

Purpose	Practice using a Map
What to Submit	Submit your code to a project named Lab6 on Bitbucket.

1. Implement a WordCounter class

Create a class that count how many times different words occur. Each time the `addWord()` method is called, you add to the occurrences for that word. Ignore the case of words in counting words.

The class should have these methods:

<code>void addWord(String word)</code>	Add one to the count of occurrences for this word, ignoring case.
<code>Set<String> getWords()</code>	Get all the words seen so far, as a Set.
<code>int getCount(String word)</code>	Get the number of occurrences for a given word.
<code>String[] getSortedWords()</code>	Get all the words seen so far, sorted in alphabetical order.

2. Create a WordCount class to Read a File

Create a `WordCount` class with a main method to read words from a file and use the `WordCounter` to count the words.

2.1 Print the first 20 words (in alphabetical order) and the number of times each word occurs in the text.

2.2 Print the 20 *most frequently used words* in the text. You need to (somehow) sort the words.

Use this file (except from *Alice in Wonderland*) from the class week6 folder:

<https://bitbucket.org/skeoop/oop/raw/master/week6/Alice-in-Wonderland.txt>

You can download the file to your PC and open it as a `FileInputStream` (or `FileReader`).

Or, read it directly from the Internet as a URL:

```
String FILE_URL =  
    "https://bitbucket.org/skeoop/oop/raw/master/week6/Alice-in-Wonderland.txt";  
URL url = new URL( FILEURL);  
InputStream input = url.openStream( );  
Scanner scanner = new Scanner( input );
```

How to Remove Punctuation?

The text for *Alice in Wonderland* contains punctuation, such as:

She said, "Oh dear, what shall I do now?"

We want to split the text into words every time a *whitespace* (space, tab, newline) or *punctuation* mark occurs. The `Scanner` class lets you specify a set of delimiter characters as a *regular expression*. A regular expression for the delimiters in *Alice in Wonderland* is:

```
final String DELIMS = "[\\s,\\.\\?\\!\\\"() ; : ]+";  
scanner.useDelimiter( DELIMS );
```

Regular expressions are standard and available in most programming languages. The Java Tutorial has a section on regular expressions.