LAB – 5

Implement Wordcount program on Hadoop framework

```
// Importing libraries
import java.io.IOException;
import org.apache.hadoop.io.IntWritable;
import org.apache.hadoop.io.LongWritable;
import org.apache.hadoop.io.Text;
import org.apache.hadoop.mapred.MapReduceBase;
import org.apache.hadoop.mapred.Mapper;
import org.apache.hadoop.mapred.OutputCollector;
import org.apache.hadoop.mapred.Reporter;

public class WCMapper extends
MapReduceBase implements
Mapper<LongWritable,Text, Text,
IntWritable> {

        // Map function
public void map(LongWritable key, Text value, OutputCollector<Text,
        IntWritable> output, Reporter rep) throws IOException
        {

                String line = value.toString();

                // Splitting the line on spaces
                for (String word : line.split(" "))
                {
                        if (word.length() > 0)
                        {
        output.collect(new Text(word), new IntWritable(1));
                        }
                }
        }
}
```

Reducer Code: You have to copy paste this program into the WCReducer Java Class file.

```
 // Importing libraries
import java.io.IOException;
import java.util.Iterator;
import org.apache.hadoop.io.IntWritable;
import org.apache.hadoop.io.Text;
import org.apache.hadoop.mapred.MapReduceBase;
import org.apache.hadoop.mapred.OutputCollector;
import org.apache.hadoop.mapred.Reducer;
import org.apache.hadoop.mapred.Reporter;
public class WCReducer extends
MapReduceBase implements
Reducer<Text,IntWritable, Text, IntWritable>
{

        // Reduce function
        public void reduce(Text key, Iterator<IntWritable> value,
        OutputCollector<Text, IntWritable> output,
                                Reporter rep) throws IOException
        {

                int count = 0;

                // Counting the frequency of each words
                while (value.hasNext())
                {
                        IntWritable i = value.next();
                        count += i.get();
                }

                output.collect(key, new IntWritable(count));
        }
}
```

Driver Code: You have to copy paste this program into the WCDriver Java Class file.

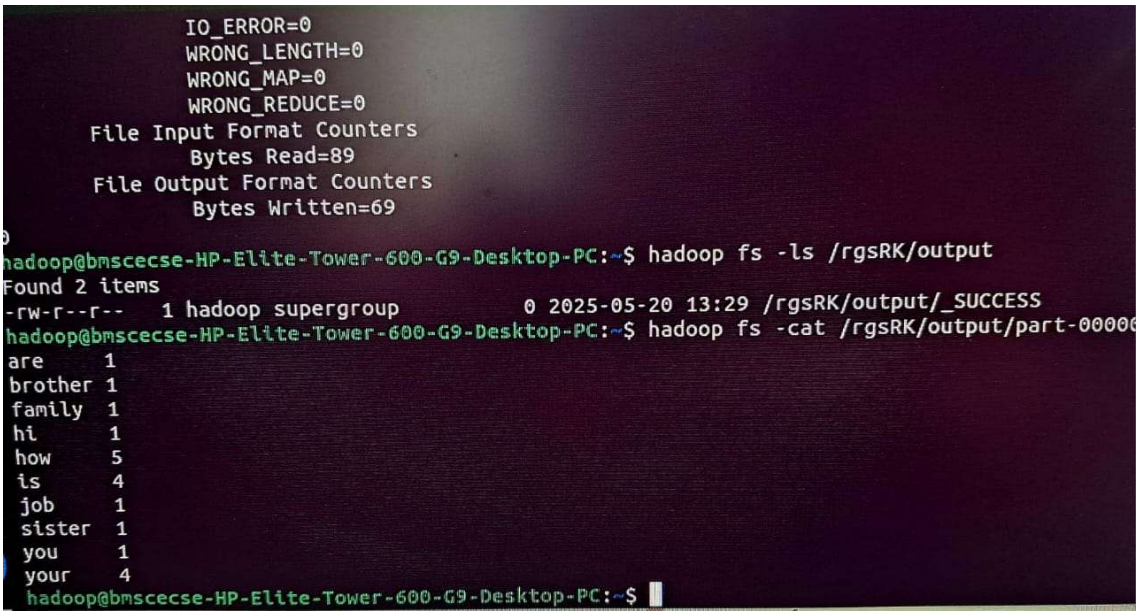
```
// Importing libraries
import java.io.IOException;
import org.apache.hadoop.conf.Configured;
import org.apache.hadoop.fs.Path;
import org.apache.hadoop.io.IntWritable;
import org.apache.hadoop.io.Text;
import org.apache.hadoop.mapred.FileInputFormat;
import org.apache.hadoop.mapred.FileOutputFormat;
import org.apache.hadoop.mapred.JobClient;
import org.apache.hadoop.mapred.JobConf;
import org.apache.hadoop.util.Tool;
import org.apache.hadoop.util.ToolRunner;

public class WCDriver extends Configured implements Tool {

        public int run(String args[]) throws IOException
        {
                if (args.length < 2)
                {
        System.out.println("Please give valid inputs");
                        return -1;
                }

                JobConf conf = new JobConf(WCDriver.class);
FileInputFormat.setInputPaths(conf, new Path(args[0]));
FileOutputFormat.setOutputPath(conf, new Path(args[1]));
                conf.setMapperClass(WCMapper.class);
                conf.setReducerClass(WCReducer.class);
                conf.setMapOutputKeyClass(Text.class);
                conf.setMapOutputValueClass(IntWritable.class);
                conf.setOutputKeyClass(Text.class);
                conf.setOutputValueClass(IntWritable.class);
                JobClient.runJob(conf);
                return 0;
        }

        // Main Method
        public static void main(String args[]) throws Exception
        {
int exitCode = ToolRunner.run(new WCDriver(), args);
                System.out.println(exitCode);
        }
}
```


IO_ERROR=0
WRONG_LENGTH=0
WRONG_MAP=0
WRONG_REDUCE=0
File Input Format Counters
Bytes Read=89
File Output Format Counters
Bytes Written=69
hadoop@bmscecse-HP-Elite-Tower-600-G9-Desktop-PC:~$ hadoop fs -ls /rgsRK/output
Found 2 items
-rw-r--r-- 1 hadoop supergroup 0 2025-05-20 13:29 /rgsRK/output/_SUCCESS
hadoop@bmscecse-HP-Elite-Tower-600-G9-Desktop-PC:~$ hadoop fs -cat /rgsRK/output/part-0000
are 1
brother 1
family 1
hi 1
how 5
is 4
job 1
sister 1
you 1
your 4
hadoop@bmscecse-HP-Elite-Tower-600-G9-Desktop-PC:~$