**CSCE 4013/5013 Cloud Computing and Security**

**Quiz #3 (20 points)**

**Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, ID:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Problem #1 (10 pts)**

1. Yes / No Do you participate in this quiz?

**Problem #2 (10 pts)**

For the classic word count program, the map method and the reduce method are shown as follows.

|  |  |
| --- | --- |
| public void map(Object key, Text value, Context context) throws IOException, InterruptedException {  StringTokenizer itr = new StringTokenizer(value.toString());  while (itr.hasMoreTokens()) {  word.set(itr.nextToken());  context.write(word, one);  }  } | public void reduce(Text key, Iterable<IntWritable>  values, Context context) throws IOException,  InterruptedException {  int sum = 0;  for (IntWritable val : values) {  sum += val.get();  }  result.set(sum);  context.write(key, result);  } |

We only process one single file. The content of the file is as follows.

Alice goes to wonderland to collect flowers

Alice goes to wonderland to have fun

1. (2 pts) If there is no local aggregation, how many intermediate pairs of (k2, v2) are there before the shuffle and sort phase? Solution: (A)

1. 14
2. 8
3. 10
4. 12

2. (4 pts) If we only apply in-method combining, how many intermediate pairs of (k2, v2) are there after the local aggregation and before the shuffle and sort phase? Solution: (D)

1. 14
2. 8
3. 10
4. 12

3. (4 pts) If we apply in-mapper combining, how many intermediate pairs of (k2, v2) are there after the local aggregation and before the shuffle and sort phase? Solution: (B)

1. 14
2. 8
3. 10
4. 12