**IN402 Unit 9 Assignment**

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IN402: Modeling and Predictive Analysis

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This paper will review the paper titled “Integrating an OpenEHR-Based Personalized Virtual Model for the Aging Population Within HBase” written by Kalogiannis, et. al. The paper discusses issues that have challenged health systems over the last ten years. Both effective and ineffective strategies will be looked at, as well. Finally, the reason for selecting HBase was selected as a storage system.

The analysis and storage of big data poses many challenges. These include how to safely store the data, how to efficiently retrieve the data, and how to enable interoperability. Applying these challenges to health data only compounds the issues. All of these challenges have been seen over the past twenty years in systems that process health monitoring and safety data.

Security is a large topic in health data. The information must be stored in a manner that unauthorized individuals do not have access to the data. Many countries have laws and regulations that mandate how secure the data must be.

Speed is a concern for any system. Retrieval speed often slows down as datasets grow in size. Even small, microsecond, delays per query can lead to large total delays, due to the vast number of queries that need to be run each day.

Interoperability is the property of a system to talk with other systems. This is brought about by standardizing the data that is output by the system. Another method could be accomplished by altering the format of the data as it comes in. Interoperability leads to systems being able to talk to each other and less work needing to be done when changing systems.

There have been attempts to tackle these challenges. The issue of semantic interoperability both across and within systems has been a key challenge (Kalogiannis, et. al., 2019). These challenges are amplified by the lack of standards, complexity, and velocity of the data.

There are examples of effective medical data systems, though. These systems shared four key characteristics. These characteristics are “query performance, scalability, flexibility, and extensibility” (Kalogiannis, et. al., 2019). Query performance refers to the speed at which complex queries can be performed and data is retrieved from the database. Scalability is the ability of the database to continue to perform even when presented with ever-increasing amounts of data. Flexibility means the database can handle different forms of data. Extensibility refers to the ease at which the system is extended to handle changing data requirements.

Databases store information in various data types. These types include integers, strings, dates, and varchars. Another data type is the BLOB. This stands for a binary large object. This allows the system to store files within the DBMS as a binary representation of itself (CSA, 2022). BLOBs have the disadvantage of using large amounts of storage space to maintain numerous files.

One method that was used for storing health records was the “Node and Path” method. This process used BLOBs to store XML data in a subtree fashion. This method presented the users with a simplistic method of storage, but it had one major drawback. The queries were too complex and resulted in an inefficient retrieval method (Kalogiannis, et. al., 2019). This has led to this storage method falling out of fashion.

HBase is an Apache product that runs on top of the Hadoop Distributed File System. It is known for its column-oriented database management system (IBM, n.d.). This DBMS has advantages when the requirements call for scalability, fast read and write speeds, and it can handle very large amounts of data. HBase also allows for data to be distributed across disparate machines. For these reasons, the authors of the paper selected HBase for their project (Kalogiannis, et. al., 2019).

HBase also provides a unique method of representing relationships between columns. The table schema uses column families. This means that an archetype is selected as the key column and other columns are mapped to it in a hierarchical nature. Kalogiannis, et. al. show this with Body weight being a top-level archetype that has five subtypes. Each subtype then has even more subtypes below them. This method does lead to the possibility of multiple columns having the same name in two or more top-level archetypes. The top-level archetype must be included in any query for this reason (Kalogiannis, et. al., 2019).

The paper reviewed set out to find an optimal way of handling OpenEHR data. It discussed the attempts made over the last two decades to tackle the common issues of storing big data in a health setting. It also provided disadvantages associated with the “Node and Path” method of storage. Finally, it made a case for why HBase is a suitable solution going forward.

**Reference**

Kalogiannis, S., Deltouzos, K., Zacharaki, E. I., Vasilakis, A., Moustakas, K., Ellul, J., & Megalooikonomou, V. (2019, January 28). [Integrating an openEHR-based personalized virtual model for the ageing population within HBase](https://bmcmedinformdecismak.biomedcentral.com/articles/10.1186/s12911-019-0745-8). BMC Medical Informatics and Decision Making, 19 . Retrieved from <https://bmcmedinformdecismak.biomedcentral.com/>

*What is a blob (binary large object)? can it be tokenized?*. CSA. (2022, May 4). https://cloudsecurityalliance.org/blog/2022/05/04/what-is-a-blob-binary-large-object-can-it-be-tokenized/

*What is HBase?*. IBM. (n.d.). https://www.ibm.com/topics/hbase

**Appendix A**

**Output of Screen.log**

Script started on 2024-01-15 14:12:56-0500

]0;codio@tigerpeople-henrypablo: ~/workspace codio@tigerpeople-henrypablo:~/workspace$ start-hbase.sh

SLF4J: Class path contains multiple SLF4J bindings.

SLF4J: Found binding in [jar:file:/opt/hadoop/share/hadoop/common/lib/slf4j-log4j12-1.7.30.jar!/org/slf4j/impl/StaticLoggerBinder.class]

SLF4J: Found binding in [jar:file:/opt/hbase/lib/client-facing-thirdparty/slf4j-log4j12-1.7.30.jar!/org/slf4j/impl/StaticLoggerBinder.class]

SLF4J: See http://www.slf4j.org/codes.html#multiple\_bindings for an explanation.

SLF4J: Actual binding is of type [org.slf4j.impl.Log4jLoggerFactory]

running master, logging to /opt/hbase/logs/hbase-codio-master-tigerpeople-henrypablo.out

]0;codio@tigerpeople-henrypablo: ~/workspace codio@tigerpeople-henrypablo:~/workspace$ hbase shell

SLF4J: Class path contains multiple SLF4J bindings.

SLF4J: Found binding in [jar:file:/opt/hadoop/share/hadoop/common/lib/slf4j-log4j12-1.7.30.jar!/org/slf4j/impl/StaticLoggerBinder.class]

SLF4J: Found binding in [jar:file:/opt/hbase/lib/client-facing-thirdparty/slf4j-log4j12-1.7.30.jar!/org/slf4j/impl/StaticLoggerBinder.class]

SLF4J: See http://www.slf4j.org/codes.html#multiple\_bindings for an explanation.

SLF4J: Actual binding is of type [org.slf4j.impl.Log4jLoggerFactory]

HBase Shell

Use "help" to get list of supported commands.

Use "exit" to quit this interactive shell.

For Reference, please visit: http://hbase.apache.org/2.0/book.html#shell

Version 2.4.8, rf844d09157d9dce6c54fcd53975b7a45865ee9ac, Wed Oct 27 08:48:57 PDT 2021

Took 0.0020 seconds

hbase:001:0> creaete[K[K[K[K[Keate 'ecom', 'customers', 'orders', 'order\_details', 'proc[Kducts'

Created table ecom

Took 1.3188 seconds

=> Hbase::Table - ecom

hbase:002:0> put 'ecom', 'row1', 'customers:customerid', '1'

Took 0.1843 seconds

hbase:003:0> put 'ecom', 'row1', customers:firstname', 'Michea[K[Kael'

hbase:004:0'

hbase:005:0' '

[1mTraceback[m (most recent call last):

[1mSyntaxError ([4m(hbase):3: syntax error, unexpected tSTRING\_BEG[0;1m)[m

[1mput 'ecom', 'row1', customers:firstname', 'Michael'[m

[1m ^[m

hbase:006:0> put 'ecom', 'row1', customers:first[K[K[K[K[K[K[K[K[K[K[K[K[K[K[K[K 'custoemer[K[K[K[Kmers:firstname', '[K[K[K[K[K[K[K[K[Ktname', 'Michael'

Took 0.0072 seconds

hbase:007:0> 962824[K[K[K[K[K[K962824[K[K[K[K[K[Kput 'ecom', 'row1', 'customers:lastname', 'Jordan'

Took 0.0082 seconds

hbase:008:0> put 'row1[K[K[K[Keecom[K[K[K[Kcom', 'row1', 'customers:address', '1901 West Madison Street'

Took 0.0042 seconds

hbase:009:0> put 'com[K[K[Kecom', 'row1', 'customers:city', 'Chicago'

Took 0.0049 seconds

hbase:010:0> put 'ecom', 'row1', 'customers:state', 'IL"[K'

Took 0.0039 seconds

hbase:011:0> '[Kput 'ecom', 'row1', c[K'customers:zip', '60612'

Took 0.0047 seconds

hbase:012:0> put 'ecom', 'row1' [K,'[K 'customers:coutnry[K[K[K[Kntry', 'USA'

Took 0.0099 seconds

hbase:013:0> put 'ecom', 'row1', 'come[K[K[Kyu[K[Kusteroms[K[K[K[K[K[Ktomers:email', 'mjordand[K@bulls.com'

Took 0.0058 seconds

hbase:014:0> put 'ecom', 'row1', 'customers:phone', '312-455-4000'

Took 0.0050 seconds

hbase:015:0> put 'ecom', 'row1', 'customers:orderid', 'abc123'

Took 0.0051 seconds

hbase:016:0> put 'ecom', 'row1', 'customers:customerid', '1'

Took 0.0042 seconds

hbase:017:0> put 'ecom', 'row1', 'co[Kuste[Komers:orderdate', '2019-04-14'

Took 0.0056 seconds

hbase:018:0> put 'ecom', 'row1', 'customers:upc\_productid', '1234567890'

Took 0.0043 seconds

hbase:019:0> put 'ecom', 'row1', 'customers:productname', 'Chicago Bulls red tshirt'

Took 0.0046 seconds

hbase:020:0> put 'ecom', 'row1', 'customers:productdescription', 'red t-shirt [K, size XL'

Took 0.0050 seconds

hbase:021:0> pur[Kt 'ecom', 'row1', 'customers:unitprice', '$29.99'

Took 0.0052 seconds

hbase:022:0> put 'ecom', 'row1', 'orders:quantity', '4'

Took 0.0040 seconds

hbase:023:0> put 'ecom', 'row1', 'ro[K[Korders:discount', '$4'

Took 0.0049 seconds

hbase:024:0> put 'ecom', 'row1', 'orders:completed', 'Y'

Took 0.0040 seconds

hbase:025:0> put 'ecom', 'row2', 'customers:customerid';[K, '2'

Took 0.0053 seconds

hbase:026:0> put 'ecom', 'row2', 'customers:firstname', 'Bart'

Took 0.0085 seconds

hbase:027:0> put 'ecom', 'row2', 'customers:'lastname', 'Simpson'

hbase:028:0' put 'ecom', [K[K[K[K[K[K[K[K[K[K[K[K '

[1mTraceback[m (most recent call last):

[1mSyntaxError ([4m(hbase):27: syntax error, unexpected tIDENTIFIER[0;1m)[m

[1mput 'ecom', 'row2', 'customers:'lastname', 'Simpson'[m

[1m ^[m

hbase:029:0> '[Kput 'ecom', 'row2', 'customers:'lastname', 'Simpson'[C[C[C[Clastname', 'Simpson'[K[20D[20C

