Lab 1.

1.1 Create table congress_employee

$ create 'congress_employee','emp','sal','pos';

1.2 put some rows in tables.

$ put 'congress_employee','e1','emp:name',' Abrams, Adam W.','emp:status','emp','sal:val','
66300.00','pos;title','director';

$ put 'congress_employee','e2','emp:name',' Baskerville, Jr.','emp:status','emp','sal:val',' 47532.00,'pos:title','asst leader';

$ put 'congress_employee','e3','emp:name',' Chaifetz, Samantha L.','emp:status','cont','sal:val','

123758.00,'pos;title','Researcher';

```
hbase(main):021:0> put 'congress_employee','r1','emp:name','Abramas,adams'
0 row(s) in 0.0460 seconds

hbase(main):022:0> put 'congress_employee','r1','emp:status','employee'
0 row(s) in 0.0050 seconds

hbase(main):023:0> scan 'congress_employee'
ROW                              COLUMN+CELL
 r1                              column=emp:name, timestamp=1575396229348, value=Abramas,adams
 r1                              column=emp:status, timestamp=1575396255028, value=employee
1 row(s) in 0.0130 seconds
```

```
hbase(main):026:0> put 'congress_employee','r2','emp:name','Baskerville,Jr'
0 row(s) in 0.0150 seconds

hbase(main):027:0> put 'congress_employee','r2','emp:status','employee'
0 row(s) in 0.0050 seconds

hbase(main):028:0> put 'congress_employee','r2','sal:val','475320.00'
0 row(s) in 0.0050 seconds

hbase(main):029:0> put 'congress_employee','r2','pos:title','asst.Leader'
0 row(s) in 0.0060 seconds

hbase(main):030:0> put 'congress_employee','r3','emp:name','chaifetz,Samanthal'
0 row(s) in 0.0220 seconds

hbase(main):031:0> put 'congress_employee','r3','emp:status','cont'
0 row(s) in 0.0050 seconds

hbase(main):032:0> put 'congress_employee','r3','sal:val','123758.00'
0 row(s) in 0.0060 seconds

hbase(main):033:0> put 'congress_employee','r3','pos:title','researcher'
0 row(s) in 0.0050 seconds
```

1.3 scan table

```
$ scan 'congress_employee';
```

```
hbase(main):034:0> scan 'congress_employee'
ROW                          COLUMN+CELL
 r1                          column=emp:name, timestamp=1575396229348, value=Abramas,adams
 r1                          column=emp:status, timestamp=1575396255028, value=employee
 r1                          column=pos:title, timestamp=1575397117425, value=director
 r1                          column=sal:val, timestamp=1575397093541, value=63000.00
 r2                          column=emp:name, timestamp=1575397178317, value=Baskerville,Jr
 r2                          column=emp:status, timestamp=1575397191263, value=employee
 r2                          column=pos:title, timestamp=1575397238737, value=asst.Leader
 r2                          column=sal:val, timestamp=1575397220071, value=475320.00
 r3                          column=emp:name, timestamp=1575397617640, value=chaifetz,Samanthal
 r3                          column=emp:status, timestamp=1575397637185, value=cont
 r3                          column=pos:title, timestamp=1575397697972, value=researcher
 r3                          column=sal:val, timestamp=1575397663190, value=123758.00
3 row(s) in 0.0470 seconds

hbase(main):035:0> █
```

1.4 disable table

```
$ disable 'congress_employee'
```

```
hbase(main):035:0> disable 'congress_employee'
0 row(s) in 2.3780 seconds

hbase(main):036:0> █
```

1.5   enable table

$ enable 'congress_employee'

```
hbase(main):036:0> enable 'congress_employee'
0 row(s) in 1.3290 seconds
                _
```

1.6   get

$ get 'congress_employee','e2';

```
hbase(main):037:0> get 'congress_employee','r2'
COLUMN                                    CELL
 emp:name                                 timestamp=1575397178317, value=Baskerville,Jr
 emp:status                               timestamp=1575397191263, value=employee
 pos:title                                timestamp=1575397238737, value=asst.Leader
 sal:val                                  timestamp=1575397220071, value=475320.00
4 row(s) in 0.0150 seconds
```

1.7   delete table

$. Drop 'congress_employee';

```
hbase(main):038:0> disable 'congress_employee'
0 row(s) in 2.3260 seconds

hbase(main):039:0> drop 'congress_employee'
0 row(s) in 1.3470 seconds

hbase(main):040:0> list
TABLE
htest
1 row(s) in 0.0090 seconds

=> ["htest"]
hbase(main):041:0> █
```

Lab 2.

By looking at provided labour data csv come up with table and column family structure and

Repeat above steps like create table, put data, scan, get etc.

