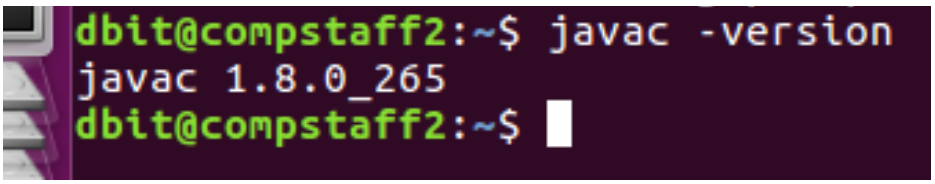
2. Make Sure Hadoop is installed and running and check hadoop version

hadoop version

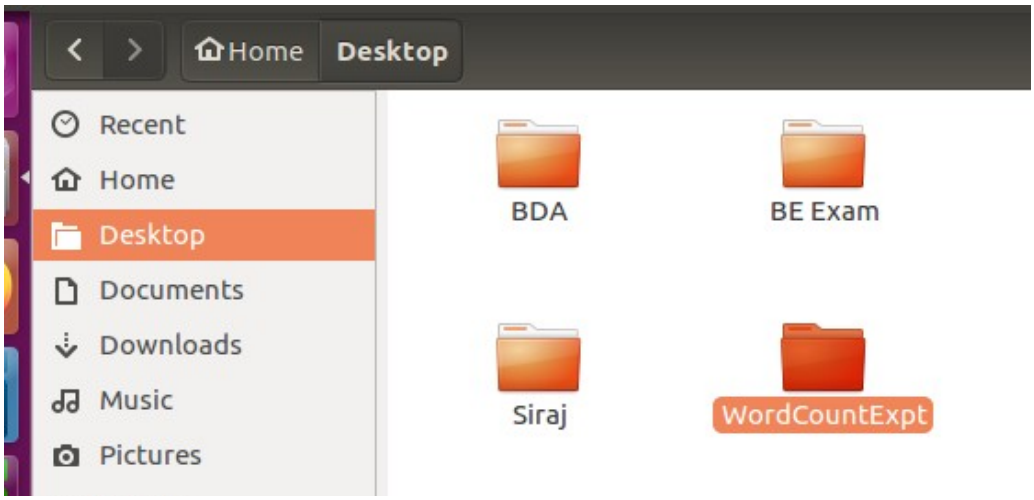


3. Make sure javac is running correctly

javac -version

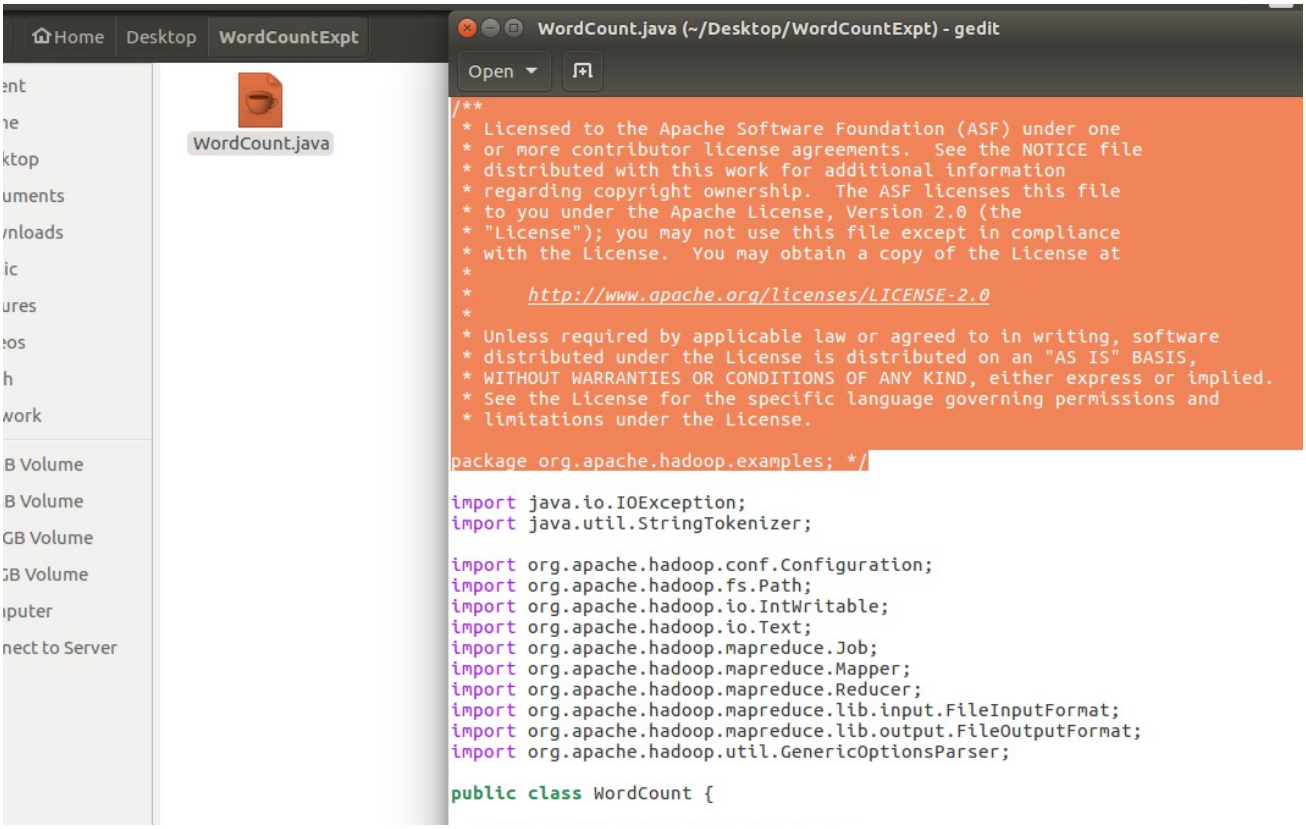


4. Create one folder on Desktop -> WordCountExpt



5. You can download WordCount.java from {/usr/local/hadoop/share/hadoop/mapreduce/sources/hadoop-mapreduce-examples-2.7.7-sources.jar} or you can run your own version.