Took 0.0057 seconds

hbase:030:0> put 'ecom', 'row2', 'customers:lastname', 'Simpson'', 'Simpson'[K[12D', 'Simpson'[K[12D', 'Simpson'[K[12D', 'Simpson'[K[12D', 'Simpson'[K[12D', 'Simpson'[K[12D', 'Simpson'[K[12D', 'Simpson'[K[12Da', 'Simpson'[12Dd', 'Simpson'[12Dd', 'Simpson'[12Dr', 'Simpson'[12De', 'Simpson'[12Ds', 'Simpson'[12Ds', 'Simpson'[12D[C[C[C[C[C[C[C[C[C[C[C'[K'[K'[K'[K'[K'[K'[K1' 'E'v'e'r'g'r'e'e'n' 'S't'r'e'e't'[C

Took 0.0044 seconds

hbase:031:0> put 'ecom', 'row2', 'customers:address', '1 Evergreen Street'', '1 Evergreen Street'[K[23D', '1 Evergreen Street'[K[23D', '1 Evergreen Street'[K[23D', '1 Evergreen Street'[K[23D', '1 Evergreen Street'[K[23D', '1 Evergreen Street'[K[23D', '1 Evergreen Street'[K[23Dc', '1 Evergreen Street'[23Di', '1 Evergreen Street'[23Dt', '1 Evergreen Street'[23Dy', '1 Evergreen Street'[23D[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C'[K'[K'[K'[K'[K'[K'[K'[K'[K'[K'[K'[K'[K'[K'[K'[K'[K'[KS'p'r'i'n'g'f'i'e'l'd'[C

Took 0.0045 seconds

hbase:032:0> put 'ecom', 'row2', 'customers:city', 'Springfield''[K'[K'[K'[K'[K'[K'[K'[K'[K'[K'[KO'R'', 'OR'[K[7D', 'OR'[K[7D', 'OR'[K[7D', 'OR'[K[7Ds', 'OR'[7Dt', 'OR'[7Da', 'OR'[7Dt', 'OR'[7De', 'OR'[7D[7C

Took 0.0043 seconds

hbase:033:0> put 'ecom', 'row2', 'customers:state', 'OR''[K'[K'[K''9'7'4'0'3'', '97403'[K[10D', '97403'[K[10D', '97403'[K[10D', '97403'[K[10D', '97403'[K[10Dz', '97403'[10Di', '97403'[10Dp', '97403'[10D[10C

Took 0.0041 seconds

hbase:034:0> put 'ecom', 'row2', 'customers:zip', '97403''[K'[K'[K'[K'[KU'S'A'', 'USA'[K[8D', 'USA'[K[8D', 'USA'[K[8Dc', 'USA'[8Do', 'USA'[8Du', 'USA'[8Dn', 'USA'[8Dt', 'USA'[8Dr', 'USA'[8Dy', 'USA'[8D[8C

Took 0.0041 seconds

hbase:035:0> put 'ecom', 'row2', 'customers:country', 'USA''[K'[K'[Kb'a'r't'\_'s'i'm'p's'o'n'@'y'a'n''[Kh'o'o'.'c'o'm'[64D'[K[K put 'ecom', 'row2', 'customers:country', 'USA'', 'USA'[K[8D', 'USA'[K[8D', 'USA'[K[8D', 'USA'[K[8D', 'USA'[K[8D', 'USA'[K[8D', 'USA'[K[8De', 'USA'[8Dm', 'USA'[8Da', 'USA'[8Di', 'USA'[8Dl', 'USA'[8D[C[C[C[CSA'[K[3DA'[K[2D'[Kb'a'r't'\_'s'i'm'p'a''[Ks'o'n'@'y'a'h'o'o'.'c'o'm'[C

Took 0.0048 seconds

hbase:036:0> put 'ecom', 'row2', 'customers:email', 'bart\_simpson@yahoo.com'[32D[Kcountry', 'USA'', 'USA'[K[8D', 'USA'[K[8D', 'USA'[K[8D', 'USA'[K[8D', 'USA'[K[8D', 'USA'[K[8D', 'USA'[K[8Dp', 'USA'[8Dh', 'USA'[8Do', 'USA'[8Dn', 'USA'[8De', 'USA'[8D[C[C[C[C[C[C[C'[K'[K'[K5'4'1'-'7'8'9'-'6'5'3'2'[C

Took 0.0044 seconds

hbase:037:0> put 'ecom', 'row2', 'customers:phone', '541-789-6532'[C[C', 'customers:phone', '541-789-6532'[K[36D3', 'customers:phone', '541-789-6532'[36D[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C', '541-789-6532'[K[17D', '541-789-6532'[K[17D', '541-789-6532'[K[17D', '541-789-6532'[K[17D', '541-789-6532'[K[17Dc', '541-789-6532'[17Du', '541-789-6532'[17Ds', '541-789-6532'[17Dt', '541-789-6532'[17Do', '541-789-6532'[17Dm', '541-789-6532'[17De', '541-789-6532'[17Dr', '541-789-6532'[17Di', '541-789-6532'[17Dd', '541-789-6532'[17D[C[C[C[C41-789-6532'[K[12D1-789-6532'[K[11D-789-6532'[K[10D789-6532'[K[9D89-6532'[K[8D9-6532'[K[7D-6532'[K[6D6532'[K[5D532'[K[4D32'[K[3D2'[K[2D'[K3'[C

Took 0.0046 seconds

hbase:038:0> put 'ecom', 'row3', 'customers:customerid', '3'', '3'[K[6D', '3'[K[6D', '3'[K[6D', '3'[K[6D', '3'[K[6D', '3'[K[6D', '3'[K[6D', '3'[K[6D', '3'[K[6D', '3'[K[6Df', '3'[6Di', '3'[6Dr', '3'[6Ds', '3'[6Dt', '3'[6Dn', '3'[6Da', '3'[6Dm', '3'[6De', '3'[6D[C[C[C[C[C'[KS'a'r'a'h'[C

Took 0.0038 seconds

hbase:039:0> put 'ecom', 'row3', 'customers:firstname', 'Sarah'name', 'Sarah'[K[14Dname', 'Sarah'[K[14Dname', 'Sarah'[K[14Dname', 'Sarah'[K[14Dname', 'Sarah'[K[14Dlname', 'Sarah'[14Daname', 'Sarah'[14Dsname', 'Sarah'[14Dtname', 'Sarah'[14D[C[C[C[C[C[C[C[C[C[C[C[C[C'[K'[K'[K'[K'[KC'o'n'n'e'r''[K'[Ko'r'[C

Took 0.0040 seconds

hbase:040:0> put 'ecom', 'row3', 'customers:lastname', 'Connor'', 'Connor'[K[11D', 'Connor'[K[11D', 'Connor'[K[11D', 'Connor'[K[11D', 'Connor'[K[11D', 'Connor'[K[11D', 'Connor'[K[11D', 'Connor'[K[11Da', 'Connor'[11Dd', 'Connor'[11Dd', 'Connor'[11Dr', 'Connor'[11De', 'Connor'[11Ds', 'Connor'[11Ds', 'Connor'[11D[C[C[C[C[C[C[C[C[C[C'[K'[K'[K'[K'[K'[K3'0'9' 'C'a'l'd'e'r'a' 'C'a'n'y'o'n'[C

Took 0.0046 seconds

hbase:041:0> put 'ecom', 'row3', 'customers:address', '309 Caldera Canyon'', '309 Caldera Canyon'[K[23D', '309 Caldera Canyon'[K[23D', '309 Caldera Canyon'[K[23D', '309 Caldera Canyon'[K[23D', '309 Caldera Canyon'[K[23D', '309 Caldera Canyon'[K[23D', '309 Caldera Canyon'[K[23Da', '309 Caldera Canyon'[23Dp', '309 Caldera Canyon'[23Dt', '309 Caldera Canyon'[23D[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C'[K'[K'[K'[K'[K'[K'[K'[K'[K'[K'[K'[K'[K'[K'[K'[K'[K'[KA'p't' '2'2'5'[C

Took 0.0042 seconds

hbase:042:0> put 'ecom', 'row3', 'customers:apt', 'Apt 225'', 'Apt 225'[K[12D', 'Apt 225'[K[12D', 'Apt 225'[K[12Dc', 'Apt 225'[12Di', 'Apt 225'[12Dt', 'Apt 225'[12Dy', 'Apt 225'[12D[C[C[C[Cpt 225'[K[7Dt 225'[K[6D 225'[K[5D225'[K[4D25'[K[3D5'[K[2D'[KL'o's' 'A'n'g'e'l'e's'[C

Took 0.0098 seconds

hbase:043:0> put 'ecom', 'row3', 'customers:city', 'Los Angeles'', 'Los Angeles'[K[16D', 'Los Angeles'[K[16D', 'Los Angeles'[K[16D', 'Los Angeles'[K[16Ds', 'Los Angeles'[16Dt', 'Los Angeles'[16Da', 'Los Angeles'[16Dt', 'Los Angeles'[16De', 'Los Angeles'[16D[C[C[C[Cos Angeles'[K[11Ds Angeles'[K[10D Angeles'[K[9DAngeles'[K[8Dngeles'[K[7Dgeles'[K[6Deles'[K[5Dles'[K[4Des'[K[3Ds'[K[2D'[KC'A'[C

Took 0.0047 seconds

hbase:044:0> put 'ecom', 'row3', 'customers:state', 'CA'', 'CA'[K[7D', 'CA'[K[7D', 'CA'[K[7D', 'CA'[K[7D', 'CA'[K[7Dz', 'CA'[7Di', 'CA'[7Dp', 'CA'[7D[C[C[C[CA'[K[2D'[K9'0'0'0'7'[C

Took 0.0038 seconds

hbase:045:0> put 'ecom', 'row3', 'customers:zip', '90007'[C', '90007'[K[10D', '90007'[K[10D', '90007'[K[10Dc', '90007'[10Do', '90007'[10Du', '90007'[10Dn', '90007'[10Dt', '90007'[10Dr', '90007'[10Dy', '90007'[10D[C[C[C[C0007'[K[5D007'[K[4D07'[K[3D7'[K[2D'[KU'S'A'[C

Took 0.0038 seconds

hbase:046:0> put 'ecom', 'row3', 'customers:country', 'USA'', 'USA'[K[8D', 'USA'[K[8D', 'USA'[K[8D', 'USA'[K[8D', 'USA'[K[8D', 'USA'[K[8D', 'USA'[K[8De', 'USA'[8Dm', 'USA'[8Da', 'USA'[8Di', 'USA'[8Dl', 'USA'[8D[C[C[C[CSA'[K[3DA'[K[2D'[Ks'c'o'n'n'o'r'@'h'o't'm'a'i'l'.'c'o'm'[C

