**Explain the different methods of mapper class and reducer class**

**Mapper class:**

Mapper class has got four methods

1)Setup

2)Run

3)Map

4)Clean up

SETUP:

As name suggests it is the first method executed before any of the other method is executed, this method is used for the setting up initial setups if needed before the actual mapping starts. e.g finding the cache file and using the that file can be done in the setup phase of the mapping .

RUN:

The default run() method simply takes each key / value pair supplied by the context and calls the map() method. Very rarerly this method is over ridden.

MAP:

In this method the input is taken from the file line by line and converts in the key value format and sent to the reducer. Map method is called for each input split spawned by the input format for the job.

CLEANUP:

During cleanup() is that you clean up any resources you may have allocated. There are other uses too, which is to flush out any accumulation of aggregate results.

**Reducer Class:**

we know that reducer code reads the outputs generated by the different mappers as <Key,Value> pairs. The Reducer interface wants four generics, which define the types of the input and output key value pairs. The first two parameters define the intermediate key and value types, the second two define the final output key and value types.

Reducer has also got same Setup , run and clean up method as in that of the mapper class with same functionality

Reduce method - The main task of the reducer class is to perform user operation on all the mapper key value pairs sort and shuffle results and to combine these results into one output.

* **Shuffle** − The Reducer copies the sorted output from each Mapper using HTTP across the network.
* **Sort** − The framework merge-sorts the Reducer inputs by keys (since different Mappers may have output the same key). The shuffle and sort phases occur simultaneously, i.e., while outputs are being fetched, they are merged.
* **Reduce** − In this phase the reduce (Object, Iterable, Context) method is called for each <key, (collection of values)> in the sorted inputs.