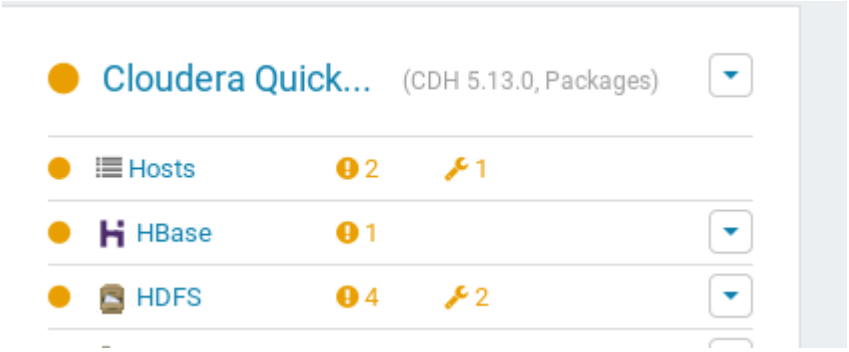
PRACTICAL - Install HBase and use the HBase Data model to store and retrieve data

Step 1: Start Cloudera

Start your Cloudera and start services HBase, HDFS



Step 2: Start the HBase Shell

Open a terminal and start the HBase shell:

```
[cloudera@quickstart ~]$ hbase shell
24/02/21 23:14:14 INFO Configuration.deprecation: hadoop.native.lib is deprecate
d. Instead, use io.native.lib.available
HBase Shell; enter 'help<RETURN>' for list of supported commands.
Type "exit<RETURN>" to leave the HBase Shell
Version 1.2.0-cdh5.13.0, rUnknown, Wed Oct  4 11:16:18 PDT 2017
```

Step 3: Check HBase Status, Version, and User Information

Execute the following commands to check the HBase status, version, and user information:

```
hbase(main):026:0> whoami
cloudera (auth:SIMPLE)
    groups: cloudera, default

hbase(main):027:0> status
1 active master, 0 backup masters, 1 servers, 0 dead, 4.0000 average load

hbase(main):028:0> version
1.2.0-cdh5.13.0, rUnknown, Wed Oct  4 11:16:18 PDT 2017
```

Status should be active, if not restart HBase in Cloudera manager

Step 4: Create 'employee' Table

Create the 'employee' table with columns 'Name', 'ID', 'Designation', 'Salary', and 'Department

```
hbase(main):029:0> create 'employee','Name','ID','Designation','Salary','Department'
```

Step 5: Verify 'employee' Table Creation

List the tables to verify the 'employee' table creation:

```
hbase(main):004:0> list
TABLE
employee
1 row(s) in 0.0610 seconds
```

Step 6: Scan the 'employee' Table

Scan the 'employee' table

```
hbase(main):006:0> scan 'employee'
ROW                   COLUMN+CELL
0 row(s) in 0.2730 seconds
```

Step 6: Create 'student' Table

Create the 'student' table with columns 'name', 'age', and 'course':

```
hbase(main):007:0> create 'student','name','age','course'
0 row(s) in 1.2710 seconds
```

Step 07: Insert Data into 'student' Table

Insert data for three students into the 'student' table:

```
hbase(main):008:0> put 'student','om','name:fullname','Om Panchal'
0 row(s) in 0.1740 seconds

hbase(main):009:0> put 'student','om','age:presentage','22'
0 row(s) in 0.0240 seconds

hbase(main):010:0> put 'student','om','course:pursuing','Big Data'
0 row(s) in 0.0270 seconds

hbase(main):011:0> put 'student','srushti','name:fullname','Srushti K'
0 row(s) in 0.0720 seconds

hbase(main):012:0> put 'student','srushti','age:presentage','25'
0 row(s) in 0.0430 seconds

hbase(main):013:0> put 'student','srushti','course:pursuing','Machine Learning'
0 row(s) in 0.0200 seconds

hbase(main):014:0> put 'student','meghana','name:fullname','Meghana N'
0 row(s) in 0.0430 seconds

hbase(main):015:0> put 'student','meghana','age:presentage','23'
0 row(s) in 0.0490 seconds

hbase(main):016:0> put 'student','meghana','course:pursuing','Artificial Intelli
gence'
0 row(s) in 0.0340 seconds
```