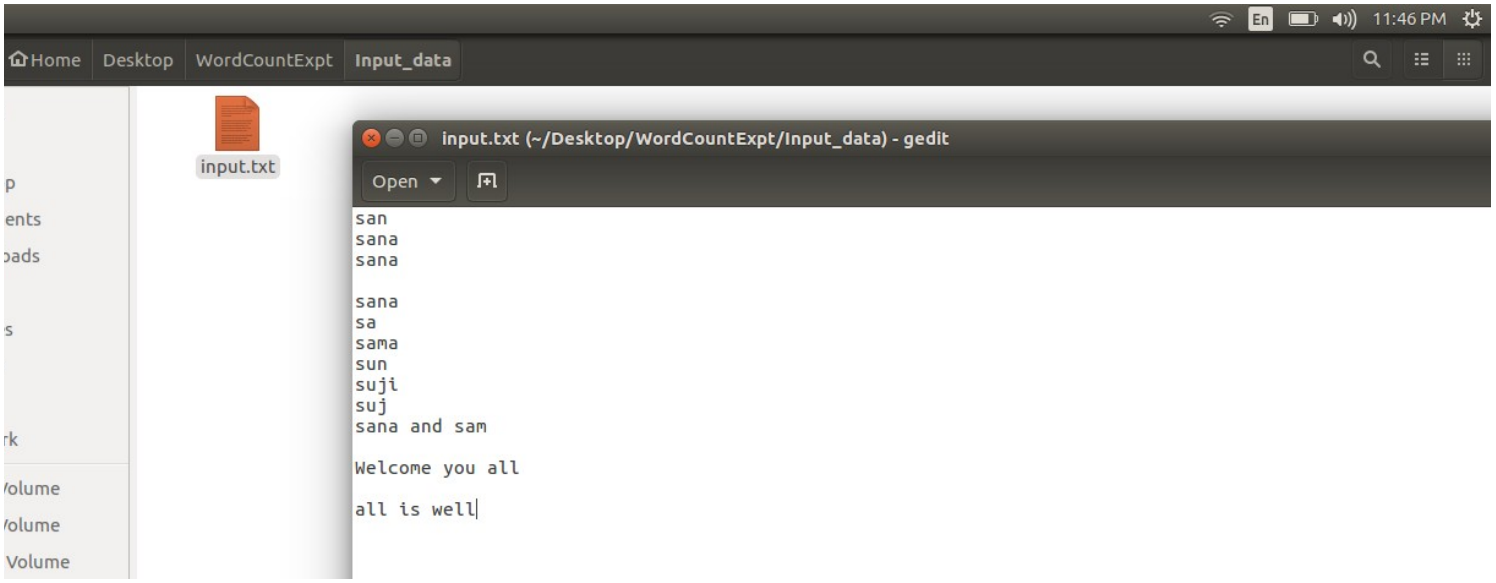
Note:
a. the above jar file copy on Desktop and Extract at Desktop
b. Copy the file WorCount.java from the path {/home/dbit/Desktop/hadoop-mapreduce-examples-2.7.7-sources/org/apache/hadoop/examples/WordCount.java} and paste it in the folder “WordCountExpt”.
c. Open the file “WordCount.java” and comment the below line and save the file.
/* package org.apache.hadoop.examples; */



