

Assignment 2c

```
package PackageDemo;

import java.io.IOException;

import org.apache.hadoop.conf.Configuration;
import org.apache.hadoop.fs.Path;
import org.apache.hadoop.io.IntWritable;
import org.apache.hadoop.io.LongWritable;
import org.apache.hadoop.io.Text;
import org.apache.hadoop.mapreduce.Job;
import org.apache.hadoop.mapreduce.Mapper;
import org.apache.hadoop.mapreduce.Reducer;
//import org.apache.hadoop.mapreduce.Mapper.Context;
//import org.apache.hadoop.mapreduce.Reducer.Context;
import org.apache.hadoop.mapreduce.lib.input.FileInputFormat;
import org.apache.hadoop.mapreduce.lib.output.FileOutputFormat;
import org.apache.hadoop.util.GenericOptionsParser;

//import PackageDemo.WordCount.MapForWordCount;
//import PackageDemo.WordCount.ReduceForWordCount;

public class LogProcessing {
public static void main(String[] args) throws Exception {
    Configuration conf = new Configuration();
    String[] files = new GenericOptionsParser(conf,
args).getRemainingArgs();
    Path input = new Path(files[0]);
    Path output = new Path(files[1]);
    Job job = Job.getInstance(conf, "Log File Processing");
    job.setJarByClass(LogProcessing.class);

    job.setMapperClass(MapForLogProcessing.class);
    job.setReducerClass(ReduceForLogProcessing.class);

    job.setOutputKeyClass(Text.class);
    job.setOutputValueClass(IntWritable.class);

    FileInputFormat.addInputPath(job, input);
    FileOutputFormat.setOutputPath(job, output);

    System.exit(job.waitForCompletion(true) ? 0 : 1);
}
```

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}

public static class MapForLogProcessing extends Mapper<LongWritable,
Text, Text, IntWritable> {
    public void map(LongWritable key, Text value, Context context)
throws IOException, InterruptedException {
        String line = value.toString();
        String[] fields = line.split(",");

        if (fields.length > 2) {
            String ipAddress = fields[2]; // Assuming the 3rd field
is the IP address
            // Emit the IP address and a count of 1 for each
occurrence (login attempt)
            context.write(new Text(ipAddress), new IntWritable(1));
        }
        else {
            // You can skip the invalid lines or log them if needed
            System.out.println("Skipping invalid line: " + line);
        }
        // String ipAddress = fields[2]; // Assuming the 3rd field is
the IP address
        // String timestamp = fields[6]; // The timestamp when the
access happened

        // Emit the IP address and a count of 1 for each occurrence
(login attempt)
        //context.write(new Text(ipAddress), new IntWritable(1));
    }
}

public static class ReduceForLogProcessing extends Reducer<Text,
IntWritable, Text, IntWritable> {
    public void reduce(Text key, Iterable<IntWritable> values,
Context context) throws IOException, InterruptedException {
        int loginCount = 0;

        for (IntWritable value : values) {
            loginCount += value.get(); // Increment the login count
for each occurrence
        }

        // Output the IP address and the number of login attempts

        //context.write(key, new IntWritable(loginCount));
    }
}

```

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        String output = "IP Address: " + key.toString() + " - Count: " + loginCount;
        context.write(new Text(output), null);
    }
}
```

Output

```
IP Address: 10.10.12.205 - Count: 566
IP Address: 10.10.12.206 - Count: 296
IP Address: 10.10.12.207 - Count: 327
IP Address: 10.10.12.209 - Count: 856
IP Address: 10.10.12.21 - Count: 174
IP Address: 10.10.12.211 - Count: 1045
IP Address: 10.10.12.212 - Count: 485
IP Address: 10.10.12.213 - Count: 2850
IP Address: 10.10.12.214 - Count: 169
IP Address: 10.10.12.215 - Count: 9
IP Address: 10.10.12.216 - Count: 3923
IP Address: 10.10.12.217 - Count: 74
IP Address: 10.10.12.218 - Count: 870
IP Address: 10.10.12.219 - Count: 631
IP Address: 10.10.12.22 - Count: 217
IP Address: 10.10.12.220 - Count: 777
IP Address: 10.10.12.221 - Count: 998
IP Address: 10.10.12.222 - Count: 300
IP Address: 10.10.12.223 - Count: 174
IP Address: 10.10.12.225 - Count: 743
IP Address: 10.10.12.226 - Count: 567
IP Address: 10.10.12.229 - Count: 2353
IP Address: 10.10.12.23 - Count: 339
IP Address: 10.10.12.230 - Count: 263
IP Address: 10.10.12.231 - Count: 1034
IP Address: 10.10.12.232 - Count: 343
IP Address: 10.10.12.233 - Count: 946
IP Address: 10.10.12.234 - Count: 734
IP Address: 10.10.12.235 - Count: 730
IP Address: 10.10.12.236 - Count: 498
```

