Report on Graph database – **Neo4j**

Graph database – Neo4j

The data in the graph databases can be represented in a better way which is more understandable to the users when compared to the relational databases like MY SQL. Graph databases are especially recommended when the data is more connected with a greater number of relationships. Neo4j is one of the graph databases in which, the entities in the data are represented in the form of nodes and, relationships between entities are represented in the form of edges. Other graph databases include OrientDB, HyperGraphDB, AllegroDB etc.

Limitations in relational databases like MY SQL:

- Performance in database degrades with increase of data
- Sometimes queries get long and complex with a greater number of joins to extract the data
- Maintenance is difficult
- Complex to model and store relationships

Features of Neo4j [1]:

- It uses SQL like declarative query language called Cypher (CQL)
- It follows Property Graph Data Model
- It supports Indexes by using Apache Lucence
- It contains a user interface to execute CQL Commands: Neo4j Browser
- It supports all the ACID (Atomicity, Consistency, Isolation and Durability) rules for transactions.
- It supports exporting of query data to JSON and XLS format

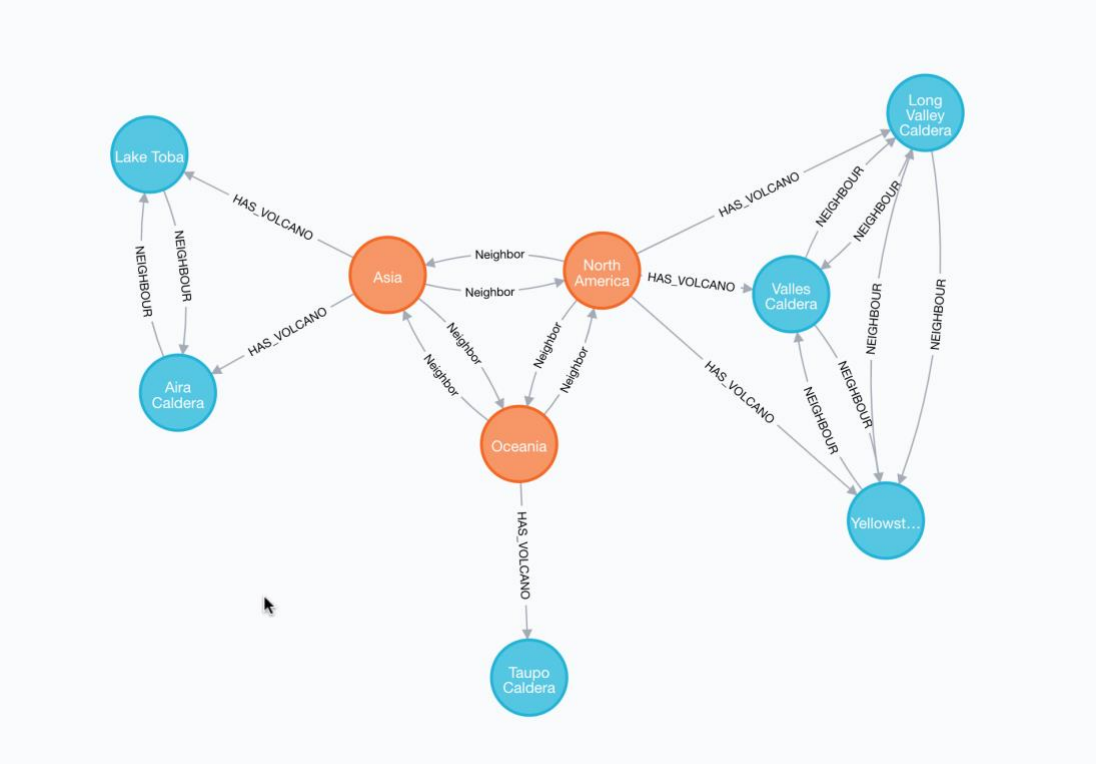
Advantages of Neo4j [1]:

- Easy to model and store relationships
- Uses simple and powerful data model.
- Easy to represent the data
- Easy and faster to retrieve the connected data
- Query is short, human readable and easy to learn
- Does not require complex queries or joins to retrieve the data

Limitations of Neo4j [2]:

- Neo4j uses the primary memory of the system so, when the data that needs to be retrieved is huge it consumes most of the primary memory of system.
- There is no built-in distribution of data: Neo4J supports master-slave topology for read and write operations and, each node holds a copy of the whole database within it. This means that all the data should reside in a single machine. Also, since all the write operations are handled by master, when high volume of writes happen, the performance could be degraded.

Final data model of the project:



References:

[1]"Neo4j Overview", www.tutorialspoint.com, 2019. [Online]. Available: https://www.tutorialspoint.com/neo4j/neo4j_overview. [Accessed: 11- Jul- 2019].

[2]"Neo4j Graph Platform – The Leader in Graph Databases", Neo4j Graph Database Platform, 2019. [Online]. Available: https://neo4j.com. [Accessed: 11- Jul- 2019].