6. Create a folder for Input data

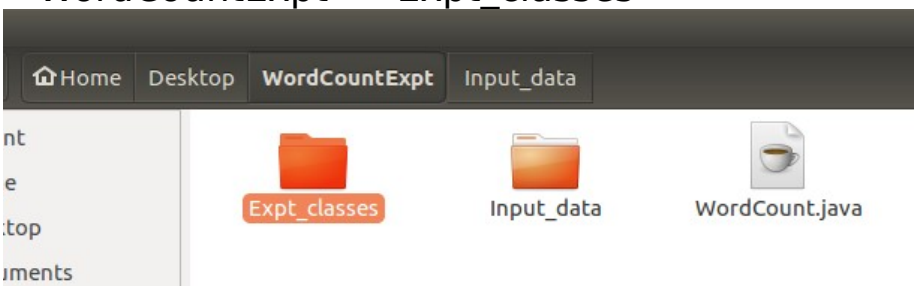
Desktop -> WordCountExpt -> Input_data

Inside Input_data folder, create an input file “input.txt” and add some text.



7. Create a new folder to hold the java class files

Desktop -> WordCountExpt -> Expt_classes

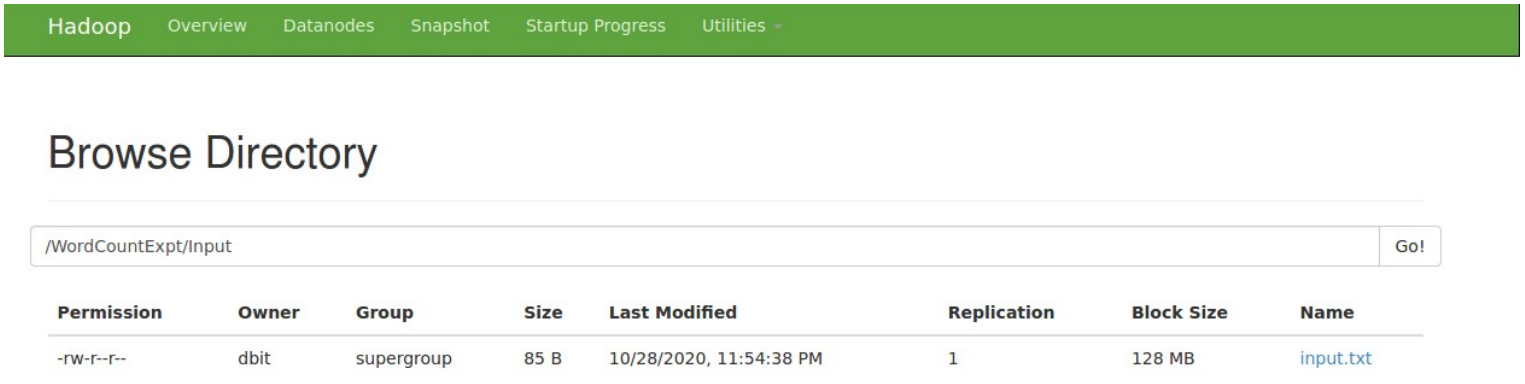


8.
export HADOOP_CLASSPATH=$(hadoop classpath)
echo $HADOOP_CLASSPATH

```
dbit@compstaff2:~$ export HADOOP_CLASSPATH=$(hadoop classpath)
dbit@compstaff2:~$ echo $HADOOP_CLASSPATH
/usr/local/hadoop/etc/hadoop:/usr/local/hadoop/share/hadoop/common/lib/*:/usr/local/hadoop/sha
/hdfs:/usr/local/hadoop/share/hadoop/hdfs/lib/*:/usr/local/hadoop/share/hadoop/hdfs/*:/usr/loc
op/share/hadoop/yarn/*:/usr/local/hadoop/share/hadoop/mapreduce/lib/*:/usr/local/hadoop/share/
usr/local/hadoop/share/hadoop/common/lib/*:/usr/local/hadoop/share/hadoop/common/*:/usr/local/
hadoop/hdfs/lib/*:/usr/local/hadoop/share/hadoop/hdfs/*:/usr/local/hadoop/share/hadoop/yarn/li
cal/hadoop/share/hadoop/mapreduce/lib/*:/usr/local/hadoop/share/hadoop/mapreduce/*:/usr/local/
common/lib/*:/usr/local/hadoop/share/hadoop/common/*:/usr/local/hadoop/share/hadoop/hdfs:/usr/
adoop/share/hadoop/hdfs/*:/usr/local/hadoop/share/hadoop/yarn/lib/*:/usr/local/hadoop/share/ha
