**Project Members:** Ruchir Vani(#01416861), Abhijeet Thakare(#01426481)

**Project Title:** Inverted Indexing using Hadoop's MapReduce and MongoDB

**Tools used:**

- Hadoop(MapReduce)
- MongoDB

**What we did?**

- Installed Hadoop framework on Ubuntu.
- Installed MongoDB
- Created inverted index using Hadoop's MapReduce
- Saved inverted index in MongoDB(because NoSQL data model is suitable)

**Project Description:**

We uploaded input data consisting of text files and a file containing insignificant word to DFS. Using Hadoop's MapReduce created inverted index where each keyword has list of documents it was found in. This inverted index is outputted in output directory on dfs. We also saved inverted index in MongoDB. We wrote a simple java program to query MongoDB where argument is keyword and result is list of documents in which the keyword is present.

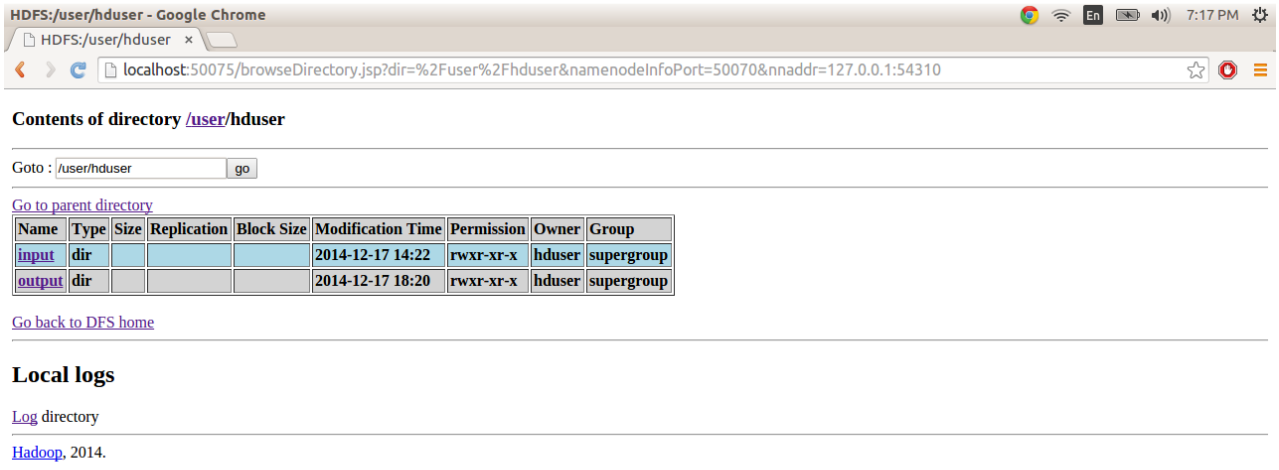
**What we learned?**

- Hadoop Installation(quite a lengthy process)
    - significance of name-node,data-node,job-tracker,task-tracker
- Working of MapReduce
    - flow of computation through map and reduce phases
- commands for managing Hadoop's DFS

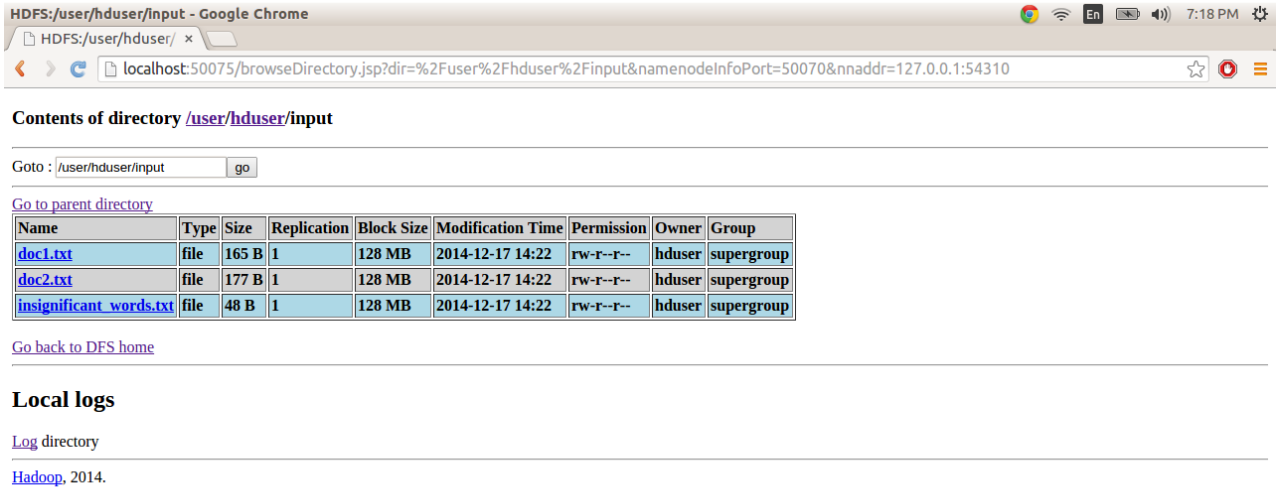
- MongoDB's data model
    - practically used (key,value) storage, column,column family which we learned in class
- JAVA API for MongoDB