Lab 3. Versions

Lab 4. Use importtsv and bulkfileupload

4.1 importtsv

First copy copy csv file to hdfs.

```
$ hbase org.apache.hadoop.hbase.mapreduce.ImportTsv -
Dimporttsv.separator=',' -Dimporttsv.columns=HBASE_ROW_KEY,
cf1:column, cf2:column, cf3:column tablename /hdfs-input folder
```

Completebulkload

```
$hbase org.apache.hadoop.hbase.mapreduce.ImportTsv -
Dimporttsv.separator=',' -Dimporttsv.columns=HBASE_ROW_KEY,
cf1:column, cf2:column, cf3:column -
Dimporttsv.bulk.output=hdfs:///hdfs-output folder tablename
/hdfs-input folder
```

```
$hbase
org.apache.hadoop.hbase.mapreduce.LoadIncrementalHFiles
hdfs:///test_sf tablename
```

```
[cloudera@quickstart ~]$ hbase org.apache.hadoop.hbase.mapreduce.ImportTsv -Dimporttsv.separator=',' -Dimporttsv.columns=HBASE_ROW_KEY,cf1:c1,cf1:c2,cf1:c3,cf2:c4,cf2:c
5,cf2:c6,cf3:c7,cf3:c8,cf3:c9 avengers /user/cloudera/avengers.csv
2019-12-09 05:50:33,879 INFO  [main] zookeeper.RecoverableZooKeeper: Process identifier=hconnection-0x1c5c9cd8 connecting to ZooKeeper ensemble=localhost:2181
2019-12-09 05:50:33,926 INFO  [main] zookeeper.ZooKeeper: Client environment:zookeeper.version=3.4.5-cdh5.13.0--1, built on 10/04/2017 18:04 GMT
2019-12-09 05:50:33,926 INFO  [main] zookeeper.ZooKeeper: Client environment:host.name=quickstart.cloudera
2019-12-09 05:50:33,926 INFO  [main] zookeeper.ZooKeeper: Client environment:java.version=1.7.0_67
2019-12-09 05:50:33,926 INFO  [main] zookeeper.ZooKeeper: Client environment:java.vendor=Oracle Corporation
2019-12-09 05:50:33,926 INFO  [main] zookeeper.ZooKeeper: Client environment:java.home=/usr/java/jdk1.7.0_67-cloudera/jre
2019-12-09 05:50:33,926 INFO  [main] zookeeper.ZooKeeper: Client environment:java.class.path=/usr/lib/hbase/bin/../conf:/usr/java/jdk1.7.0_67-cloudera/lib/tools.jar:/us
r/lib/hbase/bin/..:/usr/lib/hbase/bin/../lib/activation-1.1.jar:/usr/lib/hbase/bin/../lib/apacheds-i18n-2.0.0-M15.jar:/usr/lib/hbase/bin/../lib/apacheds-kerberos-codec-
2.0.0-M15.jar:/usr/lib/hbase/bin/../lib/api-asn1-api-1.0.0-M20.jar:/usr/lib/hbase/bin/../lib/api-util-1.0.0-M20.jar:/usr/lib/hbase/bin/../lib/asm-3.2.jar:/usr/lib/hbase
/bin/../lib/avro.jar:/usr/lib/hbase/bin/../lib/aws-java-sdk-bundle-1.11.134.jar:/usr/lib/hbase/bin/../lib/commons-beanutils-1.9.2.jar:/usr/lib/hbase/bin/../lib/commons-
beanutils-core-1.8.0.jar:/usr/lib/hbase/bin/../lib/commons-cli-1.2.jar:/usr/lib/hbase/bin/../lib/commons-codec-1.9.jar:/usr/lib/hbase/bin/../lib/commons-collections-3.2
.2.jar:/usr/lib/hbase/bin/../lib/commons-compress-1.4.1.jar:/usr/lib/hbase/bin/../lib/commons-configuration-1.6.jar:/usr/lib/hbase/bin/../lib/commons-daemon-1.0.13.jar:
/usr/lib/hbase/bin/../lib/commons-digester-1.8.jar:/usr/lib/hbase/bin/../lib/commons-el-1.0.jar:/usr/lib/hbase/bin/../lib/commons-httpclient-3.1.jar:/usr/lib/hbase/bin/
../lib/commons-io-2.4.jar:/usr/lib/hbase/bin/../lib/commons-lang-2.6.jar:/usr/lib/hbase/bin/../lib/commons-logging-1.2.jar:/usr/lib/hbase/bin/../lib/commons-math-2.1.ja
r:/usr/lib/hbase/bin/../lib/commons-math3-3.1.1.jar:/usr/lib/hbase/bin/../lib/commons-net-3.1.jar:/usr/lib/hbase/bin/../lib/core-3.1.1.jar:/usr/lib/hbase/bin/../lib/cur
ator-client-2.7.1.jar:/usr/lib/hbase/bin/../lib/curator-framework-2.7.1.jar:/usr/lib/hbase/bin/../lib/curator-recipes-2.7.1.jar:/usr/lib/hbase/bin/../lib/disruptor-3.3.
0.jar:/usr/lib/hbase/bin/../lib/findbugs-annotations-1.3.9-1.jar:/usr/lib/hbase/bin/../lib/gson-2.2.4.jar:/usr/lib/hbase/bin/../lib/guava-12.0.1.jar:/usr/lib/hbase/bin/
../lib/hamcrest-core-1.3.jar:/usr/lib/hbase/bin/../lib/hbase-annotations-1.2.0-cdh5.13.0.jar:/usr/lib/hbase/bin/../lib/hbase-annotations-1.2.0-cdh5.13.0-tests.jar:/usr/
