**ASSIGNMENT 9.1**

1. What is NoSQL data base?

Solutions:

NoSQL is an approach to databases that represents a shift away from traditional relational database management systems (RDBMS). To define NoSQL, it is helpful to start by describing SQL, which is a query language used by RDBMS. Relational databases rely on tables, columns, rows, or schemas to organize and retrieve data. In contrast, NoSQL databases do not rely on these structures and use more flexible data models. NoSQL can mean “not SQL” or “not only SQL.” As RDBMS have increasingly failed to meet the performance, scalability, and flexibility needs that next-generation, data-intensive applications require, NoSQL databases have been adopted by mainstream enterprises. NoSQL is particularly useful for storing unstructured data, which is growing far more rapidly than structured data and does not fit the relational schemas of RDBMS. Common types of unstructured data include: user and session data; chat, messaging, and log data; time series data such as IoT and device data; and large objects such as video and images.

2. How does data get stored in NoSQl database?

Solutions:

Individual records (e.g., 'employees') are stored as rows in tables, with each column storing a specific piece of data about that record (e.g., 'manager,' 'date hired,' etc.), much like a spreadsheet. Related data is stored in separate tables, and then joined together when more complex queries are executed. For example, 'offices' might be stored in one table, and 'employees' in another. When a user wants to find the work address of an employee, the database engine joins the 'employee' and 'office' tables together to get all the information necessary.

3. What is a column family in HBase?

Solutions:

In HBase, the ‘column family’ is defined as the group of columns used to create a Hbase table.

4. How many maximum number of columns can be added to HBase table?

Solutions: There is no hard limit to the number of columns in Hbase, we can have more than 1 million columns but usually 3 column families are recommended (not more than 3).

5. Why columns are not defined at the time of table creation in HBase?

Solutions:

Column families must be defined at table creation time but columns can be added dynamically after table creation (if an insert statement states a column that does not exist for a column family it will create it).

6. How does data get managed in HBase?

Solutions:

The Hbase data is stored and managed in Hdfs files.