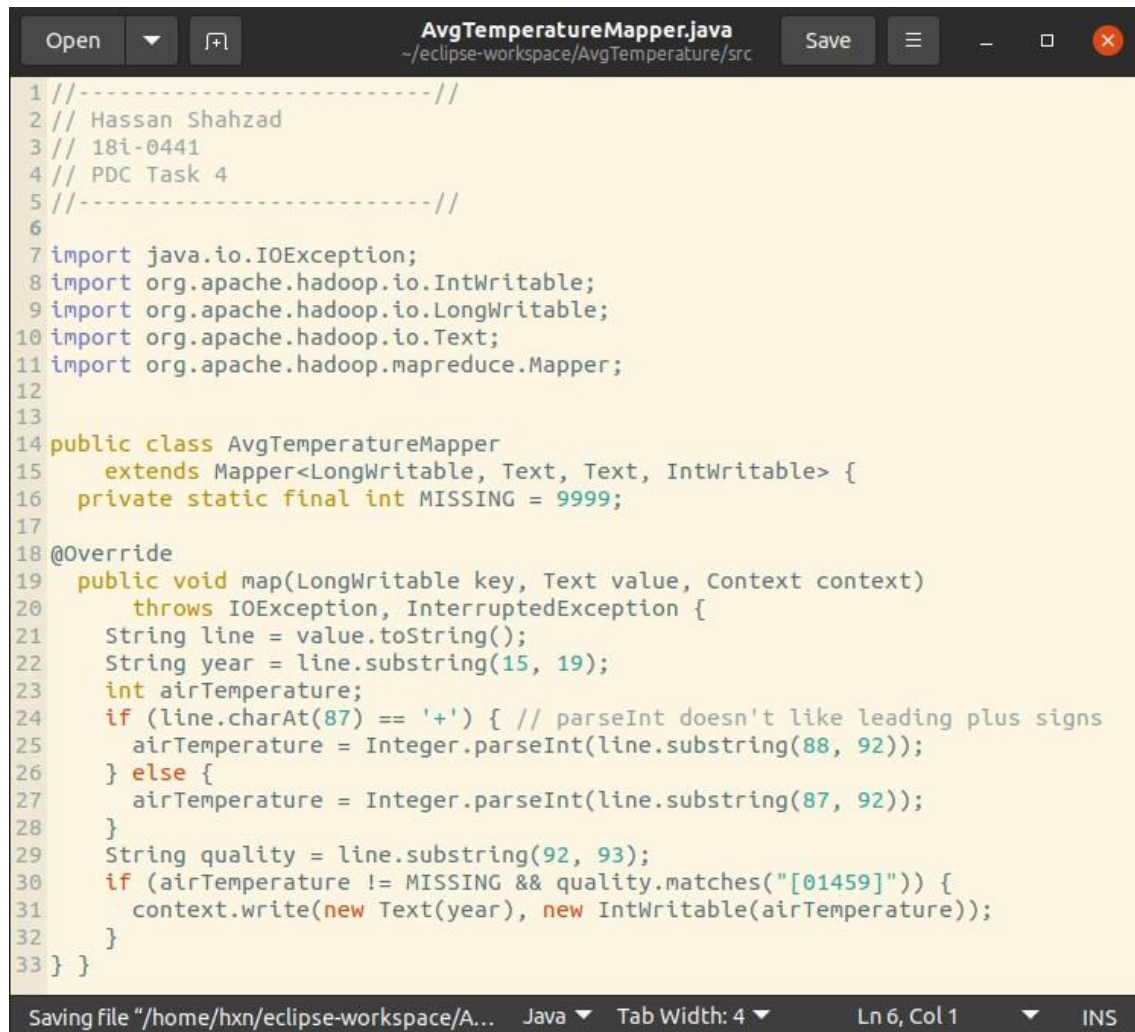


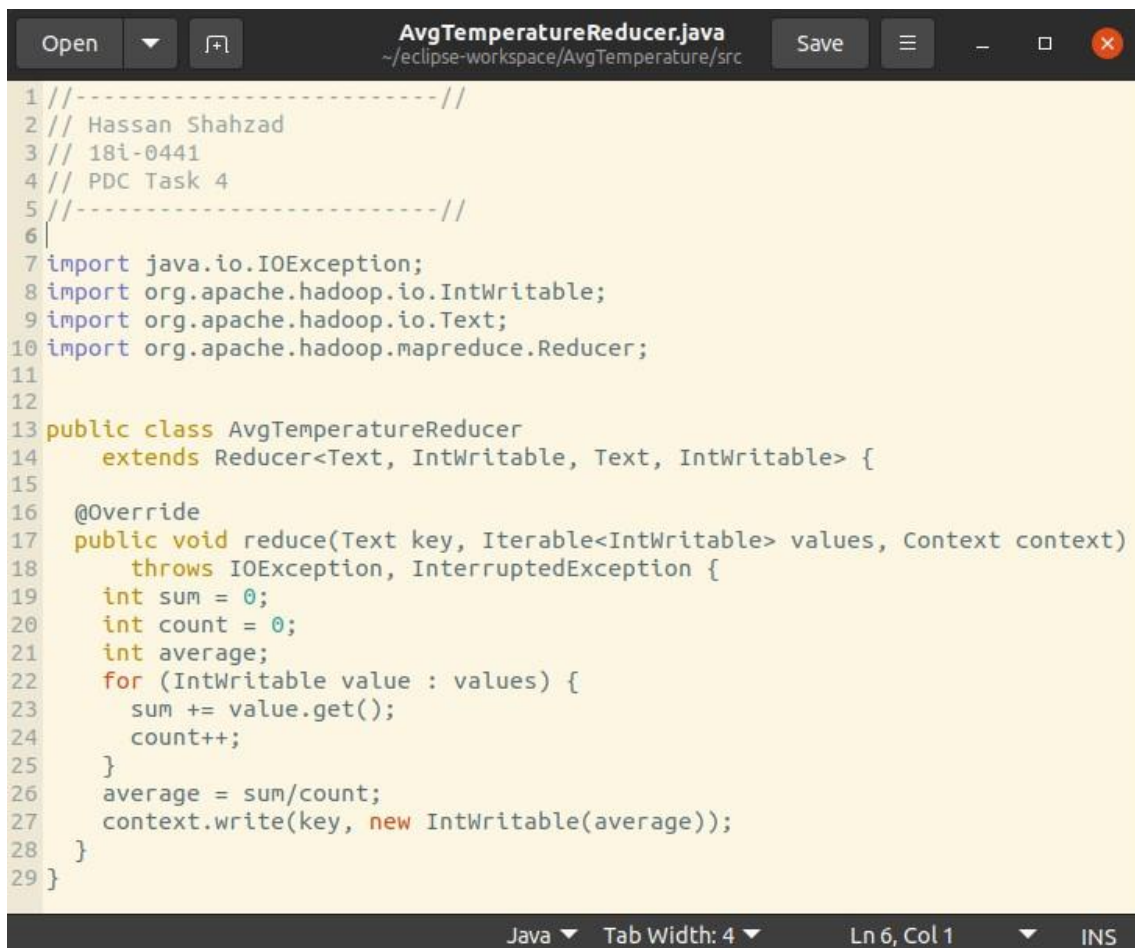
SCREENSHOTS OF UPDATED CODE:



```
1 //-----//
2 // Hassan Shahzad
3 // 18i-0441
4 // PDC Task 4
5 //-----//
6
7 import java.io.IOException;
8 import org.apache.hadoop.io.IntWritable;
9 import org.apache.hadoop.io.LongWritable;
10 import org.apache.hadoop.io.Text;
11 import org.apache.hadoop.mapreduce.Mapper;
12
13
14 public class AvgTemperatureMapper
15     extends Mapper<LongWritable, Text, Text, IntWritable> {
16     private static final int MISSING = 9999;
17
18     @Override
19     public void map(LongWritable key, Text value, Context context)
20         throws IOException, InterruptedException {
21         String line = value.toString();
22         String year = line.substring(15, 19);
23         int airTemperature;
24         if (line.charAt(87) == '+') { // parseInt doesn't like leading plus signs
25             airTemperature = Integer.parseInt(line.substring(88, 92));
26         } else {
27             airTemperature = Integer.parseInt(line.substring(87, 92));
28         }
29         String quality = line.substring(92, 93);
30         if (airTemperature != MISSING && quality.matches("[01459]")) {
31             context.write(new Text(year), new IntWritable(airTemperature));
32         }
33     }
34 }
```

