

Lab 9

Hand-on: Hbase basic data manipulation

6.

```
create 'student', {NAME=>'personal'}, {NAME=>'skill'}
```

```
hbase(main):001:0> create 'student', {NAME=>'personal'}, {NAME=>'skill'}  
Created table student  
Took 1.6903 seconds  
=> Hbase::Table - student  
hbase(main):002:0>
```

7.

```
list
```

```
hbase(main):002:0> list
TABLE
student
1 row(s)
Took 0.0623 seconds
=> ["student"]
hbase(main):003:0> |
```

8.

```
put 'student', 'A1', 'personal:name', 'Phond'  
put 'student', 'A1', 'personal:age', 25  
put 'student', 'A1', 'skill:programming', 'Java'  
put 'student', 'A1', 'skill:speaking', 'Thai'
```

```
hbase(main):003:0> put 'student', 'A1', 'personal:name', 'Phond'  
Took 0.3324 seconds  
hbase(main):004:0> put 'student', 'A1', 'personal:age', 25  
Took 0.0236 seconds  
hbase(main):005:0> put 'student', 'A1', 'skill:programming', 'Java'  
Took 0.0089 seconds  
hbase(main):006:0> put 'student', 'A1', 'skill:speaking', 'Thai'  
Took 0.0075 seconds  
hbase(main):007:0>
```

9.

```
put 'student', 'A2', 'personal:name', 'Poom'  
put 'student', 'A2', 'personal:age', 25  
put 'student', 'A2', 'skill:programming', 'C#'  
put 'student', 'A2', 'skill:speaking', 'Thai'
```

```
hbase(main):007:0> put 'student', 'A2', 'personal:name', 'Poom'  
Took 0.0179 seconds  
hbase(main):008:0> put 'student', 'A2', 'personal:age', 25  
Took 0.0067 seconds  
hbase(main):009:0> put 'student', 'A2', 'skill:programming', 'C#'  
Took 0.0159 seconds  
hbase(main):010:0> put 'student', 'A2', 'skill:speaking', 'Thai'  
Took 0.0109 seconds  
hbase(main):011:0>
```

10.

```
scan 'student'
```

```
hbase(main):011:0> scan 'student'
ROW          COLUMN+CELL
A1           column=personal:age, timestamp=1556675725325, value=25
A1           column=personal:name, timestamp=1556675720363, value=Phond
A1           column=skill:programming, timestamp=1556675732284, value=Java
A1           column=skill:speaking, timestamp=1556675735168, value=Thai
A2           column=personal:age, timestamp=1556675880746, value=25
A2           column=personal:name, timestamp=1556675876405, value=Poom
A2           column=skill:programming, timestamp=1556675883989, value=C#
A2           column=skill:speaking, timestamp=1556675887091, value=Thai
2 row(s)
Took 0.0736 seconds
hbase(main):012:0> |
```

scan เป็นคำสั่ง query ข้อมูลใน Hbase

11.

```
scan 'student', {COLUMNS=>['personal:age']}
```

```
hbase(main):012:0> scan 'student', {COLUMNS=>['personal:age']}  
ROW          COLUMN+CELL  
  A1             column=personal:age, timestamp=1556675725325, value=25  
  A2             column=personal:age, timestamp=1556675880746, value=25  
2 row(s)  
Took 0.1326 seconds  
hbase(main):013:0>
```

ข้อ 8. เพิ่มข้อมูล A1 จากตารางในโจทย์ลงฐานข้อมูล

ข้อ 9. เพิ่มข้อมูลตัวเองลงฐานข้อมูล

12.

```
scan 'student', {COLUMNS=>['personal:age'], LIMIT=>1}
```

```
hbase(main):013:0> scan 'student', {COLUMNS=>['personal:age'], LIMIT=>1}
ROW
A1          COLUMN+CELL
1 row(s)    column=personal:age, timestamp=1556675725325, value=25
Took 0.0531 seconds
hbase(main):014:0> |
```

13.

```
get 'student', 'A1'
```

```
hbase(main):016:0> get 'student', 'A1'
COLUMN                                CELL
personal:age                          timestamp=1556675725325, value=25
personal:name                         timestamp=1556675720363, value=Phond
skill:programming                    timestamp=1556675732284, value=Java
skill:speaking                       timestamp=1556675735168, value=Thai
1 row(s)
Took 0.0381 seconds
hbase(main):017:0>
```