uce/lib/*:/usr/local/hadoop/share/hadoop/mapreduce/*:/contrib/capacity-scheduler/*.jar:/contri
duler/*.jar
dbit@compstaff2:~$
```

9. Create folder in HDFS:
/WordCountExpt
/WordCountExpt/Input
/WordCountExpt/Input/input.txt

```
dbit@compstaff2:~$ hadoop fs -mkdir /WordCountExpt
dbit@compstaff2:~$ hadoop fs -mkdir /WordCountExpt/Input
dbit@compstaff2:~$ hadoop fs -put /home/dbit/Desktop/WordCountExpt/Input_data/input.txt /WordCountExpt/Input
dbit@compstaff2:~$
```



10. Change the current directory to the WordCount Expt directory

```
dbit@compstaff2:~$ cd /home/dbit/Desktop/WordCountExpt/
dbit@compstaff2:~/Desktop/WordCountExpt$
```

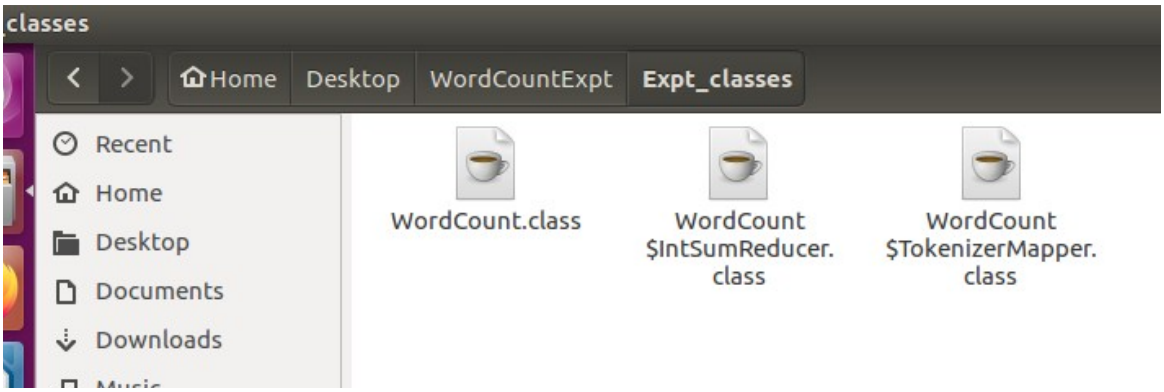
11. Compile the java code

javac -classpath ${HADOOP_CLASSPATH} -d <classes folder> <Expt Java file>

javac -classpath ${HADOOP_CLASSPATH} -d /home/dbit/Desktop/WordCountExpt/Expt_classes /home/dbit/Desktop/WordCountExpt/WordCount.java

```
mpstaff2:~/Desktop/WordCountExpt$ javac -classpath ${HADOOP_CLASSPATH} -d '/home/dbit/Desktop/WordCountExpt/Expt_classes' '/home/dbit/De
ordCountExpt/WordCount.java'
mpstaff2:~/Desktop/WordCountExpt$
```

Now check the files

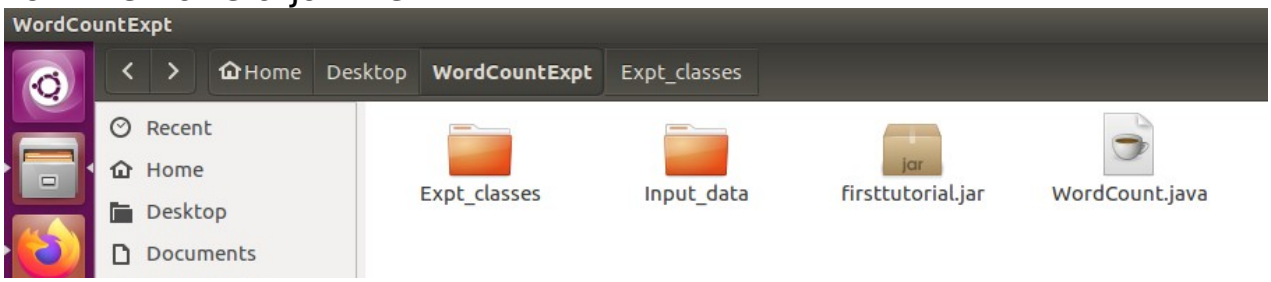


12. put the output files in one jar file :