Step 08: Retrieve Data from 'student' Table

Retrieve and display data for all students in the 'student' table:

```
hbase(main):017:0> get 'student','om'
COLUMN                CELL
 age:presentage       timestamp=1708586414443, value=22
 course:pursuing      timestamp=1708586424069, value=Big Data
 name:fullname        timestamp=1708586403699, value=Om Panchal
3 row(s) in 0.0150 seconds

hbase(main):018:0> get 'student','srushti'
COLUMN                CELL
 age:presentage       timestamp=1708586446979, value=25
 course:pursuing      timestamp=1708586457550, value=Machine Learning
 name:fullname        timestamp=1708586435456, value=Srushti K
3 row(s) in 0.0080 seconds

hbase(main):019:0>  get 'student','meghana'
COLUMN                CELL
 age:presentage       timestamp=1708586479058, value=23
 course:pursuing      timestamp=1708586494027, value=Artificial Intelligence
 name:fullname        timestamp=1708586469353, value=Meghana N
3 row(s) in 0.0260 seconds
```

Step 09: Scan and Count the 'student' Table

Scan and count the rows in the 'student' table:

```
hbase(main):020:0> scan 'student'
ROW                   COLUMN+CELL
 meghana              column=age:presentage, timestamp=1708586479058, value=23
 meghana              column=course:pursuing, timestamp=1708586494027, value=Art
                      ificial Intelligence
 meghana              column=name:fullname, timestamp=1708586469353, value=Megha
                      na N
 om                   column=age:presentage, timestamp=1708586414443, value=22
 om                   column=course:pursuing, timestamp=1708586424069, value=Big
                       Data
 om                   column=name:fullname, timestamp=1708586403699, value=Om Pa
                      nchal
 srushti              column=age:presentage, timestamp=1708586446979, value=25
 srushti              column=course:pursuing, timestamp=1708586457550, value=Mac
                      hine Learning
 srushti              column=name:fullname, timestamp=1708586435456, value=Srush
                      ti K
3 row(s) in 0.0450 seconds
```

Step 10: Alter the 'student' Table

Alter the 'student' table to set the maximum number of versions for the 'name' column to 5:

```
hbase(main):021:0> alter 'student', NAME=>'name', VERSIONS=>5
Updating all regions with the new schema...
0/1 regions updated.
1/1 regions updated.
Done.
0 row(s) in 3.0520 seconds
```

Step 11: Put Altered Values for 'srushti'

Put altered values for the 'name' column for 'srushti':

```
hbase(main):022:0> put 'student','srushti','name:fullname','Srushti Kulkarni'
0 row(s) in 0.0120 seconds
```

Step 18: Scan 'student' Table to Check Alteration

Scan the 'student' table to check if the 'name' alteration has taken effect:

```
hbase(main):023:0> scan 'student'
ROW                   COLUMN+CELL
 meghana              column=age:presentage, timestamp=1708586479058, value=23
 meghana              column=course:pursuing, timestamp=1708586494027, value=Art
                      ificial Intelligence
 meghana              column=name:fullname, timestamp=1708586469353, value=Megha
                      na N
 om                   column=age:presentage, timestamp=1708586414443, value=22
 om                   column=course:pursuing, timestamp=1708586424069, value=Big
                       Data
 om                   column=name:fullname, timestamp=1708586403699, value=Om Pa
                      nchal
 srushti              column=age:presentage, timestamp=1708586446979, value=25
 srushti              column=course:pursuing, timestamp=1708586457550, value=Mac
                      hine Learning
 srushti              column=name:fullname, timestamp=1708586618426, value=Srush
                      ti Kulkarni
3 row(s) in 0.0250 seconds
```

Step 12: Delete 'name' Column for 'meghana'

Delete the 'name' column for 'meghana':

```
hbase(main):024:0> delete 'student','meghana','name:fullname'
0 row(s) in 0.0370 seconds
```

Step 13: Check if 'name' Column is Deleted for 'meghana'

Check if the 'name' column has been deleted for 'meghana':

```
hbase(main):025:0> get 'student','meghana'
COLUMN                CELL
 age:presentage       timestamp=1708586479058, value=23
 course:pursuing      timestamp=1708586494027, value=Artificial Intelligence
2 row(s) in 0.0090 seconds
```