IP Address: 10.10.12.238 - Count: 26
IP Address: 10.10.12.239 - Count: 844
IP Address: 10.10.12.24 - Count: 1488
IP Address: 10.10.12.240 - Count: 608
IP Address: 10.10.12.241 - Count: 24
IP Address: 10.10.12.242 - Count: 1083
IP Address: 10.10.12.243 - Count: 5
IP Address: 10.10.12.244 - Count: 928
IP Address: 10.10.12.246 - Count: 26
IP Address: 10.10.12.247 - Count: 150
IP Address: 10.10.12.249 - Count: 1172
IP Address: 10.10.12.25 - Count: 448
IP Address: 10.10.12.250 - Count: 234
IP Address: 10.10.12.251 - Count: 517
IP Address: 10.10.12.253 - Count: 361
IP Address: 10.10.12.254 - Count: 328
IP Address: 10.10.12.255 - Count: 372
IP Address: 10.10.12.26 - Count: 563
IP Address: 10.10.12.27 - Count: 3189
IP Address: 10.10.12.28 - Count: 55
IP Address: 10.10.12.29 - Count: 70
IP Address: 10.10.12.3 - Count: 64
IP Address: 10.10.12.30 - Count: 539
IP Address: 10.10.12.31 - Count: 153
IP Address: 10.10.12.32 - Count: 22
IP Address: 10.10.12.34 - Count: 68
IP Address: 10.10.12.37 - Count: 25
IP Address: 10.10.12.38 - Count: 1549
IP Address: 10.10.12.41 - Count: 350
IP Address: 10.10.12.44 - Count: 370
IP Address: 10.10.12.45 - Count: 803
IP Address: 10.10.12.46 - Count: 318
IP Address: 10.10.12.47 - Count: 3041
IP Address: 10.10.12.49 - Count: 3518
IP Address: 10.10.12.5 - Count: 18
IP Address: 10.10.12.51 - Count: 110
IP Address: 10.10.12.52 - Count: 1964
IP Address: 10.10.12.54 - Count: 2
IP Address: 10.10.12.55 - Count: 127
IP Address: 10.10.12.56 - Count: 3296
IP Address: 10.10.12.59 - Count: 1220
IP Address: 10.10.12.6 - Count: 1057
IP Address: 10.10.12.60 - Count: 156
IP Address: 10.10.12.62 - Count: 744
IP Address: 10.10.12.63 - Count: 1076

IP Address: 10.10.12.64 - Count: 200
IP Address: 10.10.12.65 - Count: 563
IP Address: 10.10.12.66 - Count: 243
IP Address: 10.10.12.67 - Count: 23
IP Address: 10.10.12.69 - Count: 434
IP Address: 10.10.12.7 - Count: 191
IP Address: 10.10.12.70 - Count: 3137
IP Address: 10.10.12.71 - Count: 1809
IP Address: 10.10.12.73 - Count: 318
IP Address: 10.10.12.74 - Count: 2490
IP Address: 10.10.12.75 - Count: 488
IP Address: 10.10.12.76 - Count: 800
IP Address: 10.10.12.77 - Count: 86
IP Address: 10.10.12.78 - Count: 12
IP Address: 10.10.12.8 - Count: 3152
IP Address: 10.10.12.83 - Count: 1155
IP Address: 10.10.12.85 - Count: 133
IP Address: 10.10.12.88 - Count: 831
IP Address: 10.10.12.89 - Count: 839
IP Address: 10.10.12.90 - Count: 61
IP Address: 10.10.12.91 - Count: 358
IP Address: 10.10.12.92 - Count: 855
IP Address: 10.10.12.93 - Count: 3348
IP Address: 10.10.12.95 - Count: 241
IP Address: 10.10.12.96 - Count: 1014
IP Address: 10.10.12.97 - Count: 276
IP Address: 10.10.12.99 - Count: 726
IP Address: 10.10.13.0 - Count: 645
IP Address: 10.10.13.1 - Count: 36
IP Address: 10.10.13.10 - Count: 32
IP Address: 10.10.13.101 - Count: 342
IP Address: 10.10.13.102 - Count: 72
IP Address: 10.10.13.103 - Count: 2
IP Address: 10.10.13.104 - Count: 161
IP Address: 10.10.13.106 - Count: 539
IP Address: 10.10.13.107 - Count: 201
IP Address: 10.10.13.108 - Count: 403
IP Address: 10.10.13.11 - Count: 2
IP Address: 10.10.13.110 - Count: 770
IP Address: 10.10.13.111 - Count: 55
IP Address: 10.10.13.115 - Count: 743
IP Address: 10.10.13.116 - Count: 1277
IP Address: 10.10.13.117 - Count: 30