## Few Screenshots:

### 1. HDFS




### 2. Input directory in hdfs



## 3. Output directory in hdfs

HDFS:/user/hduser/output - Google Chrome

HDFS:/user/hduser/

localhost:50075/browseDirectory.jsp?dir=%2Fuser%2Fhduser%2Foutput&namenodeInfoPort=50070&nnaddr=127.0.0.1:54310

**Contents of directory /user/hduser/output**

Goto : /user/hduser/output go

Go to parent directory

| Name | Type | Size | Replication | Block Size | Modification Time | Permission | Owner | Group |
|---|---|---|---|---|---|---|---|---|
| _SUCCESS | file | 0 B | 1 | 128 MB | 2014-12-17 18:20 | rw-r--r-- | hduser | supergroup |
| part-00000 | file | 572 B | 1 | 128 MB | 2014-12-17 18:20 | rw-r--r-- | hduser | supergroup |

Go back to DFS home

**Local logs**

Log directory

Hadoop, 2014.

## 4. Inverted index

HDFS:/user/hduser/output/part-00000 - Google Chrome

HDFS:/user/hduser/

localhost:50075/browseBlock.jsp?blockId=1073741929&blockSize=572&genstamp=1105&filename=%2Fuser%2Fhduser%2Foutput%2Fpart-00000&d.