ได้ข้อมูลคอลัมน์ของ A1 มาทั้งหมด

14.

```
get 'student', 'A1', {COLUMN => 'skill:programming'}
```

```
hbase(main):017:0> get 'student', 'A1', {COLUMN => 'skill:programming'}  
COLUMN          CELL  
skill:programming    timestamp=1556675732284, value=Java  
1 row(s)  
Took 0.0279 seconds  
hbase(main):018:0>
```

15.

scan จะ query ข้อมูล row ที่เกี่ยวข้องมาทั้งหมด แสดงผลทั้ง row key, columns, cells

get จะ query ข้อมูลมาเพียง row เดียวตาม row key ที่กำหนด แสดงผลเฉพาะ columns, cells

16.

```
put 'student', 'A1', 'skill:programming', 'Python'
```

```
hbase(main):018:0> put 'student', 'A1', 'skill:programming', 'Python'  
Took 0.0102 seconds  
hbase(main):019:0>
```

17.

```
alter 'student', {NAME => 'friends'}
describe 'student'
```

```
hbase(main):020:0> alter 'student', {NAME => 'friends'}
Updating all regions with the new schema...
1/1 regions updated.
Done.
Took 2.2682 seconds
hbase(main):021:0> |
```

```
hbase(main):045:0> describe 'student'
Table student is ENABLED
student
COLUMN FAMILIES DESCRIPTION
{NAME => 'friends', VERSIONS => '1', EVICT_BLOCKS_ON_CLOSE => 'false', NEW_VERSION_BEHAVIOR => 'false',
KEEP_DELETED_CELLS => 'FALSE', CACHE_DATA_ON_WRITE => 'false', DATA_BLOCK_ENCODING => 'NONE', TTL => 'FOREVER',
MIN_VERSIONS => '0', REPLICATION_SCOPE => '0', BLOOMFILTER => 'ROW', CACHE_INDEX_ON_WRITE => 'false', IN_MEMORY => 'false',
CACHE_BLOOMS_ON_WRITE => 'false', PREFETCH_BLOCKS_ON_OPEN => 'false', COMPRESSION => 'NONE', BLOCKCACHE => 'true', BLOCKSIZE => '65536'}
{NAME => 'personal', VERSIONS => '1', EVICT_BLOCKS_ON_CLOSE => 'false', NEW_VERSION_BEHAVIOR => 'false',
KEEP_DELETED_CELLS => 'FALSE', CACHE_DATA_ON_WRITE => 'false', DATA_BLOCK_ENCODING => 'NONE', TTL => 'FOREVER',
MIN_VERSIONS => '0', REPLICATION_SCOPE => '0', BLOOMFILTER => 'ROW', CACHE_INDEX_ON_WRITE => 'false', IN_MEMORY => 'false',
CACHE_BLOOMS_ON_WRITE => 'false', PREFETCH_BLOCKS_ON_OPEN => 'false', COMPRESSION => 'NONE', BLOCKCACHE => 'true', BLOCKSIZE => '65536'}
{NAME => 'skill', VERSIONS => '1', EVICT_BLOCKS_ON_CLOSE => 'false', NEW_VERSION_BEHAVIOR => 'false',
KEEP_DELETED_CELLS => 'FALSE', CACHE_DATA_ON_WRITE => 'false', DATA_BLOCK_ENCODING => 'NONE', TTL => 'FOREVER',
MIN_VERSIONS => '0', REPLICATION_SCOPE => '0', BLOOMFILTER => 'ROW', CACHE_INDEX_ON_WRITE => 'false', IN_MEMORY => 'false',
CACHE_BLOOMS_ON_WRITE => 'false', PREFETCH_BLOCKS_ON_OPEN => 'false', COMPRESSION => 'NONE', BLOCKCACHE => 'true', BLOCKSIZE => '65536'}
3 row(s)
Took 0.0638 seconds
```

