

# Lab: Using a Combiner

In this lab, you will add a **Combiner** to the **WordCount** program to reduce the amount of intermediate data sent from the **Mapper** to the **Reducer**.

## Implement a Combiner

### 1. Input Data

Use the same input data as in the tutorial from CS246. You can download the data by running the following command:

```
curl http://www.gutenberg.org/cache/epub/100/pg100.txt | \
perl -pe 's/^\xEF\xBB\xBF//' > pg100.txt
```

### 2. Source code

You will find the source files in the `src` directory. In the `src` directory you will also find a `hints` directory that contains a copy of the source files modified to make the assignment easier to complete, and a `solution` directory that contains a copy of the source files modified to complete the assignment.

3. The `WordCountDriver.java` file contains a functional `WordCount` program. Note that the reducer in this program performs a summing operation, which is associative and commutative. Modify the `WordCountDriver.java` code to add a combiner for the `WordCount` program.
4. Assemble and test your solution. (The output should remain identical to the `WordCount` application without a combiner.)