**File: /user/hduser/output/part-00000**

Goto : /user/hduser/output go

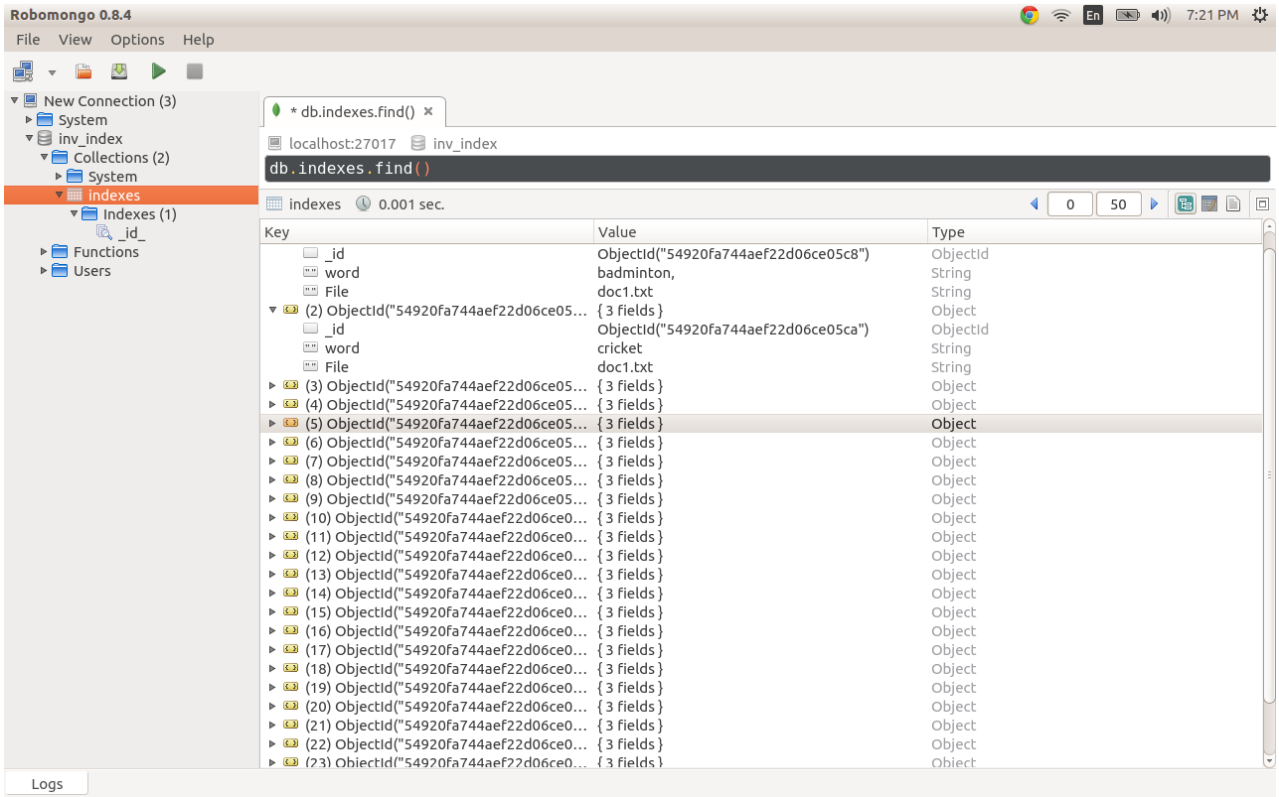
*Go back to dir listing*
Advanced view/download options

```
abhijeet        doc2.txt
badminton,      doc1.txt
computer        doc1.txt, doc2.txt
cricket doc1.txt
cricket,        doc2.txt
from    doc2.txt, doc1.txt
graduate        doc1.txt, doc2.txt
gujrat, doc1.txt
hello   doc1.txt, doc2.txt
hobbies doc2.txt, doc1.txt
india   doc1.txt, doc2.txt
lowell  doc2.txt, doc1.txt
maharashtra,    doc2.txt
my      doc2.txt, doc1.txt
of      doc1.txt, doc2.txt
photography     doc2.txt
playing doc1.txt
ruchir  doc1.txt
science doc1.txt, doc2.txt
student doc2.txt, doc1.txt
studying        doc1.txt, doc2.txt
swimmimg,       doc2.txt
tennis, doc2.txt, doc1.txt
umass   doc1.txt, doc2.txt
world,  doc2.txt, doc1.txt
```

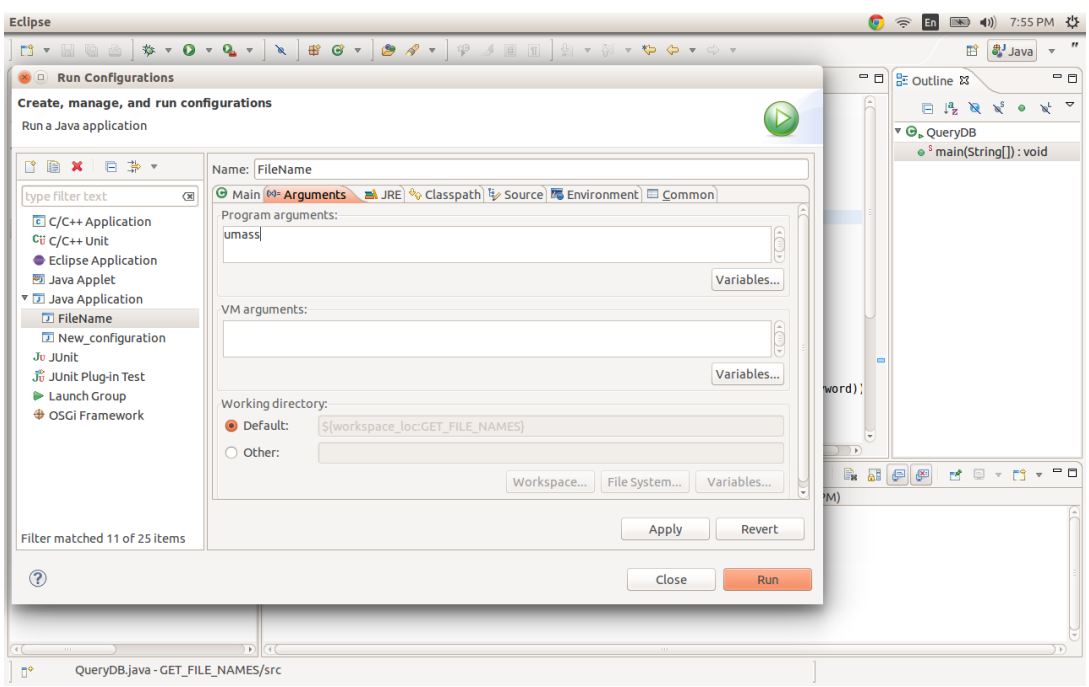
Download this file
Tail this file
**Chunk size to view (in bytes, up to file's DFS block size):** 32768 Refresh