Saving file "/home/hxn/eclipse-workspace/A... Java Tab Width: 4 Ln 6, Col 1 INS

Fig 1.1: Mapper Class



```
1 //-----//
2 // Hassan Shahzad
3 // 18i-0441
4 // PDC Task 4
5 //-----//
6
7 import java.io.IOException;
8 import org.apache.hadoop.io.IntWritable;
9 import org.apache.hadoop.io.Text;
10 import org.apache.hadoop.mapreduce.Reducer;
11
12
13 public class AvgTemperatureReducer
14     extends Reducer<Text, IntWritable, Text, IntWritable> {
15
16     @Override
17     public void reduce(Text key, Iterable<IntWritable> values, Context context)
18         throws IOException, InterruptedException {
19         int sum = 0;
20         int count = 0;
21         int average;
22         for (IntWritable value : values) {
23             sum += value.get();
24             count++;
25         }
26         average = sum/count;
27         context.write(key, new IntWritable(average));
28     }
29 }
```

Java Tab Width: 4 Ln 6, Col 1 INS

Fig 1.2: Reducer Class

```
Open  AvgTemperature.java  Save  ~ / eclipse - workspace / AvgTemperature / src
1 //-----//
2 // Hassan Shahzad
3 // 18i-0441
4 // PDC Task 4
5 //-----//
6
7 import org.apache.hadoop.conf.Configuration;
8 import org.apache.hadoop.fs.Path;
9 import org.apache.hadoop.io.IntWritable;
10 import org.apache.hadoop.io.Text;
11 import org.apache.hadoop.mapreduce.Job;
12 import org.apache.hadoop.mapreduce.lib.input.FileInputFormat;
13 import org.apache.hadoop.mapreduce.lib.output.FileOutputFormat;
14
15 public class AvgTemperature {
16     public static void main(String[] args) throws Exception {
17         if (args.length != 2) {
18             System.err.println("Usage: AvgTemperature <input path> <output path>");
19             System.exit(-1);
20         }
21
22         Configuration conf = new Configuration();
23         Job job = Job.getInstance(conf, "Avg temprature");
24         job.setJarByClass(AvgTemperature.class);
25         job.setJobName("Avg temperature");
26         FileInputFormat.addInputPath(job, new Path(args[0]));
27         FileOutputFormat.setOutputPath(job, new Path(args[1]));
28         job.setMapperClass(AvgTemperatureMapper.class);
29         job.setReducerClass(AvgTemperatureReducer.class);
30         job.setOutputKeyClass(Text.class);
31         job.setOutputValueClass(IntWritable.class);
32         System.exit(job.waitForCompletion(true) ? 0 : 1);
33     }
34 }
```

Fig 1.3: Main Class

TERMINAL SCREENSHOTS:

You will notice the name of my terminal is **Hxn**. That is because its somewhat short of Hassan and I use it for all my social networks etc.

```
hxn@hxn:~$ cd .ssh
hxn@hxn:~/ssh$ hdfs namenode -format
2021-05-30 13:38:23,781 INFO namenode.NameNode: STARTUP_MSG:
/*****
STARTUP_MSG: Starting NameNode
STARTUP_MSG:  host = hxn/127.0.1.1
STARTUP_MSG:  args = [-format]
STARTUP_MSG:  version = 3.2.2
*****/

/*****
SHUTDOWN_MSG: Shutting down NameNode at hxn/127.0.1.1
*****/
hxn@hxn:~/ssh$ start-dfs.sh
Starting namenodes on [localhost]
Starting datanodes
Starting secondary namenodes [hxn]
hxn@hxn:~/ssh$ hadoop fs -mkdir /user
hxn@hxn:~/ssh$ hadoop fs -mkdir /user/hxn
hxn@hxn:~/ssh$ hadoop fs -copyFromLocal /home/hxn/hadoopMR/input input
hxn@hxn:~/ssh$ hadoop jar ~/hadoopMR/AvgTemp.jar AvgTemperature input output
2021-05-30 13:39:20,672 INFO impl.MetricsConfig: Loaded properties from hadoop-metrics2.properties

WRONG_REDOUCE=0
File Input Format Counters
  Bytes Read=530
File Output Format Counters
  Bytes Written=15
hxn@hxn:~/ssh$ hadoop fs -copyToLocal output /home/hxn/hadoopMR/output
```

OUTPUT AND HADOOP SCREENSHOTS:



Fig 2.1: Output of the code