Took 0.0049 seconds

hbase:047:0> put 'ecom', 'row3', 'customers:email', 'sconnor@hotmail.com'', 'sconnor@hotmail.com'[K[24D', 'sconnor@hotmail.com'[K[24D', 'sconnor@hotmail.com'[K[24D', 'sconnor@hotmail.com'[K[24D', 'sconnor@hotmail.com'[K[24Dp', 'sconnor@hotmail.com'[24Dh', 'sconnor@hotmail.com'[24Do', 'sconnor@hotmail.com'[24Dn', 'sconnor@hotmail.com'[24De', 'sconnor@hotmail.com'[24D[C[C[C[Cconnor@hotmail.com'[K[19Donnor@hotmail.com'[K[18Dnnor@hotmail.com'[K[17Dnor@hotmail.com'[K[16Dor@hotmail.com'[K[15Dr@hotmail.com'[K[14D@hotmail.com'[K[13Dhotmail.com'[K[12Dotmail.com'[K[11Dtmail.com'[K[10Dmail.com'[K[9Dail.com'[K[8Dil.com'[K[7Dl.com'[K[6D.com'[K[5Dcom'[K[4Dom'[K[3Dm'[K[2D'[K2'1'3'-'6'7'8'-'4'4'3'1'[C

Took 0.0047 seconds

hbase:048:0> put 'ecom', 'row3', 'customers:phone', '213-678-4431'[C', 'customers:phone', '213-678-4431'[K[36D4', 'customers:phone', '213-678-4431'[36D[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C', '213-678-4431'[K[17D', '213-678-4431'[K[17D', '213-678-4431'[K[17D', '213-678-4431'[K[17D', '213-678-4431'[K[17Dc', '213-678-4431'[17Du', '213-678-4431'[17Ds', '213-678-4431'[17Dt', '213-678-4431'[17Do', '213-678-4431'[17Dm', '213-678-4431'[17De', '213-678-4431'[17Dr', '213-678-4431'[17Di', '213-678-4431'[17Dd', '213-678-4431'[17D[C[C[C[C13-678-4431'[K[12D3-678-4431'[K[11D-678-4431'[K[10D678-4431'[K[9D78-4431'[K[8D8-4431'[K[7D-4431'[K[6D4431'[K[5D431'[K[4D31'[K[3D1'[K[2D'[K4'[C

Took 0.0077 seconds

hbase:049:0> put 'ecom', 'row4', 'customers:customerid', '4'[31D[K3', 'customers:phone', '213-678-4431'[22D[Kemail', 'sconnor@hotmail.com'[29D[Kcountry', 'USA'[15D[Kzip', '90007'[13D[Kstate', 'CA'[12D[Kcity', 'Los Angeles'[20D[Kapt', 'Apt 225'[14D[Kddress', '309 Caldera Canyon'[30D[Klastname', 'Connor'[19D[Kfirstname', 'Sarah''[K'[K'[K'[K'[KF'r'e'd'[C

Took 0.0038 seconds

hbase:050:0> put 'ecom', 'row3', 'customers:firstname', 'Fred'[33D[K4', 'customers:customerid', '4'[31D[K3', 'customers:phone', '213-678-4431'[22D[Kemail', 'sconnor@hotmail.com'[29D[Kcountry', 'USA'[15D[Kzip', '90007'[13D[Kstate', 'CA'[12D[Kcity', 'Los Angeles'[20D[Kapt', 'Apt 225'[14D[Kddress', '309 Caldera Canyon'[30D[Klastname', 'Connor''[K'[K'[K'[K'[K'[KK'r'u'e'g'e'r'[C

Took 0.0041 seconds

hbase:051:0> put 'ecom', 'row3', 'customers:lastname', 'Krueger'[20D[Kfirstname', 'Fred'[33D[K4', 'customers:customerid', '4'[31D[K3', 'customers:phone', '213-678-4431'[22D[Kemail', 'sconnor@hotmail.com'[29D[Kcountry', 'USA'[15D[Kzip', '90007'[13D[Kstate', 'CA'[12D[Kcity', 'Los Angeles'[20D[Kapt', 'Apt 225'[14D[Kddress', '309 Caldera Canyon''[K'[K'[K'[K'[K'[K'[K'[K'[K'[K'[K'[K'[K'[K'[K'[K'[K'[K1'4'2'8' 'E'l'm' 'S't'r'e'e't'[C

Took 0.0048 seconds

hbase:052:0> put 'ecom', 'row3', 'customers:address', '1428 Elm Street'[27D[Klastname', 'Krueger'[20D[Kfirstname', 'Fred'[33D[K4', 'customers:customerid', '4'[31D[K3', 'customers:phone', '213-678-4431'[22D[Kemail', 'sconnor@hotmail.com'[29D[Kcountry', 'USA'[15D[Kzip', '90007'[13D[Kstate', 'CA'[12D[Kcity', 'Los Angeles''[K'[K'[K'[K'[K'[K'[K'[K'[K'[K'[KL'o's' 'A'n'g'e'l'e's'[C

Took 0.0041 seconds

hbase:053:0> put 'ecom', 'row3', 'customers:city', 'Los Angeles'[20D[Kaddress', '1428 Elm Street'[27D[Klastname', 'Krueger'[20D[Kfirstname', 'Fred'[33D[K4', 'customers:customerid', '4'[31D[K3', 'customers:phone', '213-678-4431'[22D[Kemail', 'sconnor@hotmail.com'[29D[Kcountry', 'USA'[15D[Kzip', '90007'[13D[Kstate', 'CA'[12D[Kcity', 'Los Angeles'[20D[Kapt', 'Apt 225'[14D[Kddress', '309 Caldera Canyon'[30D[Klastname', 'Connor'[19D[Kfirstname', 'Sarah'[19D[Kcustomerid', '3'[16D[Kfirstname', 'Sarah'[19D[Klastname', 'Connor'[19D[Kaddress', '309 Caldera Canyon'[30D[Klastname', 'Connor'[19D[Kfirstname', 'Sarah'

Took 0.0065 seconds

hbase:054:0> put 'ecom', 'row3', 'customers:firstname', 'Sarah'[19D[Kcity', 'Los Angeles'[20D[Kaddress', '1428 Elm Street'[27D[Klastname', 'Krueger'[20D[Kfirstname', 'Fred'[33D[K4', 'customers:customerid', '4'[31D[K3', 'customers:phone', '213-678-4431'[22D[Kemail', 'sconnor@hotmail.com'[29D[Kcountry', 'USA'[15D[Kzip', '90007'[13D[Kstate', 'CA'[12D[Kcity', 'Los Angeles'[20D[Kapt', 'Apt 225'[14D[Kddress', '309 Caldera Canyon'[30D[Klastname', 'Connor'[19D[Kfirstname', 'Sarah'[19D[Kcustomerid', '3'[16D[Kfirstname', 'Sarah'[19D[Klastname', 'Connor'

Took 0.0039 seconds

hbase:055:0> put 'ecom', 'row3', 'customers:lastname', 'Connor'[19D[Kfirstname', 'Sarah'[19D[Kcity', 'Los Angeles'[20D[Kaddress', '1428 Elm Street'[27D[Klastname', 'Krueger'[20D[Kfirstname', 'Fred'[33D[K4', 'customers:customerid', '4'[31D[K3', 'customers:phone', '213-678-4431'[22D[Kemail', 'sconnor@hotmail.com'[29D[Kcountry', 'USA'[15D[Kzip', '90007'[13D[Kstate', 'CA'[12D[Kcity', 'Los Angeles'[20D[Kapt', 'Apt 225'[14D[Kddress', '309 Caldera Canyon'

Took 0.0045 seconds

hbase:056:0> put 'ecom', 'row3', 'customers:address', '309 Caldera Canyon'[30D[Klastname', 'Connor'[19D[Kfirstname', 'Sarah'[19D[Kcity', 'Los Angeles'[20D[Kaddress', '1428 Elm Street'[27D[Klastname', 'Krueger'[20D[Kfirstname', 'Fred'[33D[K4', 'customers:customerid', '4'[31D[K3', 'customers:phone', '213-678-4431'[37D[K4', 'customers:customerid', '4'', '4'[K[6D', '4'[K[6D', '4'[K[6D', '4'[K[6D', '4'[K[6D', '4'[K[6D', '4'[K[6D', '4'[K[6D', '4'[K[6D', '4'[K[6Df', '4'[6Di', '4'[6Dr', '4'[6Ds', '4'[6Dt', '4'[6Dn', '4'[6Da', '4'[6Dm', '4'[6De', '4'[6D[C[C[C[C[C'[KF'r'e'd'[C

Took 0.0121 seconds

hbase:057:0> put 'ecom', 'row4', 'customers:firstname', 'Fred'', 'Fred'[K[9D', 'Fred'[K[9D', 'Fred'[K[9D', 'Fred'[K[9D', 'Fred'[K[9D', 'Fred'[K[9D', 'Fred'[K[9D', 'Fred'[K[9D', 'Fred'[K[9Dl', 'Fred'[9Da', 'Fred'[9Ds', 'Fred'[9Dt', 'Fred'[9Dn', 'Fred'[9Da', 'Fred'[9Dm', 'Fred'[9De', 'Fred'[9D[C[C[C[C[C[C[C[C[C'[K'[K'[K'[KK'r'u'e'g'e'r'[C

Took 0.0094 seconds

hbase:058:0> put 'ecom', 'row4', 'customers:lastname', 'Krueger'', 'Krueger'[K[12D', 'Krueger'[K[12D', 'Krueger'[K[12D', 'Krueger'[K[12D', 'Krueger'[K[12D', 'Krueger'[K[12D', 'Krueger'[K[12D', 'Krueger'[K[12Da', 'Krueger'[12Dd', 'Krueger'[12Dd', 'Krueger'[12Dr', 'Krueger'[12De', 'Krueger'[12Ds', 'Krueger'[12Ds', 'Krueger'[12D[C[C[C[Crueger'[K[7Dueger'[K[6Deger'[K[5Dger'[K[4Der'[K[3Dr'[K[2D'[K1'4'2'8' 'E'l'm' 'S't'r'e'e't'[C

