**Assignment 17 1**

1. **What is NoSQL data base?**

*NoSQL database, generally called Not only SQL is designed to handle huge volumes of data. NoSQL databases can provide low latency queries.*

*Eg: Hbase, mongo, cassendra etc*

1. **How does data get stored in NoSQl database?**

*Depending on type of database, data gets stored in many ways in NoSQL databases*

***Key value stores****: In these type of NoSQL databases, every single item will be stored in form of key,value pairs like attribute name and value.*

***Column oriented databases****: In these type of NoSQL databases, data gets stored in column format instead of row format. Eg: Cassendra, Hbase*

1. **What is a column family in HBase?**

*Columns in habse are grouped into column families. All the column members will have the prefix as column family.*

*Eg: personal:name and personal:location 🡪here name and locations are column members, personal is a column family which groups name & location with ‘personal’ as prefix.*

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

*Hbase table can have multiple column families and a column family can have any number of columns.*

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

*In RDBMS, its mandatory to mention column names at time of table creation itself. In future if we want to do any modifications in columns , like adding new column or remove any existing column….in that case we need to alter the table.*

*But in Hbase…the biggest advantage is, it is not mandatory to provide column names while creating table. We can mention column names while inserting the data. This helps in avoiding unnecessary table altering.*

1. **How does data get managed in HBase?**

*If client wants to save data into Hbase…it will contact master server. Master server monitors and balances the region servers with help of zookeeper.*

*Region server is the place where all the data gets stored. Tables(data) get splitted up and spread across region servers in form of Regions.*

*Master server assigns Regions to region server.*

**7. What happens internally when new data gets inserted into HBase table?**

*Data gets inserted into Hbase table using ‘put’ command.*

*Steps involved are:*

*1. Once ‘put’ command is fired, that data will be written to WAL (Write Ahead Log)*

*2. WAL writes data to the Memstore. Memstore sorts the data.*

*3. When WAL successfully writes data to memstore, it sends an acknowledge back to client that ‘put’ operation is successful.*

*4. When memstore reaches threshold, then that sorted data will be written to HFile.*