lib/hbase/bin/../lib/hbase-client-1.2.0-cdh5.13.0.jar:/usr/lib/hbase/bin/../lib/hbase-common-1.2.0-cdh5.13.0.jar:/usr/lib/hbase/bin/../lib/hbase-common-1.2.0-cdh5.13.0-
tests.jar:/usr/lib/hbase/bin/../lib/hbase-examples-1.2.0-cdh5.13.0.jar:/usr/lib/hbase/bin/../lib/hbase-external-blockcache-1.2.0-cdh5.13.0.jar:/usr/lib/hbase/bin/../lib
/hbase-hadoop2-compat-1.2.0-cdh5.13.0.jar:/usr/lib/hbase/bin/../lib/hbase-hadoop2-compat-1.2.0-cdh5.13.0-tests.jar:/usr/lib/hbase/bin/../lib/hbase-hadoop-compat-1.2.0-c
dh5.13.0.jar:/usr/lib/hbase/bin/../lib/hbase-hadoop-compat-1.2.0-cdh5.13.0-tests.jar:/usr/lib/hbase/bin/../lib/hbase-it-1.2.0-cdh5.13.0.jar:/usr/lib/hbase/bin/../lib/hb
ase-it-1.2.0-cdh5.13.0-tests.jar:/usr/lib/hbase/bin/../lib/hbase-prefix-tree-1.2.0-cdh5.13.0.jar:/usr/lib/hbase/bin/../lib/hbase-procedure-1.2.0-cdh5.13.0.jar:/usr/lib/
hbase/bin/../lib/hbase-protocol-1.2.0-cdh5.13.0.jar:/usr/lib/hbase/bin/../lib/hbase-resource-bundle-1.2.0-cdh5.13.0.jar:/usr/lib/hbase/bin/../lib/hbase-rest-1.2.0-cdh5.
13.0.jar:/usr/lib/hbase/bin/../lib/hbase-rsgroup-1.2.0-cdh5.13.0.jar:/usr/lib/hbase/bin/../lib/hbase-rsgroup-1.2.0-cdh5.13.0-tests.jar:/usr/lib/hbase/bin/../lib/hbase-s
erver-1.2.0-cdh5.13.0.jar:/usr/lib/hbase/bin/../lib/hbase-server-1.2.0-cdh5.13.0-tests.jar:/usr/lib/hbase/bin/../lib/hbase-shell-1.2.0-cdh5.13.0.jar:/usr/lib/hbase/bin/
../lib/hbase-spark-1.2.0-cdh5.13.0.jar:/usr/lib/hbase/bin/../lib/hbase-thrift-1.2.0-cdh5.13.0.jar:/usr/lib/hbase/bin/../lib/high-scale-lib-1.1.1.jar:/usr/lib/hbase/bin/
../lib/hsqldb-1.8.0.10.jar:/usr/lib/hbase/bin/../lib/htrace-core-3.2.0-incubating.jar:/usr/lib/hbase/bin/../lib/htrace-core4-4.0.1-incubating.jar:/usr/lib/hbase/bin/../
```

```
hbase(main):002:0> scan 'avengers'                                                    .1
ROW                COLUMN+CELL                                                         a
 1                 column=cf1:c1, timestamp=1575899430337, value=Kaluu
 1                 column=cf1:c2, timestamp=1575899430337, value=YES                   on
 1                 column=cf1:c3, timestamp=1575899430337, value=MALE               ≡ _6
 1                 column=cf2:c4, timestamp=1575899430337, value=15-Jan                se
 1                 column=cf2:c5, timestamp=1575899430337, value=2015                  .0
 1                 column=cf2:c6, timestamp=1575899430337, value=0                     .0
 1                 column=cf3:c7, timestamp=1575899430337, value=Full                  /c
 1                 column=cf3:c8, timestamp=1575899430337, value=NO                    co
 2                 column=cf1:c1, timestamp=1575899430337, value=Monica Chang          on
 2                 column=cf1:c2, timestamp=1575899430337, value=YES                   hb
 2                 column=cf1:c3, timestamp=1575899430337, value=FEMALE                s-
 2                 column=cf2:c4, timestamp=1575899430337, value=13-Sep                b/
 2                 column=cf2:c5, timestamp=1575899430337, value=2013                  at
 2                 column=cf2:c6, timestamp=1575899430337, value=2                     :/
 2                 column=cf3:c7, timestamp=1575899430337, value=Full                  se
 2                 column=cf3:c8, timestamp=1575899430337, value=NO                    3.
 3                 column=cf1:c1, timestamp=1575899430337, value=                      te
 3                 column=cf1:c2, timestamp=1575899430337, value=YES                   te
 3                 column=cf1:c3, timestamp=1575899430337, value=MALE                  ./
```

:-lt-1.2.0-cdh5.13.0-tests.jar:/usr/lib/hbase/bin/../lib/hbase-prefix-tree-1.2.0-cdh5.13.0.jar:/usr/lib/h