Took 0.0055 seconds

hbase:059:0> put 'ecom', 'row4', 'customers:address', '1428 Elm Street'', '1428 Elm Street'[K[20D', '1428 Elm Street'[K[20D', '1428 Elm Street'[K[20D', '1428 Elm Street'[K[20D', '1428 Elm Street'[K[20D', '1428 Elm Street'[K[20D', '1428 Elm Street'[K[20Dc', '1428 Elm Street'[20Di', '1428 Elm Street'[20Dt', '1428 Elm Street'[20Dy', '1428 Elm Street'[20D[C[C[C[C428 Elm Street'[K[15D28 Elm Street'[K[14D8 Elm Street'[K[13D Elm Street'[K[12DElm Street'[K[11Dlm Street'[K[10Dm Street'[K[9D Street'[K[8DStreet'[K[7Dtreet'[K[6Dreet'[K[5Deet'[K[4Det'[K[3Dt'[K[2D'[KL'o's' 'A'n'g'e'l'e's'[C

Took 0.0076 seconds

hbase:060:0> put 'ecom', 'row4', 'customers:city', 'Los Angeles'', 'Los Angeles'[K[16D', 'Los Angeles'[K[16D', 'Los Angeles'[K[16D', 'Los Angeles'[K[16Ds', 'Los Angeles'[16Dt', 'Los Angeles'[16Da', 'Los Angeles'[16Dt', 'Los Angeles'[16De', 'Los Angeles'[16D[C[C[C[Cos Angeles'[K[11Ds Angeles'[K[10D Angeles'[K[9DAngeles'[K[8Dngeles'[K[7Dgeles'[K[6Deles'[K[5Dles'[K[4Des'[K[3Ds'[K[2D'[KC'A'[C

Took 0.0041 seconds

hbase:061:0> put 'ecom', 'row4', 'customers:state', 'CA'', 'CA'[K[7D', 'CA'[K[7D', 'CA'[K[7D', 'CA'[K[7D', 'CA'[K[7Dz', 'CA'[7Di', 'CA'[7Dp', 'CA'[7D[C[C[C[CA'[K[2D'[K9'0'0'0'8'[C

Took 0.0043 seconds

hbase:062:0> put 'ecom', 'row4', 'customers:zip', '90008''[K'[K'[K'[K'[KU'S'A'', 'USA'[K[8D', 'USA'[K[8D', 'USA'[K[8Dc', 'USA'[8Do', 'USA'[8Du', 'USA'[8Dn', 'USA'[8Dt', 'USA'[8Dr', 'USA'[8Dy', 'USA'[8D[8C

Took 0.0035 seconds

hbase:063:0> put 'ecom', 'row4', 'customers:country', 'USA'', 'USA'[K[8D', 'USA'[K[8D', 'USA'[K[8D', 'USA'[K[8D', 'USA'[K[8D', 'USA'[K[8D', 'USA'[K[8De', 'USA'[8Dm', 'USA'[8Da', 'USA'[8Di', 'USA'[8Dl', 'USA'[8D[C[C[C[C[C[C[C'[K'[K'[Kf'r'e'd'd'y'@'h'o't'm'a'i'l'.'c'o'm'[C

Took 0.0049 seconds

hbase:064:0> put 'ecom', 'row4', 'customers:email', 'freddy@hotmail.com'', 'freddy@hotmail.com'[K[23D', 'freddy@hotmail.com'[K[23D', 'freddy@hotmail.com'[K[23D', 'freddy@hotmail.com'[K[23D', 'freddy@hotmail.com'[K[23Dp', 'freddy@hotmail.com'[23Dh', 'freddy@hotmail.com'[23Do', 'freddy@hotmail.com'[23Dn', 'freddy@hotmail.com'[23De', 'freddy@hotmail.com'[23D[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C'[K'[K'[K'[K'[K'[K'[K'[K'[K'[K'[K'[K'[K'[K'[K'[K'[K'[K2'1'6'-'6'6'6'-'1'3'1'3'[C

Took 0.0045 seconds

hbase:065:0> put 'ecom', 'row4', 'customers:phone', '216-666-1313'[C', 'customers:phone', '216-666-1313'[K[36D5', 'customers:phone', '216-666-1313'[36D[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C', '216-666-1313'[K[17D', '216-666-1313'[K[17D', '216-666-1313'[K[17D', '216-666-1313'[K[17D', '216-666-1313'[K[17Dc', '216-666-1313'[17Du', '216-666-1313'[17Dt', '216-666-1313'[17Do', '216-666-1313'[17Dm', '216-666-1313'[17D', '216-666-1313'[K[17D', '216-666-1313'[K[17D', '216-666-1313'[K[17Ds', '216-666-1313'[17Di', '216-666-1313'[17Do', '216-666-1313'[17D', '216-666-1313'[K[17D', '216-666-1313'[K[17Dt', '216-666-1313'[17Do', '216-666-1313'[17Dm', '216-666-1313'[17De', '216-666-1313'[17Dr', '216-666-1313'[17Di', '216-666-1313'[17Dd', '216-666-1313'[17D[C[C[C[C16-666-1313'[K[12D6-666-1313'[K[11D-666-1313'[K[10D666-1313'[K[9D66-1313'[K[8D6-1313'[K[7D-1313'[K[6D1313'[K[5D313'[K[4D13'[K[3D3'[K[2D'[K5'[C

Took 0.0046 seconds

hbase:066:0> put 'ecom', 'row5', 'customers:customerid', '5'[C', '5'[K[6D', '5'[K[6D', '5'[K[6D', '5'[K[6D', '5'[K[6D', '5'[K[6D', '5'[K[6D', '5'[K[6D', '5'[K[6D', '5'[K[6Df', '5'[6Di', '5'[6Dr', '5'[6Ds', '5'[6Dt', '5'[6Dn', '5'[6Da', '5'[6Dm', '5'[6De', '5'[6D[C[C[C[C[C'[KC''[KS'h'e'r'l'o'c'k'[C

Took 0.0058 seconds

hbase:067:0> put 'ecom', 'row5', 'customers:firstname', 'Sherlock'name', 'Sherlock'[K[17Dname', 'Sherlock'[K[17Dname', 'Sherlock'[K[17Dname', 'Sherlock'[K[17Dname', 'Sherlock'[K[17Dlname', 'Sherlock'[17Daname', 'Sherlock'[17Dsname', 'Sherlock'[17Dtname', 'Sherlock'[17D[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C'[K'[K'[K'[K'[K'[K'[K'[KH'o'm''[Kl'o''[Km'e's'[C

Took 0.0037 seconds

hbase:068:0> put 'ecom', 'row5', 'customers:lastname', 'Holmes'', 'Holmes'[K[11D', 'Holmes'[K[11D', 'Holmes'[K[11D', 'Holmes'[K[11D', 'Holmes'[K[11D', 'Holmes'[K[11D', 'Holmes'[K[11D', 'Holmes'[K[11Da', 'Holmes'[11Dd', 'Holmes'[11Dd', 'Holmes'[11Dr', 'Holmes'[11De', 'Holmes'[11Ds', 'Holmes'[11Ds', 'Holmes'[11D[C[C[C[Colmes'[K[6Dlmes'[K[5Dmes'[K[4Des'[K[3Ds'[K[2D'[K1' 'E'v'e'r'g'r'e'e'n' 'S't'r'e'e't'[C

Took 0.0055 seconds

hbase:069:0> put 'ecom', 'row5', 'customers:address', '1 Evergreen Street'', '1 Evergreen Street'[K[23D', '1 Evergreen Street'[K[23D', '1 Evergreen Street'[K[23D', '1 Evergreen Street'[K[23D', '1 Evergreen Street'[K[23D', '1 Evergreen Street'[K[23D', '1 Evergreen Street'[K[23Dc', '1 Evergreen Street'[23Di', '1 Evergreen Street'[23Dt', '1 Evergreen Street'[23Dy', '1 Evergreen Street'[23Dr', '1 Evergreen Street'[23D', '1 Evergreen Street'[K[23D[C[C[C[C Evergreen Street'[K[18DEvergreen Street'[K[17Dvergreen Street'[K[16Dergreen Street'[K[15Drgreen Street'[K[14Dgreen Street'[K[13Dreen Street'[K[12Deen Street'[K[11Den Street'[K[10Dn Street'[K[9D Street'[K[8DStreet'[K[7Dtreet'[K[6Dreet'[K[5Deet'[K[4Det'[K[3Dt'[K[2D'[K2'2'1'B' 'B'a'k'e'r' 'S't'r'[C

Took 0.0040 seconds

hbase:070:0> put 'ecom', 'row5', 'customers:city', '221B Baker Str'', '221B Baker Str'[K[19D', '221B Baker Str'[K[19D', '221B Baker Str'[K[19D', '221B Baker Str'[K[19Dz', '221B Baker Str'[19Di', '221B Baker Str'[19Dp', '221B Baker Str'[19D[C[C[C[C21B Baker Str'[K[14D1B Baker Str'[K[13DB Baker Str'[K[12D Baker Str'[K[11DBaker Str'[K[10Daker Str'[K[9Dker Str'[K[8Der Str'[K[7Dr Str'[K[6D Str'[K[5DStr'[K[4Dtr'[K[3Dr'[K[2D'[KN'W'1' '6'X'e''[KE'[C

Took 0.0066 seconds

hbase:071:0> put 'ecom', 'row5', 'customers:zip', 'NW1 6XE'[C[C', 'NW1 6XE'[K[12D', 'NW1 6XE'[K[12D', 'NW1 6XE'[K[12Dc', 'NW1 6XE'[12Do', 'NW1 6XE'[12Du', 'NW1 6XE'[12Dn', 'NW1 6XE'[12Dt', 'NW1 6XE'[12Dr', 'NW1 6XE'[12Dy', 'NW1 6XE'[12D[C[C[C[CW1 6XE'[K[7D1 6XE'[K[6D 6XE'[K[5D6XE'[K[4DXE'[K[3DE'[K[2D'[KU'I''[KK'[C

Took 0.0043 seconds

hbase:072:0> put 'ecom', 'row5', 'customers:country', 'UK'[C[C', 'UK'[K[7D', 'UK'[K[7D', 'UK'[K[7D', 'UK'[K[7D', 'UK'[K[7D', 'UK'[K[7D', 'UK'[K[7De', 'UK'[7Dm', 'UK'[7Da', 'UK'[7Di', 'UK'[7Dl', 'UK'[7D[C[C[C[CK'[K[2D'[Ks'h'o'm''[Kl'm'e's'@'g'm'a'i'l'.'c'o'm'[C

Took 0.0038 seconds

hbase:073:0> put 'ecom', 'row5', 'customers:email', 'sholmes@gmail.com'', 'sholmes@gmail.com'[K[22D', 'sholmes@gmail.com'[K[22D', 'sholmes@gmail.com'[K[22D', 'sholmes@gmail.com'[K[22D', 'sholmes@gmail.com'[K[22Dp', 'sholmes@gmail.com'[22Dh', 'sholmes@gmail.com'[22Do', 'sholmes@gmail.com'[22Dn', 'sholmes@gmail.com'[22De', 'sholmes@gmail.com'[22D[C[C[C[Cholmes@gmail.com'[K[17Dolmes@gmail.com'[K[16Dlmes@gmail.com'[K[15Dmes@gmail.com'[K[14Des@gmail.com'[K[13Ds@gmail.com'[K[12D@gmail.com'[K[11Dgmail.com'[K[10Dmail.com'[K[9Dail.com'[K[8Dil.com'[K[7Dl.com'[K[6D.com'[K[5Dcom'[K[4Dom'[K[3Dm'[K[2D'[K+'4'4' '2'0' '7'2'2'4' '3'6'8'8'[C