**Total number of blocks: 1**
1073741929: 127.0.0.1:50010 View Block Info

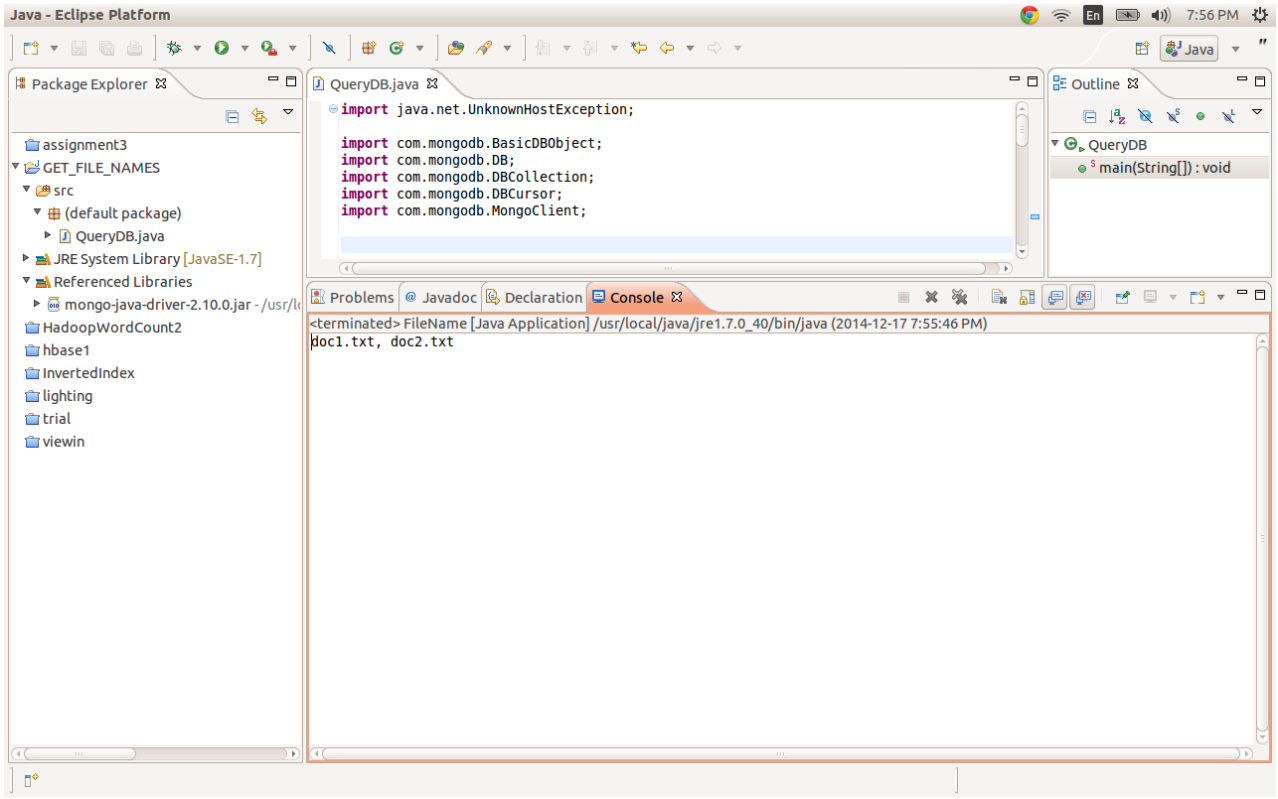
## 5. Inverted index stored in mongoDB




## 6. Query DB by keyword



## 7. Result of above query




**Problems faced -**

- **Integration of HBase with Hadoop -** HBase worked fine from its shell and we could do CRUD operations there. But, could not get it running in Hadoop environment because of dependencies were not been resolved. We are still wondering and trying to figure out the reason because it worked fine with MongoDB.