หลังจากคำสั่ง alter ได้เพิ่ม column family ใหม่ลง table

18.

```
alter 'student', 'delete' => 'friends'  
describe 'student'
```

```
hbase(main):046:0> alter 'student', 'delete' => 'friends'  
Updating all regions with the new schema...  
1/1 regions updated.  
Done.  
Took 2.0642 seconds  
hbase(main):047:0> describe 'student'  
Table student is ENABLED  
student  
COLUMN FAMILIES DESCRIPTION  
{NAME => 'personal', VERSIONS => '1', EVICT_BLOCKS_ON_CLOSE => 'false', NEW_VERSION_BEHAVIOR => 'false',  
KEEP_DELETED_CELLS => 'FALSE', CACHE_DATA_ON_WRITE => 'false', DATA_BLOCK_ENCODING => 'NONE', TTL => 'FOREVER',  
MIN_VERSIONS => '0', REPLICATION_SCOPE => '0', BLOOMFILTER => 'ROW', CACHE_INDEX_ON_WRITE => 'false',  
IN_MEMORY => 'false', CACHE_BLOOMS_ON_WRITE => 'false', PREFETCH_BLOCKS_ON_OPEN => 'false', COMPRESSION => 'NONE',  
BLOCKCACHE => 'true', BLOCKSIZE => '65536'}  
{NAME => 'skill', VERSIONS => '1', EVICT_BLOCKS_ON_CLOSE => 'false', NEW_VERSION_BEHAVIOR => 'false',  
KEEP_DELETED_CELLS => 'FALSE', CACHE_DATA_ON_WRITE => 'false', DATA_BLOCK_ENCODING => 'NONE', TTL => 'FOREVER',  
MIN_VERSIONS => '0', REPLICATION_SCOPE => '0', BLOOMFILTER => 'ROW', CACHE_INDEX_ON_WRITE => 'false',  
IN_MEMORY => 'false', CACHE_BLOOMS_ON_WRITE => 'false', PREFETCH_BLOCKS_ON_OPEN => 'false', COMPRESSION => 'NONE',  
BLOCKCACHE => 'true', BLOCKSIZE => '65536'}  
2 row(s)  
Took 0.0602 seconds
```

19.

```
count 'student'
```

```
hbase(main):026:0> count 'student'  
2 row(s)  
Took 0.1113 seconds  
=> 2  
hbase(main):027:0> |
```

20.

```
get 'student', 'A1'  
delete 'student', 'A1', 'personal:age'
```

```
hbase(main):032:0> get 'student', 'A1'  
COLUMN                                CELL  
personal:age                          timestamp=1556675725325, value=25  
personal:name                         timestamp=1556675720363, value=Phond  
skill:programming                    timestamp=1556676453122, value=Python  
skill:speaking                       timestamp=1556675735168, value=Thai  
1 row(s)  
Took 0.0212 seconds  
hbase(main):033:0> delete 'student', 'A1', 'personal:age'  
Took 0.0130 seconds  
hbase(main):034:0> get 'student', 'A1'  
COLUMN                                CELL  
personal:name                         timestamp=1556675720363, value=Phond  
skill:programming                    timestamp=1556676453122, value=Python  
skill:speaking                       timestamp=1556675735168, value=Thai  
1 row(s)  
Took 0.0700 seconds
```

หลังจากคำสั่ง delete คอลัมน์ age ได้ถูกลบไป

21.

```
disable 'student'  
scan 'student'
```

```
hbase(main):036:0> scan 'student'  
ROW                                COLUMN+CELL  
org.apache.hadoop.hbase.TableNotEnabledException: student is disabled.  
    at org.apache.hadoop.hbase.client.ConnectionImplementation.relocateRegion(ConnectionImplementation.java:736)  
    at org.apache.hadoop.hbase.client.RpcRetryingCallerWithReadReplicas.getRegionLocations(RpcRetryingCallerWithReadReplicas.java:328)  
    at org.apache.hadoop.hbase.client.ScannerCallable.prepare(ScannerCallable.java:139)  
    at org.apache.hadoop.hbase.client.ScannerCallableWithReplicas$RetryingRPC.prepare(ScannerCallableWithReplicas.java:399)  
    at org.apache.hadoop.hbase.client.RpcRetryingCallerImpl.callWithRetries(RpcRetryingCallerImpl.java:105)  
    at org.apache.hadoop.hbase.client.ResultBoundedCompletionService$QueueingFuture.run(ResultBoundedCompletionService.java:80)  
    at java.util.concurrent.ThreadPoolExecutor.runWorker(ThreadPoolExecutor.java:1149)  
    at java.util.concurrent.ThreadPoolExecutor$Worker.run(ThreadPoolExecutor.java:624)  
    at java.lang.Thread.run(Thread.java:748)  
  
ERROR: Table student is disabled!  
  
For usage try 'help "scan"'  
  
Took 0.6443 seconds
```


22.

```
is_disabled 'student'
```

```
hbase(main):053:0> is_disabled 'student'  
true  
Took 0.0208 seconds  
=> 1  
hbase(main):054:0>
```