Took 0.0045 seconds

hbase:074:0> put 'eom[K[Kcom', 'row 3[K[K3', 'orders:orderid', 'abc'[K456'

Took 0.0047 seconds

hbase:075:0> put 'ecom', 'row3', 'orders:orderid', 'abc456'', 'abc456'[K[11D', 'abc456'[K[11D', 'abc456'[K[11D', 'abc456'[K[11D', 'abc456'[K[11D', 'abc456'[K[11D', 'abc456'[K[11Dc', 'abc456'[11Du', 'abc456'[11Ds', 'abc456'[11Dt', 'abc456'[11Do', 'abc456'[11Dm', 'abc456'[11De', 'abc456'[11Dr', 'abc456'[11Di', 'abc456'[11Dd', 'abc456'[11D[C[C[C[Cbc456'[K[6Dc456'[K[5D456'[K[4D56'[K[3D6'[K[2D'[K3'[C

Took 0.0035 seconds

hbase:076:0> put 'ecom', 'row3', 'orders:customerid', '3'[C', '3'[K[6D', '3'[K[6D', '3'[K[6D', '3'[K[6D', '3'[K[6D', '3'[K[6D', '3'[K[6D', '3'[K[6D', '3'[K[6D', '3'[K[6Do', '3'[6Dr', '3'[6De', '3'[6Dr', '3'[6Di', '3'[6Dd', '3'[6D', '3'[K[6D', '3'[K[6D', '3'[K[6D', '3'[K[6Dd', '3'[6De', '3'[6Dr', '3'[6Dd', '3'[6Da', '3'[6Dt', '3'[6Da', '3'[6D', '3'[K[6De', '3'[6D[C[C[C[C'[K1'9'8'4'-'1'0'-'2'6'[C

Took 0.0041 seconds

hbase:077:0> put 'ecom', 'row3', 'orders:orderdate', '1984-10-26'[C[C', '1984-10-26'[K[15D', '1984-10-26'[K[15D', '1984-10-26'[K[15D', '1984-10-26'[K[15D', '1984-10-26'[K[15D', '1984-10-26'[K[15D', '1984-10-26'[K[15D', '1984-10-26'[K[15D', '1984-10-26'[K[15Dd', '1984-10-26'[15Da', '1984-10-26'[15Dt', '1984-10-26'[15De', '1984-10-26'[15Df', '1984-10-26'[15Du', '1984-10-26'[15Dl', '1984-10-26'[15Dl', '1984-10-26'[15Df', '1984-10-26'[15Di', '1984-10-26'[15Dl', '1984-10-26'[15Dl', '1984-10-26'[15De', '1984-10-26'[15Dd', '1984-10-26'[15D[C[C[C[C[C[C[C[C[C[C[C[C[3C

Took 0.0036 seconds

hbase:078:0> put 'ecom', 'row3', 'orders:datefullfilled', '1984-10-26'', '1984-10-26'[K[15D', '1984-10-26'[K[15D', '1984-10-26'[K[15D', '1984-10-26'[K[15D', '1984-10-26'[K[15D', '1984-10-26'[K[15D', '1984-10-26'[K[15D', '1984-10-26'[K[15D', '1984-10-26'[K[15D', '1984-10-26'[K[15D', '1984-10-26'[K[15D', '1984-10-26'[K[15D', '1984-10-26'[K[15D', '1984-10-26'[K[15D', '1984-10-26'[K[15D', '1984-10-26'[K[15D', '1984-10-26'[K[15D', '1984-10-26'[K[15D', '1984-10-26'[K[15D', '1984-10-26'[K[15D', '1984-10-26'[K[15Dp', '1984-10-26'[15Dr', '1984-10-26'[15Do', '1984-10-26'[15Dd', '1984-10-26'[15Du', '1984-10-26'[15Dc', '1984-10-26'[15Dt', '1984-10-26'[15Ds', '1984-10-26'[15D:', '1984-10-26'[15Dp', '1984-10-26'[15Dr', '1984-10-26'[15Do', '1984-10-26'[15Dc', '1984-10-26'[15D', '1984-10-26'[K[15Dd', '1984-10-26'[15Du', '1984-10-26'[15Dc', '1984-10-26'[15Dt', '1984-10-26'[15Dn', '1984-10-26'[15Da', '1984-10-26'[15Dm', '1984-10-26'[15De', '1984-10-26'[15D[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C'[K'[K'[K'[K'[K'[K'[K'[K'[K'[KT'a'n'k' 'T'o'p'[C

Took 0.0053 seconds

hbase:079:0> put 'ecom', 'row3', 'products:productname', 'Tank Top'', 'Tank Top'[K[13D', 'Tank Top'[K[13D', 'Tank Top'[K[13D', 'Tank Top'[K[13Dd', 'Tank Top'[13De', 'Tank Top'[13Ds', 'Tank Top'[13Dc', 'Tank Top'[13Dr', 'Tank Top'[13Di', 'Tank Top'[13Dp', 'Tank Top'[13Dt', 'Tank Top'[13Di', 'Tank Top'[13Do', 'Tank Top'[13Dn', 'Tank Top'[13D[C[C[C[CTank Top'[K[9Dank Top'[K[8Dnk Top'[K[7Dk Top'[K[6D Top'[K[5DTop'[K[4Dop'[K[3Dp'[K[2D'[K[K'blak tank top, size SM'

[A[87Cck tank top, size SM'[A[68C[C

[C

Took 0.0055 seconds

hbase:080:0> put 'ecom', 'row1', 'products:pu[K[Kupc\_productid', '123455[K67890'

Took 0.0059 seconds

hbase:081:0> put 'ecom', 'row1', 'products:upc\_productid', '1234567890'[C[C', '1234567890'[K[15D', '1234567890'[K[15D', '1234567890'[K[15D', '1234567890'[K[15D', '1234567890'[K[15D', '1234567890'[K[15D', '1234567890'[K[15D', '1234567890'[K[15D', '1234567890'[K[15D', '1234567890'[K[15D', '1234567890'[K[15D', '1234567890'[K[15D', '1234567890'[K[15Dp', '1234567890'[15Dr', '1234567890'[15Do', '1234567890'[15Dd', '1234567890'[15Du', '1234567890'[15Dc', '1234567890'[15Dt', '1234567890'[15Di', '1234567890'[15Do', '1234567890'[15Do', '1234567890'[15D', '1234567890'[K[15D', '1234567890'[K[15D', '1234567890'[K[15Dn', '1234567890'[15Da', '1234567890'[15Dm', '1234567890'[15De', '1234567890'[15D[C[C[C[C[C234567890'[K[10D34567890'[K[9D4567890'[K[8D567890'[K[7D67890'[K[6D7890'[K[5D890'[K[4D90'[K[3D0'[K[2D'[KC'h'i'c'a'g'o' 'B'u'l'l's' 'r'e'd' 't's'h'i'r't'[C

Took 0.0037 seconds

hbase:082:0> put 'ecom', 'row1', 'products:productname', 'Chicago Bulls red tshirt'', 'Chicago Bulls red tshirt'[K[29D', 'Chicago Bulls red tshirt'[K[29D', 'Chicago Bulls red tshirt'[K[29D', 'Chicago Bulls red tshirt'[K[29D', 'Chicago Bulls red tshirt'[K[29Dt', 'Chicago Bulls red tshirt'[29Dd', 'Chicago Bulls red tshirt'[29De', 'Chicago Bulls red tshirt'[29Ds', 'Chicago Bulls red tshirt'[29Dc', 'Chicago Bulls red tshirt'[29Dr', 'Chicago Bulls red tshirt'[29Dt', 'Chicago Bulls red tshirt'[29Di', 'Chicago Bulls red tshirt'[29Dp', 'Chicago Bulls red tshirt'[29D', 'Chicago Bulls red tshirt'[K[29D', 'Chicago Bulls red tshirt'[K[29D', 'Chicago Bulls red tshirt'[K[29Di', 'Chicago Bulls red tshirt'[29Dp', 'Chicago Bulls red tshirt'[29Dt', 'Chicago Bulls red tshirt'[29Di', 'Chicago Bulls red tshirt'

[A[59Co', 'Chicago Bulls red tshirt'[A[59Cn', 'Chicago Bulls red tshirt'[A[59C[C[C[C[Chicago Bulls red tshirt'[K[A[64Cicago Bulls red tshirt'

[K[A[65Ccago Bulls red tshirt'[K[22Dago Bulls red tshirt'[K[21Dgo Bulls red tshirt'[K[20Do Bulls red tshirt'[K[19D Bulls red tshirt'[K[18DBulls red tshirt'[K[17Dulls red tshirt'[K[16Dlls red tshirt'[K[15Dls red tshirt'[K[14Ds red tshirt'[K[13D red tshirt'[K[12Dred tshirt'[K[11Ded tshirt'[K[10Dd tshirt'[K[9D tshirt'[K[8Dtshirt'[K[7Dshirt'[K[6Dhirt'[K[5Dirt'[K[4Drt'[K[3Dt'[K[2D'[Kr'e'd' 't'-'s'h'i'r't',' 's'i'z'e' 'X'L'[C

Took 0.0049 seconds

hbase:083:0> put 'ecom', 'row1', 'products:productdescription', 'red t-shirt, size XL'', 'red t-shirt, size XL'[K[25D', 'red t-shirt, size XL'[K[25D', 'red t-shirt, size XL'[K[25D', 'red t-shirt, size XL'[K[25D', 'red t-shirt, size XL'[K[25D', 'red t-shirt, size XL'[K[25D', 'red t-shirt, size XL'[K[25D', 'red t-shirt, size XL'[K[25D', 'red t-shirt, size XL'[K[25D', 'red t-shirt, size XL'[K[25D', 'red t-shirt, size XL'[K[25D', 'red t-shirt, size XL'[K[25D', 'red t-shirt, size XL'[K[25D', 'red t-shirt, size XL'[K[25D', 'red t-shirt, size XL'[K[25D', 'red t-shirt, size XL'[K[25D', 'red t-shirt, size XL'[K[25D', 'red t-shirt, size XL'[K[25Du', 'red t-shirt, size XL'[25Dn', 'red t-shirt, size XL'[25Di', 'red t-shirt, size XL'[25Dt', 'red t-shirt, size XL'[25Dp', 'red t-shirt, size XL'[25Dr', 'red t-shirt, size XL'[25Di', 'red t-shirt, size XL'[25Dc', 'red t-shirt, size XL'[25De', 'red t-shirt, size XL'[25D[C[C[C[Ced t-shirt, size XL'[K[20Dd t-shirt, size XL'[K[19D t-shirt, size XL'[K[18Dt-shirt, size XL'[K[17D-shirt, size XL'[K[16Dshirt, size XL'[K[15Dhirt, size XL'[K[14Dirt, size XL'[K[13Drt, size XL'[K[12Dt, size XL'[K[11D, size XL'[K[10D size XL'[K[9Dsize XL'[K[8Dize XL'[K[7Dze XL'[K[6De XL'[K[5D XL'[K[4DXL'[K[3DL'[K[2D'[K$'2'9'.'9'9'[C

