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**Map Reduce**

In my map reduce, I find the average of the dependency ratio of the first 10 years, 1960-1970. This is done for every country.

**Mapper algorithm**

The mapper received the file line by line and uses coverts the text to string which then uses the splint method to separate the words and store them in an array. Since the rows I am considering have a lot of data, I use an if statement to only look at rows that have an array size that is greater than 60.

I also go ahead to check if the indicator code matches that of the dependency ratio and if there is data under the year 1960. This is because some of the rows don’t have data under them and considering them will lead to exceptions.

To my main algorithm, I create a loop running from 4 to 14 which are the indices of the data from 1960 to 1970. Each time the loop iterates, a new value is received and passed on to the context with the same country name which is the key. This happens until all the 10 values of a country are received. Therefore, each key is sent with a total of 10 values.

**Reducer algorithm**

The reducer adds all the 10 values that came under the same key to get the sum and then divides them by 10 to get the average then each of the average values is passed onto the context with the corressponing key value.