jar -cvf <jar file name> -C <classes folder>

```
dbit@compstaff2:~/Desktop/WordCountExpt$ jar -cvf firsttutorial.jar -C /home/dbit/Desktop/WordCountExpt/Expt_classes/ .
added manifest
adding: WordCount.class(in = 1907) (out= 1039)(deflated 45%)
adding: WordCount$IntSumReducer.class(in = 1739) (out= 740)(deflated 57%)
adding: WordCount$TokenizerMapper.class(in = 1736) (out= 755)(deflated 56%)
dbit@compstaff2:~/Desktop/WordCountExpt$
```

Now we have a jar file



13. Now run this jar file on hadoop

hadoop jar <jar file name> <class name> <hdfs Input folder> <hdfs output folder>

hadoop jar '/home/dbit/Desktop/WordCountExpt/firsttutorial.jar' WordCount /WordCountExpt/Input /WordCountExpt/Output

```
adding: WordCount$TokenizerMapper.class(in = 1736) (out= 755)(deflated 56%)
dbit@compstaff2:~/Desktop/WordCountExpt$ hadoop jar '/home/dbit/Desktop/WordCountExpt/firsttutorial.jar' WordCount /WordCountExpt/Input /WordCo
untExpt/Output
20/10/29 00:13:21 INFO client.RMProxy: Connecting to ResourceManager at /0.0.0.0:8032
20/10/29 00:13:22 INFO input.FileInputFormat: Total input paths to process : 1
20/10/29 00:13:22 INFO mapreduce.JobSubmitter: number of splits:1
20/10/29 00:13:22 INFO mapreduce.JobSubmitter: Submitting tokens for job: job_1603905811233_0002
20/10/29 00:13:22 INFO impl.YarnClientImpl: Submitted application application_1603905811233_0002
20/10/29 00:13:23 INFO mapreduce.Job: The url to track the job: http://compstaff2:8088/proxy/application_1603905811233_0002/
20/10/29 00:13:23 INFO mapreduce.Job: Running job: job_1603905811233_0002
```

```
compstaff2: ~/Desktop/WordCountExpt
                Data-local map tasks=1
                Total time spent by all maps in occupied slots (ms)=4991
                Total time spent by all reduces in occupied slots (ms)=4382
                Total time spent by all map tasks (ms)=4991
                Total time spent by all reduce tasks (ms)=4382
                Total vcore-milliseconds taken by all map tasks=4991
                Total vcore-milliseconds taken by all reduce tasks=4382
                Total megabyte-milliseconds taken by all map tasks=5110784
                Total megabyte-milliseconds taken by all reduce tasks=4487168
        Map-Reduce Framework
                Map input records=16
                Map output records=18
                Map output bytes=153
                Map output materialized bytes=152
                Input split bytes=116
                Combine input records=18
                Combine output records=14
                Reduce input groups=14
                Reduce shuffle bytes=152
                Reduce input records=14
                Reduce output records=14
                Spilled Records=28
                Shuffled Maps =1
                Failed Shuffles=0
                Merged Map outputs=1
                GC time elapsed (ms)=175
                CPU time spent (ms)=1890
                Physical memory (bytes) snapshot=431947776
                Virtual memory (bytes) snapshot=3835953152
                Total committed heap usage (bytes)=295174144
        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=85
        File Output Format Counters
                Bytes Written=90
dbit@compstaff2:~/Desktop/WordCountExpt$
```

14. Check the output

hadoop fs -cat /WordCountExpt/Output/part-r-00000

```
dbit@compstaff2:~/Desktop/WordCountExpt$ hadoop fs -cat /WordCountExpt/Output/part-r-00000
Welcome 1
all     2
and     1
is      1
sa      1
sam     1
sama    1
san     1
suj     1
suji    1
sun     1
well    1
you     1
dbit@compstaff2:~/Desktop/WordCountExpt$
```

System Settings