Took 0.0054 seconds

hbase:084:0> put 'ecom', 'row2', 'orders:orderid', 'abc789'

Took 0.0042 seconds

hbase:085:0> put 'ecom', 'reo[2D[Kow2', 'orders:orderid', 'abc789'[C', 'abc789'[K[11D', 'abc789'[K[11D', 'abc789'[K[11D', 'abc789'[K[11D', 'abc789'[K[11D', 'abc789'[K[11D', 'abc789'[K[11Dc', 'abc789'[11Du', 'abc789'[11Ds', 'abc789'[11Dt', 'abc789'[11Do', 'abc789'[11Dm', 'abc789'[11De', 'abc789'[11Dr', 'abc789'[11Di', 'abc789'[11Dd', 'abc789'[11D[C[C[C[Cbc789'[K[6Dc789'[K[5D789'[K[4D89'[K[3D9'[K[2D'[K2'[C

Took 0.0039 seconds

hbase:086:0> put 'ecom', 'row2', 'orders:customerid', '2'', '2'[K[6D', '2'[K[6D', '2'[K[6D', '2'[K[6D', '2'[K[6D', '2'[K[6D', '2'[K[6D', '2'[K[6D', '2'[K[6D', '2'[K[6Do', '2'[6Dr', '2'[6Dd', '2'[6De', '2'[6Dr', '2'[6Dd', '2'[6Da', '2'[6Dt', '2'[6De', '2'[6D[C[C[C[C[C0'1'9'-'0'5'-'1'2'[C

Took 0.0046 seconds

hbase:087:0> put 'ecom', 'row2', 'orders:orderdate', '2019-05-12'date', '2019-05-12'[K[19Ddate', '2019-05-12'[K[19Ddate', '2019-05-12'[K[19Ddate', '2019-05-12'[K[19Ddate', '2019-05-12'[K[19D[C[C[C[Cf', '2019-05-12'[15Du', '2019-05-12'[15Dl', '2019-05-12'[15Dl', '2019-05-12'[15Df', '2019-05-12'[15Di', '2019-05-12'[15Dl', '2019-05-12'[15Dl', '2019-05-12'[15De', '2019-05-12'[15Dd', '2019-05-12'[15D[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C'[K3'[C

Took 0.0047 seconds

hbase:088:0> put 'ecom', 'row2', 'orders:datefullfilled', '2019-05-13'', '2019-05-13'[K[15D', '2019-05-13'[K[15D', '2019-05-13'[K[15D', '2019-05-13'[K[15D', '2019-05-13'[K[15D', '2019-05-13'[K[15D', '2019-05-13'[K[15D', '2019-05-13'[K[15D', '2019-05-13'[K[15D', '2019-05-13'[K[15D', '2019-05-13'[K[15D', '2019-05-13'[K[15D', '2019-05-13'[K[15D', '2019-05-13'[K[15D', '2019-05-13'[K[15D', '2019-05-13'[K[15D', '2019-05-13'[K[15D', '2019-05-13'[K[15D', '2019-05-13'[K[15D', '2019-05-13'[K[15D', '2019-05-13'[K[15Dp', '2019-05-13'[15Dr', '2019-05-13'[15Do', '2019-05-13'[15Dd', '2019-05-13'[15Du', '2019-05-13'[15Dc', '2019-05-13'[15Dt', '2019-05-13'[15Ds', '2019-05-13'[15D:', '2019-05-13'[15Dp', '2019-05-13'[15Dr', '2019-05-13'[15Do', '2019-05-13'[15Dd', '2019-05-13'[15Du', '2019-05-13'[15Dc', '2019-05-13'[15Dt', '2019-05-13'[15Dn', '2019-05-13'[15Da', '2019-05-13'[15Dm', '2019-05-13'[15De', '2019-05-13'[15D'', '2019-05-13'[15D', '2019-05-13'[K[15D[C[C[C[C019-05-13'[K[10D19-05-13'[K[9D9-05-13'[K[8D-05-13'[K[7D05-13'[K[6D5-13'[K[5D-13'[K[4D13'[K[3D3'[K[2D'[KT'-'S'h'i'r't'[C

Took 0.0134 seconds

hbase:089:0> put 'ecom', 'row2', 'products:productname', 'T-Shirt'', 'T-Shirt'[K[12D', 'T-Shirt'[K[12D', 'T-Shirt'[K[12D', 'T-Shirt'[K[12Dd', 'T-Shirt'[12De', 'T-Shirt'[12Ds', 'T-Shirt'[12Dc', 'T-Shirt'[12Dr', 'T-Shirt'[12Di', 'T-Shirt'[12Dp', 'T-Shirt'[12Dt', 'T-Shirt'[12Di', 'T-Shirt'[12Do', 'T-Shirt'[12Dn', 'T-Shirt'[12D[C[C[C[C-Shirt'[K[7DShirt'[K[6Dhirt'[K[5Dirt'[K[4Drt'[K[3Dt'[K[2D'[Kr'e'd' 't'-'s'h'i'r't',' 's'i'z'e' 'S'M'[C

Took 0.0039 seconds

hbase:090:0> put 'ecom', 'row2', 'products:productdescription', 'red t-shirt, size SM'[36D[Kname', 'T-Shirt'[32D[Korders:datefullfilled', '2019-05-13'[29D[Korderdate', '2019-05-12'[24D[Kcustomerid', '2'[16D[Korderid', 'abc789'', 'orders:orderid', 'abc789'[K[29D4', 'orders:orderid', 'abc789'[29D[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C'[K'[K'[K1'3'5'[C

Took 0.0050 seconds

hbase:091:0> put 'ecom', 'row4', 'orders:orderid', 'abc135'', 'abc135'[K[11D', 'abc135'[K[11D', 'abc135'[K[11D', 'abc135'[K[11D', 'abc135'[K[11D', 'abc135'[K[11D', 'abc135'[K[11Dc', 'abc135'[11Du', 'abc135'[11Ds', 'abc135'[11Dt', 'abc135'[11Do', 'abc135'[11Dm', 'abc135'[11De', 'abc135'[11Dr', 'abc135'[11Di', 'abc135'[11Dd', 'abc135'[11D[C[C[C[C[C[C[C[C[C[C[C'[K'[K'[K'[K'[K'[K4'[C

Took 0.0039 seconds

hbase:092:0> put 'ecom', 'row4', 'orders:customerid', '4'[C', '4'[K[6D', '4'[K[6D', '4'[K[6D', '4'[K[6D', '4'[K[6D', '4'[K[6D', '4'[K[6D', '4'[K[6D', '4'[K[6D', '4'[K[6Do', '4'[6Dr', '4'[6Dd', '4'[6De', '4'[6Dr', '4'[6Dd', '4'[6Da', '4'[6Dt', '4'[6De', '4'[6D[C[C[C[C[C'[K2'0'0'3'-'0'8'-'1'3'3''[K[C

Took 0.0046 seconds

hbase:093:0> put 'ecom', 'row4', 'orders:orderdate', '2003-08-13'', '2003-08-13'[K[15D', '2003-08-13'[K[15D', '2003-08-13'[K[15D', '2003-08-13'[K[15D', '2003-08-13'[K[15D', '2003-08-13'[K[15D', '2003-08-13'[K[15D', '2003-08-13'[K[15D', '2003-08-13'[K[15Dp', '2003-08-13'[15Da', '2003-08-13'[15Di', '2003-08-13'[15Dd', '2003-08-13'[15D[C[C[C[C003-08-13'[K[10D03-08-13'[K[9D3-08-13'[K[8D-08-13'[K[7D08-13'[K[6D8-13'[K[5D-13'[K[4D13'[K[3D3'[K[2D'[KN'[C

Took 0.0038 seconds

hbase:094:0> put 'ecom', 'row4', 'orders:paid', 'N'', 'N'[K[6D', 'N'[K[6D', 'N'[K[6D', 'N'[K[6Dp', 'N'[6Dr', 'N'[6Do', 'N'[6Dd', 'N'[6Du', 'N'[6Dc', 'N'[6Dt', 'N'[6Dn', 'N'[6Da', 'N'[6Dm', 'N'[6De', 'N'[6D[C[C[C[C[C'[KT'-'S'h'i'r't'[C

Took 0.0070 seconds

hbase:095:0> put 'ecom', 'row4', 'orders:productname', 'T-Shirt':productname', 'T-Shirt'[K[24D:productname', 'T-Shirt'[K[24D:productname', 'T-Shirt'[K[24D:productname', 'T-Shirt'[K[24D:productname', 'T-Shirt'[K[24D:productname', 'T-Shirt'[K[24Dp:productname', 'T-Shirt'[24Dr:productname', 'T-Shirt'[24Do:productname', 'T-Shirt'[24Dd:productname', 'T-Shirt'[24Du:productname', 'T-Shirt'[24Dc:productname', 'T-Shirt'[24Dt:productname', 'T-Shirt'[24Ds:productname', 'T-Shirt'[24D[24C

Took 0.0042 seconds

hbase:096:0> put 'ecom', 'row4', 'products:productname', 'T-Shirt'', 'T-Shirt'[K[12D', 'T-Shirt'[K[12D', 'T-Shirt'[K[12D', 'T-Shirt'[K[12Dd', 'T-Shirt'[12De', 'T-Shirt'[12Ds', 'T-Shirt'[12Dc', 'T-Shirt'[12Dr', 'T-Shirt'[12Di', 'T-Shirt'[12Dp', 'T-Shirt'[12Dt', 'T-Shirt'[12Di', 'T-Shirt'[12Do', 'T-Shirt'[12Dn', 'T-Shirt'[12D[C[C[C[C[C[C[C[C[C[C[C'[K'[K'[K'[K'[K'[K'[Kr'e'd'/'g'r'e'e'n' 's't'r'i'p'e'd' 't'-'s'h'

