Consistent Hashing Implementation

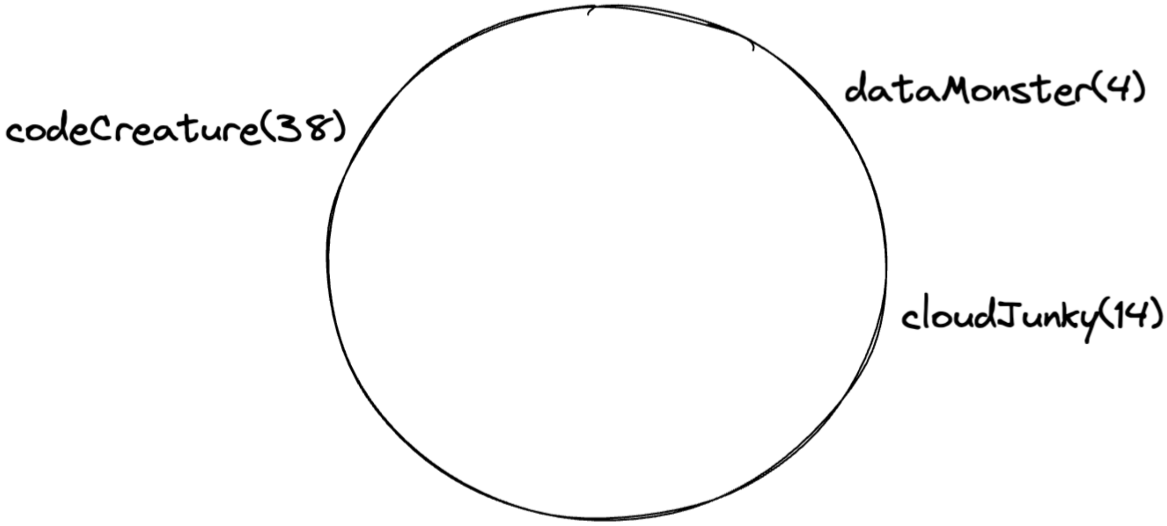
This code is a simple implementation to illustrate the functioning of a data store which is based on the technique of Consistent Hashing.
This video has a great explanation of what ‘Consistent Hashing’ is.

Below are some points to note -

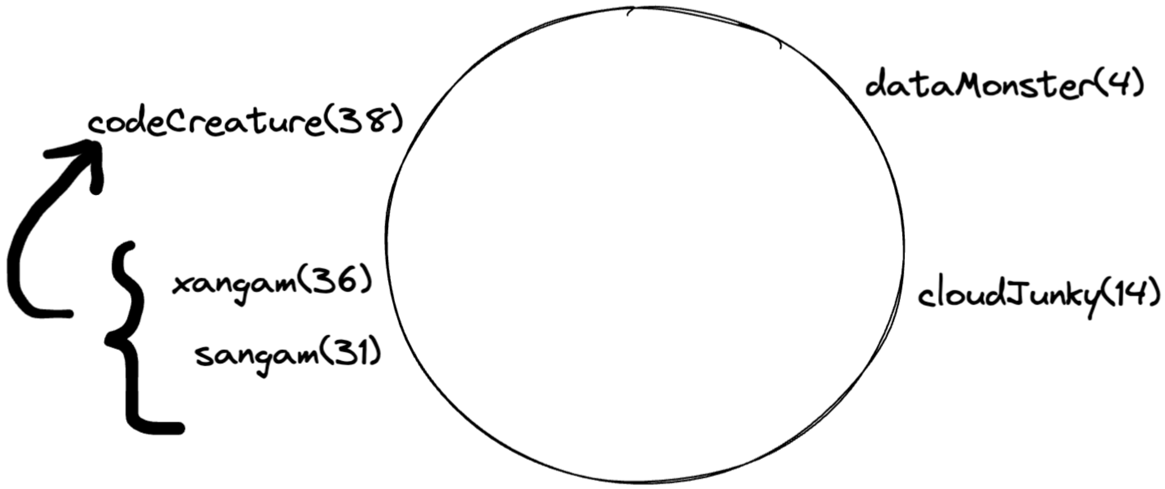
- Same hash function is used to hash the server name(node name) as well as the key which is being stored.
- The class DataNode mimics a real node which will save the key value data.

To understand these tests, the below mapping of Strings and their hash value will help.
"cloudJunky" - 14
"codeCreature" - 38
"dataMonster" - 4
"sangam" - 31
"xangam" - 36

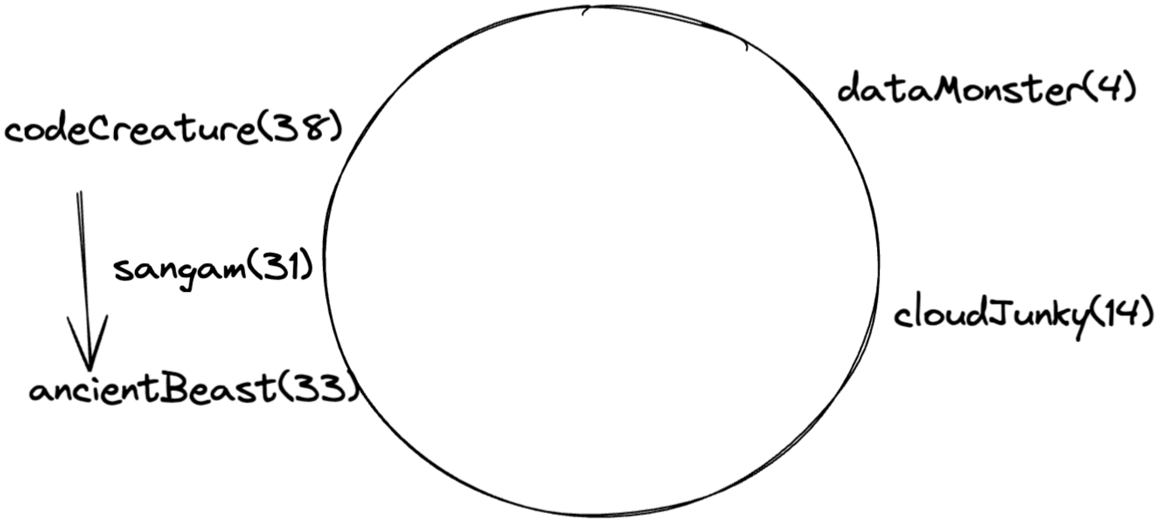
Below is how the initial node topology will look like -



Next, we try to add the keys “sangam”(31) and “xangam”(36). These keys will be stored in the node “codeCreature”(38) since that’s the next available node if we go clockwise.



Now, we add another node “ancientBeast”(33). Due to this, the key “sangam”(31) will move from “codeCreature”(38) to “ancientBeast”(33).



Run the tests to see these transactions in action.