Lab 12.2.18 - TopK Records and Counters

1. **Salary details are maintained in the text file. Identify the top 10 salary details from the file. Write the details in HDFS.**

Note

Mapper

```
public static class Map extends Mapper<LongWritable,
Text,NullWritable,Text>
{
private TreeMap<Integer, Text> salary = new
TreeMap<Integer, Text>();

public void map(LongWritable key, Text value, Context
context) throws IOException, InterruptedException
{
        String line = value.toString();
        String[] elements=line.split(",");
        int   i= Integer.parseInt(elements[1]);
        salary.put(i,new Text(value));
         if (salary.size() > 10) {
```

```
            salary.remove(salary.firstKey());
          }
}
protected void cleanup(Context context) throws
IOException, InterruptedException
{               for ( Text name : salary.values() ) {
                    context.write(NullWritable.get(), name);
                }
            }
}
```

Reducer

```
 public static class Reduce extends
Reducer<NullWritable, Text, NullWritable, Text>
{
public void reduce(NullWritable key, Iterable<Text>
values, Context context) throws IOException,
InterruptedException {
TreeMap<Integer, Text> salary = new TreeMap< Integer,
Text>();
          for (Text value : values) {
                String line = value.toString();
                  String[] elements=line.split(",");
```

```
                int    i= Integer.parseInt(elements[1]);
              salary.put(i, new Text(value));
                      if (salary.size() > 10) {
             salary.remove(salary.firstKey());
                      }
                  }
                for (Text t : salary.values()) {
            context.write(NullWritable.get(), t);
                  }
           }
         }
```

Driver

```
job.setOutputKeyClass(NullWritable.class);
    job.setOutputValueClass(Text.class);
        job.setNumReduceTasks(1);
```

2. **Salary details are maintained in the text file. Create the user defined counters. Count the number of persons having zero years of experience and write the details of country name and the salary with zero years of experience in HDFS. Also count the number of persons earning the salary greater than 50,000.**

Note

Mapper

```
public class countnew{
    public enum ct
      {
         cnt,nt
      };
public static class Map extends Mapper<LongWritable,
Text, Text, IntWritable>
  {
 public void map(LongWritable key, Text value, Context
context) throws IOException, InterruptedException {
                String line = value.toString();
                String[] elements=line.split(",");
                int   i= Integer.parseInt(elements[1]);
                float   exp= Float.parseFloat(elements[0]);
```

```
                Text tt=new Text(elements[3]);
                  if(exp==0.0)
                  {
               context.getCounter(ct.cnt).increment(1);
               context.write(tt,new IntWritable(i));
                  }
                  if(i > 50000)
                  {
                    context.getCounter(ct.nt).increment(1);
                       }
                    }
        }
```

Driver

```
{
-----
job.waitForCompletion(true);
  Counters cn=job.getCounters();
   cn.findCounter(ct.cnt).getValue();
     cn.findCounter(ct.nt).getValue();
   }
}
```