[A[87Ci'r't',' 's'i'z'e' 'L'G'[C

Took 0.0034 seconds

hbase:097:0> put 'ecom', 'row5', 'orders:orderid'[K', 'abc246'

Took 0.0043 seconds

hbase:098:0> put 'ecom', 'row5', 'orders:orderid', 'abc246'', 'abc246'[K[11D', 'abc246'[K[11D', 'abc246'[K[11D', 'abc246'[K[11D', 'abc246'[K[11D', 'abc246'[K[11D', 'abc246'[K[11Dc', 'abc246'[11Du', 'abc246'[11Ds', 'abc246'[11Dt', 'abc246'[11Do', 'abc246'[11Dm', 'abc246'[11De', 'abc246'[11Dr', 'abc246'[11Di', 'abc246'[11Dd', 'abc246'[11D[C[C[C[Cbc246'[K[6Dc246'[K[5D246'[K[4D46'[K[3D6'[K[2D'[K5'[C

Took 0.0137 seconds

hbase:099:0> put 'ecom', 'row5', 'orders:customerid', '5'', '5'[K[6D', '5'[K[6D', '5'[K[6D', '5'[K[6D', '5'[K[6D', '5'[K[6D', '5'[K[6D', '5'[K[6D', '5'[K[6D', '5'[K[6Do', '5'[6Dr', '5'[6Dd', '5'[6De', '5'[6Dr', '5'[6Dd', '5'[6Da', '5'[6Dt', '5'[6De', '5'[6D[C[C[C[C'[K2'0'0'9'-'1'2'-'2'5'[C

Took 0.0037 seconds

hbase:100:0> put 'ecom', 'row5', 'orders:orderdate', '2009-12-25'date', '2009-12-25'[K[19Ddate', '2009-12-25'[K[19Ddate', '2009-12-25'[K[19Ddate', '2009-12-25'[K[19Ddate', '2009-12-25'[K[19Dpdate', '2009-12-25'[19Dydate', '2009-12-25'[19Ddate', '2009-12-25'[K[19Dadate', '2009-12-25'[19Dydate', '2009-12-25'[19Dmdate', '2009-12-25'[19Dedate', '2009-12-25'[19Dndate', '2009-12-25'[19Dtdate', '2009-12-25'[19D[19C

Took 0.0046 seconds

hbase:101:0> put 'ecom', 'row5', 'orders:paymentdate', '2009-12-25'', '2009-12-25'[K[15D', '2009-12-25'[K[15D', '2009-12-25'[K[15D', '2009-12-25'[K[15D', '2009-12-25'[K[15D', '2009-12-25'[K[15D', '2009-12-25'[K[15D', '2009-12-25'[K[15D', '2009-12-25'[K[15D', '2009-12-25'[K[15D', '2009-12-25'[K[15D', '2009-12-25'[K[15D', '2009-12-25'[K[15D', '2009-12-25'[K[15D', '2009-12-25'[K[15D', '2009-12-25'[K[15D', '2009-12-25'[K[15D', '2009-12-25'[K[15Dp', '2009-12-25'[15Dr', '2009-12-25'[15Do', '2009-12-25'[15Dd', '2009-12-25'[15Du', '2009-12-25'[15Dc', '2009-12-25'[15Dt', '2009-12-25'[15Ds', '2009-12-25'[15D:', '2009-12-25'[15Dp', '2009-12-25'[15Dr', '2009-12-25'[15Do', '2009-12-25'[15Dd', '2009-12-25'[15Du', '2009-12-25'[15Dc', '2009-12-25'[15Dt', '2009-12-25'[15Dn', '2009-12-25'[15Da', '2009-12-25'[15Dm', '2009-12-25'[15De', '2009-12-25'[15D[C[C[C[C009-12-25'[K[10D09-12-25'[K[9D9-12-25'[K[8D-12-25'[K[7D12-25'[K[6D2-25'[K[5D-25'[K[4D25'[K[3D5'[K[2D'[KT'-'S'h'i'r't'[C

Took 0.0040 seconds

hbase:102:0> put 'ecom', 'row5', 'products:productname', 'T-Shirt'[C', 'T-Shirt'[K[12D', 'T-Shirt'[K[12D', 'T-Shirt'[K[12D', 'T-Shirt'[K[12D', 'T-Shirt'[K[12Dt', 'T-Shirt'[12Dd', 'T-Shirt'[12De', 'T-Shirt'[12Ds', 'T-Shirt'[12Dr', 'T-Shirt'[12Di', 'T-Shirt'[12Dp', 'T-Shirt'[12Dt', 'T-Shirt'[12Di', 'T-Shirt'[12Do', 'T-Shirt'[12Dn', 'T-Shirt'[12D[C[C[C[C-Shirt'[K[7DShirt'[K[6Dhirt'[K[5Dirt'[K[4Drt'[K[3Dt'[K[2D'[Kw'h'i't'e' 'T''[Kt'-'s'h'i'r't' ''[K ''[K,' 's'i'z'e' 'M'E'D'

[A[87C[Ccription', 'white t-shirt, size MED'[A[53C

[C

Took 0.0051 seconds

hbase:103:0> get 'ecom' [K, 'row1', 'customers'

COLUMN CELL

customers:address timestamp=2024-01-15T14:19:35.049, value=1901 West Madison Stree

t

customers:city timestamp=2024-01-15T14:19:53.513, value=Chicago

customers:country timestamp=2024-01-15T14:20:54.877, value=USA

customers:customerid timestamp=2024-01-15T14:22:44.489, value=1

customers:email timestamp=2024-01-15T14:21:42.500, value=mjordan@bulls.com

customers:firstname timestamp=2024-01-15T14:17:11.759, value=Michael

customers:lastname timestamp=2024-01-15T14:19:08.538, value=Jordan

customers:orderdate timestamp=2024-01-15T14:23:49.371, value=2019-04-14

customers:orderid timestamp=2024-01-15T14:22:30.956, value=abc123

customers:phone timestamp=2024-01-15T14:22:06.682, value=312-455-4000

customers:productdescr timestamp=2024-01-15T14:25:06.345, value=red t-shirt, size XL

iption

customers:productname timestamp=2024-01-15T14:24:39.149, value=Chicago Bulls red tshir

t

customers:state timestamp=2024-01-15T14:20:08.720, value=IL

customers:unitprice timestamp=2024-01-15T14:25:38.188, value=$29.99

customers:upc\_producti timestamp=2024-01-15T14:24:17.333, value=1234567890

d

customers:zip timestamp=2024-01-15T14:20:31.999, value=60612

1 row(s)

Took 0.2132 seconds

hbase:104:0> scan ecom'[K[K[K[K[K'ecom', { COLUMNS[C{ COLUMNS[K[9D { COLUMNS[9D[C[C[C[C[C[C[C[C[C => 'orders:paid', FILTER=>"BV[K[KValueFilter(=, 'binarypre

fix:N')" }

ROW COLUMN+CELL

row4 column=orders:paid, timestamp=2024-01-15T14:48:04.833, value=N

1 row(s)

Took 0.1224 seconds

hbase:105:0> scan 'ecom', { COLUMNS => 'orders:paid', FILTER=>"ValueFilter(=, 'binaryprefix:N')" }[A[87C', FILTER=>"ValueFilter(=, 'binaryprefix:N')" }[K[A[41C', FILTER=>"ValueFilter(=, 'binaryprefix:N')" }[K[A[41C', FILTER=>"ValueFilter(=, 'binaryprefix:N')" }[K[A[41C', FILTER=>"ValueFilter(=, 'binaryprefix:N')" }[K[A[41C', FILTER=>"ValueFilter(=, 'binaryprefix:N')" }[K[A[41C', FILTER=>"ValueFilter(=, 'binaryprefix:N')" }[K[A[41C', FILTER=>"ValueFilter(=, 'binaryprefix:N')" }[K[A[41C', FILTER=>"ValueFilter(=, 'binaryprefix:N')" }[K[A[41C', FILTER=>"ValueFilter(=, 'binaryprefix:N')" }[K[A[41C', FILTER=>"ValueFilter(=, 'binaryprefix:N')" }

[K[A[41C', FILTER=>"ValueFilter(=, 'binaryprefix:N')" }[K[47Dc', FILTER=>"ValueFilter(=, 'binaryprefix:N')" }

[A[41Cu', FILTER=>"ValueFilter(=, 'binaryprefix:N')" }[A[41Cs', FILTER=>"ValueFilter(=, 'binaryprefix:N')" }[A[41Ct', FILTER=>"ValueFilter(=, 'binaryprefix:N')" }[A[41Co', FILTER=>"ValueFilter(=, 'binaryprefix:N')" }[A[41Cm', FILTER=>"ValueFilter(=, 'binaryprefix:N')" }[A[41Ce', FILTER=>"ValueFilter(=, 'binaryprefix:N')" }[A[41Cr', FILTER=>"ValueFilter(=, 'binaryprefix:N')" }[A[41Cs', FILTER=>"ValueFilter(=, 'binaryprefix:N')" }[A[41C:', FILTER=>"ValueFilter(=, 'binaryprefix:N')" }[A[41Cc', FILTER=>"ValueFilter(=, 'binaryprefix:N')" }[A[41Ci', FILTER=>"ValueFilter(=, 'binaryprefix:N')" }[A[41Ct', FILTER=>"ValueFilter(=, 'binaryprefix:N')" }[A[41Cy', FILTER=>"ValueFilter(=, 'binaryprefix:N')" }[A[41C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C[C

[C[C[C[C[C[C[C[C[C[C[C[C')" }[K[5DL')" }[5Do')" }[5Ds')" }[5D ')" }[5DA')" }[5Dn')" }[5Dg')" }[5De')" }[5Dl')" }[5De')" }[5Ds')" }[5D[5C

ROW COLUMN+CELL

row3 column=customers:city, timestamp=2024-01-15T14:33:59.484, value=

Los Angeles

row4 column=customers:city, timestamp=2024-01-15T14:35:57.225, value=

Los Angeles

2 row(s)

Took 0.0095 seconds

hbase:106:0> scan 'ecom'

ROW COLUMN+CELL

row1 column=customers:address, timestamp=2024-01-15T14:19:35.049, val

ue=1901 West Madison Street

row1 column=customers:city, timestamp=2024-01-15T14:19:53.513, value=

Chicago

row1 column=customers:country, timestamp=2024-01-15T14:20:54.877, val

ue=USA

row1 column=customers:customerid, timestamp=2024-01-15T14:22:44.489,

value=1

row1 column=customers:email, timestamp=2024-01-15T14:21:42.500, value

=mjordan@bulls.com

row1 column=customers:firstname, timestamp=2024-01-15T14:17:11.759, v

alue=Michael

row1 column=customers:lastname, timestamp=2024-01-15T14:19:08.538, va

lue=Jordan

row1 column=customers:orderdate, timestamp=2024-01-15T14:23:49.371, v

alue=2019-04-14

row1 column=customers:orderid, timestamp=2024-01-15T14:22:30.956, val

ue=abc123

row1 column=customers:phone, timestamp=2024-01-15T14:22:06.682, value

=312-455-4000

row1 column=customers:productdescription, timestamp=2024-01-15T14:25:

