Aim: Write a code in JAVA for a simple Word count application that counts the number of occurrences of each word in a given input set using the Hadoop MapReduce framework on local-standalone set-up.

Program:

WC_Mapper.java

```java
import java.io.IOException;

import java.util.StringTokenizer;

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 WC_Mapper extends MapReduceBase implements
Mapper<LongWritable,Text,Text,IntWritable>{

    private final static IntWritable one = new IntWritable(1);

    private Text word = new Text();

    public void map(LongWritable key, Text value,OutputCollector<Text,IntWritable> output,
Reporter reporter) throws IOException{

        String line = value.toString();

        StringTokenizer  tokenizer = new StringTokenizer(line);

        while (tokenizer.hasMoreTokens()){

            word.set(tokenizer.nextToken());

            output.collect(word, one);

        }

    }

}
```

WC_Reducer.java

```java
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;
```

```java
import org.apache.hadoop.mapred.OutputCollector;

import org.apache.hadoop.mapred.Reducer;

import org.apache.hadoop.mapred.Reporter;


public class WC_Reducer  extends MapReduceBase implements
Reducer<Text,IntWritable,Text,IntWritable> {

    public void reduce(Text key, Iterator<IntWritable> values,OutputCollector<Text,IntWritable>
output, Reporter reporter) throws IOException {

        int sum=0;

        while (values.hasNext()) {

            sum+=values.next().get();

        }

        output.collect(key,new IntWritable(sum));

    }

}
```

WC_Runner.java

```java
import java.io.IOException;

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.mapred.TextInputFormat;

import org.apache.hadoop.mapred.TextOutputFormat;

public class WC_Runner {

    public static void main(String[] args) throws IOException{

        JobConf conf = new JobConf(WC_Runner.class);

        conf.setJobName("WordCount");

        conf.setOutputKeyClass(Text.class);

        conf.setOutputValueClass(IntWritable.class);

        conf.setMapperClass(WC_Mapper.class);
```

```java
        conf.setCombinerClass(WC_Reducer.class);
        conf.setReducerClass(WC_Reducer.class);
        conf.setInputFormat(TextInputFormat.class);
        conf.setOutputFormat(TextOutputFormat.class);
        FileInputFormat.setInputPaths(conf,new Path(args[0]));
        FileOutputFormat.setOutputPath(conf,new Path(args[1]));
        JobClient.runJob(conf);
    }
}
```