Cassandra Browser Tool

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Overview

•Building a Cassandra Browser Tool using Python which provides User Interface to access data from the Cassandra Server.

Approach

***Understanding of Cassandra Architecture and its working.**

***Operating on Cassandra Database using Pycassa (Python API).**

***Implementing each functionality using Python modules.**

***Generating Jinja2 templates using the results of above modules.**

Functionalities

***Keyspace Operations**

- Create, Drop and Retrieve information about Keyspaces.

***Column Family Operations**

- Create, Index, Drop and Get Description about a Column Family.

***Rows and Columns Operations**

- Insert, Delete, Alter and Retrieve information about Rows and Columns.

***Managing Cluster**

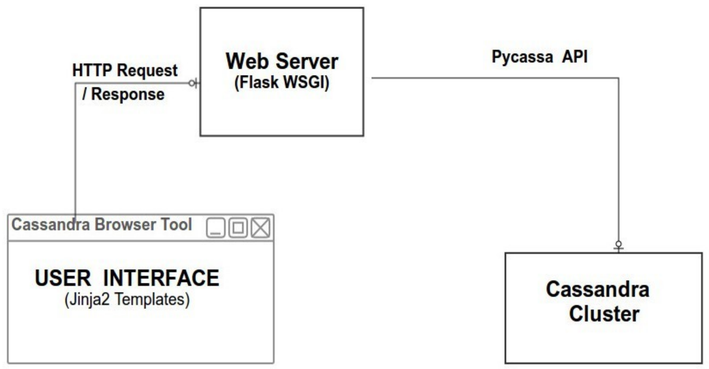
- View details such as Clusters, Machine added to cluster and Load on each machine.

Application

***Web based Application so that user can easily access using Browser remotely.**

***Allowing the user to work with Cassandra database efficiently and without any prior knowledge of CQL.**

Architecture



•Frontend Module

- Layout of our Application includes
  - » Dashboard : Display of all the Functionalities.
  - » Data Model : Attributes related to Keyspace, Column Family and Cluster.
  - » Data View : Information about Keyspace, Indexes, Column Family and Cluster.

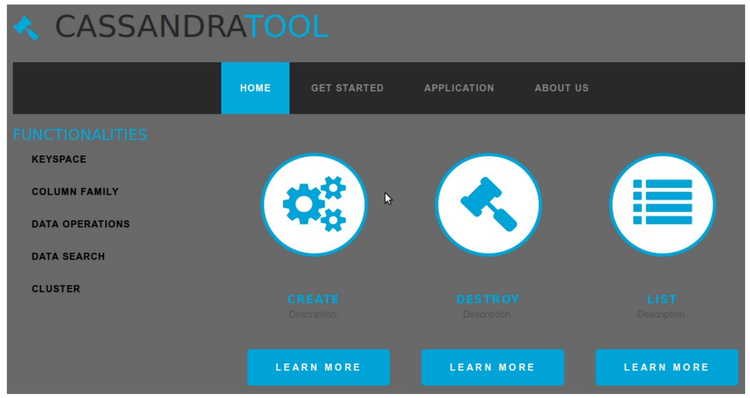
***Intermediate Module**

- Generating Jinja2 templates based on the results from our backend module.
- Use of Flask (based on WSGI) to communicate Frontend with the Backend module and vice-versa.

***Backend Module**

- Configuring Cassandra Cluster.
- Use of Pycassa (Python API) to operate on Cassandra Database.

User Interface



Challenges

***Managing of Cassandra Server on different Clusters.**

***Displaying huge database due to over-allocation of memory in Cassandra server.**

***Dynamically adding a machine without any downtime of Cluster.**

Conclusion

***Web based Application so that user can easily operate on Cassandra Database.**

***User can work with Cassandra without any prior knowledge of Cassandra Query Language.**

Future Work

•Implementing User Level Security over Cassandra Database using Authentication.

•Allowing the user to export a database of other kind into Cassandra.

Link to Source Code : https://github.com/CloudProjectWork/CassandraBrowserTool