

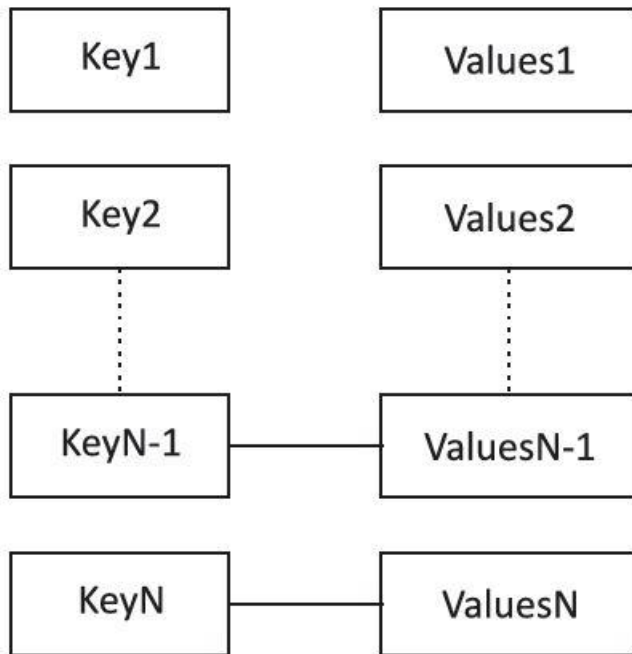
Lesson 2

Key Value Store

Key-Value Data Store

- A simplest way to implement a schema-less database
- The concept is similar to a hash table where a unique key points to a particular item(s) of data.
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Figure 3.4 Example of key-value pairs in data architectural pattern



Number of key-values pair, N can be a very large number

Key	Value
"Ashish"	"Category: Student; Class: B.Tech.; Semester: VII; Branch: Engineering; Mobile:9999912345"
"Mayuri"	"Category: student; class: M.Tech.; Mobile:8888823456"

Advantages of a key-value store

1. Data Store can store any data type in a value field

The key-value system stores the information as a BLOB of data (such as text, hypertext, images, video and audio) and return the same BLOB when the data is retrieved .

Key-Value Store Features

2. Storage is like an English dictionary. Query for a word retrieves the meanings, usages, different forms as a single item in the dictionary. Similarly, querying for key retrieves the values.

Querying Key-value Store

3. A query just requests the values and returns the values as a single item. Values can be of any data type.
4. Key-value store is eventually consistent.
- 5 Key-value data store may be hierarchical or may be ordered key-value store

Returned values on queries

6. Can be used to convert into lists, table-columns, data-frame fields and columns
7. Have (i) scalability, (ii) reliability, (iii) portability and (iv) low operational cost
8. The key can be synthetic or auto-generated.

Methods

- `Get(key)`, returns the value associated with the key and `Delete (key)`
- `Put (key, value)`, associates the value with the key and updates a value if this key is already present.
- `Multi-get (key1, key2, .., keyN)`, returns the list of values associated with the list of keys

Limitations

- No indexes are maintained on values, thus a subset of values is not searchable.
- Key-value store does not provide traditional database capabilities, such as atomicity of transactions, or consistency when multiple transactions are executed simultaneously

Limitations

- The application needs to implement such capabilities.
- Maintaining unique values as keys may become more difficult when the volume of data increases

Summary

We learnt :

- Key-Value Pairs
- Value can be BLOB
- Queries raised
- Return data can be converted to table or data frame
- Increasing flexibilities

Summary

We learnt :

- Advantages of Key-Value Pairs
- Limitations of Key-value pairs

End of Lesson 2 on **Key Value Store**