06.345, value=red t-shirt, size XL

row1 column=customers:productname, timestamp=2024-01-15T14:24:39.149,

value=Chicago Bulls red tshirt

row1 column=customers:state, timestamp=2024-01-15T14:20:08.720, value

=IL

row1 column=customers:unitprice, timestamp=2024-01-15T14:25:38.188, v

alue=$29.99

row1 column=customers:upc\_productid, timestamp=2024-01-15T14:24:17.33

3, value=1234567890

row1 column=customers:zip, timestamp=2024-01-15T14:20:31.999, value=6

0612

row1 column=orders:completed, timestamp=2024-01-15T14:26:30.947, valu

e=Y

row1 column=orders:discount, timestamp=2024-01-15T14:26:08.688, value

=$4

row1 column=orders:quantity, timestamp=2024-01-15T14:25:54.830, value

=4

row1 column=products:productdescription, timestamp=2024-01-15T14:44:1

3.935, value=red t-shirt, size XL

row1 column=products:productname, timestamp=2024-01-15T14:43:48.514,

value=Chicago Bulls red tshirt

row1 column=products:unitprice, timestamp=2024-01-15T14:44:31.176, va

lue=$29.99

row1 column=products:upc\_productid, timestamp=2024-01-15T14:43:27.460

, value=1234567890

row2 column=customers:address, timestamp=2024-01-15T14:28:17.257, val

ue=1 Evergreen Street

row2 column=customers:city, timestamp=2024-01-15T14:28:34.889, value=

Springfield

row2 column=customers:country, timestamp=2024-01-15T14:29:03.710, val

ue=USA

row2 column=customers:customerid, timestamp=2024-01-15T14:27:09.749,

value=2

row2 column=customers:email, timestamp=2024-01-15T14:29:34.045, value

=bart\_simpson@yahoo.com

row2 column=customers:firstname, timestamp=2024-01-15T14:27:27.252, v

alue=Bart

row2 column=customers:lastname, timestamp=2024-01-15T14:27:58.373, va

lue=Simpson

row2 column=customers:phone, timestamp=2024-01-15T14:29:53.960, value

=541-789-6532

row2 column=customers:state, timestamp=2024-01-15T14:28:44.589, value

=OR

row2 column=customers:zip, timestamp=2024-01-15T14:28:56.708, value=9

7403

row2 column=orders:customerid, timestamp=2024-01-15T14:45:17.686, val

ue=2

row2 column=orders:datefullfilled, timestamp=2024-01-15T14:45:43.992,

value=2019-05-13

row2 column=orders:orderdate, timestamp=2024-01-15T14:45:31.893, valu

e=2019-05-12

row2 column=orders:orderid, timestamp=2024-01-15T14:45:01.525, value=

abc789

row2 column=products:productdescription, timestamp=2024-01-15T14:46:2

9.201, value=red t-shirt, size SM

row2 column=products:productname, timestamp=2024-01-15T14:46:11.207,

value=T-Shirt

row3 column=customers:address, timestamp=2024-01-15T14:34:57.015, val

ue=309 Caldera Canyon

row3 column=customers:apt, timestamp=2024-01-15T14:31:13.119, value=A

pt 225

row3 column=customers:city, timestamp=2024-01-15T14:33:59.484, value=

Los Angeles

row3 column=customers:country, timestamp=2024-01-15T14:32:07.047, val

ue=USA

row3 column=customers:customerid, timestamp=2024-01-15T14:30:18.575,

value=3

row3 column=customers:email, timestamp=2024-01-15T14:32:20.609, value

=sconnor@hotmail.com

row3 column=customers:firstname, timestamp=2024-01-15T14:34:31.022, v

alue=Sarah

row3 column=customers:lastname, timestamp=2024-01-15T14:34:45.710, va

lue=Connor

row3 column=customers:phone, timestamp=2024-01-15T14:32:39.707, value

=213-678-4431

row3 column=customers:state, timestamp=2024-01-15T14:31:47.800, value

=CA

row3 column=customers:zip, timestamp=2024-01-15T14:31:58.679, value=9

0007

row3 column=orders:customerid, timestamp=2024-01-15T14:40:30.513, val

ue=3

row3 column=orders:datefullfilled, timestamp=2024-01-15T14:41:22.411,

value=1984-10-26

row3 column=orders:orderdate, timestamp=2024-01-15T14:40:59.851, valu

e=1984-10-26

row3 column=orders:orderid, timestamp=2024-01-15T14:40:19.286, value=

abc456

row3 column=products:productdescription, timestamp=2024-01-15T14:42:5

8.088, value=black tank top, size SM

row3 column=products:productname, timestamp=2024-01-15T14:42:32.881,

value=Tank Top

row4 column=customers:address, timestamp=2024-01-15T14:35:44.189, val

ue=1428 Elm Street

row4 column=customers:city, timestamp=2024-01-15T14:35:57.225, value=

Los Angeles

row4 column=customers:country, timestamp=2024-01-15T14:36:26.806, val

ue=USA

row4 column=customers:customerid, timestamp=2024-01-15T14:33:10.469,

value=4

row4 column=customers:email, timestamp=2024-01-15T14:36:40.985, value

=freddy@hotmail.com

row4 column=customers:firstname, timestamp=2024-01-15T14:35:19.161, v

alue=Fred

row4 column=customers:lastname, timestamp=2024-01-15T14:35:30.989, va

lue=Krueger

row4 column=customers:phone, timestamp=2024-01-15T14:37:00.636, value

=216-666-1313

row4 column=customers:state, timestamp=2024-01-15T14:36:06.646, value

=CA

row4 column=customers:zip, timestamp=2024-01-15T14:36:15.363, value=9

0008

row4 column=orders:customerid, timestamp=2024-01-15T14:47:07.611, val

ue=4

row4 column=orders:orderdate, timestamp=2024-01-15T14:47:53.802, valu

e=2003-08-13

row4 column=orders:orderid, timestamp=2024-01-15T14:46:56.174, value=

abc135

row4 column=orders:paid, timestamp=2024-01-15T14:48:04.833, value=N

row4 column=orders:productname, timestamp=2024-01-15T14:48:17.333, va

lue=T-Shirt

row4 column=products:productdescription, timestamp=2024-01-15T14:48:4

6.181, value=red/green striped t-shirt, size LG

row4 column=products:productname, timestamp=2024-01-15T14:48:25.847,

value=T-Shirt

row5 column=customers:address, timestamp=2024-01-15T14:38:24.245, val

ue=1 Evergreen Street

row5 column=customers:city, timestamp=2024-01-15T14:38:41.338, value=

221B Baker Str

row5 column=customers:country, timestamp=2024-01-15T14:39:07.233, val

ue=UK

row5 column=customers:customerid, timestamp=2024-01-15T14:37:43.227,

value=5

row5 column=customers:email, timestamp=2024-01-15T14:39:21.714, value

=sholmes@gmail.com

row5 column=customers:firstname, timestamp=2024-01-15T14:37:53.697, v

alue=Sherlock

row5 column=customers:lastname, timestamp=2024-01-15T14:38:05.939, va

lue=Holmes

row5 column=customers:phone, timestamp=2024-01-15T14:39:43.956, value

=+44 20 7224 3688

row5 column=customers:zip, timestamp=2024-01-15T14:38:57.822, value=N

W1 6XE

row5 column=orders:customerid, timestamp=2024-01-15T14:49:20.643, val

ue=5

row5 column=orders:orderdate, timestamp=2024-01-15T14:49:33.678, valu

e=2009-12-25

row5 column=orders:orderid, timestamp=2024-01-15T14:49:11.150, value=

abc246

row5 column=orders:paymentdate, timestamp=2024-01-15T14:49:44.427, va

lue=2009-12-25

row5 column=products:productdescription, timestamp=2024-01-15T14:50:3

8.180, value=white t-shirt, size MED

row5 column=products:productname, timestamp=2024-01-15T14:50:06.346,

value=T-Shirt

5 row(s)

Took 0.0998 seconds

hbase:107:0> describe 'ecom'

Table ecom is ENABLED

ecom

COLUMN FAMILIES DESCRIPTION

{NAME => 'customers', BLOOMFILTER => 'ROW', IN\_MEMORY => 'false', VERSIONS => '1', KEEP\_

DELETED\_CELLS => 'FALSE', DATA\_BLOCK\_ENCODING => 'NONE', COMPRESSION => 'NONE', TTL => '

FOREVER', MIN\_VERSIONS => '0', BLOCKCACHE => 'true', BLOCKSIZE => '65536', REPLICATION\_S

COPE => '0'}

{NAME => 'order\_details', BLOOMFILTER => 'ROW', IN\_MEMORY => 'false', VERSIONS => '1', K

EEP\_DELETED\_CELLS => 'FALSE', DATA\_BLOCK\_ENCODING => 'NONE', COMPRESSION => 'NONE', TTL

=> 'FOREVER', MIN\_VERSIONS => '0', BLOCKCACHE => 'true', BLOCKSIZE => '65536', REPLICATI

ON\_SCOPE => '0'}

{NAME => 'orders', BLOOMFILTER => 'ROW', IN\_MEMORY => 'false', VERSIONS => '1', KEEP\_DEL

ETED\_CELLS => 'FALSE', DATA\_BLOCK\_ENCODING => 'NONE', COMPRESSION => 'NONE', TTL => 'FOR

EVER', MIN\_VERSIONS => '0', BLOCKCACHE => 'true', BLOCKSIZE => '65536', REPLICATION\_SCOP

E => '0'}

{NAME => 'products', BLOOMFILTER => 'ROW', IN\_MEMORY => 'false', VERSIONS => '1', KEEP\_D

ELETED\_CELLS => 'FALSE', DATA\_BLOCK\_ENCODING => 'NONE', COMPRESSION => 'NONE', TTL => 'F

OREVER', MIN\_VERSIONS => '0', BLOCKCACHE => 'true', BLOCKSIZE => '65536', REPLICATION\_SC

OPE => '0'}

4 row(s)

Quota is disabled

Took 0.0895 seconds

hbase:108:0> count 'ecom'

5 row(s)

Took 0.0189 seconds

=> 5

hbase:109:0> exit

]0;codio@tigerpeople-henrypablo: ~/workspace codio@tigerpeople-henrypablo:~/workspace$ exit

exit

Script done on 2024-01-15 14:54:01-0500